## **Restoring Ecosystem Integrity in the Northwest Delta:** PHASE II

## **Project Information**

#### 1. Proposal Title:

Restoring Ecosystem Integrity in the Northwest Delta: PHASE II

#### 2. Proposal applicants:

Pamela Muick, Solano County Farmlands and Open Space Foundation

#### 3. Corresponding Contact Person:

Pamela Muick Solano County Farmlands & Open Space Foundation PO Box 115 Fairfield, CA 94533 707 432-0150 pam@solanolandtrust.org

#### 4. Project Keywords:

Habitat Restoration, Riparian Habitat Restoration, Upland Habitat Restoration, Wetland

5. Type of project:

Planning

6. Does the project involve land acquisition, either in fee or through a conservation easement?

Yes

If yes, is there an existing specific restoration plan for this site?

No

7. Topic Area:

**Riparian Habitat** 

#### 8. Type of applicant:

Private non-profit

9. Location - GIS coordinates:

Latitude: 38.2567 Longitude: -121.7836

Datum:

## Describe project location using information such as water bodies, river miles, road intersections, landmarks, and size in acres.

East SOlano County from east edge of Travis Air Force Base to the confluence of Lindsey Slough and the Sacramento River.

#### 10. Location - Ecozone:

10.3 Solano, 1.1 North Delta, 2.1 Suisun Bay & Marsh, Code 15: Landscape

#### 11. Location - County:

Solano

#### 12. Location - City:

Does your project fall within a city jurisdiction?

No

#### 13. Location - Tribal Lands:

Does your project fall on or adjacent to tribal lands?

No

#### 14. Location - Congressional District:

3

#### 15. Location:

California State Senate District Number: 4

California Assembly District Number: 8

#### 16. How many years of funding are you requesting?

3

#### 17. Requested Funds:

a) Are your overhead rates different depending on whether funds are state or federal?

No

If no, list single overhead rate and total requested funds:

Single Overhead Rate: 20

Total Requested Funds: 2,589,923

b) Do you have cost share partners <u>already identified</u>?

No

c) Do you have <u>potential</u> cost share partners?

Yes

If yes, list partners and amount contributed by each:

#### City of Fairfield Unknown

d) Are you specifically seeking non-federal cost share funds through this solicitation?

No

If the total non-federal cost share funds requested above does not match the total state funds requested in 17a, please explain the difference:

#### 18. Is this proposal for next-phase funding of an ongoing project funded by CALFED?

Yes

If yes, identify project number(s), title(s) and CALFED program (e.g., ERP, Watershed, WUE, Drinking Water):

#### 97-N10 Restoring Ecosystem Integrity to the Great Jepson Praire Ecosystem ERP

Have you previously received funding from CALFED for other projects not listed above?

No

#### 19. Is this proposal for next-phase funding of an ongoing project funded by CVPIA?

No

Have you previously received funding from CVPIA for other projects not listed above?

No

20. Is this proposal for next-phase funding of an ongoing project funded by an entity other than CALFED or CVPIA?

No

Please list suggested reviewers for your proposal. (optional)

Michael Eaton The Nature Consevancy

Kevin Rice University of California at Davis

Peter Moyle University of California at Davis

#### 21. Comments:

## **Environmental Compliance Checklist**

### **Restoring Ecosystem Integrity in the Northwest Delta: PHASE II**

#### 1. CEQA or NEPA Compliance

a) Will this project require compliance with CEQA?

No

b) Will this project require compliance with NEPA?

No

c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.

According to CEQA guidelines Section 15378(A), all of our proposed activites are non-invasive and would not change existing environmental conditions on site.

2. If the project will require CEQA and/or NEPA compliance, identify the lead agency(ies). *If* not applicable, put "None".

<u>CEQA Lead Agency:</u> <u>NEPA Lead Agency (or co-lead:)</u> <u>NEPA Co-Lead Agency (if applicable):</u>

3. Please check which type of CEQA/NEPA documentation is anticipated.

#### CEQA

-Categorical Exemption -Negative Declaration or Mitigated Negative Declaration -EIR Xnone

NEPA

-Categorical Exclusion -Environmental Assessment/FONSI -EIS Xnone

If you anticipate relying on either the Categorical Exemption or Categorical Exclusion for this project, please specifically identify the exemption and/or exclusion that you believe covers this project.

#### 4. CEQA/NEPA Process

a) Is the CEQA/NEPA process complete?

Not Applicable

- b) If the CEQA/NEPA document has been completed, please list document name(s):
- 5. Environmental Permitting and Approvals (If a permit is not required, leave both Required? and Obtained? check boxes blank.)

#### LOCAL PERMITS AND APPROVALS

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

Scientific Collecting Permit Required CESA Compliance: 2081 CESA Compliance: NCCP 1601/03 CWA 401 certification Coastal Development Permit Reclamation Board Approval Notification of DPC or BCDC Other

#### FEDERAL PERMITS AND APPROVALS

ESA Compliance Section 7 Consultation ESA Compliance Section 10 Permit Rivers and Harbors Act CWA 404 Other

#### PERMISSION TO ACCESS PROPERTY

Permission to access city, county or other local agency land. Agency Name:

Permission to access state land. Agency Name: Department of Fish and Game

Required, Obtained

Permission to access federal land. Agency Name:

Permission to access private land. Landowner Name: Pembco

Required, Obtained

#### 6. Comments.

## Land Use Checklist

### **Restoring Ecosystem Integrity in the Northwest Delta: PHASE II**

#### 1. Does the project involve land acquisition, either in fee or through a conservation easement?

Yes

If you answered yes to #1, please answer the following questions:

a) How many acres will be acquired?

<u>Fee</u>: 775 <u>Easement</u>: 0 <u>Total</u>: 775

b) Will existing water rights be acquired?

Yes

c) Are any changes to water rights or delivery of water proposed?

No

2. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

No

#### 3. Do the actions in the proposal involve physical changes in the land use?

No

If you answered no to #3, explain what type of actions are involved in the proposal (i.e., research only, planning only).

The proposal requests funding for a change in land manangement. Development and implementation of a management plan will include restoration by means of controlled grazing and targeted weed control. As a part of the proposal, a hydrologic survey will be completed to assess the feasibility of levee setbacks on this property. No action other than a feasibility assessment is proposed in this submittal.

#### 4. Comments.

CALFED prioritizes acquisitions that are not prime farmland or farmland of statewide importance. This should not deter CALFED from this proposal because the land will remain in agriculture. The only changes will be the way the property is managed.

## **Conflict of Interest Checklist**

## **Restoring Ecosystem Integrity in the Northwest Delta: PHASE II**

Please list below the full names and organizations of all individuals in the following categories:

- Applicants listed in the proposal who wrote the proposal, will be performing the tasks listed in the proposal or who will benefit financially if the proposal is funded.
- Subcontractors listed in the proposal who will perform some tasks listed in the proposal and will benefit financially if the proposal is funded.
- Individuals not listed in the proposal who helped with proposal development, for example by reviewing drafts, or by providing critical suggestions or ideas contained within the proposal.

The information provided on this form will be used to select appropriate and unbiased reviewers for your proposal.

#### Applicant(s):

Pamela Muick, Solano County Farmlands and Open Space Foundation

#### Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

If yes, please list the name(s) and organization(s):

Ted Swiecki	Phytosphere Research
Liz Bernhardt	Phytospher Research
Philip Williams	Philip Williams and Associates
Carol Witham	Witham Botanical Consulting

#### Helped with proposal development:

Are there persons who helped with proposal development?

