Project Information

2005 Proposal Number: 0088

Proposal Title: **Yolo−Solano Conservation Partnership for Habitat on Working Lands**

Applicant Organization Name: **Yolo County Resource Conservation District**

Total Amount Requested: $**2,257,978**

ERP Region: Sacramento Region

Short Description

Proposed project would continue to develop collaborations to address restoration permitting needs, increase technical and economic incentives for farmers to increase habitat, conduct economic assessments. Project would include riparian habitat enhancements, irrigation canal re−vegetation, farm pond habitats, and wildlife and vegetation monitoring along with studies on ecosystem services, outreach, and education.

Executive Summary

Yolo−Solano Partnership for Habitat on Working Lands Executive Summary Description and geographic location Both public investment and farmer interest need to increase dramatically to bridge the gap from patchwork restoration projects to landscape−scale changes. The Yolo−Solano Conservation Partnership between Yolo and Solano Resource Conservation Districts, Audubon California, Center for Land−Based Learning, NRCS and Solano Land Trust is a model for such a bridge. In this proposal, the partnership effectively develops on−farm demonstrations and collaborates with UC, USGS, and private non−profit researchers to assess farm−habitat linkages and provide information to increase farmer participation and to convince the public of the value of conservation on private land. This proposal represents the next step in furthering that model, and will provide: 1) Initial implementation of three aspects of barrier reduction programs including

landowner assurances, permit streamlining and conservation fund leveraging; 2) New information regarding farm pond benefits for native aquatic and terrestrial species; 3) Further documentation of on−farm habitat improvement benefits for wildlife; 4) Social and economic analysis of farm ecosystem services; 5) Extension of the project model to other regions; and 6) Effective information dissemination and exchange through public workshops, presentations, youth education and small publications. The project is located in the Yolo Basin Ecological Management Zone 10.4. Approach Implementation of the proposed projects will embrace a deliberately experimental approach and acknowledge that much uncertainty exists regarding ecological restoration in a manner compatible with existing agricultural systems. The model is based on the following broad assumptions: 1) Streamlined regulatory requirements, increased economic incentives and technical support will lead to increased farm habitat and sustainable management of wildlife and other natural resources; 2) Projects on private farmland will provide effective habitat for important species such as giant garter snake, valley elderberry longhorn beetle and Sacramento perch; and 3) Other regions using these incentives, practices and partnerships can successfully perform similar work. A conceptual model providing the interrelationships between problems, project tasks and outcomes is provided in the proposal text. The Yolo Solano Conservation Partnership supports following goals and components from the Ecosystem Restoration Program Plan: 1) encourage agricultural management practices that improve wildlife habitat values to support special−status wildlife and other wildlife dependent on the Bay−Delta; 2) increase the health of its important ecological processes, habitats, fish, wildlife and plant populations and makes substantial contributions to the health of the Bay−Delta; 3) modify land stewardship practices to correct negative impacts while maintaining and improving the agricultural economy; 4) integrate agriculture and natural habitats to support ecological health; and 5) actively involve landowners and local watershed groups critical to the maintenance and restoration of Bay−Delta ecosystem. Expected outcomes The project proponents expect to accomplish the following: 1) improved and increased wildlife habitat on

farmlands; 2) increased learning and lessons regarding on-farm habitat restoration; and 3) increased public perception of the full value of agriculture and willingness to support incentives programs that safeguard and enhance wildlife and habitat.

A. Project Description

1. Problem

Every week, 330 farmers in the United States make the emotionally difficult but economically rewarding choice to opt out of farming, resulting in 5 million fewer farms in the United States since 1930 (Farm Aid, 2005). Such decisions not only break century-old family connections to farm land and living, but often convert the land to other, less environmentally friendly uses. In Central California, wildlife habitat and other natural values exist in a landscape dominated by privately-managed agriculture, indelibly linking management of critical public resources to maintenance and management of California's farmlands. Farmers cannot be recruited as partners in maintaining an ecosystem of public value on their farms unless the economic, social and regulatory pressures limiting their ability to manage their land for crop production *and* environmental benefits is mediated or relieved.

Mass conversion of the California Central Valley landscape to production agriculture over the past 150 years has altered or destroyed much of our lowland wild areas, including wetlands, riparian forest and upland prairie and woodlands. Associated with this is an apparent increase in erosion as lands once protected with permanent cover are now intensively farmed with non-crop areas on farms kept bare to control crop pests. This has resulted in significant reduction in biodiversity and quality habitat for wildlife and degradation of water quality through sediment and nutrient loading. Many farmers have demonstrated the potential for coexistence of wildlife with a viable farming operation, sometimes in cooperation with neighbors or as part of larger watershed-scale programs.

Despite these agricultural innovators and the ongoing efforts of farm conservation support entities such as the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Resource Conservation Districts (RCDs) and non-profit organizations, farm-compatible conservation remains mostly patchy and at a single-farm scale. Both public investment and farmer interest need to increase dramatically to bridge the gap from patchwork projects to landscape-scale changes. The Yolo Conservation Partnership between an RCD, NRCS and local non-profit organizations is a model for such a bridge. The partnership effectively develops on-farm demonstrations and provides information to increase farmer participation and to convince the public of the value of private land conservation work.

This proposal represents the next step in furthering that model, and will provide 1) initial implementation of three aspects of barrier reduction programs including landowner assurances, permit streamlining and conservation fund leveraging; 2) new information regarding farm pond benefits for native aquatic and terrestrial species; 3) further documentation of on-farm habitat improvement benefits for wildlife; 4) social and economic analysis of farm "ecosystem services"; 5) extension of the project model to other regions; and 6) effective information dissemination and exchange through public workshops, presentations, youth education and small publications.

The project encompasses the Yolo Basin Ecological Management Zone 10.4. The Yolo Basin Ecological Management Zone covers four management units, including the lower reaches of the Willow slough, Cache Creek, Putah Creek, Cache and Lindsey Sloughs and the Montezuma Hills watersheds. The watersheds within this zone include the steep eastern slope and low-lying foothills of the inner Coast Ranges and the relatively flat alluvial plain of the southern Sacramento Valley, the latter of which will be the focus of the work proposed. Work for this project will take place in the Jepson Prairie - Prospect Island Corridor in Solano County, and along Chickahominy, Cottonwood and Willow Sloughs along with privately-owned Yolo Bypass parcels in Yolo County. See map of the project area in Appendix 1.

2. Goals and Objectives

The proposed work leverages the strengths and skills of several organizations and scientists to address four goals related to wildlife habitat conservation on working lands. The combined effort presents considerable economies of scale by eliminating redundancies of parallel programs under independent

management. This approach ensures and intensifies the collaboration and information sharing promoted by CALFED among these and partner organizations, and provides a model of collaboration needed to accomplish ecosystem restoration on an appropriate scale to successfully provide effective wildlife habitat. We have contacted all potential stakeholder/ applicants in the region to identify complementary program aspects and opportunities for both information sharing and redundancy and conflict limitation. These organizations include: Yolo Basin Foundation, Cache Creek Conservancy, Lower Putah Creek Coordinating Committee, CSU Chico, Colusa and Dixon RCDs, the Sacramento River Conservation Area, and the Delta Protection Commission. Letters of support are attached from many of these organizations.

Goal 1: Reduce hindrances to implementation of habitat improvement programs through development of landowner no-fault assurances, the leveraging of local/state/federal funds, and conservation project permit coordination

Farmers who want to create wildlife habitat on their properties encounter three primary external hindrances: 1) potential increased regulation due to creating habitat that harbors or increases encounters with existing protected species; 2) multiple permits required for riparian and wetland projects from agencies with varied timelines, fees and bureaucratic processes; and 3) high material and technical costs of earthmoving and native vegetation installation.

Objective 1.1: Implement a safe harbor program in Yolo County with 20 landowners

Audubon California, Yolo County RCD (YCRCD) and Sustainable Conservation have submitted a Safe Harbor Agreement to USFWS in order to protect landowner conservation projects and adjacent standard agricultural operations for take of valley elderberry (*Sambucus mexicana*) that harbors the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphu*). In response to landowner concerns regarding other listed species, habitat restoration and agricultural operations, giant garter snake (*Thamnophis giga*) and California tiger salamander (*Ambystoma californiense*) will be added to the agreement. Although these species are listed in the draft Yolo County Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP), important future restoration and water quality projects require additional landowner assurances for cooperation and work to proceed.

Objective 1.2: Implement Yolo County permit coordination program

A growing number of landowners in Yolo County are interested in restoring or enhancing the natural resources of their property, but current regulatory review processes intended to protect natural values often act as disincentives to voluntary efforts to reduce nonpoint source pollution and enhance habitat. Through the Yolo County Permit Coordination Program (approval expected July 2006), the YCRCD and NRCS will manage permitting paperwork to enable "batching" of riparian project permits for Yolo landowners to relieve them of permitting delays and reduce required fees.

Agencies participating in the program include those normally involved in permitting work in Yolo County waterways: US Army Corps of Engineers, US Fish and Wildlife Service, CA Department of Fish and Game, the Regional Water Quality Control Board, the State Historic Preservation Office, and the County of Yolo. Through the YCRCD's federal nexus with NRCS, the agreement will specifically include Section 7 consultation regarding valley elderberry longhorn beetle, giant garter snake and California tiger salamander. Yolo County farmers implementing riparian projects under this proposal will apply for permit coverage under this coordination program. Please see Figures 2a, 2b and 3 in Appendix 1 for locations of listed species identified in Yolo and Solano Counties through the California Natural Diversity Database (CNDDB).

Objective 1.3: Implement an incentives layering program with 20 landowners

NRCS offers many Farm Bill programs that cover conservation interests from soil erosion to species protection. These programs have limitations in that they: provide only partial cost share (Wildlife

Habitat and Environmental Quality Incentives Programs, WHIP & EQIP); can not handle the volume of applicants (EQIP; Conservation Security Program, CSP); are under-funded given the demand (Wetlands Reserve Program, WRP); or are only offered every seven years in designated watersheds (CSP). To address this problem, we will leverage CALFED funding with farmers who apply for Farm Bill program funding to both implement higher quality projects and to augment the limited funds available for working lands conservation. YCRCD and Audubon have successfully implemented projects with fund "layering"; further integration across organizations is needed to realize the full potential. For example, farmers partnering with multiple agencies score higher on WHIP and EQIP applications, and EQIP funding can be utilized to enhance payments to landowners with standing CSP contracts. We will develop a synchronized calendar of state and federal conservation funding program cycles for improved conservation planning, increased contracts awarded, and utilization of more diversified funding sources. This information will also be useful to inform the development of the upcoming 2007 Farm Bill.

Goal 2: Demonstrate farm-friendly habitat methods for wildlife identified in the CALFED Multi-Species Conservation Strategy (MSCS)

To date, working landscape habitat restoration programs have been applied at the single farm scale. During the past three years we have begun to implement projects with multiple landowners to effect larger scale restoration and greater cumulative resource improvements (e.g., water quality). This proposal will continue project implementation on individual farms as pieces of restoration projects planned and prioritized at the watershed scale to create conservation corridors throughout the Yolo Basin. Contiguous projects will benefit many of the riparian species targeted by CALFED and foster greater coordination with farmers and ranchers by bringing them to the table at a regional conservation planning process which directly impacts them.

Objective 2.1: Implement 1.5 miles of riparian revegetation and small stream levee setbacks on contiguous parcels

There is increasing demand by farmers to set back levees along slough corridors in response to weed infestations, loss of habitat and flood control/conveyance concerns. Building on successful levee setback and habitat restoration projects already in place in Yolo County, we will implement 1.5 miles of riparian revegetation and levee setbacks with willing landowners at Willow, Chickahominy, and Cache Slough in Yolo County, and the Jepson Prairie-Prospect Island Corridor and Montezuma Hills in Solano County

Objective 2.2: Create up to 10 farm ponds for Sacramento perch, other wetland species and water quality control

The Willow Slough Watershed Integrated Resources Management Plan (Jones & Stokes, 1996) identifies farm wildlife pond habitat enhancement and tailwater ponds as important, relatively simple, cropland improvements. This practice is both popular among area landowners and attractive to cost-share with agencies. Typically, ponds are stocked with non-native centrarchids and bass, but the Sacramento perch (*Archoplites interruptus*), a California species of concern near listing at the federal level, thrives in ponds and can provide significant recreational fisheries. These ponds provide excellent sediment loss control and can also provide an opportunity for farmers to leverage proven beneficial farm practices to provide critical habit for species of public concern (YCRCD, 2001b, 2005).

Objective 2.3: Revegetate 2 miles of irrigation district canal bank and develop ecological management manual

Revegetated canals can serve to increase riparian habitat and habitat connectivity. A system-wide approach is needed to create vegetated canals compatible with canal maintenance and operation to benefit multiple species, reduce maintenance costs and reduce need for herbicide application. The Yolo County Flood Control and Water Conservation District (YCFCWCD) will work with project partners to revegetate 2 miles of district canal bank and develop an environmentally-friendly canal bank management manual informed by a 10-year-old reference site at Hedgerow Farms in Yolo County and

two miles of YCFCWCD supply canal banks to be planted with native vegetation under this program. Practice evaluation will focus on long-term benefits to species and habitat and cost of canal bank revegetation.

The benefits of ecological canal bank management include: 1) herbicide risk reduction via native grass competition with canal bank weeds; 2) improved water quality and reduced bank repair costs through reduced bank erosion; 3) development of site-specific recommendations for project implementation based on soil type, flow velocities, side-slope, ownership and right-of-way and canal-break risk; and 4) provision of defined guidelines in a comprehensive manual for implementation and monitoring of an environmentally based maintenance program to YCFWCD management and maintenance staff.

Implemented, the program will contribute to the general aesthetic and environmental quality of the District's 250,000 acre service area - including 150 miles of canals - in western Yolo County. The manual will serve as a template for other water districts seeking to increase positive environmental aspects of canal maintenance programs.

Goal 3: Monitor, research and assess habitat restoration projects for 1) efficacy, 2) possible design modification and 3) improved understanding of species and farmland relationships

Objective 3.1: Monitor all project sites for vegetation and wildlife response

To establish the effects and costs of the projects above, we will conduct systematic baseline surveys and quarterly monitoring at each project site for the following parameters: wildlife and insect use, vegetation establishment, erosion, and relative native vs. weed cover (YCRCD, 2001a). Augmentation of monitoring by consultation with researchers performing focused study of Sacramento perch and giant garter snake will help create data meaningful to all stakeholders in the planning process. Collaboration with Doctors Peter Moyle (UC Davis) and Glenn Wylie (US Geological Survey) And use of the criteria developed by Wylie will help us achieve this goal.

Objective 3.2: Develop a proxy monitoring protocol and best management practices for giant garter snake for use by willing landowners in the Yolo Basin

Further information is needed on location of giant garter snakes in the Basin but many landowners are unwilling to have their lands surveyed for fear of endangered species regulations. A proxy monitoring program will be developed for use by willing landowners and districts to determine the suitability monitor for snake presence on sloughs and waterways in the north-west delta. The methodology will be benchmarked by surveys in publicly accessible areas, such as the Calhoun Cut Ecological Reserve, with permission from the land-holding agency and the Yolo Bypass. Whereas snakes have not been observed in recent monitoring efforts of lands upstream of the Willow Slough Bypass in Yolo County (Hansen, personal communication), projects in the historical range of the snakes will be designed and monitored for quality habitat for giant garter snake as well as other aquatic and terrestrial species with direction, training and technical oversight from Glenn Wylie of the US Geological Survey (USGS).

Project objectives are 1) determine the presence or the presumptive absence of giant garter snakes in Barker Slough and Hastings Cut in eastern Solano County, 2) estimate the abundance of giant garter snakes in areas where snakes are present, and 3) assess the quality of habitat types for supporting giant garter snakes in the study areas. 4) utilize project findings to advise land managers on snake-friendly procedures to perform maintenance tasks on irrigation and drainage canals.

Objective 3.3: Integrate conservation of Sacramento perch and other threatened species into Central California agriculture

The Sacramento perch (*Archoplites interruptus*) is a once abundant native sunfish now extirpated from virtually all of its former habitats throughout the Sacramento-San Joaquin watershed (Tharratt and McKechnie 1966, Aceituno and Nicola 1976, Leidy 1984, Gobalet and Jones 1995, Moyle 2002).

Sacramento perch have been listed as a species targeted for recovery in the Delta Native Fishes Recovery Plan (Moyle et al. 1996), are listed by the Department of Fish and Game as a Species of Special concern (Moyle et al. 1995) and are classified by CALFED as an At-Risk (Priority Group 2) Species (ERP, 2001). The initial project (ERP 02-P34) to study the basic biology of Sacramento perch was listed as Milestone 117 (CALFED ERP, 2003). Sacramento perch would undoubtedly be listed as an endangered species if there were not populations established outside its native range. Introduced Sacramento perch populations in the upper Klamath watershed, lower Walker River, Owens River and Pyramid Lake, Nevada are probably secure in the short term because of their abundance and fairly broad distribution within these waters. However, natural extirpation of most populations established outside the Sacramento perch's native range suggests that long-term persistence in these areas may be a problem (P. Crain, unpublished data). Extirpations of introduced populations are usually the result of changing conditions in managed waters, but precise causes are often not known. There is thus a need to establish populations in places within their native range that can be closely monitored to be sure this species persists in the future.

Objective 3.4: Determine economic impacts of ecosystem restoration on agricultural lands
To provide an economic analysis of the costs and benefits of ecosystem restoration on the project agricultural operations, we will implement the following activities: 1) assessment and summarization of information pertaining to impacts of specific management practices on ecosystem services such as water quality, pollination, and wildlife habitat; 2) evaluation of the indicators employed to produce this assessment; 3) identification of public and private benefits and costs associated with ecosystem conservation efforts for water, control of invasive species, pollination, and wildlife habitat services; and 4) formulation of conservation incentive policy recommendations based at both the state, federal, and private levels.

Goal 4: Extend program information and methods to farmers, groups and the general public in other regions

If every farmer in the Yolo Basin practiced wildlife friendly agriculture, it still would not be enough to contribute to ecosystem restoration on the scale of the Central Valley. To create far-reaching effects, we must not only communicate on-the-ground practice methods but also export the organizational means to get them implemented. To accomplish this we will undertake multi-level extension Yolo's Conservation Partnership approach and conservation methods to Solano County project partners, farmers and conservationists and area high school students through workshops, development of outreach materials and student participation in selected restoration projects. In fostering the development of a Solano Conservation Partnership, we will identify pathways for extending the conservation partnership template to other CALFED regions.

Objective 4.1: Develop conservation Best Management Practices updates and outreach program
We will communicate project results and techniques to the public, farmers and conservationists through all avenues possible, including multiple field demonstration meetings, how-to brochures on the different practices, a webpage dedicated to posting project information and reports, and presentations to local agricultural groups and professional organizations/societies. Both RCDs and Audubon have extensive experience with successful multiple modality outreach.

Objective 4.2: Active engagement of the public in conservation through the SLEWS Program
One of the primary benefits of the Student and Landowner Education and Watershed Stewardship (SLEWS) program is the transformation of local students into active conservationists by their participation in hands-on restoration projects on farms and ranches. There is also a corollary benefit that landowners are transformed both in attitude and excitement about their projects by their interaction with these students. By including local high school students in habitat restoration, SLEWS addresses the needs for healthier land, more wildlife habitat, and conservation values in the greater public. SLEWS is

one of the few conservation education programs targeting high school students as participants in habitat restoration projects

Objective 4.3. Transfer experience and knowledge of conservation strategies, economic analyses, and scientific information from Yolo to Solano Counties

Peer sharing of experience and information is one of the most effective means of transferring knowledge in agrarian communities (Bunch, 1982). This project will foster dynamic peer-to-peer networks throughout the Yolo Basin, coordinating meetings between farmers, irrigation districts, RCDs and agencies. We will evaluate the different types of meetings for both immediate efficacy in terms of group interaction, and long term impacts vis-à-vis observable and measurable participant behavioral changes. Ultimately the successful conservation model developed in Yolo County will be transferred and adapted into to a Solano County specific model, developed with local conservation practitioners and growers alike in order to increase the long-term sustainability and effectiveness of the program.