Yes

If yes, please list the name(s) and organization(s):

#### Valerie Calegarie The Nature Conservancy

**Comments:** 

## **Budget Summary**

### **Restoring Ecosystem Integrity in the Northwest Delta: PHASE II**

Please provide a detailed budget for each year of requested funds, indicating on the form whether the indirect costs are based on the Federal overhead rate, State overhead rate, or are independent of fund source.

#### Independent of Fund Source

Year 1												
Task No.	Task Description	Direct Labor Hours	Salary (per year)	Benefits (per year)	Travel	Supplies & Expendables	Services or Consultants	Equipment	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost
1	Baseline Surveys an Management Plan (Wilcox)	160	3776	954	250	500	20000	1000	0	26480.0	5296	31776.00
2	Restoration and Monitoring	250	4158	832	250	500		10500		16240.0	3248	19488.00
3	Grazing/Burning study						25000			25000.0	5000	30000.00
4	Endowment								786700	786700.0		786700.00
5	Land Acquisition	280	9195	1933	200	300			1182900	1194528.0	2325	1196853.00
6	Slough Bathymetric Study						150000			150000.0	30000	180000.00
7	Slough Hydrologic Assessment									0.0		0.00
8	Outreach/Education	260	10400		750			1000		12150.0	2430	14580.00
9	Project Management	100	3284	690						3974.0	795	4769.00
		1050	30813.00	4409.00	1450.00	1300.00	195000.00	12500.00	1969600.00	2215072.00	49094.00	2264166.00

Task No.	Task Description	Direct Labor Hours	Salary (per year)	Benefits (per year)	Travel	Supplies & Expendables	Services or Consultants	Equipment	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost
1	Baseline Surveys an Management Plan (Pembco)	160	3776	954	250	500	20000	1000		26480.0	5296	31776.00
2	Restoration and Monitoring									0.0		0.00
3	Grazing/Burning study						25000			25000.0	5000	30000.00
7	Slough Hydrologic Assessment						150000			150000.0	30000	180000.00
8	Outreach/Education	280	11200		700			800		12700.0	2540	15240.00
9	Project Management	100	3284	690						3974.0	795	4769.00
		540	18260.00	1644.00	950.00	500.00	195000.00	1800.00	0.00	218154.00	43631.00	261785.00

Year 3												
Task No.	Task Description	Direct Labor Hours	Salary (per year)	Benefits (per year)	Travel	Supplies & Expendables	Services or Consultants	Equipment	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost
2	Restoration and Monitoring	320	5322	1064	350	1400		1000		9136.0	1827	10963.00
3	Grazing/Burning study						25000			25000.0	5000	30000.00
8	Outreach/Education	320	12800		700	300		1400		15200.0	3040	18240.00
9	Project Management	100	3284	690						3974.0	795	4769.00
		740	21406.00	1754.00	1050.00	1700.00	25000.00	2400.00	0.00	53310.00	10662.00	63972.00

#### Grand Total=<u>2589923.00</u>

#### Comments.

Slight differences between this budget spreadsheet and the budget spreadsheet in the proposal are due to rounding differences. The totals are identical.

## **Budget Justification**

## **Restoring Ecosystem Integrity in the Northwest Delta: PHASE II**

Direct Labor Hours. Provide estimated hours proposed for each individual.

Muick 580 Poerner 570 Meisler 320 Outreach specialist 860

Salary. Provide estimated rate of compensation proposed for each individual.

Muick \$32.84 Poerner \$16.63 Meisler \$23.60 Outreach specialist \$40.00

**Benefits.** Provide the overall benefit rate applicable to each category of employee proposed in the project.

Muick 21% Poerner 20% Meisler 25.27% Outreach specialist 0%

Travel. Provide purpose and estimate costs for all non-local travel.

All travel is local.

**Supplies & Expendables.** Indicate separately the amounts proposed for office, laboratory, computing, and field supplies.

Office \$1500 Computing \$1500 Field Supplies \$500

**Services or Consultants.** Identify the specific tasks for which these services would be used. Estimate amount of time required and the hourly or daily rate.

Task 1. Baseline surveys and management plan. There will be two management plans (Wilcox and Pembco). Approximately 28 days at \$720/day will be required for each management plan. This is in addition to staff time. Task 3. Grazing/Burning Study. The study will include literature review, planning, setup, data collection, analysis and report writing. It will require approximately 104 days of work over three years at \$720/day. Task 6. Slough Bathymetric Study will require three months including background data searches, surveys data compilation and report writing. Hourly rates will vary dramatically from principal investigator to hydrologist to sureyor. Estimated daily cost is \$1700.

**Equipment.** Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than \$5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items.

1 400cc 4X4 quad all terrain vehicle with insurance and maintenance for three years will cost \$7000. All other equipment pieces are less than \$5000.

**Project Management.** Describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, report preparation, giving presentatons, reponse to project specific questions and necessary costs directly associated with specific project oversight.

Inspection of work progress:50 hours at \$39.74/hour Reporting to Board and CALFED:120 hours at \$39.74/hour Oversee staff:80 hours at \$39.74/hour Respond to project specific questions:50 hours at \$39.74/hour

Other Direct Costs. Provide any other direct costs not already covered.

Other direct costs include herbicides, applicators, licensing, hydraulic post pounder, photo processing, burn permits

**Indirect Costs.** Explain what is encompassed in the overhead rate (indirect costs). Overhead should include costs associated with general office requirements such as rent, phones, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific costs.

The Foundation uses a predetermined 20% overhead. This is based on administrative administrative staff, rent, phones, insurance and copies.

## **Executive Summary**

### **Restoring Ecosystem Integrity in the Northwest Delta: PHASE II**

The Cache Slough complex in eastern Solano County was once a large and vitally linked ecosystem composed of dead end sloughs and adjacent riparian, marsh, vernal pool and perennial grassland habitats. Although comprising only a small part of the vast Bay-Delta ecosystem, the complex provides essential habitat for numerous resident and migratory species including 29 at-risk species. This proposal focuses on the southern arm of the Cache Slough complex which follows Lindsey Slough west from the Sacramento River where it splits into two smaller dead end sloughs, Barker Slough and Calhoun Cut. This slough system together with adjacent uplands is known as the Jepson Prairie-Prospect Island Corridor (Corridor). The Corridor includes over ten miles of sloughs, 614 acres of riparian and marsh habitat, 38 acres of mid-channel islands and over 17,000 acres of vernal pool/perennial grassland habitats. Due to the lack of development in this area, landscape scale restoration is both politically feasible and economically affordable. The Solano County Farmlands & Open Space Foundation (Foundation) requests \$2,589,923 to implement PHASE II of landscape scale restoration of the Corridors uplands and waterways. Our objective is to achieve one overarching goal: To reestablish vital ecosystem function through the entire Lindsey Slough watershed by restoring important habitat types to benefit 29 at risk species, while simultaneously maintaining compatible agricultural land uses. The four-component project includes demonstration and research projects implemented with numerous partners. The project consists of:  Component One includes vernal pool restoration on over 1700 acres including control of non-native species; research on different grazing and burning treatments as restoration techniques; and establishment of an endowment to ensure long term stewardship of the Corridors habitats.  Component Two involves acquisition and restoration of 775 acres of the Pembco property along Barker Slough. The acquisition is strategic since the property is contiguous with already protected lands; the restored property will remain in agriculture.  Component Three provides hydrologic data to determine the feasibility and ramifications of landscape scale restoration focused on levee setbacks and removals.  Component Four creates an outreach program to strengthen existing partnerships and work with agricultural interests to ensure acceptance and implementation of the CALFED program. The primary expected outcome of this long-term, multi-phase and multi-habitat project is a restored, protected corridor extending from Jepson Prairie to Prospect Island. Specifically, we intend to double the overall acreage of marsh and riparian habitats, double the protected acres of vernal pool/perennial grasslands and increase the abundance and local distribution of at risk and other native plant and animal species. The project complements Strategic Goals 1,2.4 and 5 as identified the CALFED Ecosystem Restoration Program and is supported by stakeholder agencies and organizations. The long term conservation returns from PHASE II can be accomplished while maintaining the local agricultural and economic base.