Objective 4.4. Develop Conservation Partnership strategy for Solano County

Solano County is home to critical habitat for a number of state and federally listed species, and is under heavy development pressure from both the San Francisco Bay and Sacramento Metropolitan Areas. The Solano Resource Conservation District (SRCD) and Solano Land Trust (SLT) have made good progress in responding to these challenges through their watershed coordination program and site-specific conservation planning, both at the rural residential and public easement level. Developing and documenting a Conservation Partnership between the RCD, SLT and other conservation organizations will help to promote a unified and effective program of priority-based conservation of working lands in the Solano Ecological Management Unit of the Yolo Basin. Coordinated Resource Management Planning (CRMP) has been used successfully in Yolo County and many other areas of the state to build consensus around a conservation practice implementation mechanism and strategy among goals among diverse stakeholders in southeastern Solano County. Anticipated results include reduction of redundancy between agencies, leveraging of expertise and capacity across political boundaries, furthering efforts to develop a basin-wide conservation strategy to protect, enhance and expand existing conservation corridors, and expanding understanding of the goals and benefits of conservation planning and implementation for all beneficial uses and to all users: urban, rural and agricultural.

3. Conceptual model

A conceptual model providing the interrelationships between problems, project tasks and outcomes is provided in Figure 4 of Appendix 1. Implementation of the proposed projects will embrace a deliberatively experimental approach and acknowledge that much uncertainty exists regarding ecological restoration in a manner compatible with existing agricultural systems (Salafsky, et al., 2001). Overall, multiple restoration strategies will be designed and implemented as active experiments (Holling, 1978). Data from the research and monitoring will be analyzed and communicated to a wider audience of farmers, practitioners and researchers. At a larger scale, the sum of the individual project components will contribute to large-scale restoration that increases habitat connectivity between farms and a larger, wilder landscape (Imhoff, 2003).

Problems:

1. The public wants “environmental services” (e.g., wildlife habitat, clean water, clean air, open space) from farmers because public lands and public land management are not sufficient for protecting special status species and valuable resources.
2. On-farm wildlife habitat and resource management are improving, but not at a sufficient scale and time frame due to financial, social and regulatory barriers or lack of economic incentives.
3. Some farming practices are not compatible with wildlife habitat restoration or species recovery.

4. More outreach and education is needed to convince the public to fund increased incentives for farmland stewardship and habitat restoration.

Proposed actions to treat problems:

1. Reduce barriers by streamlining regulatory process for conservation practices, developing landowner assurances such as Safe Harbor Agreements to give regulatory relief for those farmers "doing the right thing," and offering substantial financial support for conservation projects by leveraging funds from multiple programs and even developing reward payments for successful projects.
2. Test farmland conservation projects for ecological efficacy in order to quantify public resource benefits and better understand the interactions between certain wildlife and resources and farmland.
3. Generalize and share project results and successful techniques to the public, interested landowners, and other entities wishing to conduct farmland conservation work.

Conceptual Model (or anticipated cause and effect):

1. Streamlined regulatory requirements, increased economic incentives and technical support will lead to increased farm habitat and sustainable management of wildlife and other natural resources.

   Assumptions: Increased economic incentives and streamlined regulatory barriers will improve farmer participation and habitat conservation, increased rental rates for riparian restoration will improve signups for Farm Bill programs in the highly productive row crop lands.
   Uncertainties: How much is enough? What is the public willing to pay?

2. A project on private farmland will provide effective habitat for important species such as giant garter snake, valley elderberry longhorn beetle and Sacramento perch, among others.

   Assumptions: On farm habitat restoration in an agriculturally dominated landscape will contribute to species recovery and resource conservation, farmers can contribute wildlife species recovery with habitat restoration such as riparian enhancement of farm ponds partially connected to floodplains or waterways, and farm management practices can assist in habitat conservation and recovery of listed species such as giant garter snake through the use of farmer friendly best management practices.
   Uncertainties: What is the quality of this habitat?

3. Other regions using these incentives, practices and partnerships can successfully perform similar work

   Assumption: Transferring the conservation model developed in Yolo County is feasible with modifications.
   Uncertainties: how extendible is this information? How long will it take? How sustainable is it when transferred to other region?

Anticipated Outcomes:

1. Improved and increased wildlife habitat on farmlands
2. Increased lessons and learning regarding on-farm habitat restoration
3. The public perceives the full value of agriculture (not just for crops) and is willing to support incentives programs into the future.

4. Approach and Scope of Work

The following scope of work directly serves the goals and objectives described above, with the insertion of an additional task for Program Management. Table 1 illustrates which tasks are dependent upon others for completion. The Sacramento perch pond project and research are co-dependent. Restoration work will be benefited by the safe harbor and permit coordination programs but are not contingent upon each other. Development of a blueprint for conservation in Solano County will be benefited by the peer-

to-peer networking and demonstration projects. A schedule of deliverables and project timeline are found in Table 2.

Table 1: Task Interdependence (tasks in rows are dependent upon those in columns with an 'X')

TASKS	1	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	4.4	5.1	5.2	6.1	6.2
1. ADMIN & COORDINATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2. BARRIERS REDUCTION																
2.1 Safe Harbor Agreements	X															
2.2 Permit Coordination	X															
2.3 Incentives Layering program	X					X		X	X	X	X					
2.4 Linkage to Solano County	X					X	X	X	X		X	X			X	X
3 CONSERVATION PROJECTS																
3.1 Riparian enhancement	X			X					X							
3.2 Canal revegetation	X							X	X							
3.3 Pond development	X							X	X		X					
4. MONITORING AND RESEARCH																
4.1 Comprehensive monitoring	X					X	X	X								
4.2 Giant garter snake study	X					X	X	X								
4.3 Sacramento perch study	X							X								
4.4 Ecosystems Services	X															
5. PROGRAM OUTREACH																
5.1 Comprehensive outreach program	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2 SLEWS	X					X		X							X	X
5.3 Peer-to-peer information.	X					X	X	X	X		X	X	X	X		
5.4 Partnership extension	X					X	X	X	X		X	X	X	X		

Table 2: Schedule of deliverables and project timeline

Task	DESCRIPTION	Deliverable	Lead Partners	Start Month	End Month
1.0	PROGRAM ADMINISTRATION, COORDINATION, & EVALUATION	Reports & Invoices	YCRCD, Audubon, SRCD, SLT	1	36
2.0	BARRIERS REDUCTION				

Task	DESCRIPTION	Deliverable	Lead Partners	Start Month	End Month
2.1	Safe Harbor Agreement Signups for Yolo County	Documentation in reports	Audubon	1	33
2.2	Permit Coordination in Yolo County	Documentation in reports	YCRCD,	1	36
2.3	Incentives Layering program	Documentation in reports	Audubon	1	36
3.0	CONSERVATION PRACTICE INSTALLATION/DEMONSTRATION				
3.1	Riparian enhancement (1.5 linear mi)	Photodocumentation of practices installed and descriptions in reports	YCRCD, Audubon, SRCD	3	33
3.2	Canal vegetation manual and pilot project (2 linear mi)	Manual, photodocumentation of practices installed and descriptions in reports	YCRCD, Audubon, SRCD	3	33
3.3	Pond development (up to 10 total)	Photodocumentation of practices installed and descriptions in reports	YCRCD, Audubon, SRCD	3	33
4.0	PROJECT MONITORING AND RESEARCH				
4.1	Wildlife and vegetation monitoring at all sites	Documentation in reports	YCRCD	3	35
4.2	Giant garter snake monitoring and technical guidance	Documentation in reports	Wylie	1	36
4.3	Sacramento perch monitoring AND Research	Documentation in reports	Moyle	1	36
4.4	Ecosystems Services	White paper and Documentation in reports	Defenders	1	24
5.0	PROGRAM OUTREACH				
5.1	Comprehensive Basin-wide outreach program	Outreach plan documentation, Copies of brochures, articles, newsletters and analyzed workshop/tour evaluations included with documentation in reports	YCRCD	6	33
5.2	SLEWS	Multi-media Documentation of all activities	CLBL	1	36
5.3	Transfer experience and knowledge from Yolo to Solano	Multi-media Documentation of all activities	SRCD	1	36
5.4	Extending and Codifying the Model in Solano County	Documentation in reports	SLT	1	36

Task 1: Program management

Program Management includes coordination among program partners and all aspects of program oversight, such as inspection of work progress, fulfillment of contract reporting requirements, and invoicing associated with each task.

Task 2: Reduce hindrances to implementation through assurances, state/federal funding leveraging, and permit coordination.

Task 2.1: Implement a safe harbor program in Yolo County with 20 landowners
In cooperation with Sustainable Conservation, conduct outreach to landowners on the benefits of Safe Harbor Agreements (SHA), enlist growers, and conduct baseline monitoring of each SHA site. We expect to enroll at least twenty landowners in the Yolo County SHA program during the project term.

Task 2.2: Implement Yolo County permit coordination program
We will enroll and guide farmers through the program as they apply for projects under this grant and others with the proposed workplan and other projects throughout the County. Enrollment will include developing and combining project descriptions and plans that meet the criteria established by regulatory agency program participants. Projects will be batched for submission and agency notification and concurrence on an annual basis; we will also provide annual progress reports to the participating agencies regarding the selected projects. We will document the number of participating growers and develop a summary of "lessons learned" for outreach and inclusion in project reporting.

Task 2.3: Implement an incentives layering program with 20 landowners
The partnership will develop a conservation planning and Farm Bill program sign-up calendar that effectively coordinates technical assistance with funding. Yolo County is currently participating in a pilot landowner driven conservation planning program. Identified landowners will be offered combined engineering, proposal development, restoration, water resource and vegetation management assistance to more effectively plan projects and coordinate submittal of applications to various private landowner conservation programs, e.g., Partners for Fish and Wildlife, NRCS, and CALFED. We will also coordinate with the Solano HCP/NCCP and draft Yolo HCP/NCCP (Habitat Conservation Plan/Natural Communities Conservation Planning). We will document successes in the context of lessons learned, outreach to other counties and similar programs, and project reporting.

Task 3: Demonstrate farm-friendly habitat restoration methods for Multi Species Conservation Strategy (MSCS)-identified species with cooperating growers (Audubon LSP & YCRCD)
Tasks 3.1 and 3.2 participants will be coordinated through the landowner groups formed under the Department of Conservation's Solano County, Willow Slough, and Capay Valley Watershed Coordination programs currently managed by the Solano and Yolo County RCDs. Streamway projects will be along contiguous stretches of Chickahominy slough, Willow Slough, Cache Creek tributaries and the Jepson Prairie in Solano County. This task builds on the recommendations of the Willow Slough Watershed and Capay Valley Watershed plans, and previous conservation work and planning by the Solano Land Trust for the Calhoun Cut corridor. Permit requirements for the work below will be met under task 2.2 above. CALFED funds will be matched with USDA cost share and other conservation funding programs to amplify the benefits per dollar of state funding expended.

Task 3.1: Implement 1.5 miles of riparian revegetation on contiguous parcels
Drawing on extensive experience creating floodplains on private lands with contiguous landowners, the project will create an additional 1.5 miles of riparian setback projects in 0.25 mi. increments with willing landowners on Willow, Cottonwood and Chickahominy Sloughs, and the Jepson Prairie-Prospect Island Corridor and Montezuma Hills in Solano County. We will strive to further streamline implementation and lower total costs of implementation. Project activities include coordinating with neighboring farmers to identify reaches with contiguous parcels, channel redesign if needed (see Figure 5 in Appendix 3), site preparation, planting, installation of temporary irrigation, weed control, and development of long term management plans guided by monitoring results. Full cost accounting of implementation and documentation of lessons learned will create a more cost-efficient model of small stream levee setback projects at a watershed scale for future projects.

Task 3.2: Revegetate 2 miles of irrigation district canal bank and develop ecological management manual

Project activities include: 1) a review and documentation of current maintenance practices including costs and material usage; 2) a review and summary of general environmentally friendly maintenance practices that could be incorporated into an ongoing maintenance program; 3) use of the Yolo County Flood Control and Water Conservation District's (YCFCWCD) existing maps and GIS system to develop site-specific recommendations; 4) establishment of a cost-tracking program for long-term analysis of cost/benefits; 5) testing method along 2 miles of canal and monitoring long-term benefits to species and habitat and cost of canal bank revegetation; 6) establishment of a monitoring program for long-term analysis of environmental and water quality benefits; and 7) writing of a comprehensive maintenance manual that will serve as the project's final report. We will conduct similar work with Reclamation District 108 in the Colusa Basin portion of Yolo County under the auspices of the CSU Chico ERP working landscapes proposal. Monitoring information from that site will inform the model and manual development for the YCFCWCD canal system. The workplan for this project is attached in Appendix 5.

Task 3.3: Implement farm pond development and/or improvement for Sacramento perch at 10 sites

The task will be centered on development and implementation of up to 10 new or enhanced farm ponds stocked with Sacramento perch (see task. 4.3). Project activities include site planning, engineering and preparation; native grass, sedge, rush, tree, and shrub revegetation; weed control; and long term management plans. Ponds will be constructed or modified on the property of willing landowners, using expertise and funds from YCRCD. Designs will be developed by YCRCD and NRCS in cooperation with UCD researchers to satisfy both landowner and Sacramento perch requirements. Ponds and adjacent wetlands will be monitored for Sacramento perch populations. Coordinating with Peter Moyle of U.C. Davis as Principal Investigator, we will plant Sacramento perch in several sloughs and ponds as a restoration strategy to assist in population recovery and possibly help with reintroduction into the Delta watershed. We will incorporate information from this and task 4.3 to develop optimized design for Sacramento perch and other wetland species.

Task 4: Monitor, research and assess above habitat restoration methods for 1) efficacy, 2) possible design modification and 3) improved understanding of species and farmland relationships

Audubon and RCD staff will monitor all tasks under Goal 2 using methods approved by CALFED ERP in the Quality Assurance Project Plans developed under the recent Willow Slough stewardship projects (01-N31, 01-N25). As referenced above, this will be augmented by directed studies regarding Sacramento perch and Giant garter snake

Task 4.1: Ground-based monitoring of vegetation and wildlife response to conservation and restoration activities

All sites will include photo monitoring at seasonal intervals for all subtasks. Vegetation monitoring will include photo plot monitoring of reseeded areas, step-point monitoring of grassland and wetland species composition before and after burn and seeding treatments, census and assessment of woody shrubs and trees in riparian and pond enhancement areas. For wildlife monitoring, all implementation sites will be surveyed quarterly or seasonally for wildlife use. Wherever possible, sites will be paired with adjacent untreated areas. Wildlife surveys will consist of quarterly strip surveys for track, scat and other sign of mammals, reptiles and/or amphibian use. All direct sightings will be recorded. Baited track stations using a variety of food attractants will be set at quarterly intervals to pull in and record wildlife species in the vicinity of the project sites. Birds will be strip censused approximately quarterly or according to life cycle events such as nesting and seasonal migration. Giant garter snake habitat quality monitoring oversight and training will be provided by project cooperator Glenn Wylie of USGS. Monitoring protocol will follow the monitoring plans developed from previous Ecosystem Restoration Program proposals (YCRCD, 2001; Audubon, 2002).

Task 4.2: Giant garter snake monitoring and best practices (Dr. Glen Wylie)
We will sample on the property of willing landowners in Barker Slough and Hastings Cut to determine presence or presumptive absence of giant garter snakes. Survey areas will depend on access and specific water regimes.

At each site we will deploy up to 100 modified floating minnow traps (Casazza et al. 2000) along bank or vegetative edges as available to sample for giant garter snakes in the habitat types present on each area. We will trap each location for at least two weeks, but all locations will not be simultaneously trapped. If we catch snakes at a site, the sampling period will be extended to try to get a valid mark and recapture estimate of density using the program MARK. The geo-coordinates of all traps and snake captures will be taken using GPS receivers. Identification of giant garter snakes will be confirmed by counts of dorsal scales and counts and widths of labial scales according to the identification key in Rossman et al. (1996).

At each study area we will document the type of habitat present as seasonal wetland, permanent wetland, slough channel, irrigation ditch, etc. We will also document the vegetation types of emergent or submergent aquatic vegetation and types of terrestrial vegetation such as grasses and weedy dicots or the presence of riparian vegetation. Water depth, water temperature, and water level fluctuations will also be noted during the study period. A GIS will be developed for this project using ARC/GIS. Background maps will be developed using existing USGS quad maps for the area. Locations of traps and locations of snake captures will be geo-referenced using GPS, and the locations entered into the GIS database for this project. We will assess the study area habitat types compared to habitats in which we have previously caught giant garter snakes. Please see workplan attached in Appendix 5

Task 4.3: Sacramento perch monitoring and research (Dr. Peter Moyle)
Using techniques developed under a previous CALFED project (ERP 02-P34), each pond and adjacent wetlands will be sampled at least once per year during September-December to determine success of the perch stocking. Sampling techniques will vary according to pond structure and accessibility but will be through a combination of trap nets, seines, and electrofishing. All perch captured will be measured and scales removed for growth analysis if needed. In ponds where large populations have become established, 30-50 young of year fish will be removed and preserved for dietary analysis. Sacramento-Yolo Mosquito and Vector Control District personnel will visit ponds on an *ad hoc* basis to sample for mosquitoes using standard techniques. If mosquitoes are perceived to be a problem, appropriate measures will be taken, in consultation with UCD researchers and the Vector control district. Successive plantings will be monitored for growth and relative numbers to determine strategy feasibility for reintroduction of Sacramento perch into Delta Habitats. Environmental variables and fish communities will be monitored to determine the relative impact different environmental conditions and interspecies competition have on Sacramento perch long term survival. A workshop of project participants will be held about six months before project completion to determine successes and failures within the project and to determine methods for improving Sacramento perch pond rearing in the future. The results will be incorporated into the final report. A workplan is attached in Appendix 5

With information from the workshop and field work we will report on life history characteristics for Sacramento perch in pond and slough environments, determination of Sacramento perch role in control of mosquitoes and other vectors, and determine characteristics of perch ponds that favor other listed species such as giant garter snake (in coordination with Glenn Wylie), and monitoring results.

Task 4.4: Ecosystem services contribution to ecosystem restoration by agriculture (Defenders of Wildlife)
Under this task, we will assess public and private benefits associated with implementing ecosystem restoration projects on agricultural lands. We will design performance-based incentive mechanisms to encourage landowner engagement in and fidelity to ecosystem restoration and conservation

programs. With the participation of other project organizations, Defenders for Wildlife will provide policy papers and participate in policy forums and workshops related to the economic costs and benefits of ecosystem restoration activity; provide public policy proposals based on payments for ecosystem services; and prepare a report addressing project implementation and outcomes. Success will be measured by the following indicators: sufficient levels of producer and agency participation in all project phases; identification and assessment of suitable indicators to measure improvements in ecosystem function; identification of costs and benefits associated with ecosystem restoration in the project area; design of a peer-reviewed performance-based incentive payment mechanism; level of project personnel participation in relevant resource conservation policy forums and conferences; and a final report outlining results, lessons learned and applicability to other Central Valley regions.

Task 5: Extend Conservation Partnership program template and conservation methods to partner organizations, farmers and the public.

Task 5.1: Outreach about species best management practices, habitat restoration and on-farm conservation research to agencies, growers, irrigation districts, commodity organizations and urban communities.

We will utilize a multiple modality outreach strategy, targeting commodity groups that have not yet embraced wildlife friendly agriculture using the California Rice Commission's approach to provide both economic and ecological benefits, while continuing to utilize Yolo and Solano Counties as laboratories for testing new approaches, providing tours to both resident and touring groups, and creating lessons learned, scoping briefs and other documents similar to *Bring Farm Edges Back to Life!* (YCRCD, 1999), and now used throughout California. Working with YCFCWCD will enable us leverage our dissemination to irrigation districts sympathetic to ecosystem restoration but hampered in implementation by fear of regulatory reprisal and economic losses.

This task will be guided by a detailed conservation outreach plan and include six field day per year, three tours, six journal/newspaper articles, a dedicated webpage and three new conservation technique brochures (see attached sample brochure in Appendix 4). Each event will include an evaluation to assess impact and usefulness.

Task 5.2: Student and landowner education and watershed stewardship (CLBL)

SLEWS will participate in implementation of at least five of the proposed projects outlined in Task 3. The five projects will be chosen using selection criteria developed over the last five years with CLBL staff and program partners and stakeholders. Each SLEWS project will feature five field days that span the year, including planting oaks, collecting native tree and shrub seeds and propagating plants for the following year's restoration plantings, building and installing bird boxes, removing invasive plants and installing irrigation systems. Each field day's design and work plan is based on the project site plan developed by the restoration partner, and implemented with the restoration partner's staff and several additional adult mentors. The ratio is 5:1 students to adults, providing excellent project success with student to adult contact and mentorship.

Up to 5 different high schools will participate with priority given to Yolo and Solano County schools, equaling 150 students, 10 teachers, 25 adult community mentors, and 750 student visits. Documentation of all field days will occur in the form of a field day report, photos, journal entries by students, on CLBL's web-based SLEWS Interactive Map (www.landbasedlearning,org) in a record of the amount of work completed. A SLEWS Environmental Science Curriculum will be developed and implemented for all participating schools.

Task 5.3: Transfer experience and knowledge of conservation strategies, economic analyses, and scientific information from Yolo to Solano County

Building on identification of conservation leaders and priorities accomplished with a Department of Conservation Watershed Coordinator Grant and using personal correspondence, one-on-one meetings, presentations to existing groups (e.g., local irrigation districts, Watershed Groups, and the Jepson Prairie Management Group), and "shared problems/shared solutions" workshops or tours, the project will transfer successful conservation strategies between the Yolo Conservation Partnership and groups in Solano County. Led by local partners Solano RCD and Solano Land Trust, additional tasks include peer-to-peer networking between individual farmers, irrigation and water districts, and other agricultural interests in Yolo and Solano County, creating conservation easements and providing mentoring and assistance as needed. Ongoing tests of the efficacy of this approach will take place as we install Solano County model sites, described in tasks 2, 3, 4, and 5, above. Partners will develop a written plan for peer-to-peer model transfer; schedule and record of meetings, tours and workshops.

All project participants will contribute to development of a document describing the process and results of the Yolo-Solano conservation transfer project, complete with analysis, lessons learned and recommendations for future program export. The report will be made applicable to other CALFED regions where working landscapes models have not been developed. SRCD will take the lead on developing the report, in collaboration with other partners, and will make it available on the web, and in CD and printed formats for wide dissemination.

Task 5.4: Develop an MOU between conservation agencies, landowners and NGOs to foster cooperative conservation planning on private and public lands in Solano County (Solano Land Trust)
SLT will work with SRCD and Yolo partners to develop a strategic plan to provide a blueprint for a coordinated assistance program for farmers and ranchers in Solano County. SLT will convene an ad-hoc program development advisory committee consisting of representatives from likely MOU signatory agencies, science advisers, and interested agricultural producers to provide recommendations and review. In preparation of the blueprint, Solano Land Trust will utilize the CRMP model of partner coordination to potential focus areas, work with willing landowners to identify opportunities and constraints for on-farm conservation practices, prepare a scope of work and budget for program implementation (e.g. permit coordination, liability assurances, monitoring and adaptive management), and develop a strategy for long-term funding of a local program. The partnership development process will be documented and analyzed in a report to provide a model for export to other areas.

5. Performance Evaluation

The Project Evaluation Plan developed for this project will include regular assessment of assumptions and progress in accomplishing the deliverables for each task area on a quarterly and yearly basis. This information will be used to refine our hypotheses and our task structure as we manage our program.

Evaluation of the Yolo-Solano Conservation Partnership project will be managed by a contracted evaluation specialist, who will work with project managers to develop appropriate evaluation instruments for each task and subtask as appropriate, to provide assistance in collecting and analyzing assessment data, and contribute an evaluation section to the quarterly and annual reporting process.

Using this information, managers will systematically examine 1) the accuracy of project assumptions regarding barrier removal in encouraging wildlife-supporting BMP implementation on working lands, relating program participation to permit coordination and safe harbor program progress; 2) BMP efficacy in supporting species of concern, measuring wherever possible species populations relative to habitat changes made as part of the program and relating it to economic values of cost and benefit; 3) peer to peer information transfer at multiple levels of interaction, assessing willingness and receptivity to information sharing and the level and method of use of transferred information; and 4) efficacy of our outreach program in increasing both farmer and public knowledge of and general support for farmers' role as stewards of wildlife and habitat on their working lands, as related to specific outreach events and

instruments, i.e., rise in interest in BMP implementation after workshops, rise in public interest relative to web site hits or project articles in news media, and inquiries about our project from other likely transfer target sites.

Criteria for success will include farmer participation in offered programs; transfer site participants' willingness to explore and consider the Conservation Partnership template, and functional success of habitat creation models.

6. Feasibility

Time estimates for all tasks in this proposal are based on the experience of the YCRCD and its project partners in conducting implementation, monitoring, program coordination and outreach work over the past ten years. They are realistic given the standard foreseeable constraints associated with weather and production agriculture. There are no contingencies placed upon the proposed work. The Safe Harbor Agreement and Permit Coordination Program for Yolo County should be approved long before the anticipated start date of this program, even with delays.

The permits required for riparian improvement projects under this proposal will be covered under the permit coordination program. Since the permits will be in place prior to approval of this proposal there will be no foreseeable permit-related delays. At the time of submission, the YCRCD developed a draft program description and worked with Army Corps and USFWS Section 7 staff to prepare both a Biological Assessment and the program description needed for a Regional General Permit for riparian work on private lands in Yolo County. On our current timeline, we expect the program to be functional by summer 2006, well in advance of the likely ERP-funded project start date (2007).

YCRCD, SRCD and Audubon will work closely with NRCS offices in both counties to assist in development and delivery of local conservation programs such as EQIP, WHIP, and CREP. Both offices already prioritize projects that have garnered additional resources for the RCDs, Audubon and other partners as a means of extending and ensuring successful application of federal conservation funding. RCD and NRCS staff in both offices coordinate weekly regarding pending and developing projects and will continue to do so throughout and beyond the term of this grant program. In the process, NRCS staff provide technical soil, water and agricultural engineering science support for our projects, especially when opportunities arise to leverage multiple funding sources for conservation projects.

In 2005, the Wildlife Conservation Board requested that Audubon submit a proposal for rental and restoration payments from the Conservation Reserve Enhancement Program (CREP) for riparian restoration. Since the California CREP's rental payments are based on Midwestern grain farm rentals, signups for this program have been low (c.f., California 10,444 acres to Illinois 386,039 acres in continuous CREP signup since 1977 inception—FSA, 2005. CA is nearly three times the size of IL in land mass). The proposal was submitted and will be considered by the WCB board in 2006. Funding from Wildlife Conservation Board and Farm Services Agency will cover a portion of the riparian revegetation and levee setback projects proposed, however to fully implement the program at an ecologically significant or watershed scale, additional funds will be needed from CALFED and other funding entities.

Candidate landowners participate voluntarily with the RCDs and Audubon. Project proponents have initiated landowner project planning contingent upon receiving the proposed funding; i.e., the proposal partners have willing potential participants should funding come available. Prior to planning and start of work we require signature of a standard cooperative agreement form for private landowners that will be adapted for this program.

The proposed work will not extend beyond the maximum three years. No third party impacts are foreseen. Neighboring landowner assurances for take of listed species arising from habitat restoration will be covered by participation in the Safe Harbor Agreement.

7. Data Handling and Storage

All personnel engaged by this project will keep updated and accurate field records in the form of notebooks. All non-automated data will be logged on standardized data sheets. All automated data collected will be printed or, if possible, immediately transferred into a computer spreadsheet (Microsoft Office Excel). All data logged onto data sheets or printed out onto hard copy will be immediately photocopied and entered into a computer spreadsheet. Eventually all data will be entered in an Excel spreadsheet where it can be managed and statistically analyzed. All data entered into the computer will be backed up on hard disk memory and on CD-ROMs, which will be produced in duplicate and one copy stored at a separate location.

All personnel will be required to report on their progress on a monthly basis. Principal investigators will be responsible for synthesizing interpretive summaries of their data and providing these summaries to the project manager. The principal investigators, according to the guidelines established by CALFED, will file reports with the Project Manager. The Project Manager will then be responsible for synthesizing all information into one integrated report for submission to CALFED.

8. Information Value

The proposed project builds on extensive experience working with landowners on habitat restoration in the two counties but is purposely designed to be replicable to other areas of the Central Valley. We have coordinated with Yolo Basin Foundation, Dixon, Glenn and Colusa RCDs, and CSU Chico to ensure that cross-project learning and information exchange will take place among water districts, growers and conservation organizations. Coordination across this wide region will greatly enhance large-scale restoration and species recovery but also ensure longer lasting solutions to challenges faced by farmers and ecosystem restoration in the region. The project will create the following new information:

- Collected surveys, findings and research related to GGS, Sacramento perch and other wetland dependent species on private lands as well as proxy indicators for giant garter snake on private lands;
- Re-evaluated and new giant garter snake best management practices for rice growers;
- Developed lessons on the feasibility for transferring successful working landscapes model in Yolo County to other regions such as Solano County;
- Refined and new working landscapes models for agricultural producer contribution to “R” and “r” species recovery including giant garter snake, Sacramento perch, valley elderberry longhorn beetle and other wetland dependent species;
- Increased experience regarding Safe Harbor Agreement and Permit coordination implementation;
- Contributed information for greater understanding of ecosystem services of agriculture to restoration and vice versa and determination of appropriate costs payments to landowners regarding species recovery;
- Developed incentives layering model for habitat restoration compatible with existing agricultural operations;
- Created model canal vegetation process, manual and determine associated costs. Addition work will include determining implementation and maintenance costs through mechanization; and
- Created model program for planting and maintaining Sacramento perch populations in farm ponds.
- Provide assistance in region wide coordination of agricultural land stewardship.

Information developed from the proposal tasks will be presented to multiple audiences including landowners, conservation practitioners, policymakers and researchers. During recent months we have received multiple requests from counties throughout the state to implement similar programs. Audubon is currently starting a Landowner Stewardship Program with Imperial Valley growers which will increase the richness of lessons learned related to initiating working landscapes programs in different agricultural, cultural and ecological systems. We intend to reach out to ERP implementing agencies

through the CALFED Working Landscapes Sub-committee and proposed statewide working landscapes commission recently proposed by Secretaries Chrisman and Kawamura. Additionally, each year the proposal partners host multiple tours to restoration sites targeting a wide variety of audiences. Finally, YCRCD, Audubon and UC Cooperative Extension collaborate to host training workshops on topics identified by conservation partners and landowners and share lessons learned.

9. Public Involvement and Outreach

Public outreach is a primary component of this program, as the intent is to make the information generated publicly available so that farmers are encouraged to adopt more conservation practices and the public is made more aware of the compatibility between agriculture and land stewardship. Incorporation of the SLEWS program into our restoration implementation efforts has proven a particularly innovative means of highlighting such work to the general public through heightened press attention (students make more interesting stories), and high school students internalizing their experience and sharing their enthusiasm with their families and peers. Please see Goal 4 and Task 5 above for more details.

As described in our Goals and Objectives, we contacted both stakeholders throughout the region and those conducting similar work elsewhere when we prepared this proposal to facilitate information-sharing and mutual enhancement of each others' work. We received letters of support from many of these organizations (attached) and will keep all stakeholders apprised of program progress through press releases, presentations in years 2 and 3 of the program, maintenance of a dedicated program webpage, and directed newsletter mailings.

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

1. ERP Priorities

This proposal addresses the following priorities identified in Chapter 2 of the PSP:

- "Contribute to understanding the relative effectiveness of different conservation-based farming practices and systems, and their contribution to larger restoration efforts." We will evaluate the subject conservation practices in this proposal for cost and effectiveness in relation to ease of application and quality of habitat created. We are in collaboration with the UC Davis faculty Will Horwath and Louise Jackson studying farm biodiversity and sustainability to place this work in the greater context of the farm operation as well as the watershed in which it is located;
- "Develop and implement agricultural activities that benefit MSCS-covered species." The subject activities of this proposal (ponds, riparian restoration, and canal/ditch bank plantings) are identified in the PSP as priority activities for potentially benefiting giant garter snake, valley elderberry longhorn beetle and native fish;
- "Facilitate permitting or regulatory assurances that support agricultural activities benefiting MSCS-covered species." The first task of this program is to specifically implement such programs for which we have applications that we expect to be approved before the start of the proposed program.

The Yolo Basin, focus area for this project, is identified in the PSP as a priority area for this round of funding. The proposed habitat enhancements are designed to benefit multiple species, big R, little R or other. Among specific "R" and "r" species to benefit from the proposed work are: valley elderberry longhorn beetle, giant garter snake, california tiger salamander and swainson's hawk. All of these species are associated with riparian or pond habitats, which are the focus of the restoration work in this proposal. Monitoring for this project is geared to track specific benefits to these species through direct animal monitoring/trapping/tracking, and habitat quality assessments.

Specific ERP goals addressed in this proposal include:

The Yolo Solano Conservation Partnership supports the habitat vision for agricultural lands presented in the ERPP (VI, p. 169), encouraging agricultural management practices that improve wildlife habitat values to support special-status wildlife populations and other wildlife dependent on the Bay-Delta. It also supports the major focus of the Yolo Basin Ecological Management Zone expressed in the ERPP (VII. pp. 341-353) by increasing the health of its important ecological processes, habitats, fish, wildlife species, and plant populations and makes substantial contributions to the health of the Delta. The program embraces the concept presented in the ERPP (VII. p. 342) that "…a change in land stewardship practices can correct the negative impacts while maintaining, and in some cases, improving the agricultural economic base." It also applies to the vision for the Willow Slough Ecological Management Unit by "…integrating agriculture and natural habitats in a manner to support ecological health." The ERPP (VII. p. 345) states that the health of the Ecological Management Units of the Yolo Basin Ecological Management Zone "…can be maintained and restored only with the active participation of local watershed groups, which include local landowners and concerned individuals".

The Yolo-Solano Conservation Program is applicable to the following ERPP Goals:

Goal 1. At-Risk Species: The grassland and riparian habitats in the project area provide important habitat for at-risk species. The activities to be implemented with farmers and ranchers are intended to increase forage diversity and availability throughout the year and improving habitat values for grassland and riparian wildlife species. Protection and enhancement of riparian habitats is expected to benefit the neotropical bird guild (Group IV, VI. p. 364), by increasing quality breeding and migratory habitats. Plantings of large overstory riparian trees species are also expected to provide nesting sites for California Swainson's hawks and other raptors (Group III, VI. p. 252). Revegetation of riparian corridors and habitat enhancement of farm ponds will include planting of Mexican elderberry (*Sambucus mexicana*), the host plant of the valley elderberry longhorn beetle (Group III, VI. p. 288). Enhancing farm ponds and restoring associated aquatic, wetland, riparian, surrounding grassland habitats is expected to benefit the California tiger salamander (Group III, VI. pp. 324) and the Western spadefoot toad (Group III, VI. p. 327) by enhancing breeding and estivating areas. Restoration of aquatic, wetland, and riparian habitats associated with ponds is also expected to potentially benefit the giant garter snake, Sacramento perch and California red-legged frog (Group III, VI. p. 330) by providing breeding habitat, forage and escape cover for this species. Enhancement of riparian, wetland, aquatic, and surrounding grassland habitats associated with streams and ponds may benefit the Western pond turtle (Group III, VI. p. 336) by providing increasing forage habitat, cover, nest and hibernation sites.

Goal 3. Harvestable Species: Sacramento perch was a staple of Native American tribes and supported a thriving fishery in the early part of the 20th century. Establishing them farm ponds will enhance their reputation as a sport fish that taste and behave similarly to non-native black crappie (C. Woodley, UC Davis, personal communication) In a manner consistent with Goal 1, the proposed restoration and conservation activities are intended to maintain and enhance populations of Central Valley upland game species (Group IV, ERPP VI. p. 367), and migratory waterfowl (Group IV, ERPP VI. p. 360) by improving habitat values for these species. Riparian enhancement is expected to improve forage diversity and availability, and nesting habitat for migratory waterfowl (Group IV, VI. p. 360). Enhancement of waterfowl habitat is of high interest to recreational hunters in the area, and provides strong incentives for participation of private landowners in conservation and restoration activities. The ring-necked pheasant, wild turkey, mourning dove, cottontail rabbit, which are also popular game for hunting in the region, would benefit from activities under the program.

Goal 4. Habitats: The proposed program will restore functional habitat types, especially riparian (ERPP VI. p. 143 and VII. p. 344), and wetland (ERPP VI. p. 138) habitats for public values. The proposed program will also establish incentive programs to encourage landowners to establish and maintain ponds and riparian areas on their properties (ERPP VI. p. 166); and implement an intensive management

program to control non-native vegetation (ERPP VI. p 167).

Goal 5. Non-native Invasive Species: Proposed restoration and conservation activities are designed to reduce the negative biological and economic impacts of non-native invasive species. We intend to demonstrate that long-term management techniques, including prescribed burning and mowing can be used as large-scale, cost-effective restoration tools to control populations of non-native invasive range species and support habitat enhancements. Likewise, pond management for Sacramento perch can demonstrate ways to favor this native species over the better-known non-native game fishes.

Goal 6. Sediment and Water Quality: The proposed activities are intended to improve water quality and reduce sediment flowing to waterways within the Yolo Basin watershed and ultimately into the Bay-Delta system. Revegetation of riparian corridors is expected to reduce nutrient and sediment loading by stabilizing stream banks. In YCRCD studies tailwater ponds have been found to reduce sediment by as much as 95% when combined with an upstream sediment trap.

2. Relationship to Other Ecosystem Restoration Actions or Program investments

This proposal builds on the capacity developed and lessons learned from the following successfully completed projects funded by the CALFED ERP or Water Use Efficiency Program and implemented in part or in whole by project partners:

- Union School Slough Watershed Improvement Program, ERP 98-E13 (Audubon)
- Willow Slough Watershed Rangeland Stewardship Program, ERP 01-N31 (Audubon)
- Sustaining Agriculture and Wildlife Beyond the Riparian Corridor, ERP 01-N25 (Yolo RCD)
- Cultivating Watershed Stewardship, ERP-02-P11 (CLBL)
- Educating Farmers and Landowners in Biological Resource Management ERP 01-I213 (California Alliance with Family Farmers, with SRCD)
- CALFED Water Use Efficiency Pilot Program with YCRCD (2000-2001)
- Restoration of the Sacramento perch to the San Francisco Estuary, ERP 02-P34 (UC Davis, Peter Moyle)
- Restoring Ecosystem Integrity in the Northwest Delta, PHASE II, ERP 02D-P54 (SLT)

All of the Yolo County work supports implementation of needed work identified in the watershed plans developed for Willow Slough (Jones & Stokes, 1996) and Capay Valley (YCRCD, 2003)

C. Qualifications and Organization

The organizations and individuals coordinating in this proposed work represent a unique breadth and depth of expertise in agricultural and environmental sciences based in decades of experience and focused research. The project proponent, YCRCD, is a recognized leader statewide and nationally for its pioneering programs promoting, demonstrating and examining the beneficial interactions of production agriculture, wildlife habitat and water quality. YCRCD's work has been magnified and extended through its partnership with the Audubon Landowner Stewardship Program and the Center for Land-Based Learning since 1999.

Research collaborators incorporated into this proposal are highly regarded in their respective fields as vanguards. This confluence of research and restoration skills is critical to implement innovative projects while testing assumptions made regarding ecosystem restoration as outlined in our conceptual model.