## Proposal

## Solano County Farmlands and Open Space Foundation

## **Restoring Ecosystem Integrity in the Northwest Delta: PHASE II**

Pamela Muick, Solano County Farmlands and Open Space Foundation

## Restoring Ecosystem Integrity in the Northwest Delta PHASE II

## A. Project Description

### 1. Problem

The Cache Slough complex, while only a small part of the vast Bay-Delta ecosystem, in eastern Solano County was once a large and vitally linked ecosystem composed of dead end sloughs and adjacent riparian, marsh, vernal pool and perennial grassland habitats. The complex provides essential habitat for resident and migratory fish, waterfowl, songbirds, mammals, amphibians, reptiles, invertebrates and plants. Its southern arm follows Lindsey Slough west from the Sacramento River where it splits into two smaller dead end sloughs, Barker Slough and Calhoun Cut. This portion of the Lindsey Slough watershed is known as the Jepson Prairie-Prospect Island Corridor (Corridor).

The Corridor's watershed crosses three Ecological Management Zones from west to east: the Bay Region EMZ, the Sacramento EMZ and the Delta EMZ (CALFED 2001). Roughly bounded by Travis Air Force Base in the west, Hay Road in the north, Creed Road in the south and Prospect Island in the east, the Corridor is comprised of 10.3 miles of slough habitat, 614 acres of tule marsh and riparian habitat, 38 acres of mid-channel islands and one of the largest and most intact vernal pool/perennial grassland complexes in the state of California (Figure 1; Table 1).

The ecological processes, habitats and species characteristic of the Corridor are impacted by several major stressors:

*Conversion of vernal pool/perennial upland habitat to non-compatible uses* – Central Valley vernal pool habitat has been reduced by 75% as a result of intensive agriculture, flood control, overgrazing and urbanization. This rate continues at 1.5% per year threatening the highly adapted at risk species endemic to this habitat (Holland 1998). The Greater Jepson Prairie Ecosystem, in which the Corridor sits, has been spared to some extent by its relatively infertile soils but recent demand for land by real estate developers, power companies, Travis Air Force Base and potential ranchette owners poses a serious threat to this area.

*Non-native species* – Displacement of native species is common in cases where species are naturally rare like many vernal pool species or where highly invasive species form homogeneous stands as is the case with the upland grass species medusahead (Swiecki and Bernhardt 2001). Table 2 provides a list of target weed species.

*Levee construction and removal of riparian vegetation* – Most of the open water segments of the Corridor are confined between large earthen levees largely devoid of woody riparian vegetation. Often these barriers are reinforced with riprap along minor and major meander bends. Processes affected include altered net flows, lowered residence times and reduced nutrient cycling as result of the isolation or absence of

adjacent riparian and marsh habitats (CALFED 2000). The reduction of riparian, marsh and shaded riverine aquatic habitats affects a large number of terrestrial and aquatic species dependent these habitats (CALFED 2000; Knopf 1985; Brode and Bury 1984).

*Water diversion* – The Barker Slough Pumping Plant, completed in 1988, exports water to the North Bay Aqueduct providing the secondary source of drinking water for Solano County. When the primary source of drinking water, Lake Berryessa, cannot meet demand the County becomes dependent on Barker Slough. The plant is equipped with a fish screen but entrainment of small fry may still be an issue. Of great concern also is the disruption of tidal flow into upper Barker Slough causing the upper and lower reaches to become disconnected during the summer months.

In this project, Solano County Farmlands & Open Space Foundation (Foundation) will continue and expand upon work begun in Phase I (CALFED 97-N10)<sup>1</sup>. PHASE II will implement a three-year, four-component program. The project will include elements of both targeted research and demonstration projects.

In Phase I the Foundation broadened its understanding of vernal pool restoration through focused weed control efforts. In Phase II it will continue this track by beginning to understand the needs and implications surrounding large-scale restoration of the slough ecosystem. If funded, PHASE II will be followed by PHASE III which includes implementation of large scale restoration and monitoring. This multi-phase, multi-year program is a long term commitment by the Foundation that will bear large conservation returns including watershed wide conservation planning, increased populations and cover of native species, control of non-native species, building of partnerships with local entities and perpetual stewardship over one of the richest ecosystems in California.

This proposal is requesting \$2,589,923 for PHASE II. Unless otherwise noted, all the following sections of this proposal apply only to PHASE II.

Jepson Prairie-Prospect Island Corridor (CALFED 2000).								
Habitat Type	Approximate existing area or length							
Dead end slough	10.3 miles							
Riparian/Marsh	614 acres							
Mid-channel islands	38 acres							
Vernal pool/perennial	>17,000 acres							
grassland								

Table 1. Target habitats identified by CALFED that occur in theJepson Prairie-Prospect Island Corridor (CALFED 2000).

<sup>&</sup>lt;sup>1</sup> Details regarding the goals, successes and status of Phase I can be found in Attachment 1.

Table 2.	Target weed species in the Jepson Prairie-Pr	ospect Island Corridor.
â	N	

Common Name	Scientific Name
Fennel	Foeniculum vulgare
Italian thistle	Carduus pycnocephalus
Yellow star-thistle	Centaurea solstitialis
Purple star-thistle	Centaurea calcitrapa
Bull thistle	Cirsium vulgare
Milk thistle	Silybum marianum
Cocklebur	Xanthiium strumarium
Perennial pepperweed	Lepidium latifolium
Goat grass	Aegilops cylindrica
Medusahead grass	Taeniatherum caput-medusae

#### **GOALS**

## Component One. Restoration and management of the vernal pools and perennial grasslands on 1700 acres of the Wilcox Ranch or an equivalent property.

**Goal 1.1**: Initiate start up stewardship activities on 1700 acres of vernal pool/perennial grassland habitat (**Strategic Goal 4**).

**Objective 1.1**: Develop a management plan and implement restoration through focused control of purple star thistle, lippia and medusahead.

**Goal 1.2**: Sustain or improve cover of at risk species and prevent vulnerable species from becoming at risk (**Strategic Goal 1**).

**Objective 1.2**: Track changes in cover and distribution of at risk and indicator species using a systematic and repeatable monitoring method that can be analyzed over periods long enough to flush out natural variation but short enough to respond to declining populations.

**Goal 1.3**: Determine best management practices to increase native species and decrease nonnative species (**Strategic Goal 5**).

**Objective 1.3**: Conduct study to understand the effects of grazing and burning treatments on target native and non-native species.

**Goal 1.4**: Establish a means for the perpetual protection of a large area of vernal pool/ perennial grassland habitat and its associated species (**Strategic Goals 1 and 4**) **Objective 1.4**: Establish a suitable endowment to ensure perpetual stewardship on the recently purchased Wilcox Ranch or equivalent property.

## Component Two – Acquire and restore the upland, riparian and mid-channel island habitats of the 775-acre Pembco property.

**Goal 2.1**: Protect existing riparian, wetland and upland agricultural habitat in the corridor (**Strategic Goal 4**).

**Objective 2.1**: Acquire 775-acre parcel, develop management plan and implement restoration and wildlife friendly agricultural practices.