Co-Principal Investigators

Paul Robins, **YCRCD Executive Director**. YCRCD Program Manager 1995-2000 for two US Bureau of Reclamation funded projects: Total Resource Management Outreach Challenge Grant and Filter Strip Demonstration Project with Reclamation District 108. Focus has been on the interactions between agriculture, water quality, and wildlife habitat in Yolo County, with emphasis on the use of native

vegetation systems. Prior work includes that of Certified Nurseryman and farmland conservation research. ***Project role*:** Project Manager, *Please see Figure 6 in Appendix 6 for a program organizational chart.*

Jeanette Wrysinski, **YCRCD Watershed Coordinator**. 10 years in agricultural research prior to 10 years with YCRCD developing, conducting and directing on-farm animal, plant, soil and water monitoring and conservation practice implementation programs. Developed two key guides: *Monitoring on Your Farm* (2000) and *Know Your Natives: a Pictorial Guide to California Native Grasses*. ***Project role*:** Project Manager, lead for task 4.1 monitoring program, and Yolo RCD outreach lead.

Vance Russell, Audubon California Landowner Stewardship Program Director. Nearly 20 years work in conservation and agricultural. Mr. Russell worked for the Latin America and Analysis and Adaptive Management Programs of the World Wildlife Fund's Biodiversity Support Program. He is a board member of the Wild Farm Alliance, and vice-chair of the CALFED Working Landscapes sub-committee. He served on the Central Valley Joint Venture Management Board and is a member of the agriculture and wildlife enhancement committee. Mr. Russell Co-authored *Wild Harvest: Farming for Wildlife and Profitability* and *Maximum Yield: Sustainable Agriculture as a Tool for Conservation*. ***Role in project:*** Co-PI and Yolo County lead for Incentives Layering, Safe Harbor and Conservation Partnership Extension tasks.

The bulk of the work under this proposal will be conducted either by or in partnership with subcontracting organizations. Each has specific skill or competences for their tasks, as evidenced below in the summary of individual skills and responsibilities. The Audubon Landowner Stewardship Program (LSP) has unique expertise in Yolo County restoration work in partnership with the YCRCD and NRCS, and, hence, is the key contractor for conducting the restoration work under this proposal. The Conservation Partnership template this proposal promotes for extension springs from the success of the coordination between these organizations and the Center for Land-Based Learning.

Key project proponents

Chris Rose, Audubon California Landowner Stewardship Program Habitat Restorationist. Previous experience with Hedgerow Farms, Yolo Resource Conservation District, Colusa Resource Conservation District, planning, coordinating, and implementing large-scale landscape restoration on private lands. Mr. Rose is a certified Technical Service Provider, and is a former president of the California Native Grass Association. ***Project role*:** Project leader for all proposal restoration projects.

Mary Kimball, Director of the Center for Land Based Learning oversees CBL's three programs – the FARMS Leadership Program, the SLEWS Program, and the Farm on Putah Creek. She is a Board Member of the Yolo Land Trust and a member of the Education Committee for California Foundation for Agriculture in the Classroom. ***Project role*:** Director of SLEWS outreach and education program.

Peter Moyle, PhD. UC Davis Professor of fisheries with a long history of working to restore native fishes, including Sacramento perch. Dr, Moyle is the lead PI on a CALFED project (ERP02-P34) that has developed the information that make parts of this project dealing with Sacramento perch possible. His credentials are available at http://wfcb.ucdavis.edu/www/Faculty/Peter/petermoyle. ***Project role*:** PI for Sacramento perch pond project

Glenn Wylie, **research wildlife biologist for USGS-BRD Western Ecological Research Center, Dixon Field Station**. He is project leader for the giant garter snake Initiative since 1995 when the Initiative was begun by the National Biological Service. This project has identified giant garter snake population centers in the Sacramento Valley and has generated new information on their biology and ecology. Role in project: PI for giant garter snake study *Project role*: PI for giant garter snake study.

Jodie Salz, Conservation Program Manager for Solano RCD. Previously employed by the Nature Conservancy, Ms. Salz has specialized training in lake monitoring and land use planning for wildlife.

She studied at the School for Field Studies in Costa Rica, and is a Certified Associate Wildlife Biologist. ***Project role*:** BMP planning and implementation in Solano County.

Kathleen Robins, Solano RCD Watershed Coordinator. Consultant to SRCD since 2001. Prior work as State program and outreach manager for CA Association of RCDs USBR funded Total Resource Management Program. ***Project role*:** Landowner coordination, program evaluation and outreach lead in Solano County.

Ben Wallace, Solano Land Trust Conservation Project Manager. Previously employed by the CA Association of RCDs, where he produced *A District Runs Through It*, a portfolio of case studies on successful local conservation projects, and conducted the *Tools and Methods of Watershed Conservation* workshop series. ***Project role*:** MOU development and reporting and easement holder coordination in Solano County.

Kim Delfino, Director California Program, Defenders of Wildlife. Serves on the Management Board for the Central Valley Joint Venture. ***Project role*:** Policy guidance for the environmental services investigation described in task 4.4

Tim O'Halloran, General Manager Yolo County Flood Control and Water Conservation District. Previous work includes service to water districts across California with experience as Water Master for the Kings River Water Association. ***Project role*:** Oversight of development of an ecological management manual for canals and ditch banks.

Interaction and collaboration among all project participants is basic to the approach of this proposal. Bi-annual program review and progress-sharing meetings of the key technical partners will enable this collaboration as well as inform project implementation and learning once work has begun.

By the nature of our work and existing partnerships, the Yolo County Resource Conservation District, Center for Land-Based Learning, Audubon and the Solano RCD work closely with all organizations and entities serving agriculture and natural resources in our area. Both RCDs are closely tied to the Ag Waiver Water Quality Coalitions, Weed Management Areas and developing HCP/NCCPs in their respective counties. They are also hub members of the Yolo-Solano Conservation and Restoration Summit initiated by Audubon and CLBL to bring all Yolo and Solano groups working in resource or land conservation efforts together to promote mutual collaboration, information sharing and potential economies of scale.

The organizations have co-sponsored various in-depth landowner training workshops on constructing wildlife ponds, implementing riparian restoration, managing rangelands, and using prescribed fires in grassland restoration and weed abatement. Most recently, the Center for Land-Based Learning and Audubon founded the Farm on Putah Creek, an outdoor education complex, office, nursery and greenhouse that provides opportunities the public to connect to agriculture and nature.

Because they work routinely in the field of farm conservation, all key project proponents have extensive experience implementing Farm Bill based conservation programs as well as other funding programs for on-farm conservation work. It is the intimate knowledge of these various programs that has enabled them to develop the relationships with the agencies and craft the concepts in this proposal and to link and leverage multiple farm conservation funding resources to bring them to fruition.

D. Cost

1. Budget

Please see the separately-generated program budget for line items and yearly breakdown. Personnel costs for Yolo RCD include 35% benefits and allowance for 5% annual pay increases. Staff identified in the budget are listed for hours and expenses anticipated to be spent directly on the program. Indirect costs and service to the grant are covered under the program's 10% overhead rate. Direct program

expenses include office supplies, program printing and mailing, travel, field supplies and equipment for monitoring and installation, and computer and network needs directly associated with project materials production and data management. Task 3 practice installation expenses are based on actual costs of similar Yolo County RCD and Audubon LSP projects conducted over the past 10 years and reflect half of the actual cost, as they are to be matched with USDA cost-share and other grant funds acquired by the Audubon LSP.

The total grant request is $2,063,638. We anticipate receiving an additional $1,389,338 in cost-share and matching contributions to leverage investment requested by this proposal.

2. Cost share and matching funds

Associated with this program are considerable matching and cost-share funds from a variety of sources, including project partners. Please refer to Table 3 below:

Table 3: Program cost-sharing and matching funds

Partner	Cost-share funds	Other Matching funds	Type	Status
YCRCD	50,000 4,000		Watershed Coordinator time Workshop funds	Committed committed
SRCD	$9,738		Watershed Coordinator time	Committed
Audubon LSP	600,000		Habitat Restoration	Likely
USDA NRCS	$500,000 $135,000		EQIP & CREP funds committed to project objectives Engineering and other technical support	Likely Offered contingent upon grant approval
Solano Land Trust	$3,600		Landowner support to develop a Solano County conservation partnership	Commited pending grant approval
Yolo County Flood Control & Water Conservation District	$36,000		Staff time for manual development	Committed pending grant approval
UC Davis	$45,000		Prof. Moyle and laboratory	Committed pending grant approval
USGS	$6,000		Trapping equipment provided to project	Committed pending grant approval
Total	**$1,389,338**			

3. Long-term funding strategy

This program is intended to break ground for a model of state/federal/local conservation funding leveraging or layering for which the "environmental services" studied in Task 4.4 study will provide key information to enhance public support for such programs. Maintenance of that support, input to the 2007 Farm Bill for future conservation funding and enacting future bond funds specifically tied to private land stewardship will ensure the continuation of the critical work of on-farm conservation.

E. Compliance with Standard Terms and Conditions

We are willing and able to comply with the terms of the sample ERP grant agreement with the exception of the following comments from the University of California regarding Dr. Moyle's potential research:

"UC Davis takes exception to the following proposed standard clauses:

- Exhibit B – Define the term "satisfactory" throughout this Exhibit as being completed in accordance with the attached Scope of Work
- Exhibit B, Section F – State Travel & Per Diem Expenses Guidelines (Delete)
- Exhibit C – General Terms and Conditions for ERP Grant Agreements (Replace with GIA 101)
- Exhibit D – Special Terms and Conditions for ERP Grants Agreements Article 10 (Replace Article with UC IP Clause on next page)

Please note the above has previously been negotiated with CBDA legal/GCAPS on behalf of the University and agreeable language has been included in current interagency agreements with UC Davis." Please see letter included with letters of support from UC Davis.

G. Literature Cited.

Aceituno, M. and S. Nicola. 1976. Distribution and status of the Sacramento perch, Archoplites interruptus (Girard), in California. Calif. Fish and Game 62(4):246-254.

Audubon. 2002 Monitoring plan for restoration activities. ERP 01-N31.

Bunch, R. 1982. Two ears of corn: a guide to people centered agriculture improvement. World Neighbors: OK.

CALFED Bay-Delta Program. 1999. Ecosystem Restoration Program Plan (ERPP), Vols. 1 and 2. CALFED: Sacramento, CA.

CALFED ERP. 2003. Milestones: Parsing and Rationales. Jones & Stokes: Sacramento, CA.

FSA. 2005. Monthly CRP report. http://www.fsa.usda.gov/dafp/cepd/stats/Oct2005.pdf.

Farm Aid. 2005. http://www.farmaid.org/site/PageServer?pagename=info_facts_help.

ERP. 2001. Ecosystem restoration program draft state I implementation plan. CALFED: Sacramento, CA.

Gobalet, K. and T. Jones. 1995. Prehistoric Native American fisheries of the central California coast. Trans. Amer. Fish. Soc. 124:813-823.

Imhoff, D. 2003. Farming with the wild: Enhancing biodiversity on farms and ranches. Watershed Media: Healdsburg, CA.

Jones & Stokes Associates, Inc. Final. Willow Slough watershed integrated resources management plan. May 1996. (JSA 95-232) Sacramento, CA. Prepared for Yolo County Resource Conservation District, Woodland, CA.

Holling, C. 1978. Adaptive environmental assessment and management. John Wiley & Sons: New York, NY.

Leidy, R.A. 1984. Distribution and ecology of stream fishes in the San Francisco Bay drainage. Hilgardia 52(8):1-175.

Moyle, P. 2002. Inland fishes of California. Revised and expanded. University of California Press: Berkeley.

Moyle, P., R. Pine, L. Brown, C.. Hanson, B. Herbold, K. Lentz, L. Meng, J. Smith, D. Sweetnam, and L. Winternitz. 1996. Recovery plan for the Sacramento-San Joaquin Delta native fishes. US Fish and Wildlife Service: Portland, Oregon.

Moyle, P., R.. Yoshiyama, J. Williams, and E. Wikramanayake. 1995. Fish species of special concern of California. California Department of Fish and Game: Sacramento, California.

Rossman et al. 1996.

Salafsky, N., R. Margoluis, and K. Redford. 2001. Adaptive management: a tool for conservation practitioners. Biodiversity Support Program: Washington, D.C.

Tharratt, R. and R. McKechnie. 1966. Sacramento perch. pp. 373-375, in: A.Calhoun (ed.) Inland fishery management. California Department of Fish and Game: Sacramento.

Yolo County Resource Conservation District. 1999. Bring Farm Edges Back to Life! YCRCD: Woodland, CA.

Yolo County Resource Conservation District. 2001 Monitoring plan for restoration activities. ERP 01-N25.

Yolo County Resource Conservation District. 2001a. Monitoring on Your Farm. YCRCD: Woodland, CA.

Yolo County Resource Conservation District. 2001b. Yolo County CALFED Water Use Efficiency Pilot Program Final Report. YCRCD: Woodland, CA.

Yolo County Resource Conservation District. 2003. Capay Valley Watershed Stewardship Plan. YCRCD: Woodland, CA.

Yolo County Resource Conservation District. 2005. Sustaining Agriculture and Wildlife Beyond the Riparian Corridor, CALFED ERP Grant 01-N25 Final Report. YCRCD: Woodland, CA.

H. Nonprofit Verification. n/a

I. Appendices

1. Maps: Figure 1: Yolo Basin Ecological Zone

   Figures 2-3: CA Natural Diversity Database Maps for Yolo and Solano Counties
2. Model synchronized calendar for farm bill and other agency funding and technical coordination (Task 2.3
3. Figure 5: Channel cross-sections for typical slough before and after reshaping and planting with native vegetation
4. Sediment trap brochure sample (Task 5.1)
5. Project Partner work plans
6. Figure 6: Project personnel organizational chart

Appendix 1:

List of Acronyms
Figure 1: Yolo Basin Ecological Zone
Figure 2: Yolo Threatened and Endangered Species Map from CNDDB
Figure 3: Eastern Solano Co. Threatened and Endangered Species Map
Figure 4: Conceptual Model (chart)

List of Acronyms:

Yolo-Solano Conservation Partnership for Habitat on Working Lands

Audubon Landowner Stewardship Program (LSP)

CA Department of Conservation (DOC)

CA Department of Fish and Game (CDFG)

California Natural Diversity Database (CNDDB)

Conservation Security Program, (CSP)

Environmental Quality Incentive Program (EQIP)

Habitat Conservation Program (HCP)

Multi Species Conservation Plan (MSCP)

Natural Communities Conservation Plan (NCCP)

Natural Resources Conservation Service (NRCS)

Regional Water Quality Control Board (RWQCB)

Resource Conservation Districts (RCDs)

Solano Land Trust (SLT)

Solano Resource Conservation District (SRCD)

State Water Resources Control Board (SWRCB)

Student and Landowner Education and Watershed Stewardship Program (SLEWS)

United States Geological Survey (USGS)

University of California at Davis (UCD)

US Bureau of Reclamation (USBR)

US Department of Agriculture (USDA)

US Fish and Wildlife Service (USFWS)

US Fish and Wildlife Service (USFWS)

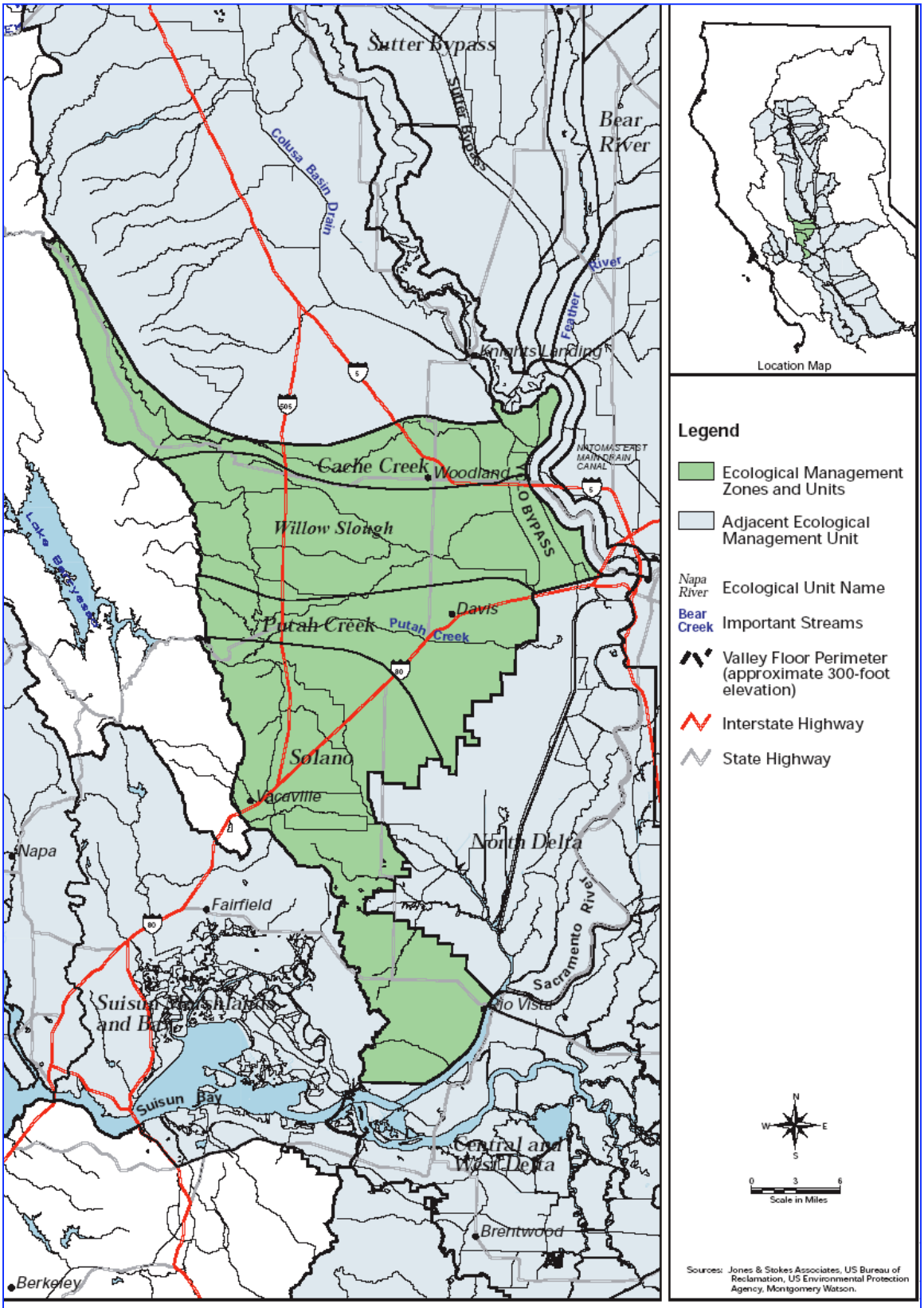
Wetlands Reserve Program (WRP)

Wildlife Habitat Incentives Program (WHIP)

Yolo County Flood Control and Water Conservation District (YCFCWCD)

Yolo County Resource Conservation District (YCRCD)

Figure 1: Project Area--Yolo Basin Ecological Zone



Ecosystem Restoration Program

Figure 15
Yolo Basin
Ecological Management Zone

Figure 2a:

Yolo County T&E Vertebrate Animals

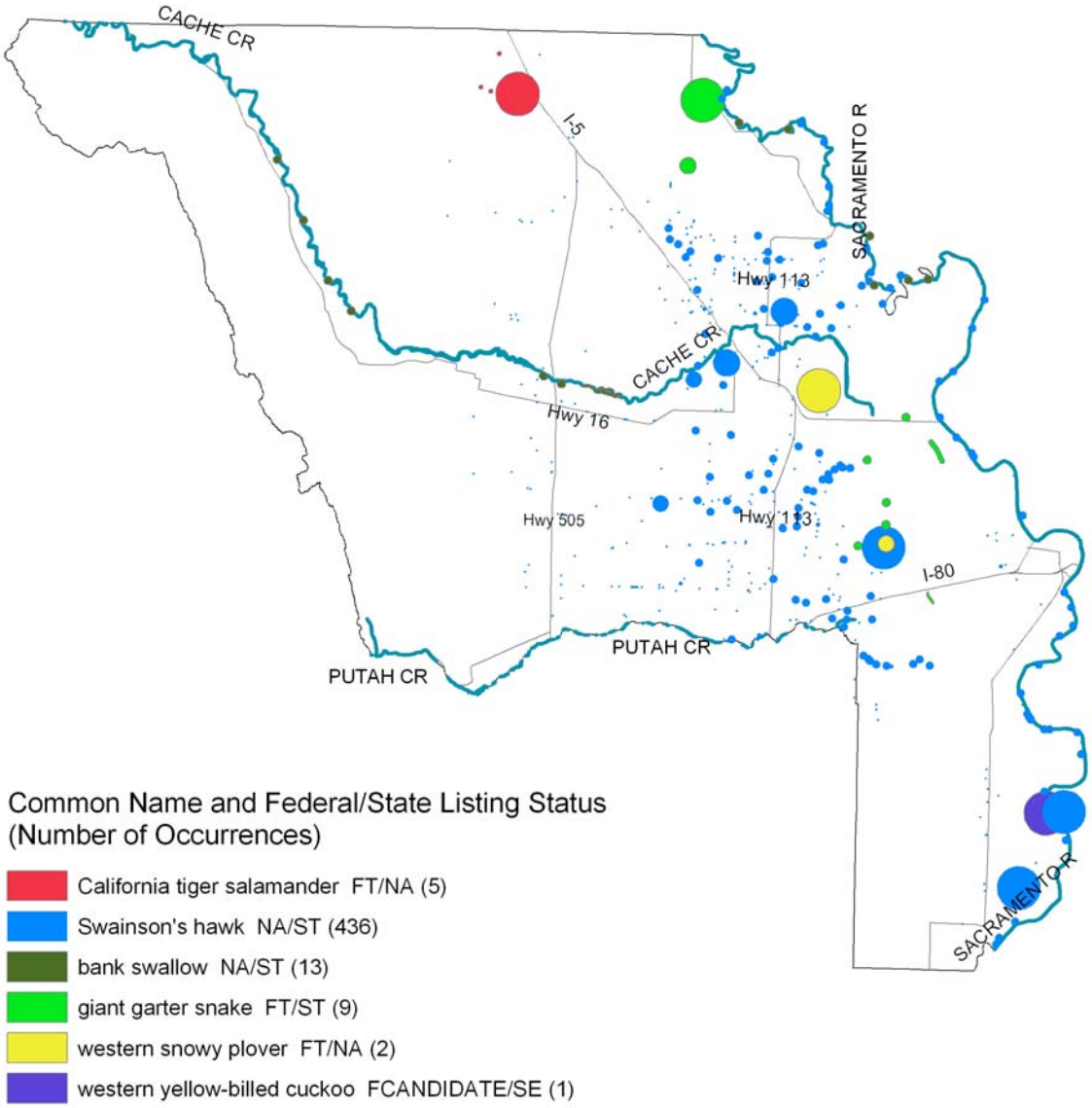
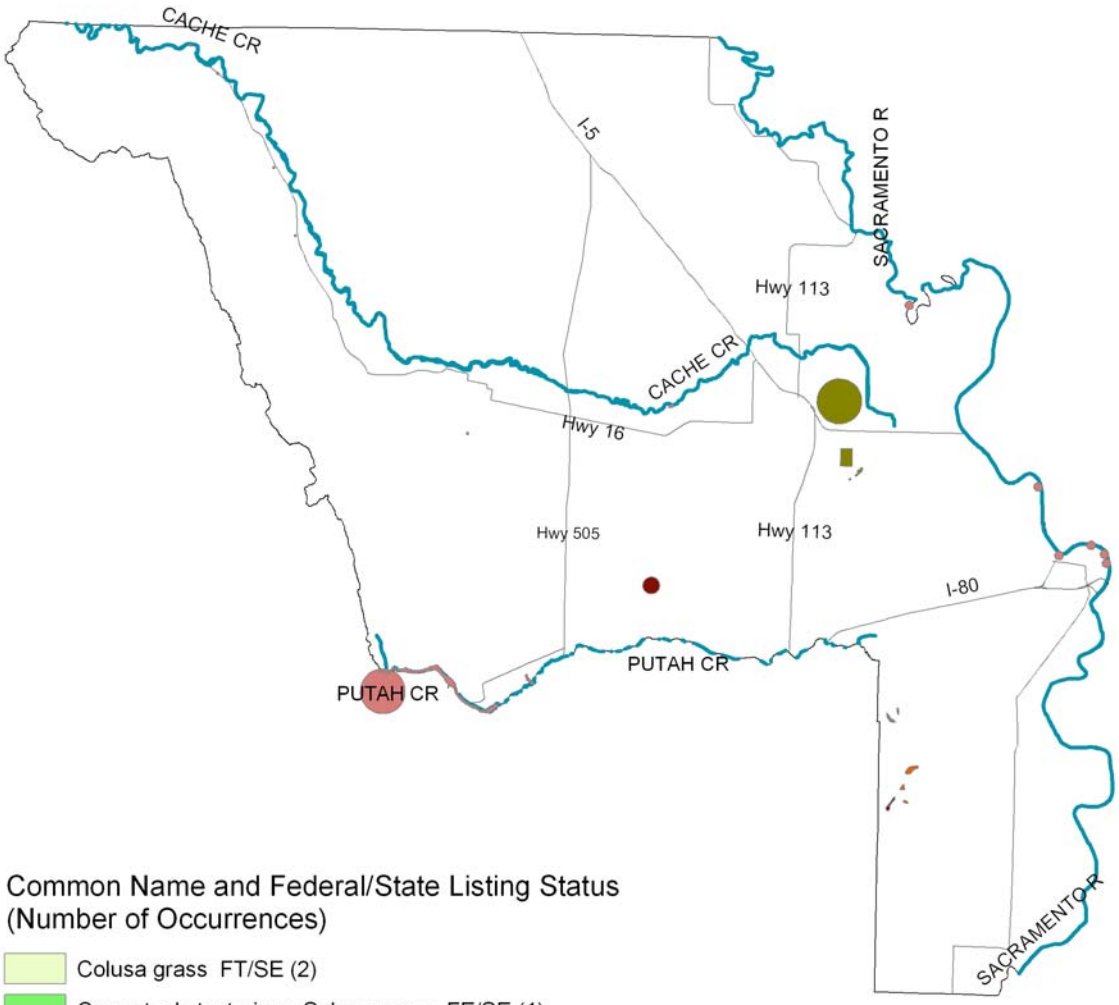


Figure 2b:

Yolo County T&E
Plants and Invertebrate Animals



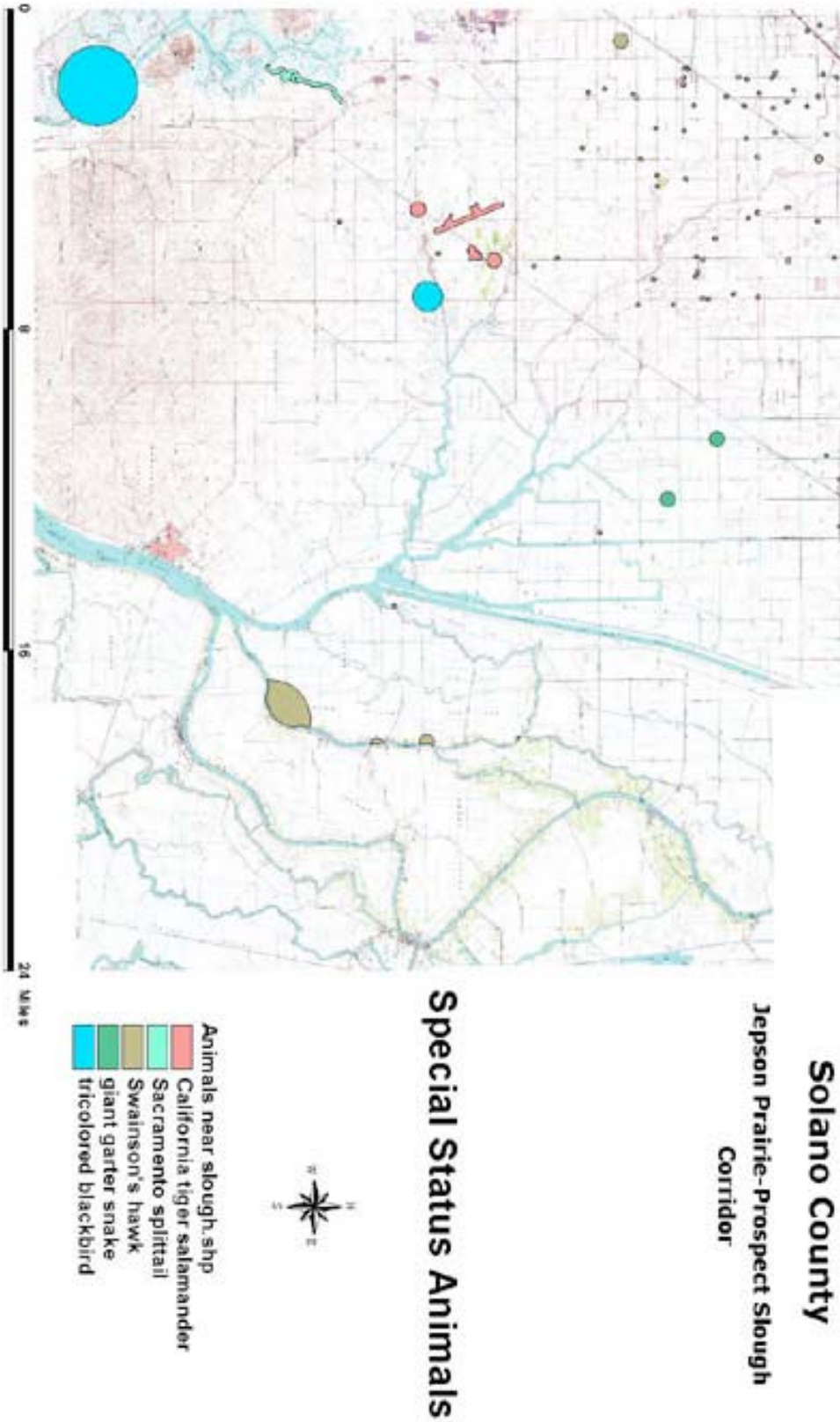
Common Name and Federal/State Listing Status
(Number of Occurrences)

- Colusa grass FT/SE (2)
- Crampton's tuctoria or Solano grass FE/SE (1)
- palmate-bracted bird's-beak FE/SE (4)
- Conservancy fairy shrimp FE/NA (1)
- valley elderberry longhorn beetle FT/NA (15)
- vernal pool fairy shrimp FT/NA (3)
- vernal pool tadpole shrimp FE/NA (5)

0 1.5 3 6 9 Miles

Sustainable Conservation
March 18, 2005

Figure 3: Solano County Threatened and Endangered Animal Map from CNDDB



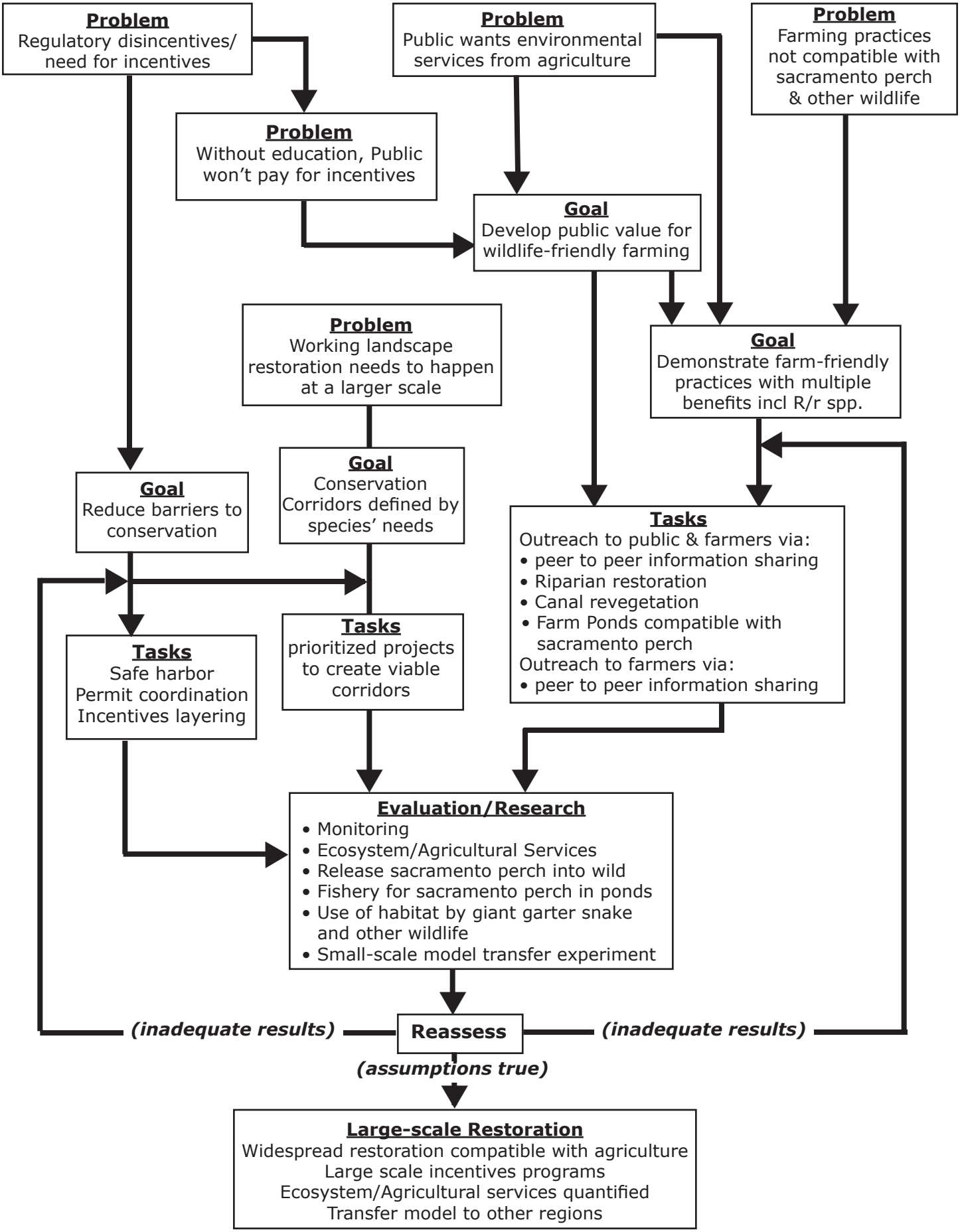


Figure 4: Conceptual Model

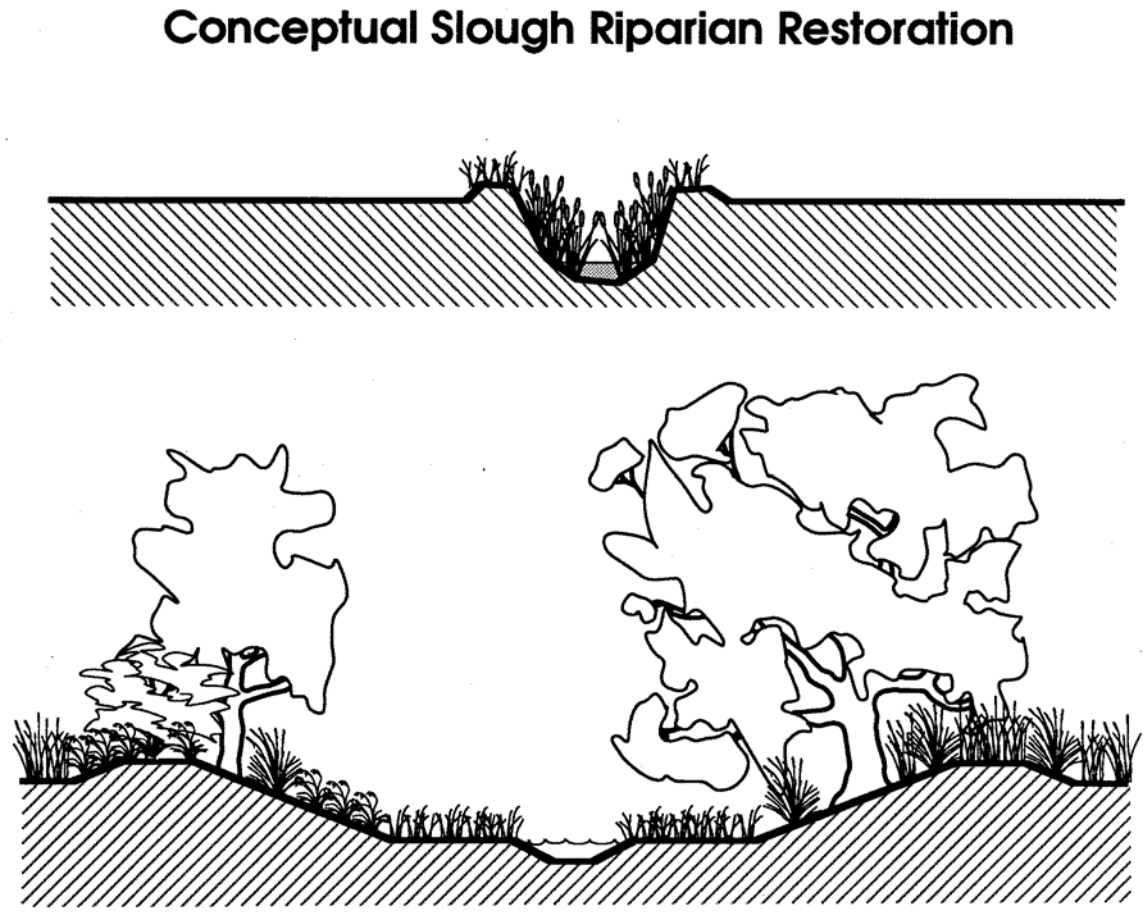
Yolo-Solano Conservation Partnership for Habitat on Working Lands

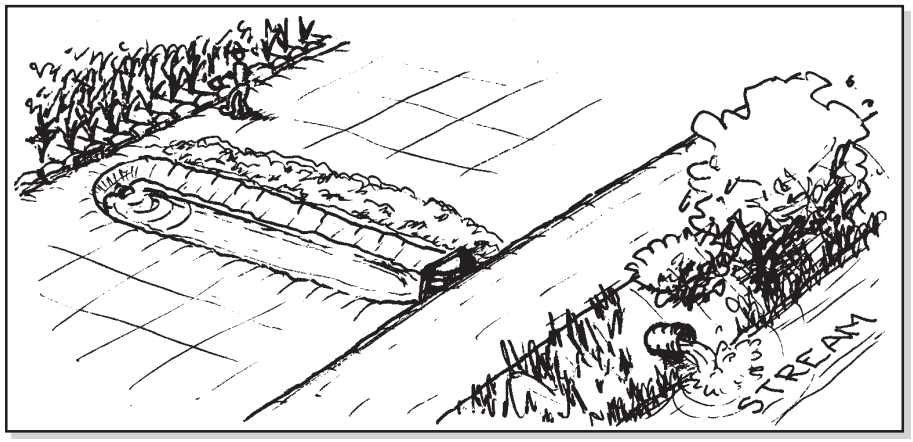
Appendix 2: Proposed fund and project synchronization calendar for wildlife friendly agriculture

Task	Year 1				Year 2				Year 3				Year 4			
	Jan-Mar	Ap-Jun	Jly-Sept	Oct-Dec	Jan-Mar	Ap-Jun	Jly-Sept	Oct-Dec	Jan-Mar	Ap-Jun	Jly-Sept	Oct-Dec	Jan-Mar	Ap-Jun	Jly-Sept	Oct-Dec
Identify projects with landowners																
Conservation planning																
Identify appropriate funding sources																
Farm bill signups incluiding paperwok and contracting assistance																
Funnel contract/plan to other agencies																
Funding approved																
Site preparation																
Earth work																
Implemenation																
Maintenance																
Monitoring																
Grant/paperwork coordination--complete all terms of conservation contract																
Measure success and share results																
Adapt or create new techniques																
Outreach to landowners and agencies																
Identify projects with landowners																

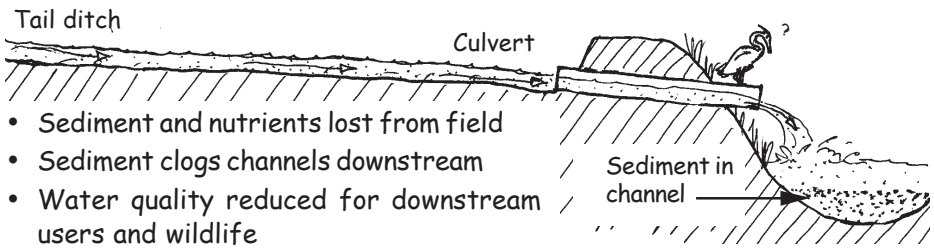
Appendix 3

Figure 5: Slough Channel cross-section before and after setback and revegetation



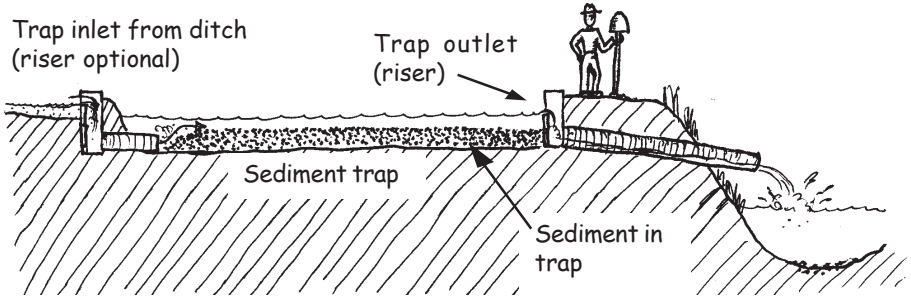


Tail ditch draining directly into stream or canal:



- Sediment and nutrients lost from field
- Sediment clogs channels downstream
- Water quality reduced for downstream users and wildlife

Tail ditch modified with a sediment trap:



What is a Sediment Trap?