## Component Three. Hydrologic assessment of the feasibility of large-scale restoration in the Corridor.

**Goal 3.1**: Assess feasibility of restoring hydrologic processes necessary for natural reestablishment of riparian, shaded riverine aquatic and marsh habitat in the Corridor (**Strategic Goal 4**).

**Objective 3.1**: Hire consultant to conduct bathymetric studies and create hydrodynamic models to determine feasibility of levee removal and levee setbacks in the Corridor.

## Component Four. Outreach campaign to educate and build support among local stakeholder agencies and organizations.

**Goal 4.1:** Educate potential partners and opponents to build support and diffuse conflicts by providing information and opportunities for 2-way communication.

**Objective 4.1:** Develop and implement educational outreach campaign directed toward local agencies and organizations.

#### **HYPOTHESES**

(These hypotheses address the full scope of the project and include PHASES I, II and III)

- A combination of prescribed burning and grazing treatments will increase the cover of native species and decrease the cover of target weed species in vernal pool/perennial grassland complexes.
- Levee removal and/or setbacks will facilitate the natural regeneration of riparian and marsh habitats.
- Levee removal and/or setbacks will increase abundance and local distribution of at risk and other native fish, invertebrates and plants associated with dead end sloughs and adjacent habitats.

#### 2. Justification

The Jepson Prairie-Prospect Island Corridor presents a rare opportunity to restore an entire slough system from the upper reaches of its watershed to its confluence with the Sacramento River. A vast and nearly connected area of over 5000 acres is already protected by the Foundation, the California Department of Fish & Game, The Nature Conservancy and mitigation holdings (Figure 1). The protected acreages include vernal pools, perennial grasslands, marsh, riparian and slough habitats. Each of these habitats is rich in species, 29 of which are targeted for recovery by CALFED and other agencies (Table 3).

The vital link between slough and the upland has been compromised and, in many cases, severed. Large earthen levees have long isolated the slough from its floodplain causing the tule marshes to shrink and almost completely wiping out riparian vegetation. In the grasslands, laser leveling, trenching, over-and undergrazing have contributed to a loss of species. This is compounded by the massive influx of non-native invasive species. Annual grasses, such as Italian ryegrass, not only displace natives through their presence but also through the buildup of thatch (Barry 1998). Accumulated thatch absorbs significant water causing vernal pools to fill more slowly and

reduces the pools' hydroperiod. This, in turn, permits the advance of the ryegrass further into the once prohibitively wet pool and displaces native species (Keeley and Zedler 1998).

In many cases, natural drainage from upland to the slough has been channelized delivering high velocity, sediment laden waters across bare banks and into the sloughs. The reduced ability of the slough system to retain water due to loss of floodplain and meandering capability causes higher peak flows which may cause fish and invertebrates to be flushed from the system. Water quality is reduced during these periods.

Restorative actions in the uplands such as controlled burning and seasonal grazing will reinstate the ecological processes with which all obligate vernal pool species have evolved. Stopping the spread of weeds in the upper watershed is crucial to slowing infestations in the lower watershed (Pringle 2001). This restoration of process is the first step toward stabilization and recovery of at risk species.

Removal and/or setbacks of levees along the sloughs will reunite the slough with its floodplain leading to an increase in marsh, riparian and shaded riverine aquatic habitat and the numerous species associated with it. Development of riparian habitat benefits both terrestrial and aquatic species by substantially increasing habitat complexity (Nakano and Murakami 2001; Krajick 2001).

The Calhoun Cut borders Jepson Prairie Preserve is free of levees, the riparian forest is relatively intact and fingers of tule marsh penetrate the uplands. Families of otters swim through the shallows, beaver take willows as they can, pond turtles bask and herons prowl the banks. Aquatic surveys in this shallow backwater habitat turned up an exceedingly high diversity of invertebrates and rearing fingerlings of chinook salmon and steelhead trout. This, ultimately, is the vision and the justification for the Jepson Prairie-Prospect Island Corridor.

5

Species	Latin binomial	Confirmed
		presence
Plants		
Suisun marsh aster	Aster lentus	Х
Mason's lilaeopsis	Lilaeopsis masonii	Х
Delta tule pea	Lathyrus jepsonii	Х
Delta mudwort	Limosella subulata	Х
Alkali milk-vetch	Astragalus tener var. tener	Х
Crampton's tuctoria	Tuctoria mucronata	X <sup>a</sup>
Colusa grass	Neostapfia colusana	Х
Boggs lake hedge-hyssop	Gratiola heterosepala	Х
Contra Costa goldfields	Lansthenia conjugens	Х
Legenere	Legenere limosa	Х
Fragrant fritillary	Fritillaria liliacea	Х
Dwarf downingia	Downingia pusilla	Х
<sup>a</sup> not seen for several years		
Invertebrates		
Conservancy fairy shrimp	Branchinecta conservatio	Х
Vernal pool fairy shrimp	Branchinecta lynchii	X
Vernal pool tadpole shrimp	Lepidurus packardi	X
Delta green ground beetle	Elaphris viridis	Х
Fish		
Delta smelt	Hypomesus transpacificus	
Splittail	Pogonichthys macrolepidotus	
Chinook salmon	Oncorhyncus tshawytscha	X
Steelhead trout	Oncorhynchus mykiss	Х
Striped bass	Morone saxatilis	Х
Sacramento perch	Archoplites interruptus	
Wildlife		
Giant garter snake	Thamnophis gigas	
Western spadefoot	Scaphiopus hammondi	
California tiger salamander	Ambystoma californiense	X
Western pond turtle	Clemmys marmorata marmorata	Х
Western yellow-billed cuckoo	Coccyzus americanus	
Burrowing owl	Athene cunicularia	
Swainson's Hawk	Buteo swainsoni	Х

Table 3. At risk species identified by CALFED and other special status species that occur or are likely to occur in the Jepson Prairie-Prospect Island Corridor (CALFED 2000).

#### 3. Approach

#### PHASE II

## Component 1. Restoration and Management of the vernal pools and perennial grasslands of 1700 acres of the Wilcox Ranch or an equivalent property.

In October 2001 The Nature Conservancy (TNC) will purchase the 3400 acre Wilcox Ranch, a vast expanse of vernal pools and perennial grasslands hosting one of the finest examples of mima mound microtopography in Solano County and perhaps the Great Central Valley (Figure 1). The

Foundation believes that this property holds equal or greater biological value than the Jepson Prairie Preserve. As part of its *Conservation Strategy for the Vernal Pools of the Greater Jepson Prairie Ecosystem* (Meisler 2001), the Foundation assisted TNC in securing the funding for the ranch from the Wildlife Conservation Board.

The ranch is vitally linked to two watersheds, Lindsey Slough in the east and Denverton Creek in the south Figure 1. Denverton Creek flows into Denverton Slough in the Suisun Marsh. Based on species surveys in the vicinity, the ranch has strong potential to support numerous special status species including alkali milk-vetch, Bogg's lake hedge-hyssop, Colusa grass, California tiger salamander, Conservancy fairy shrimp and the Swainson's hawk to name a few. The ranch is known to support Contra Costa goldfields.

Based on the Foundation's local presence and excellent record in managing the Jepson Prairie Preserve, it is the logical recipient of the land. The Foundation's efforts at restoring Jepson Prairie, while very successful, require the ability to control weeds outside of its borders. The Wilcox Ranch lies to the west of the Preserve and therefore provides a constant source of nonnative seeds on the prevailing westerly winds. Implementation of restoration activities at the Wilcox Ranch would permit landscape scale restoration by operating in an area large enough to restore ecological processes such as burning and unimpeded overland flow. In this regard, TNC hopes to transfer ownership of 1700 acres of the ranch to the Foundation (the remainder of the property will be sold to Solano County). If the Foundation does not accept ownership of the property, there is a strong likelihood that the property will be used as a mitigation bank. Four mitigation sites are or will soon be in operation to the north and northeast of the ranch. While these sites are legally protected, they may be altered by artificially increasing the density of vernal pools. This is a common occurrence when developers are required to restore wetlands. Many consultants claim expertise in creating vernal pools but none monitor longer than five years to determine long-term effects on species or ecological processes.

#### Proposed activities include:

1. Baseline species and habitat surveys and development of a management plan.

2. Targeted restoration activities aimed at reducing or eradicating purple star thistle, lippia and medusahead and maintaining or increasing native species.

a. Purple star-thistle will be controlled through a combination of hand digging where possible and application of Clopyralid (or similar herbicide) in late winter or spring when rosettes are most sensitive (Bossard *et al* 2000)

b. Lippia will be controlled with Roundup herbicide. Roundup will be wicked directly on the plant to achieve the best results (Valerie Calegari, personal communication).

c. Medusahead will be controlled through the combined treatments of prescribed burning and grazing. This method has been successful at Jepson Prairie.

d. Monitoring of target weeds and native plant species using protocol established by Swiecki and Bernhardt (2001).

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## 3. Conduct study to determine whether management treatments at Jepson Prairie are effective in promoting desired species and discouraging non-native species.

Management at the Preserve is based on a plan developed by faculty and staff of UC Davis, the Foundation, the US Fish and Wildlife Service, the Department of Fish and Game, TNC and the volunteer docents which together make up the Jepson Prairie Management Committee. Weed and native species monitoring at Jepson Prairie has helped the committee to track the spread and or decline of target weeds and native species but can offer little more than vague correlations to prescribed management treatments.

The importance of gaining greater understanding of the effects of burning and grazing treatments on desired and undesired species is highlighted by the fact that many organizations and public agencies look to the Jepson Prairie Management Plan for guidance on their own properties. In fact, over 5000 acres in the immediate vicinity of Jepson Prairie in addition to other vernal pool preserves within the Sacramento Valley look to the Preserve's management design for guidance. Unsound management at the Preserve has the ability to have cascading effects throughout regional vernal pool landscape.

A study by TNC on the effects of burning on vernal pool vegetation is underway (Marty 2001). However, this study is not well replicated, looks only at vernal pool species and does not look at the combined effect fire and grazing.

A study to determine the effects of management treatments will require careful consideration of spatial variation especially in terms of soil type (Swiecki and Bernhardt 2001). Earlier studies of this type suggest that indicator species or guilds of both native and non-native species can be used in monitoring studies of this type (Pollak and Kan 1998).

The proposed study, to be conducted by Phytosphere Research and/or Carol Witham Botanical Consulting, will involve a carefully controlled experiment in which triplet plots across different treatments to test the hypothesis:

• A combination of prescribed burning and grazing treatments will increase the cover of native species and decrease the cover of target weed species in vernal pool/perennial grassland complexes.

Other hypotheses that may be testable are:

- Grazing burned pastures in the season immediately following burning reduces cover of target weeds and increases cover of native grasses and forbs.
- Higher intensity grazed plots have greater cover of native grasses and forbs than lower intensity grazed plots.

Triplet plots consistent in soil type and topography will be established at Jepson Prairie and the Wilcox Ranch. Plot treatments will include burned/grazed, burned/ungrazed and unburned/grazed (control). Hired consultants will determine the required number of triplets. Analysis of variance will be used to determine significant differences in non-native and native species cover. Results and discussion will be compiled in a report and shared with agencies, organizations and individuals interested in wildlife friendly agriculture.

#### 4. Establish endowment to provide for long-term stewardship of the 1700 acres.

As bearers of the Foundation's fiduciary responsibility, the Board of Directors will not accept the Wilcox Ranch without a clear source of funding to provide the high standard of stewardship for which it is known. If the money is not raised, TNC will be forced to sell the ranch to a private buyer with a conservation easement in place. While this is often a viable option, analysis by Meisler (2001) shows that ownership is the only way to ensure protection of the exceptionally rare habitats and species that it holds. The level of control required to provide adaptive management and restorative actions cannot be achieved with a conservation easement.

Slightly larger than the Jepson Prairie Preserve and with equal or greater biological value, the ranch belongs in the public trust to protect its ecological and public values. Adding the Wilcox Ranch to the Jepson Prairie will greatly enhance the ability of students and professionals to conduct well replicated ecosystem level research.

While the Foundation recognizes that provision of endowments is not common in the CALFED protocol, it feels that strongly that it is the only way this corridor link will be sufficiently protected. Furthermore, the Foundation is preparing to launch a membership campaign to cover future land management costs. This effort is likely to be more successful if potential donors see the support of larger organizations. This is a one time request and the endowment will be pooled with the existing \$140,000 Jepson Prairie endowment as a cost share.

Meisler's report (2001) presents a detailed assessment of how the endowment amount is derived. See Table 6 in Section D in this proposal for an abbreviated explanation of how Wilcox Ranch endowment was derived.

## Component Two – Acquire and restore the upland, riparian and mid-channel island habitats of the 775-acre Pembco property.

The Pembco property is located at the confluence of Barker Slough, Calhoun Cut, Hastings Cut and Lindsey Slough (Figure 2). The property has been identified as a priority for protection and restoration in the Site Conservation Plan for the Jepson Prairie-Prospect Island Corridor (Meisler, in preparation). Approximately 0.57 miles of the property front Barker Slough and Lindsey Slough and another 1.52 miles front Hastings Cut. An approximately 2 acre and densely vegetated mid-channel island is part of the property. Although the entire Barker/Lindsey Slough frontage is leveed, opportunities for restoration abound.

The property is proposed for fee title acquisition rather than conservation easement because restoration activities, especially those described in Component Three, will be far more difficult to achieve under private ownership. In the future (after completion of PHASE III), sale of the property with a conservation easement in place is possible. Proceeds from the sale would be returned to CALFED or reinvested after consultation with CALFED.

While under Foundation ownership, the property would not be removed from the Solano County tax base.

Proposed activities include:

- 1. Acquisition of Pembco property.
- 2. Baseline species and habitat surveys and development of a management plan.
- 3. Implement weed control.

Weed control efforts will include but not be limited to implementation of grazing regime as specified in management plan. Specific target weeds will be identified in baseline surveys. More extensive restoration will be carried out in PHASE III.

#### Component Three. Hydrologic assessment for the large-scale restoration of the Corridor.

Prior to any large-scale restoration project, a feasibility and impact assessment must be conducted. This is especially true in cases of levee removal and/or setbacks. Two potential opportunities for both of these actions currently exist in the Corridor and more are expected to develop upon completion of the Site Conservation Plan in Fall 2001.

The first opportunity comes as a partnership with the California Department of Fish & Game (DFG), owners of the 963 acre Calhoun Cut Ecological Preserve (Figure 2). The Preserve, situated between Calhoun Cut and Barker Slough, supports excellent riparian, marsh and shaded riverine habitats. The Preserve is bordered by 3.2 miles of slough habitat but levees separate most of the property from the water and therefore disrupt natural ecological processes such as tidal inundation and flooding. Much of the interior of the property is in pasture. Even so, a survey of the property found numerous at risk species on the property including Mason's lilaeopsis, Delta mudwort, Delta tule pea, Suisun Marsh aster, dwarf downingia and legenere (Witham and Kareofelas 1994). DFG is very supportive of the Foundation's proposal to understand the implications of removing the levees.