Located just above the drainage outlet of a field or ranch, a sediment trap temporarily impounds irrigation tailwater. As a dam, the riser of the sediment trap delays the flow of tailwater into the nearby ditch or stream. This allows some of the sediment to drop out of the water and settle in the trap. That sediment can then be excavated from the trap to be deposited on the field at the end of the season.

Sediment traps generally have two cross-sectional shapes: “U” and “V”. While a V-shaped trap is the simplest to dig with traditional ditch-cutting implements, a U-shaped ditch traps sediment more effectively by virtue of its increased cross-sectional area, allowing more effective “stilling” of the ponded tailwater.

In general, the larger the trap, the more sediment it can capture. Field configuration and access requirements, however, often determine the ultimate size and location of a trap. Sizing factors to consider include:

- field and tail ditch slope
- drop from furrow ends to tail ditch bottom
- soil erosivity
- irrigation system
- experience of irrigators

One must also take care not to flood water back into furrows, especially for heavy soils and sensitive crops such as tomatoes.

New ‘V’-shaped Ditch

Same ditch filled with sediment

. . . after one irrigation event!

What does it cost?

The primary costs are excavation and flow control structure installation.

The trap can be excavated with a backhoe in as little as one hour, which may cost $65-75. Flashboard risers are a common control structure used for building traps and ponds. Depending on size and materials, these typically cost between $500 and $1,500 when combined with pipe to carry the water downstream. Plastic risers and pipes can be purchased for less than corrugated metal, but the latter materials are more durable, especially when asphalt-dipped to prevent corrosion.

Once the sediment trap is constructed, some labor, fuel and equipment are needed to excavate the sediment from the trap and later to spread it on the field or field road.

Sediment Trap planning and available financial support

Advice on planning, sizing, and constructing sediment traps is available through both the RCD and the Natural Resource Conservation Service (NRCS). Staff is available to answer questions about secure installation of flashboard risers, recommended trap capacity, and expected relative amounts of sediment production given soil characteristics, crop type, and other factors.

Financial assistance is available through the NRCS's Environmental Quality Incentives Program (EQIP), which provides cost-sharing for private land conservation practices.

With funding from the CALFED Bay-Delta program, the RCD is able to provide free flashboard risers to a limited number of landowners within the Lower Union School Watershed through spring, 2004. Contact Jeanette Wrysinski (530. 662.2037 ext. 118) for more information.

For more information:

Yolo County Resource Conservation District
221 W. Court St. #1
Woodland, CA 95695

phone: (530)662-2037, ext. 5
fax: (530) 662-4876
email: yolorcd@yolorcd.org
website: www.yolorcd.org

SEDIMENT TRAPS

Conserve soil & manage runoff water quality

Don't let your valuable soil and nutrients be lost with surface irrigation runoff--keep them on your ranch with a sediment trap.

Soil and water are two critical ingredients for agriculture. Water, however, can also be harmful. When water passes through a field during a storm or an irrigation event, it inevitably takes some soil with it. When that erosion occurs, the soil becomes "a resource out of place." Once a valuable asset, the soil now carried in runoff can clog up ditches and streams and foul the water downstream.

But that resource needn't be lost or dismissed as a liability. A farmer can recapture much of that soil from irrigation tailwater or storm runoff with a sediment trap: a simple and effective technique for keeping one's soil on the field instead of losing it to local waterways and downstream neighbors.

Appendix 5:
Project Partner Work and Research Plans:
Solano RCD
Solano Land Trust
Yolo County Flood Control and Water Conservation District
Dr. Glenn Wylie, USGS
Dr. Peter Moyle, UC Davis
Defenders of Wildlife

Yolo-Solano Conservation Partnership

Expanding the Conservation Partnership Model to Solano County

Solano RCD Work Plan

Solano County is home to an abundance of endangered species, burgeoning development pressure on it's open space and agricultural lands and a fairly unformed conservation long-range vision. The County is populated by long-time residents, newer San Francisco Bay and Sacramento Metropolitan Area ex-patriots and a mix of agriculture, industry and rapidly growing suburban and rural communities.

Farmers face increasing regulatory pressure on their operations, and wildlife corridors shrink. All this is taking place in a County split into two Water Quality Regions, Two Air Quality Regions and cultural divisions between Central Valley and Bay Area.

The County's natural resources need conserving, and that conservation needs to be part of a coordinated, informed effort. Resource Conservation Districts serve as a natural hub for conservation activities, facilitating farmer interaction with Natural Resources Conservation Service personnel and resources, building partnerships between private landowners and public agencies.

The Solano County RCD has been working to coordinate and implement watershed based conservation planning for farmers and rural landowners for the last six years. It has made good progress in developing relationships with other County agencies with similar missions, and has been particularly successful in assisting County agencies meet their conservation and mitigation requirements. The RCD has been steadily assuming a larger role in County resource conservation, and rather than invent that role from scratch, we have the opportunity to leverage the work already done in Yolo County, learning from their mistakes and benefiting from their successes.

Importing the model created by the Yolo Conservation Partnership will provide SRCD with the tools and support to better facilitate and implement conservation on working lands.

Goal 1: *Increase conservation planning and implementation in Solano County*

Objective 1.1: Partner with Solano Land Trust and other concerned agencies to develop a Conservation planning framework for Solano County to reduce redundancy and leverage conservation efforts for greater efficacy.

Objective 1.2: Leverage the work already accomplished by the Yolo Conservation Partnership to effect greater conservation planning, landowner participation in and public support for conservation activities in Solano County

Goal 2: *Accurately record and evaluate the process of Objective 1.2 so it can be replicated in other areas*

Task 1: Collaborate with SLT in developing a conservation planning blueprint for Solano County

Deliverables: meeting attendance and participation in process projects

Task 2: Work with the Yolo-Solano Conservation Partnership to effect peer-to-peer knowledge problem sharing and knowledge transfer between Yolo and Solano County Farmers, Agencies, and non-profits
Deliverables: Peer-to-peer meetings, tours and workshops, with records of problems discussed and solutions proposed, and general process outcomes.

Task 3: Work with the Solano Land Trust, Solano HCP, Solano Irrigation Districts and cooperating farmers to select demonstration sites for Wildlife–friendly Conservation Management Practice installation
Deliverables: site criteria and final selection

Task 3.1: Plan site design, partnering w/ CA Audubon
Deliverables: site design and record of process

Task 3.2: Implement management practices, partnering w/ Yolo County RCD and CA Audubon, incorporating outreach activities aimed at other farmers and at the public
Deliverables: installed demonstration sites with recommended practices, record of process

Task 3.3: Monitor sites for efficacy of practices and unintended consequences
Deliverables: monitoring plan and data

Task 3:4: Adaptively manage project
Deliverables: record of adaptive management decisions and process

Task 4: Create record of process with analysis and lessons learned for inclusion into document about transferring conservation models across political and geographical boundaries.
Deliverables: Guide document for transferring the Yolo Conservation Partnership model to other areas

Solano RCD Budget for
Expanding the Conservation Partnership Model to Solano County

Category	Description	Year 1	Year 2	Year 3	Total
Labor	Project Manager	11,375	18,363	21,613	$51,351
(contracted)	Watershed Coordinator	20,800	13,000	17,900	$51,700
	Administrative Assistant	618	618	618	$1,854
(contracted)	Evaluation Specialist	3600	2750	3650	$10,000
Travel	Info. Dissemination trips	1,000	1,000	1,000	$3,000
Publication Costs	*Transfer the Partnership* Guide			1,200	$1,200
Outreach Costs		1,550	1550	1550	$4,650
Total Direct Costs					**$113,755**
Indirect Costs	10% of Direct Costs				**$6,189**
Total Cost					**$129,944**

Yolo-Solano Conservation Partnership for Habitat on Working Lands

Work Plan for the Solano Land Trust

The Solano Land Trust will work with the Solano RCD and our partners in Yolo County to demonstrate successful and profitable models of farm-friendly habitat restoration and help farmers and ranchers adapt them to the unique circumstances of Solano County.

Solano County Farm Conservation Partnership MOU
SLT (lead) Conservation Project Manager will work with the SRCD and other potential partners to draft an MOU outlining common goals, objectives, and tasks to help farmers and ranchers in Solano County integrate agricultural practices with ecosystem restoration.

Peer-to-Peer Networking
SLT Conservation Project Manager will assist SRCD (lead) with networking agricultural producers in the Jepson Prairie-Prospect Island Corridor and Montezuma Hills. This may include one-on-one correspondence with farmers and ranchers, presentations at meetings of local irrigation or flood control districts, and assistance and participation in workshops or events. The Land Transaction Specialist will provide assistance landowner contacts and correspondence.

Demonstration Projects
SLT Conservation Project Manager and Mitigation Coordinator will assist SRCD (lead) with coordinating science advisors, researching habitat characteristics in target conservation area, developing biological criteria for selecting a model project, and developing protocols for biological monitoring and adaptive management.

Blueprint
SLT (lead) will work with the SRCD and Yolo partners to develop a strategic plan that provides a blueprint for a coordinated assistance program for farmers and ranchers in Solano County. The Conservation Project Manager will convene an ad-hoc program development advisory committee consisting of representatives from the MOU signatory agencies, science advisers, and interested agricultural producers to provide recommendations and review. In preparation of the blueprint, Solano Land Trust will work with the committee to outline one or more potential focus areas, work with willing landowners to identify opportunities and constraints for on-farm conservation practices, prepare a scope of work and budget for program implementation (e.g. permit coordination, liability assurances, monitoring and adaptive management), and develop a strategy for long-term funding of a local program. SLT will solicit signatures from MOU signatories and other potential partners. Project Manager will attend an ecosystem restoration conference as well.

SLT Conservation Project Manager will work with project partners to select and hire an environmental consultant to assist with research, specialized analyses, and drafting of the document. A lawyer may be consulted to provide legal analysis of template documents such as fee-for-service agreements, model easements, and policy development if this expertise cannot be obtained in-kind from our partner agencies. A graphic designer and copy editor, and printer will be hired to design and produce the final document.

Project Administration
SLT Conservation Project Manager will negotiate a contract with Yolo RCD, update the project work plan periodically, draft and submit progress reports. SLT Executive Director will participate in meetings directly related to the project with project manager, partners, and board members, and provide direction. SLT office manager will manage billing and invoices and directly related to the project. SLT financial officer will review contracts and set up financial management protocols for the project.

SOLANO LAND TRUST Project Budget

	Hourly Labor Rate	Benefits	# of hours	Total	$ 47,502
Executive Director	$ 63.00	$ -	36.00	$ 2,268	
Project Manager	$ 47.25	$ -	800.00	$ 37,800	
Land Trans Spec	$ 42.00	$ -	24.00	$ 1,008	
Mitigation	$ 42.00	$ -	104.00	$ 4,368	
Office Mgr	$ 31.50	$ -	36.00	$ 1,134	
Financial Mgr	$ 57.75	$ -	16.00	$ 924	
Travel Expenses	2195 miles@0.41/mile		$ 900		**$ 1,750**
	fees (1 events)		$ 300		
	lodging (2 days/1 person)		$ 200		
	per diem (3 days/1 person)		$ 150		
	transit (1 trips/1 person)		$ 200		
Supplies and Expendables Costs	Printing		$ 4,500		**$ 5,400**
	Supplies for mailings, events etc		$ 900		
Services or Consultant Costs	Environmental/Legal Consultant Svcs		$ 24,000		**$ 28,550**
	Graphic Designer		$ 3,750		
	Copy Editor		$ 800		
TOTAL CONTRACT BUDGET					**$ 83,202**

Exhibit A
Scope of Services

Development of a Water District Maintenance Manual to Integrate Environmental Enhancement Activities with Ongoing Canal System Maintenance Responsibilities

Background

This proposal is to develop a maintenance manual that will be used by the Yolo County Flood Control and Water Conservation District (District) to integrate environmental enhancement activities with its canal system maintenance responsibilities. Among its other functions, the District operates and maintains over 150 miles of earthen (unlined) canals throughout Western Yolo County. In order to ensure the appropriate delivery of irrigation water through the canal-system, the District has an ongoing canal maintenance program. Typical maintenance activities include; canal bank weed control, aquatic weed control, canal bank (erosion) stabilization, sediment removal, and tree trimming and removal. Current maintenance practices include a heavy reliance on herbicide application and mechanical techniques. Over the last fifteen years, the District has participated in and observed a variety of small-scale local projects involving the use of native grasses and trees along its canal banks. Through trial and error, a basic understanding of what native grasses and other plants, and in what placement, is most appropriate given District operational and maintenance constraints. The District sees the potential for providing general environmental enhancement and water quality benefits by incorporating the use of native grasses and other habitat friendly techniques into an overall canal maintenance program while at the same time reducing its maintenance costs.

Scope of the Project

As stated above, this project will develop a District maintenance manual that will guide management and staff in the implementation and ongoing maintenance of projects and activities that contribute to the environmental enhancement of its distribution (canal) system. This manual will be developed over a two-year period. Activities included over this time period will include: 1) a review and documentation of current maintenance practices including costs and material usage, 2) a review and summary of general environmentally friendly maintenance practices that could be incorporated into an ongoing maintenance program, 3) using the District's existing maps and GIS system the development of site-specific recommendations for implementation, 4) establishment of a cost-tracking program for long-term analysis of cost benefits, 5) establishment of a monitoring program for long-term analysis of environmental and water quality benefits, and 6) writing of a comprehensive maintenance manual that will serve as the project's final report. While some of this work described above is currently under way, and a certain amount is previously known through the efforts of the Yolo County Resources Conservation District and others, there is a great need for a comprehensive, District specific manual.

Objectives and Benefits of Project

The development of the maintenance manual will assist the District in its overall environmental stewardship responsibilities. It will also contribute to the general aesthetic and environmental quality of its 250,000 acre service area (Western Yolo County located in the Yolo Basin). In addition, the maintenance manual and the overall knowledge gained through developing it will serve as a template for other Water Districts seeking to make their canal maintenance programs more environmentally friendly.

Specific objectives of the project include:

1. Herbicide risk reduction through the use of native grasses on District canal banks.
2. Improved water quality by reducing bank erosion.
3. Determining the cost benefits of the large scale use of native vegetation versus herbicide and mechanical alternatives.
4. Developing site-specific recommendations for project implementation (based on soil type, flow velocities, side-slope, ownership and right-of-way, canal-break risk, etc.)
5. Monitoring and quantifing economic, environmental, water quality benefits and/or impacts due to improved maintenance practices.
6. Providing District management and maintenance staff with ongoing guidelines with which to implement and monitor an environmentally based maintenance program.

Responsibilities of Each Party

The District's Environmental Resources Associate will serve as the project manager. The Associate will work with District management and maintenance staff, local landowners, other agency staff (Yolo County RCD, Audubon California, SLEWS, other Water Districts), and other consultants as appropriate in developing the overall maintenance manual and completing the project's specific tasks as described below.

Work to be performed --

Total Task 1: Development of Canal System Maintenance Manual

Schedule: 12 months
Total Cost: $72,000
District cost-share component: $36,000
Grant request component: $36,000

Deliverable: Final Water District Maintenance Manual to Integrate Environmental Enhancement Activities with Ongoing Canal System Maintenance Responsibilities.

*Subtask 1.1**.** Review and Document current maintenance practices including costs and herbicide usage.*

Schedule: 3 months
Cost: $18,000

*Subtask 1.2**.** Review and summarize environmentally friendly maintenance practices that could be incorporated into an ongoing canal maintenance program.*

Schedule: 2 months
Cost: $12,000

Subtask 1.3 Develop site-specific recommendations for implementation

Schedule: 2 month
Cost: $12,000

Subtask 1.4. Establish a cost-tracking program for long-term analysis of cost benefits

Schedule: 1 month
Cost: $6,000

Subtask 1.5 Develop a monitoring program for long-term analysis of environmental and water quality benefits

Schedule: 3 months
Cost: $18,000

Subtask 1.6 Produce final maintenance manual

Schedule: 1 month
Cost: $6,000

Proposal

Surveying for Giant Garter Snakes in Solano County

Submitted by:
Glenn Wylie, Research Wildlife Biologist
USGS-BRD, Western Ecological Research Center
6924 Tremont Road
Dixon, CA 95620

707-678-0682 x 616
glenn_wylie@usgs.gov

BACKGROUND

1

Giant garter snakes (*Thamnophis gigas*) are endemic to wetlands of the Central Valley and are federally and state listed as threatened (U.S. Fish and Wildlife Service 1993) because of loss of over 95% of original wetlands in the Central Valley (Frayer et al. 1989) and fragmentation of remaining habitat. Scientific staff at the U.S. Geological Survey USGS Dixon Field Station (USGS) have been conducting research on the life history and habitat use characteristics of giant garter snakes since 1995 (e.g., Wylie et. al 2002, 1997, Wylie and Casazza 2000). In the course of our studies the USGS has developed protocols for trapping snakes as well as capturing them by hand (Casazza et al. 2000). Radio telemetry work by the USGS to examine habitat use and movement has been the first such effort for giant garter snakes and among the first for any snake in California. This proposal is to use our trapping methodology to systematically survey for giant garter snakes in tidally influenced freshwater habitat in the southeastern part of Solano County.

OBJECTIVES

The objectives of this project are 1) to determine the presence or the (presumptive) absence of giant garter snakes in the freshwater tidal habitats in southeastern Solano County, 2) estimate the abundance of giant garter snakes in areas where snakes are present, and 3) assess the quality of habitat types for supporting giant garter snakes in the study areas. We will also use our findings to advise land managers on snake-friendly procedures to perform maintenance tasks on irrigation and drainage canals.

PROCEDURES

We will sample up to 12 locations of tidal freshwater habitat in southeastern Solano County, as determined by the Solano Resource Conservation District, to determine presence or presumptive absence of giant garter snakes in this part of Solano County. These survey areas will depend on access and specific water regimes.

Capture Methods:

At each site we will deploy up to 50 modified floating minnow traps (Casazza et al. 2000) along bank or vegetative edges as available to sample for giant garter snakes in the habitat types present on each area. Habitat edges act as a natural drift fence and the traps tend to become naturally baited with tadpoles, small frogs, and small fish over time. Traps will be checked six out of seven days to minimize exposure of trapped snakes and to minimize the time for snakes to escape from the traps. We will trap each location for at least two weeks, but all locations will not be simultaneously trapped. If we catch snakes at a site, the sampling period will be extended to try to get a valid mark and recapture estimate of density using the program MARK. The geo-coordinates of all traps and snake captures will be taken using GPS receivers.

Measuring and Marking:

We will weigh snakes to the nearest gram, and measure snout-vent length and tail length to the nearest millimeter. Identification of giant garter snakes will be confirmed by counts of dorsal scales and counts and widths of labial scales according to the identification key in Rossman et al. (1996). Sex will be determined using sexing probes to detect the presence or absence of hemepenes in the cloaca. Individuals will be scanned for the presence of passively induced transponder (PIT) tags. We will inject PIT tags into the body cavity of unmarked individuals. We will use a 12-ga needle to insert the tag ventrally approximately 5 cm anterior to the cloaca. The injection site will be swabbed with alcohol and the needle and PIT tags will be sterilized with alcohol. The injection site will be sealed with cyanoacryate glue after the PIT tag is in place. We will measure and mark snakes in the field and return snakes to their point of capture within a few hours of capture. Snakes will be held in shade or in insulated containers until their release. Any snakes injured during this study will be taken to the University of California, Davis, Wildlife Health Center for treatment or euthanasia as appropriate.

Habitat Assessment:

At each study area we will document the type of habitat present as seasonal wetland, permanent wetland, slough channel, irrigation ditch, etc. We will also document the vegetation types of emergent or submergent aquatic vegetation and types of terrestrial vegetation such as grasses and weedy dicots or the presence of riparian vegetation. Water depth, water temperature, and water level fluctuations will also be noted during the study period. In addition physical features of the habitat will be determined such as bank slope, soil type, and surface area. Surrounding land use will also be noted, such as rice agriculture, row crops, or orchards.

Data Analysis and Display:

A GIS will be developed for this project using ARC/GIS. Background maps will be developed using existing USGS quad maps for the area. Locations of traps and locations of snake captures will be geo-referenced using GPS (ca 5 m accuracy) and the locations entered into the GIS database for this project. We will assess the study area habitat types compared to habitats in which we have previously caught giant garter snakes.

Consultations and Workshops

The USGS will consult with the Yolo and Solano Resource Conservation District on habitat assessment and best agricultural management practices for giant garter snakes. The USGS will also participate in informational workshops for public and private stakeholders concerning wildlife friendly farming practices for giant garter snakes.

WORK SCHEDULE AND PRODUCTS

Field survey of sites: Late May through July, 2007 and 2008
Data summary and report: July 2009.

LITERATURE CITED

Casazza, M. L., G. D. Wylie, and C. J. Gregory. 2000. A funnel trap modification for surface collection of aquatic amphibians and reptiles. Herpetological Review 31(2), 91-92.

Frayer, W.E., D.D. Peters, and H.R. Pywell. 1989. Wetlands of the California Central Valley status and trends. U.S. Fish and Wildlife Service. Portland, Oregon. 28 pp.

Rossman, D. A., N. B. Ford, and R. A. Seigel. 1996. The garter snakes: evolution and ecology. University of Oklahoma Press, Norman, OK.

U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants: determination of threatened status for the giant garter snake. Federal Register 58:54053-54066.

U.S. Fish and Wildlife Service. 1999. Draft recovery plan for the giant garter snake (Thamnophis gigas). U.S. Fish and Wildlife Service, Portland, Oregon. 192 pp.

Wylie, G.D., M.L. Casazza, and J.K. Daugherty. 1997. 1996 Progress report for the giant garter snake study. U.S. Geological Survey, Dixon Field Station, Dixon, CA. 15 pp.

BUDGET

Personnel	2007	2008	2009
Research Biologist (Wylie) 80 hrs	5,000	5,200	5,408
Database Management Specialist (Martin) 2 pp	3,600	3,744	3,744
Biological Science Technicians (2) 560 hrs	18,000	18,720	
Vehicles	2,500	2,500	
Miscellaneous Supplies	500	500	
(Use of traps will be contributed)	(6000)		
Direct Costs	1200	1,248	458
Subtotal	30,800	31,912	9,610
USGS Overhead (42.7%)	13,152	13,626	4,103
Total Cost	**43,952**	**45,538**	**13,713**

Integration of conservation of Sacramento perch and other threatened species into Central California agriculture.

Project description

Problem

Farm ponds are an integral part of the agricultural landscape, traditionally providing both recreation and benefits to farm operations, such as sediment retention, improved quality of agricultural drain water, and water for livestock. Farm ponds have also had the side benefit of being habitat for waterfowl and other wildlife and occasionally for threatened species such as the giant garter snake. In this project, we plan to demonstrate that farm ponds can play a positive role in *restoring* populations of threatened species. We will focus on the Sacramento perch, *Archoplites interruptus*, an endemic species completely extirpated from its native range in the Central Valley. However, we anticipate that processes developed in this project can be applied to the conservation of other aquatic and riparian species as well. We plan to demonstrate that successful conservation on private land can be accomplished with the close cooperation of private landowners, researchers at UC Davis, an NGO (California Audubon), vector control agencies, and the local resource conservation district.

We think that farm ponds are particularly well suited to assist in the recovery Sacramento perch, which has a long history of being raised in stock and farm ponds, although there has been little investigation of why some ponds are successful in maintaining perch populations and others are not. The Sacramento perch is also a species in deep trouble. If populations were not established outside its native range, the perch would be listed as an endangered species. Our recent work (CALFED project ERP02-P34) has shown that none of the outside populations can be regarded as secure, being located mainly in isolated habitats (reservoirs etc.) and being highly inbred. We would like to begin the restoration of Sacramento perch in order to avoid having it listed as an endangered species and to involve private landowners in the process.

Sacramento perch have a number of advantages for this project: (1) They will maintain large populations in managed ponds. (2) They are a flavorful sportfish that will reach 1-2 pounds each in ponds. (3) They have been successfully used for mosquito control. (4) They have a high tolerance for a wide range of water quality conditions. (5) Knowledge of their biology has increased enormously in the last few years, due to studies by a team of UC Davis researchers. (6) Ponds used in their restoration could also be managed to benefit other wildlife, including giant garter snakes.

Goals and objectives

Goal#1 Develop strategies for using farm ponds and other agricultural waterways to recover Sacramento perch as a resident of Central Valley waters.

1. Establish and monitor perch populations in existing ponds and sloughs to determine potential for using established areas.
2. Construct ponds both on floodplains and outside of floodplains designed specifically for Sacramento perch while keeping landowner goals in mind as well.
3. Determine the life history characteristics of Sacramento perch in pond and slough environments (survival, growth, diets, etc.)
4. Determine the role of Sacramento perch in control of mosquitoes and other vectors.

Goal #2 Develop strategies for working with private landowners to create and maintain ponds and waterways suitable for conservation.

1. Reduce hindrances to implementation through assurances, state/federal funding leveraging, and permit coordination.
2. Demonstrate farm-friendly methods for construction and maintenance of ponds.
3. Improve educational materials/resources for using ponds for conservation of declining native species, based on project results.
4. Monitor effects of methods for 1) efficacy, 2) practice design modification, 3) improved understanding of Sacramento perch and farm ponds.

Goal #3 Determine ancillary benefits to fish and wildlife of ponds managed for Sacramento perch (note: this goal is secondary to other two).

1. Determine characteristics of perch ponds that also favor giant garter snakes
2. Determine use of ponds by birds and other wildlife through voluntary surveys by landowners and citizen groups.

Background: Sacramento perch

The Sacramento perch (SP) is a native sunfish that once was abundant, but is now extirpated from virtually all of its former habitats throughout the Sacramento-San Joaquin watershed (Tharratt and McKechnie 1966, Aceituno and Nicola 1976, Leidy 1984, Gobalet and Jones 1995, Moyle 2002). SP have been listed as a species targeted for recovery in the Delta Native Fishes Recovery Plan (Moyle et al. 1996), are listed by the Department of Fish and Game as a Species of Special concern (Moyle et al. 1995), and are classified by CALFED as an At-Risk (Priority Group 2) Species in the 2001 ERP (Goal 1, objective 2, pp.140). Our initial project (ERP 02-P34) to study the basic biology of SP was listed as Milestone 117 by the CBDA (2004). SP would undoubtedly be listed as an endangered species if there were not populations established outside its native range. Previously it was thought that populations in Clear Lake and in the Alameda Creek drainage were persisting, if tenuously. However we failed to catch SP in our sampling of Clear Lake and Calaveras Reservoir on Alameda Creek, indicating that these populations have likely been extirpated. The introduced SP populations in the upper Klamath watershed, in Pyramid Lake, Nevada, in the lower Walker River, and in the Owens River are probably secure in the short term because of their abundance and fairly broad distribution within these waters. However, natural extirpation of most populations established outside the SP's native range suggests that long-term persistence in these areas may be a problem (P. Crain, unpublished data). Extirpations of introduced populations are usually the result of changing conditions in managed waters, but precise causes are often not known. According to CBDA (2004): "There is thus a need to establish populations in places within their native range that can be closely monitored to be sure this species persists in the future. The reintroduction of SP into selected habitats in the Central Valley is closely linked to restoration of non-tidal perennial aquatic habitats, Delta sloughs, and elimination of inter-specific competitor or predator species."

Background: Farm ponds (general characteristics needed for perch)

Farm ponds designed specifically to support SP populations should have many of the following attributes: a) They should have riparian vegetation around the edges to create shade and terrestrial food sources for perch (preferably native plant species such as willows). b) They

should have a perimeter from the edge of the water line to the deeper part of the pond that has not more than a 4:1 slope and is approximately 10 meters wide (this will provide areas for spawning and foraging); this transition zone from the riparian should be vegetated with tules, sedges, smartweed and similar native species which will provide habitat and cover for perch. It also should support common native aquatic plants such as pondweed, which seem to be crucial for the successful spawning of SP. c) under water structures such as boulder or brush piles should be present to provide cover d) They should have a ramp or road that is suitable for launching a boat from a truck so that monitoring and management can take place easily. e) They should be drainable so that regular maintenance of the fauna and flora can be accomplished. This can be accomplished with a weir, flashboards, or culvert drain.

Conceptual models

1. The role of farm ponds in agro-ecosystems

Tail water ponds provide benefits to farmers by capturing topsoil that is lost during irrigation and winter rains. Ponds also provide a way of increasing groundwater infiltration. The capture of runoff as groundwater and surface water helps in the conservation and reuse of water especially during drought periods. By lessening the amount of soil lost during farming practices tail water ponds decrease the need to replace soil, or to add chemical and mineral additives. Tailwater and seasonal ponds can provide open water and edge vegetation typically dominated by tules, sedges, smartweed, and similar endemic species. Vegetated areas can support a variety of wildlife and fish species. The cover provided on the margin of ponds can support upland mammals, such as mice, raccoons, hares, and cottontails, as well as several amphibians and reptiles species, including giant garter snakes and, potentially, red-legged frogs. If such ponds are large enough, they can also support larger aquatic mammals, such as otters, muskrats, and beavers. The open water and edge vegetation can support a diversity of birds including grebes, ibis, egrets and other shorebirds and wading birds. If designed properly, the open water and adjacent freshwater marsh vegetation can provide brood pond habitat for resident waterfowl. Lastly, the presence of relatively undisturbed marsh vegetation adjacent to shallow water could provide important refugia and rearing habitat for Sacramento perch.

2. How farm ponds can contribute to restoration of Sacramento perch

Ponds can be used to raise large numbers of SP, which can then be directly or passively introduced into Delta and other waterways. This could be accomplished by draining ponds into a slough or ditch, or by allowing flood waters to carry SP into the Delta. . The constant vectoring of SP into the Delta may create self sustaining populations and/or a fishery for them. We envision this program becoming a key part of recovery efforts for Sacramento perch (thereby helping to prevent listing as a threatened species) by two means: (1) increased popularity of SP as a farm pond fish results in increased numbers of ‘escapees’ in other habitats and (2) in some areas high densities of SP escapees may allow for development of wild, self-sustaining populations. However, our basic model is a source-sink model, where SP produced in ponds (1) survive and grow to large size in outside environments, (2) do not reproduce successfully (because of competition and predation from alien species), and (3) contribute to the sport fishery as a native ‘pan fish.’ If ponds in this study demonstrate potential for restoring Sacramento perch populations, it may be possible to develop ponds and other habitats on public lands that are managed solely for the purpose of reintroducing Sacramento perch into the wild.

3. Roles of cooperators in restoration of Sacramento perch
This project depends on cooperation among private landowners, NGOs, local and state agencies, and university researchers. The 'players' listed below have all enthusiastically agreed to become part of this cooperative effort, coordinated by Audubon California. This will require 2-3 meetings per year by participants, including visits to pilot project sites. Coordination will be done electronically through e-mail and postings on a website (**YCRCD & Audubon LSP**).

UCD will provide expertise in designing SP friendly ponds and will oversee the planting of SP into the ponds. UCD will also do all of the fish monitoring activities involved in this project.
Landowners will provide space for ponds and be responsible for maintenance, working closely with the RCD and others. Their satisfaction with the results of this work, will ultimately determine its long-term success, including spread to other farms.
Audubon California & Yolo County Resource Conservation District will develop contacts with landowners and provide help with permitting and other processes and will provide expertise and funding for the construction of ponds through the Yolo-Solano Conservation Partnership.
Contra Costa Vector Control Agency, through biologist Chris Miller, will provide larval and juvenile Sacramento perch for stocking. Mr. Miller currently rears Sacramento perch for use in mosquito control operations in Contra Costa County and is willing to expand his operation to provide additional fish for this project.
Yolo County Vector Control Agency will monitor all ponds in Yolo County for mosquitoes and other harmful insects to determine compatibility of Sacramento perch ponds with vector control goals. In some ponds, mosquitofish may be added after the perch are established to increase mosquito control in shallow and vegetated areas, if needed.
The California Department of Fish and Game, through biologist James Navicky, will work closely with UCD and others to advise sampling, pond construction, and stocking of perch.
The Nature Conservancy will allow restoration studies of Sacramento perch on the Cosumnes River Preserve .

Approach and scope of work

Goal#1 Develop strategies for using farm ponds and other agricultural waterways to recover Sacramento perch as a resident of Central Valley waters.

Task 1. Establish and monitor perch populations in existing ponds and sloughs to determine potential for using established areas.

We plan to plant SP in several sloughs and ponds as a restoration strategy to reintroduce SP back into the Delta. (Table 1). Successive plantings will be monitored for growth and relative numbers to determine if this is a strategy that is feasible for reintroduction of SP into Delta Habitats. Environmental variables and fish communities will also be monitored to determine the relative impact of different environmental conditions and interspecific competition has on SP long term survival.

Deliverable: Report at end of project integrated with findings of tasks 2-4.

Table 1. Ponds to be used as part of the study on Sacramento perch.

Name	Description	Comments
New farm ponds	Farm ponds constructed as part of this study, Yolo Co.	8-10 total
Curve pond	On UC Davis campus	Comparison population, already established
Wildlands Inc. Ponds	Long ponds established for giant garter snakes	2-4 ponds in Natomis areas, Sacramento County
Woodduck Slough	Tidal slough with dirt dam to provide water for irrigation	Cosumnes River Preserve, initial plant in 2005.
Denverton Slough	Tidal slough in Suisun Marsh	Largely freshwater, with few centrarchids.
Hasbrook Pond	Pond on floodplain of Putah Creek	Existing fish populations may inhibit use.
Ad Hoc ponds	Other ponds that become available	Will depend on availability of SP

Task 2. Construct ponds both on floodplains and outside of floodplains designed specifically for Sacramento perch while keeping landowner goals in mind as well.

Eight to ten ponds will be constructed or modified on the property of willing landowners, using expertise and funds from YCRCD. Designs will be developed by YCRCD in cooperation with UCD researchers to satisfy as much as possible both landowner and SP requirements. These ponds will be monitored as will others waters adjacent to or near the ponds, where feasible. We will rely on results of sampling programs in the Delta etc. to determine if SP are becoming more widespread.

Deliverable: 8-10 ponds will be built/modified and stocked during the project. Results will be summarized in an integrated report.

Task 3. Determine the life history characteristics of Sacramento perch in pond and slough environments (survival, growth, diets, etc.)

Using techniques developed under the previous CALFED project, we will sample each pond at least once per year in September-December to determine success of the perch. Sampling techniques will vary according to pond structure and accessibility but will be through a combination of trap nets, seines, and electrofishing (UCD has a small electrofishing boat that is designed for work in small bodies of water). All perch captured will be measured and scales removed from a sample for growth analysis if needed. In ponds where large populations have become established, 30-50 YOY fish will be removed and preserved for dietary analysis.

Deliverable: The results will be part of our integrated final report.

Task 4. Determine the role of Sacramento perch in control of mosquitoes and other vectors.

Yolo County Vector Control Disrict will visit ponds on an *ad hoc* basis to sample for mosquitoes using standard techniques. If mosquitoes are perceived to be a problem, appropriate measures will be taken, in consultation with UCD researchers and others on the SP team.

Deliverable: The results will be part of our integrated final report.

Goal #2 Develop strategies for working with private landowners to create and maintain ponds and waterways suitable for conservation. YCRCD & Audubon LSP

Task 4. Reduce hindrances to implementation through assurances, state/federal funding leveraging, and permit coordination.

Task. 5. Demonstrate farm-friendly methods for construction and maintenance of ponds.

Task 6. Improve educational materials/resources for using ponds for conservation of declining native species, based on project results.

Task 7. Monitor effects of methods for 1) efficacy, 2) practice design modification, 3) improved understanding of Sacramento perch and farm ponds.

A workshop of project participants will be held about six months before project completion to determine successes and failures within the project and to determine methods for improving Sacramento perch pond rearing in the future. The results will be incorporated into the final report.

Deliverable: workshop + report **YCRCD & Audubon LSP**

Goal #3 Determine ancillary benefits to fish and wildlife of ponds managed for Sacramento perch (note: this goal is secondary to other two).

Task 8. Determine characteristics of perch ponds that also favor giant garter snakes

Ponds developed for giant garter snake mitigation by Wildlands Inc. will be planted with Sacramento perch and monitored, to determine if restoration of these two species at the same sites is possible. Based on this information, the potential for using ponds developed for Sacramento perch restoration as reintroduction sites for giant garter snake will be evaluated.

Deliverable: The evaluation of the ponds will be part of the integrated final report.

Task 9. Determine use of ponds by birds and other wildlife through voluntary surveys by landowners and citizen groups **YCRCD & Audubon LSP**

Economic Impacts of Ecosystem Restoration on Agricultural Lands
Investigating A New Foundation for Conservation Policy in California

Background

A major program goal at Defenders of Wildlife is to analyze and implement incentive policies for wildlife and ecosystem conservation on private lands, and prevent unique habitats and species from becoming endangered. Defenders has extensive experience in working with private agricultural land owners and producers to protect and conserve at-risk species and their habitats through both public and private incentive mechanisms. A major emphasis of Defenders' Conservation Economics Program is to carry out research to value the public and private benefits of conservation efforts and identify economic, policy and/or legal mechanisms that allow private landowners to capture these benefits. Defenders' Conservation Economics Program has a documented capacity in implementing applied ecosystem research programs in California, Wisconsin, Minnesota and other western states, and in developing economic incentive proposals based on the evaluation of ecosystem services that are integrated with agricultural landscapes. See www.biodiversitypartners.org

As California and the rest of the nation continues to grow, agricultural lands are becoming increasingly important in the effort to protect our natural resources. Currently, publicly-funded incentives for voluntary adoption of conservation practices on agricultural lands are structured on the basis of reimbursing private adoption costs or easement payments. There is a growing interest in new conservation policies that also reward producers for *public, non-market* benefits from these practices, including the provision of valuable ecosystem services. Policy makers also indicate that an innovative performance-based incentive payment mechanism requires an assessment of public benefits information and careful design of new payment mechanisms for ecosystem benefits that are integrated into agricultural activities.