The second opportunity is on the Pembco property (**Component Two**). As described, this property is isolated from the sloughs by levees as well. Analysis of levee position on the southern point of the property shows a strong potential for successful levee setbacks resulting in restoration of riparian and marsh habitat (Meisler, in preparation).

This is an important and timely opportunity because 1) it is contiguous with the DFG property (Figure 2) and 2) the Pembco property is for sale and the owners would like to sell to the Foundation.

If implemented, restoration of the two properties would result in 3.2 contiguous linear miles of restored Barker Slough together with over 900 acres of marsh, and shaded riverine aquatic habitat. This will more than double the existing habitat (Table 1) with a modest take of agricultural land.

#### Proposed activities include:

#### 1. Hire hydrologic consultants.

Phillip Williams and Associates will be hired to conduct relevant bathymetric studies and hydrodynamic modeling to first define the landscape and second determine likely effects of levee removal and/or setback and planting of woody vegetation on remaining levees in the Corridor with a focus on the Calhoun Cut Ecological Preserve and the Pembco property.

## Component Four. Outreach campaign to educate and build support among local agencies and organizations.

Solano County has shown mixed levels of support for the CALFED program. The Foundation believes that much of this is based on misconceptions regarding the program's mission. Furthermore, this mistrust can be transferred to CALFED grant recipients by association. The County has recently shown increased suspicion regarding conservation in its reaction to The Nature Conservancy's proposed purchase of the Wilcox Ranch. However, public meetings and effective public relations quickly changed the tone as residents became aware that the purchase by TNC was actually a win-win situation; habitat was preserved and plans for potential expansion of Travis Air Force Bas were accommodated. This recent event identified outreach through education as essential to conservation success.

#### Proposed activities include:

#### 1. Hire public education and outreach consultant.

A part time staff or consultant will be hired to develop PowerPoint presentations, offer tours and create maps that highlight the goals and objectives of the Foundation and relate them to the CALFED mission. Outreach will be extended to the County, Cities, Farm Bureau and other agencies as needed and feedback will be incorporated into the Foundation's program.

#### PHASE III (not proposed for funding in this grant)

#### Component One. Restoration Design and Implementation.

#### Proposed activities include:

1. *Hire consultants to design and implement levee removal and setback.* Consultants will work closely with Foundation and DFG staff to develop and implement slough restoration plan.

#### 2. Install fish screen on Pembco water diversion.

The Pembco property currently has an approximately 24-inch diversion pipe that irrigates the property. This diversion will likely need to remain operative after levee setback. A fish screen will reduce possible fish losses to entrainment.

#### Component Two. Monitor effects of levee removal and setbacks.

#### Proposed activities include:

1. Vegetation monitoring.

Area and composition of riparian and marsh habitat will be monitored to provide evidence of success.

#### 2. Aquatic monitoring.

A survey of fish and invertebrates will carried out and compared to survey carried out in 2001 as part of PHASE I. A comparison of the results will provide a measure of success.

#### Component Three. Acquisition of other vital property.

#### Proposed activities include:

1. Acquisition of fee title or conservation easement on vital property in Corridor as identified in the Site Conservation Plan completed in PHASE I (Meisler, In preparation).

#### 4. Feasibility

The Foundation has carried out restoration projects of similar size on several of its properties including Lynch Canyon Open Space, Rush Ranch Open Space and Jepson Prairie Preserve. Its experience in successfully purchasing fee title and/or conservation easements on 5000 acres further demonstrates its ability to carry out the work as described.

No permitting or environmental clearance is needed to carry out the proposed PHASE II activities. Acquisition is from a willing seller. Title review and a Phase I hazardous materials assessment (Phase II if necessary) will be carried out prior to purchase of property. Permits would be required for levee setbacks and/over removal if PHASE III were funded.

As a non-profit land trust, the Foundation does not typically submit CEQA/NEPA documentation. In later phases of the project, the Foundation assumes the funding agency and partners will take the lead on any required CEQA/NEPA documentation. The Foundation will provide information as needed.

#### 5. Performance Measures

Performance measures are given for the objectives stated in Section A1. Objectives are referred to by number only. For written objectives refer to Section A1.

#### Performance measures for Objective 1.1

- Completion of management plan that includes mapped infestations of target weeds on 1700 acres of Wilcox Ranch.
- A 50% reduction of purple star thistle and a 40% reduction of medusahead in treated pastures at the end of three years. An effective control for lippia will be established. Annual monitoring reports will be submitted to CALFED.

#### Performance measures for Objective 1.2

• Sustained or increased populations for native plant and animal species or guilds. Annual monitoring reports will be submitted to CALFED.

#### Performance measures for Objective 1.3

• Report on results of study to determine effect of grazing and burning treatments on target native and non-native species.

#### Performance measures for Objective 1.4

• Deposit of endowment funds into interest bearing accounts. Annual reports on revenue and disbursement will be submitted to CALFED.

#### Performance measures for Objective 2.1

- Complete title review and Phase I (and Phase II if necessary) on Pembco property.
- Close escrow on property.
- Completion of management plan that includes mapped infestations of target weeds on property.

#### Performance measures for Objective 3.1

• Report on results of hydrologic study.

#### Performance measures for Objective 4.1

• General support and understanding among stakeholders for all phases of the project.

#### 6. Data Handling and Storage

All data will be stored on compact disc. Hard copy and/or electronic data files, reports and photographs will be available upon request.

#### 7. Expected Products/Outcomes

General outcomes include establishment of a protected corridor extending from Jepson Prairie to Prospect Island. Each PHASE brings this outcome one step closer. Specific products and outcomes are given below.

#### PHASE II

#### **Component One**

- Baseline surveys and management plan for Wilcox Ranch
- Monitoring reports for native and non-native species.
- Report on results of study showing effects of management treatments on native and nonnative targets in the Greater Jepson Prairie Ecosystem.

#### **Component Two**

• Baseline surveys and management plan for Pembco property.

#### **Component Three**

• Report on feasibility and impact analysis for large-scale hydrologic and vegetative restoration in the Jepson Prairie-Prospect Island Corridor.

#### **Component Four**

• Semi-annual reports on stakeholder concerns and communications efforts to address the concerns. Maps, tours, meeting schedules and web site updates included.

#### PHASE III (not proposed for funding in this grant)

#### **Component One**

• Restoration of over 900 acres of riparian, marsh and shaded riverine aquatic habitat.

#### **Component Two**

• Monitoring reports illustrating the effects of restoration of the slough ecosystem including vegetation, fish and invertebrates.

#### **Component Three**

• Acquisition of conservation easement or fee title on other vital properties in the Corridor.

## 8. Work Schedule

Table 4. Schedule of tasks for "Restoring Ecosystem Integrity in the Northwest Delta: PHASE II."

Tasks	2002-2003				2003-2004				2004-2005			
	F	W	SP	SU	F	W	SP	SU	F	W	SP	SU
Project Management												
Component One												
Management Plan (Wilcox)												
Restoration and Monitoring (Wilcox)												
Grazing/Burning Study												
Endowment												
Component Two												
Title Review and Phase I												
Close Escrow												
Manangement Plan												
Restoration and Monitoring (Pembco)												
Component Three												
Bathymetric Study												
Hydrologic Assessment												
Component Four												
Outreach/Education												

#### **Major Milestones**

- Establishment of endowment for perpetual stewardship of the Wilcox Ranch (Fall 2002).
- Management plan for the Wilcox Ranch (Spring 2003).
- Acquisition of 775 acre Pembco property (Fall 2003).
- Bathymetric study of Jepson Prairie-Prospect Island Corridor (Spring 2003)
- Hydrologic assessment determining effects of levee removal and setbacks on Jepson Prairie-Prospect Island Corridor (Summer 2004)
- Management plan for Pembco property (Summer 2004)
- Monitoring reports on Wilcox Ranch showing reduction of target weeds and increase of native grasses and forbs (Summer 2003, 2004, 2005).
- Development of a PowerPoint presentation for delivery to local agencies.

## Each component can stand alone if only partial funding is granted. Ability of components with multiple tasks to stand alone is discussed below.

#### **Component One**

The endowment is necessary for and inseparable from the management plan and the weed control and monitoring. This is because the property will come under private ownership if the Foundation does not accept it. This is a one time only request that will be added to existing

Jepson Prairie endowment funds and used to manage the entire ecosystem. The grazing/burning study will be done at Jepson Prairie Preserve and can be accomplished without funding for other task orders.

#### **Component Two**

Acquisition costs cannot be separated from any other part of this component. However, it is possible to separate management costs if only acquisition costs are funded.

#### **Component Three**

This component has only one task.

#### **Component Four**

This component has only one task.

## **B.** Applicability to CALFED ERP and Science Program Goals and Implementation Plan and CVPIA Priorities

### 1. ERP, Science Program and CVPIA Activities

As stated, the proposed project encompasses three ecological management zones. Relevant priorities are addressed below (CALFED 2001).

#### Multi-Regional (MR) priorities are fulfilled in the following ways:

*MR-1*. Targeted weed control in the upper watershed will restore processes required for vernal pool species such as overland flow, hydroperiod and more natural grazing regimes and will reduce the spread of weeds into the lower watershed.

*MR-2.* The proposed study in Component One will assist the Foundation and other organizations in understanding the effectiveness of different grazing practices in a vernal pool/perennial grassland habitat.

#### Delta Region (DR) priorities are fulfilled in the following way:

DR-1. Acquisition, restoration and management of properties along this north Delta corridor that include marsh, riparian and mid-channel island habitats.

DR-3. Comparative analysis of management treatments.

## 2. Relationship to Other Ecosystem Restoration Projects

This proposal relates to several operative and future ecosystem restoration projects in the general vicinity of the Jepson Prairie-Prospect Island Corridor.

• In 1999 the Environmental Protection Agency and the Trust for Public Land (TPL/EPA) granted the Foundation funding to develop and begin to implement the *Conservation Strategy for the Vernal Pools of the Greater Jepson Prairie Ecosystem*. The Foundation released that report in June 2001. Identified among the highest priority properties for protection, the Wilcox Ranch will be purchased by The Nature Conservancy (TNC) in October 2001. The

Foundation assisted TNC in securing funds for the acquisition from the Wildlife Conservation Board.

Funding of the Foundation's restoration and management activities and endowment will complement the TPL/EPA project by providing perpetual protection to this highest priority vernal pool/perennial grassland acreage identified in the study.

• The Solano County Water Agency (SCWA) is developing best management practices to improve water quality in the Barker Slough watershed. This project is funded through a Prop 204 grant from the State Water Resources Control Board. SCWA plans to fence the uppermost reaches of the Barker Slough to exclude cattle.

Funding of the Foundation's efforts to restore Barker Slough, Calhoun Cut and Lindsey Slough will further enhance water quality in Barker Slough.

• The Community Alliance with Family Farmers (CAFF) received a CALFED grant (ERP-01-N42) to provide outreach and education to farmers in the Barker Slough watershed. CAFF will partner with SCWA and the Ulatis Resource Conservation District (URCD) to develop a demonstration site in the Barker Slough watershed. The site will be used for clean-up, maintenance, revegetation, habitat restoration, water quality monitoring and evaluation. The site will become the model for the educational component of the CAFF grant.

If the Foundation's acquisition in Barker Slough is funded, wildlife friendly agricultural practices highlighted in the CAFF study could be implemented. If the Foundation's outreach position is funded, we will work with agencies rater than landowners. Our outreach will focus on process rather than management.

• SCWA is presently applying for a CALFED directed grant to assess the feasibility of developing an alternate intake for the North Bay Aqueduct. Currently water is drawn from the Barker Slough at the Barker Slough Pumping Plant. Establishment of a new intake could result in more widespread restoration of the Barker Slough area.

Restoration in the Corridor would be enhanced if the primary intake for the Aqueduct were located elsewhere.

## 3. Requests for Next-Phase Funding

See attached summary of PHASE I.

## 4. Previous Recipients of CALFED Program or CVPIA Funding

The Foundation received funding for CALFED grant 97-N10 "Restoring Ecosystem Integrity in the Northwest Delta." As described in the attachment, the grant is nearing completion. Major accomplishments include restoration of riparian vegetation along 1 mile of Barker Slough; removal of 7 acres of eucalyptus trees; implementation of an innovative burning/grazing program for the weed control at Jepson Prairie Preserve; development of a state of the art weed and native

species monitoring program; fundraising of nearly \$70,000 and a detailed survey of the fish, invertebrates and habitats of Barker Slough and Calhoun Cut.

#### 5. System-Wide Ecosystem Benefits

The TPL/EPA, CAFF and SCWA projects described above have great potential for system wide benefits. SCWA's goal to improve water quality will be complemented by the CAFF proposal to educate landowners and by efforts of the Foundation to restore the Jepson Prairie-Prospect Island Corridor. In this case, higher water quality for humans equates to higher habitat quality for fish, wildlife and plants.

#### 6. Additional Information for Proposals Containing Land Acquisition

The proposed acquisition of the Pembco property satisfies all the criteria set forth in the CALFED PSP.

- The owner is a willing seller.
- The property lies outside the sphere of influence of all Solano County cities. The purchase is consistent with the County general plan.
- The 775-acre property is mapped as both Prime and Statewide Importance Farmland. The vast majority of the property will remain in agriculture and be protected as such in perpetuity. Up to 40 acres of the property may be restored to riparian and shaded riverine aquatic habitat depending on the outcome of PHASE II of this grant proposal.
- This acquisition presents a rare opportunity to protect and restore riparian, marsh and shaded riverine habitat that is contiguous with protected land.
- The Foundation has been in close contact with the real estate broker responsible for selling the land. The property is for sale to any buyer and bids have been made. The landowner has indicated a preference for having the land protected by the Foundation. However, there is no signed option and without this grant the Foundation will not be able to purchase it.
- To date the Foundation has never removed any of its property acquisitions from the Solano County tax base.

#### C. Qualifications

Established in 1986, the Foundation has received and effectively managed numerous grants since its inception. It is currently completing projects funded by CALFED, California Coastal Conservancy, Packard Foundation, DOC California Farmland Conservancy Program, Trust for Public land, Environmental Protection Agency, Solano County Water Agency, Vallejo Sanitation District and the Bay Area Open Space Council. Sample projects include acquisition of 4000 acres (fee) of open space and 4200 acres of agricultural and habitat conservation easements, countywide open space planning, countywide agricultural conservation easement planning, redlegged frog habitat restoration and study of oral history as a tool for stewardship.

**Pamela C. Muick, PhD**, is the principal investigator in this project. Muick is the Executive Director of the Foundation, Vice Chair of the Bay Area Open Space Council, Chair of California Native Pant Society Research Grants Program and an Associate of the UC Berkeley herbarium. She has administered and implemented restoration projects since 1978 throughout the coastal and

Central Valley region. She has authored and edited many popular and technical papers. She is an author of <u>Oaks of California</u> and an editor of <u>The Ecological City: Preserving and Protecting</u> <u>Urban Biodiversity</u>. Muick will be responsible for general project supervision and will carry out all necessary actions for acquisition of the Pembco property.