Yolo County is selected as a project site because of the area's importance to several at-risk native species, and the presence of an active environmental and economic monitoring program.

Qualifications

Defenders' California office and Conservation Economics Program in Washington, D.C. are active in analyzing and promoting incentives for agricultural producers to conserve wildlife habitat. Defenders' Conservation Economics Program has extensive experience in identifying analyzing the types of public and private ecosystem benefits associated with conservation activities, and designing pilot projects to demonstrate performance-based incentive mechanisms.

Scope

To provide an economic analysis of the costs and benefits of ecosystem restoration on the project agricultural operations, funding over a two-year period is being sought to implement

the following activities: (1) assessment and summarization of information pertaining to impacts of specific management practices on ecosystem services, including water quality, pollination, wildlife habitat, etc; (2) evaluation of the indicators employed to produce this assessment; (3) identification of public and private benefits and costs associated ecosystem conservation/restoration efforts for water, control of invasive species, pollination, and wildlife habitat services; (4) formulation of conservation incentive policy recommendations based at both the state, federal, and private levels.

Project funds will be used to gather relevant information about and analyze the impacts to ecosystems from producer practices for implementing the project activities in this proposal. The project will also organize and sponsor meetings with producers and agency personnel to identify the public benefits of conservation activities associated with ecosystem restoration, and to design potential performance-based incentive mechanisms

Outcomes

This project will provide invaluable information to be used structuring future resource conservation incentives on the basis of ecosystem services. First, the project will result in the assessment of public and private benefits associated with carrying-out ecosystem restoration on project agricultural lands. Second, this project will result in the design of a performance-based incentive mechanism(s) to encourage landowners to engage and remain in ecosystem restoration and conservation programs.

With the participation of other project organizations, Defenders will provide policy papers and participate in policy forums and workshops related to the economic costs and benefits of ecosystem restoration activity; provide public policy proposals based on payments for ecosystem services; and complete a final report addressing project implementation and outcomes.

Success will be measured by the following indicators: sufficient levels of producer and agency participation in all project phases; identification and assessment of suitable indicators to measure improvements in ecosystem function; identification of the public and private benefits and costs associated with ecosystem restoration in the project area; design of a peer-reviewed performance-based incentive payment mechanism; level of project personnel participation in relevant resource conservation policy forums and conferences; publications that report on project experience, including a quality final report.

Principal Staff

Principal staff on this portion of the project will include Ms. Kim Delfino, Director of Defenders' California Program, staff of Defenders' Conservation Economics Program, and a research graduate student from UC at Davis. Ms. Delfino will provide policy guidance. Defenders' Conservation Economics Staff will provide guidance on economic research methods and analysis. A graduate student from UC Davis will carry out the data collection and analysis of the market and non-market benefits of ecosystem restoration in the project area for his or her thesis project.

Project Budget (2 Years)

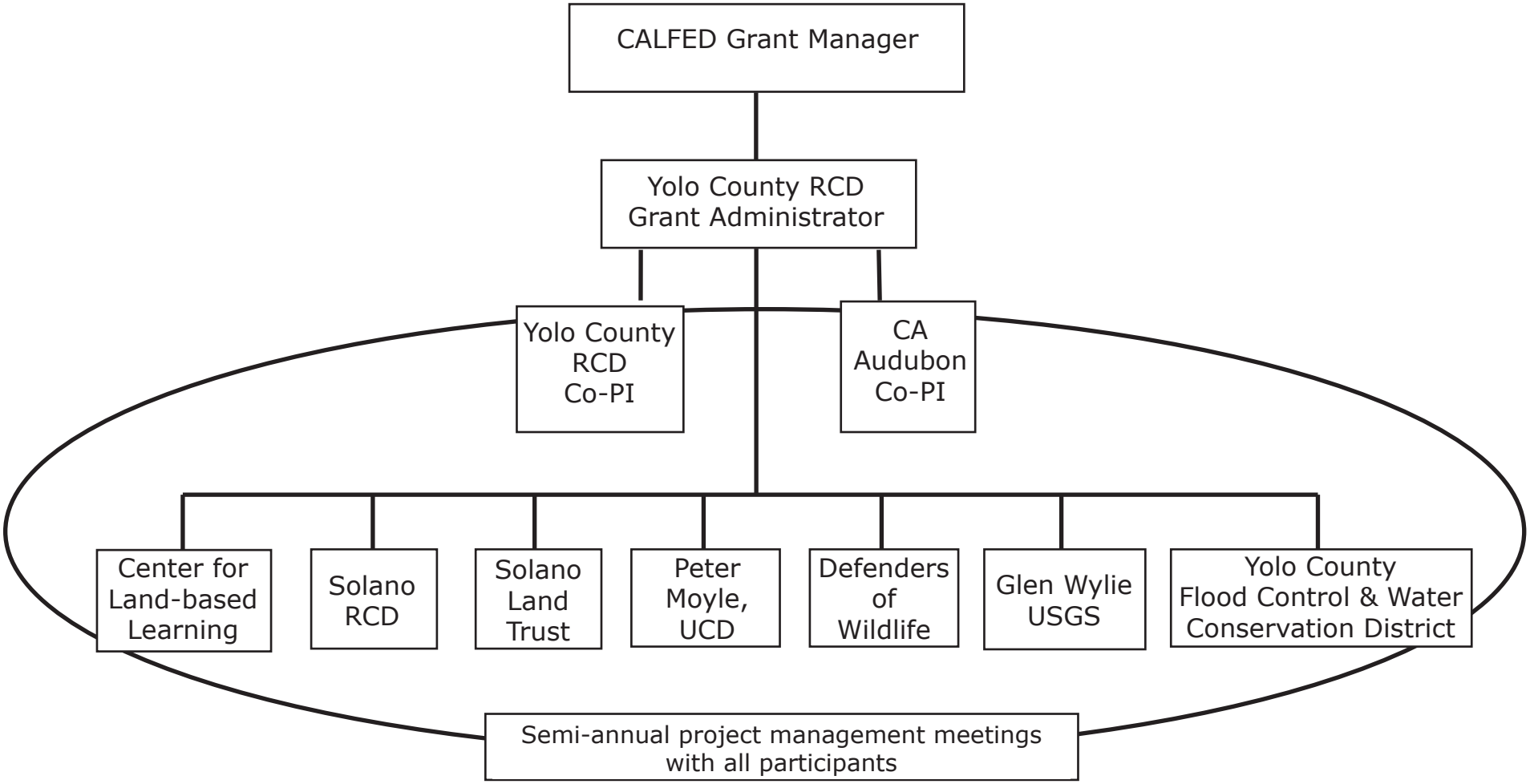
Personnel Costs	
CA staff member/Dir.	$ 5,000
Conservation Economics Staff	10,000
UC Davis Graduate Researcher (Natural Resource Economics)	40,000
Information and Logistic Costs	
Supplies	$ 1,500
Outreach (data collection and assessment, meetings)	3,000
Travel	2,000
Communications (telephone, fax)	500
Printing and Duplication of Reports	2,500
Indirect Costs @ 12%	7,740
Total:	$77,240

Appendix 6

Figure 6

Yolo-Solano Conservation Partnership For Habitat On Working Lands

Project Organizational Chart



Tasks And Deliverables

Task ID	Task Name	Start Month	End Month	Personnel Involved	Deliverables
1	Administration	1	36	Robins, Paul Wrysinski, Jeanette Russell, Vance Robins, Kathleen	Quarterly reports and invoices Final Project Report
2.1	Yolo Co. Safe Harbor Program	1	33	Russell, Vance	documentation in reports
2.2	Yolo Co. Permit Coordination Program	1	36	Robins, Paul	documentation in reports
2.3	Incentives layering program	1	36	Robins, Paul Russell, Vance	documentation in reports
3.1	Riparian enhancement projects	3	33	Wrysinski, Jeanette Russell, Vance Salz, Jodie Rose, Chris	photodocumentation and project descriptions in quarterly and final reports
3.2	Irrigation Canal Vegetation	3	33	Russell, Vance O'Halloran, Tim	Completed Canal Eco-management Manual, photodocumentation and project descriptions in quarterly and final reports
3.3	Farm Ponds for				photodocumentation

	Sacramento Perch	3	33	Wrysinski, Jeanette Russell, Vance Rose, Chris	and project descriptions in quarterly and final reports
4.1	Wildlife and vegetation monitoring on all sites	3	35	Wrysinski, Jeanette Rose, Chris	documentation of monitoring results and analysis in reports
4.2	Giant garter snake monitoring	1	36	Wrysinski, Jeanette Wylie, Glenn	documentation of monitoring results and analysis in reports
4.3	Sacramento Perch monitoring	1	36	Moyle, Peter	documentation of monitoring results and analysis in reports
4.4	Ecosystem Services study	1	24	Delfino, Kim	white paper and documentation in reports
5.1	Comprehensive Outreach Program	6	33	Robins, Paul Wrysinski, Jeanette Russell, Vance Salz, Jodie Robins, Kathleen	outreach plan documentation, documentation in reports url and printout of webpage conservation methods brochures evaluation results and analysis
5.2	Student &Landowner Education &Watershed Stewardship	6	33	Kimball, Mary	multimedia documentation of all activities
5.3	Peer-to-peer information sharing program	1	36	Wallace, Ben Salz, Jodie Robins, Kathleen	Documentation in quarterly and final reports
5.4					

	Extending the partnership model in Solano Co.	**1**	**36**	**Robins, Paul Russell, Vance Wallace, Ben Salz, Jodie Robins, Kathleen**	**documentation in quarterly and final reports**

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	$ 86,687.46	$ 87,084.06	$ 94,430.48	$ 268,201.99
Total Costs for Task Two	$ 46,464.30	$ 48,820.52	$ 51,228.54	$ 146,513.37
Total Costs for Task Three	$ 226,136.12	$ 245,444.54	$ 208,885.51	$ 680,466.17
Total Costs for Task Four	$ 212,740.63	$ 217,891.09	$ 147,847.53	$ 578,479.25
Total Costs for Task Five	$ 135,973.38	$ 129,571.72	$ 124,431.78	$ 389,976.88
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	$ 708,001.90	$ 728,811.92	$ 626,823.84	$ 2,063,637.66
1/Cost Share	$ -	$ -	$ -	$ -
2/ Other Matching Funds	$ 463,113.00	$ 463,113.00	$ 463,112.00	$ 1,389,338.00

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										
Executive Director	$ 24,448.85	$ 37.29	208	$ 7,755.38	$ 39.15	208	$ 8,143.15	$ 41.11	208	$ 8,550.31
Senior Program Manager	$ 39,093.37	$ 29.81	416	$ 12,400.75	$ 31.30	416	$ 13,020.79	$ 32.86	416	$ 13,671.83
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 63,542.22**			**$ 20,156.14**			**$ 21,163.94**			**$ 22,222.14**
1/ Benefits as percent of salary	35%			$7,054.65			$7,407.38			$7,777.75
Personnel Total (salary + benefits)	**$85,782.00**			**$27,210.78**			**$28,571.32**			**$29,999.89**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (software, office supplies, vehicle rental and insurance, communication, IT, postage and printing)	$ 42,900.00			$ 14,150.00			$ 12,800.00			$ 15,950.00
2/ Travel and Per Diem	$ 3,000.00			$ 1,000.00			$ 1,000.00			$ 1,000.00
	$ -			$ -			$ -			$ -
Audubon LSP	$ 73,800.00			$ 23,400.00			$ 24,600.00			$ 25,800.00
Solano RCD	$ 21,902.00			$ 8,484.00			$ 4,884.00			$ 8,534.00
Solano Land Trust	$ 16,436.00			$ 4,562.00			$ 7,312.00			$ 4,562.00
	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 158,038.00**			**$ 51,596.00**			**$ 50,596.00**			**$ 55,846.00**
5/ Overhead Percentage (Applied to Personnel & Other Costs)	10%			$ 7,880.68			$ 7,916.73			$ 8,584.59
Total Costs for Task One	**$ 268,201.99**			**$ 86,687.46**			**$ 87,084.06**			**$ 94,430.48**

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			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										
Executive Director	$ 24,448.85	$ 37.29	208	$ 7,755.38	$ 39.15	208	$ 8,143.15	$ 41.11	208	$ 8,550.31
Senior Program Manager	$ 19,546.69	$ 29.81	208	$ 6,200.38	$ 31.30	208	$ 6,510.39	$ 32.86	208	$ 6,835.91
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 43,995.53**			**$ 13,955.76**			**$ 14,653.55**			**$ 15,386.23**
1/ Benefits as percent of salary	35%			$4,884.52			$5,128.74			$5,385.18
Personnel Total (salary + benefits)	**$59,393.97**			**$18,840.28**			**$19,782.29**			**$20,771.40**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
4/ Audubon LSP	$ 73,800.00			$ 23,400.00			$ 24,600.00			$ 25,800.00
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 73,800.00**			**$ 23,400.00**			**$ 24,600.00**			**$ 25,800.00**
5/ Overhead Percentage (Applied to Personnel & Other Costs)	10%			$ 4,224.03			$ 4,438.23			$ 4,657.14
Total Costs for Task Two	**$ 146,513.37**			**$ 46,464.30**			**$ 48,820.52**			**$ 51,228.54**

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 THREE	TOTAL AMOUNT TASK 3 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										
Senior Program Manager	$ 19,547.01	$ 29.81	208	$ 6,200.48	$ 31.30	208	$ 6,510.50	$ 32.87	208	$ 6,836.03
Vegetation Specialist	$ 14,458.63	$ 22.05	208	$ 4,586.40	$ 23.15	208	$ 4,815.72	$ 24.31	208	$ 5,056.51
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -

	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 34,005.64**			**$ 10,786.88**			**$ 11,326.22**			**$ 11,892.54**
1/ Benefits as percent of salary	35%			$3,775.41			$3,964.18			$4,162.39
Personnel Total (salary + benefits)	**$45,907.61**			**$14,562.29**			**$15,290.40**			**$16,054.92**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (earthmoving and site preparation costs, equipment rental, seed, plant materials, irrigation supplies, small tools, signage)	$ 154,500.00			$ 57,500.00			$ 60,500.00			$ 36,500.00
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
4/ Audubon LSP	$ 352,000.00			$ 110,000.00			$ 117,000.00			$ 125,000.00
4/ Solano Land Trust	$ 2,898.00			$ 966.00			$ 966.00			$ 966.00
4/ Solano RCD	$ 27,300.00			$ 4,550.00			$ 11,375.00			$ 11,375.00
4/ Yolo Co. Flood Control and Water Conservation District, subtask 3.3 only	$ 36,000.00			$ 18,000.00			$ 18,000.00			$ -
	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 572,698.00**			**$ 191,016.00**			**$ 207,841.00**			**$ 173,841.00**
5/ Overhead Percentage (Applied to Personnel & Other Costs)	10%			$ 20,557.83			$ 22,313.14			$ 18,989.59
Total Costs for Task Three	**$ 680,466.17**			**$ 226,136.12**			**$ 245,444.54**			**$ 208,885.51**

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 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										
Senior Program Manager	$ 39,094.03	$ 29.81	416	$ 12,400.96	$ 31.30	416	$ 13,021.01	$ 32.87	416	$ 13,672.06
Vegetation Specialist	$ 28,917.25	$ 22.05	416	$ 9,172.80	$ 23.15	416	$ 9,631.44	$ 24.31	416	$ 10,113.01
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 68,011.28**			**$ 21,573.76**			**$ 22,652.45**			**$ 23,785.07**
1/ Benefits as percent of salary	35%			$7,550.82			$7,928.36			$8,324.77
Personnel Total (salary + benefits)	**$91,815.23**			**$29,124.58**			**$30,580.80**			**$32,109.85**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**

Operating Expenses: (smalll tools and monitoring supplies)	$ 4,000.00			$ 1,000.00			$ 1,500.00			$ 1,500.00
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
4/ Audubon LSP, subtask 4.1	$ 66,000.00			$ 21,000.00			$ 22,000.00			$ 23,000.00
4/ UC Davis, Dr. Peter Moyle, subtask 4.3	$ 190,872.00			$ 63,324.00			$ 63,464.00			$ 64,084.00
4/ US Geological Survey, Dr. Glenn Wylie, subtask 4.2	$ 103,203.00			$ 43,952.00			$ 45,538.00			$ 13,713.00
4/ Defenders of Wildlife, subtask 4.4	$ 70,000.00			$ 35,000.00			$ 35,000.00			$ -
	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 434,075.00**			**$ 164,276.00**			**$ 167,502.00**			**$ 102,297.00**
5/ Overhead Percentage (Applied to Personnel & Other Costs)	10%			$ 19,340.06			$ 19,808.28			$ 13,440.68
Total Costs for Task Four	**$ 578,479.25**			**$ 212,740.63**			**$ 217,891.09**			**$ 147,847.53**

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 FIVE	**TOTAL AMOUNT TASK 5 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										
Executive Director	$ 12,225.90	$ 37.29	104	$ 3,878.16	$ 39.15	104	$ 4,072.07	$ 41.11	104	$ 4,275.67
Senior Program Manager	$ 19,547.01	$ 29.81	208	$ 6,200.48	$ 31.30	208	$ 6,510.50	$ 32.87	208	$ 6,836.03
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 31,772.91**			**$ 10,078.64**			**$ 10,582.57**			**$ 11,111.70**
1/ Benefits as percent of salary	35%			$3,527.52			$3,703.90			$3,889.10
Personnel Total (salary + benefits)	**$42,893.43**			**$13,606.16**			**$14,286.47**			**$15,000.80**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (workshop expenses and supplies,)	$ 1,500.00			$ 500.00			$ 500.00			$ 500.00
	$ -									
3/ Center for Land-Based Learning	$ 82,500.00			$ 33,000.00			$ 33,000.00			$ 16,500.00
4/ Solano RCD	$ 70,713.00			$ 25,600.00			$ 17,800.00			$ 27,313.00
4/ Audubon LSP	$ 90,300.00			$ 28,700.00			$ 30,000.00			$ 31,600.00
4/ Solano Land Trust, tasks 5.3 and 5.4 only	$ 66,618.00			$ 22,206.00			$ 22,206.00			$ 22,206.00
	$ -			$ -			$ -			$ -
	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 311,631.00**			**$ 110,006.00**			**$ 103,506.00**			**$ 98,119.00**

5/ Overhead Percentage (Applied to Personnel & Other Costs)	10%			$ 12,361.22			$ 11,779.25			$ 11,311.98
Total Costs for Task Five	**$ 389,976.88**			**$ 135,973.38**			**$ 129,571.72**			**$ 124,431.78**

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 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	$ -			$ -			$ -			$ -
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

		Year 1	Year 2	Year 3

Environmental Compliance

CEQA Compliance

Which type of CEQA documentation do you anticipate?
− none *Skip the remaining questions in this section.*
X 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.

X 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.
Yolo County Resource Conservation District
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?
No.

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.

We are developing the program description for coordinated permitting of all of the projects included in this program. We will complete CEQA documentation by June 2006, before this program will be funded.

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.

USDA NRCS

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	–	X	
CESA Compliance: 2081	–	–	
CESA Complance: NCCP	–	–	
Lake Or Streambed Alteration Agreement	X	–	
CWA 401 Certification	X	–	
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	X	–	
ESA Compliance Section 10 Permit	–	–	
Rivers And Harbors Act	–	–	
CWA 404	X	–	
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.

As we enter into agreements with private landowners, we will receive documented permission to access their property and submit copies to Calfed as requested.

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.

Projects will be completed in collaboration with willing landowners. Access will be provided as requested to each landowner benefitting from the project.

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?
– No. *Skip to the next set of questions.*
X Yes. *Answer the following questions.*

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

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

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

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

These are farm field edge projects that will not impinge significantly on the farming operation, but are intended to integrate easily with farm operations and function.

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

Exact acreages of different types of farmland and the amount under Williamson Act contracts will be determined when landowner agreements are set during the project period. Work under this program will have no negative effect on ability to farm.