**Julian A. Meisler, M.S.**, is the Conservation Planner for the Foundation. He has worked on a diversity of restoration and research projects since 1992 and continues to work with California State Parks conducting red-legged frog surveys and volunteers his time for research on the California tiger salamander. Meisler will help manage the project and service contracts and carry out some of the biological tasks. He is the author of several reports and popular articles including the *Conservation Strategy for the Vernal Pools of the Greater Jepson Prairie Ecosystem* and the soon to be completed *Site Conservation Plan for the Jepson Prairie-Prospect Island Corridor*. In this regard, Meisler is very familiar with the ecological resources of the topic area.

**Ken Poerner, B.S, is the Land Steward** for the Foundation. He has planned and directed numerous restoration efforts in Solano County including Barker Slough riparian habitat restoration and red-legged frog habitat enhancement at Lynch Canyon. Poerner is trained and certified in prescribed burning and currently leads prescribed burning at Jepson Prairie. Poerner will be implement the weed control efforts on the Wilcox and Pembco properties.

**Phytosphere Research** (<u>www.phytoshereresearch.com</u>) is a plant science consulting firm providing consulting and research services for all applications in horticulture, urban forestry, arboriculture, natural plant communities and agriculture. The principals, Swiecki and Bernhardt, are authors of numerous scientific papers and reports including *Exotic and Native Plant Monitoring at Jepson Prairie Preserve, 2001.* 

**Carol Witham**, botanical consultant, has over twenty years experience in the Central Valley. Witham has special expertise in vernal pool ecosystems throughout California and has written and edited numerous technical papers and reports.

**Philip Williams and Associates** (<u>www.pwa-ltd.com</u>) is a well known and highly regarded hydrologic consulting firm in California. The firm has carried out many bathymetric studies and hydrologic analyses elsewhere in California.

D. Cost

#### 1. Budget

See Tables 5 and 6.

#### 2. Cost-Sharing

The Foundation raised nearly \$70,000 toward the Jepson Prairie endowment which was matched by The Nature Conservancy. This \$140,000 will be added to the endowment proposed in this grant to meet the required amount as specified in Table 6.

The Foundation has been in discussion with the City of Fairfield and Solano County regarding assistance in development of a management plan for the Wilcox Ranch. The City and County plan to purchase 1700 acres of the ranch as per their option with The Nature Conservancy.

#### E. Local Involvement

Solano County Water Agency, Ulatis Resource Conservation District (URCD), the Department of Fish and Game (DFG), the US Fish and Wildlife Service, The Nature Conservancy (TNC), the University of California Natural Reserve System (UCNRS) and the Delta Protection Commission have been notified of this proposal. Support letters from URCD, TNC and UCNRS are attached. A support letter from DFG is forthcoming. Neighboring landowners have not been contacted because large-scale restoration, such as levee removals, is not part of this PHASE II proposal. The Foundation does not anticipate opposition to acquisition of the Pembco because the property will be kept in agriculture and the outreach specialist will provide timely communication with all interested parties.

#### **Compliance with Standard Terms and Conditions**

The Foundation is familiar with the standard terms and conditions of CALFED from its experience with the PHASE I grant. The Foundation further agrees to comply with all the terms and conditions for PHASE II.

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### Attachment 1.

# Status of CALFED 97-N10 "Restoring Ecosystem Integrity in the Northwest Delta PHASE I"

PHASE I is nearly complete. The original signing date of the grant agreement was delayed one year and therefore began in February 1998. In January 2001, the Ecosystem Roundtable Committee granted a 20-month extension and a budget increase of \$48,000. The extension was granted to enable an additional season of data collection by subcontracted weed monitoring consultants (see Task Order 3). The budget increase was granted to support higher than anticipated costs of eucalyptus removal (Task Order 7) and weed monitoring.

#### Task Order 1. Administration.

Quarterly reports and invoices are thorough and timely. In January 2001 the National Fish and Wildlife Foundation conducted a fiscal and field review and the results were excellent.

#### Task Order 2. Material Acquisition

The Foundation purchased numerous items vital to completing tasks. Highlighted items include but are not limited to safety equipment, tools and training for prescribed burns, a small slough boat for conducting surveys of the Jepson Prairie-Prospect Island Corridor and a camera.

#### Task Order 3. Monitoring

This task order is divided into terrestrial and aquatic monitoring.

#### Terrestrial Monitoring

In partnership with UC Davis, the Foundation developed and implemented a management plan for the Jepson Prairie Preserve that outlines synchronistic grazing and burning programs (see Task Order 7). As explained in Task Order 7, the burn program is growing each year in acreage and support through the dedication and expertise of Foundation staff, UC Davis Natural Reserve System (UCNRS), The Nature Conservancy (TNC) and volunteer docents. Initial delays made early monitoring of little use. However, beginning in spring 2001, Phytosphere Research (PR) was subcontracted to develop and implement a weed monitoring program that could be carried out annually with staff and volunteers.

PR collected data in spring and summer 2001 on target weeds and desired native species. The analysis and subsequent report provided the Foundation with a detailed picture of baseline conditions. PR will train, oversee and analyze data collected by staff and volunteers in spring 2002. The 2002 data will provide the first opportunity to test the original hypotheses that cover of each target weed species is declining over time.

#### Aquatic Monitoring

Monitoring goals changed from the original grant proposal due to inconsistent inventories of juvenile fish at the Barker Slough Pumping Station by public agencies. In winter, spring and summer 2001, subcontractors GANDA conducted fish, invertebrate and habitat surveys in the upper and lower reaches of both Barker Slough and Calhoun Cut. The Foundation is awaiting the final report. Major findings include presence of rearing chinook salmon ad steelhead. This

survey will serve as a baseline condition for future monitoring efforts. This will become especially important if PHASES II and III are funded.

#### Task Order 4. Conservation Planning

In February 2000 the Foundation hired a Conservation Planner. The planner strategized to combine CALFED funding and Environmental Protection Agency (EPA) to conduct watershed level planning. EPA funded a study and planning effort focused on protection of vernal pools of the Greater Jepson Prairie Ecosystem (GJPE). The vernal pool and perennial grassland focus area comprises the upper watershed of the Jepson Prairie-Lindsey Slough Corridor. Therefore, vernal pool planning was completed first. The planner is currently completing a site conservation plan for the entire Corridor which will identify priority proerties for restoration and preservation. Already sixty percent complete the planner has been ableto identify important properties for PHASE II funding.

#### Task Order 5. Fundraising

The Foundation's fundraising effort was a complete success. It raised nearly \$70,000 for the Jepson Prairie Preserve endowment. The effort met the challenge for which provided a 1:1match for TNC funding.

#### Task Order 6. Riparian Restoration

Barker Slough riparian restoration was a tremendous success. Over 1 mile of Barker Slough was restored with willow, and dogwood poles. A dedicated team of volunteers directed by staff led the effort. A small amount of funding remains in the task order and is currently being used to exclude sheep from a particularly impacted portion of Calhoun Cut. A solar pump, tank and trough will be used to supply sheep with water. The Foundation is confident that the degraded riparian area will regenerate naturally. If this does not happen within one year, Foundation staff and volunteers will plant willow poles in the affected area.

#### Task Order 7. Weed Control

CALFED funding permitted the Foundation to acquire the necessary inventory of equipment needed to conduct prescribed fire. Staff and volunteers have received extensive training in conducting prescribed burns and now train volunteers to assist. In the past three years, almost 500 acres have been burned and monitoring efforts are attempting to assess the results. Spot control of purple star thistle, perennial pepperweed and other noxious weeds are continually implemented.

In August 2001, 6 acres of eucalyptus trees were removed from Jepson Prairie. This is a major step forward in restoring the uplands and vernal pools within the preserve and beyond.