



**SOLANO COUNTY FARMLANDS AND
OPEN SPACE FOUNDATION**

FI-109

Post Office Box 115
Fairfield, California 94533
(707) 428-7580

July 28, 1997

Kate Hansel
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

DMR MAIL ROOM
97 JUL 28 PM 1:37

Dear Ms. Hansel,

The Foundation is pleased to submit the following proposal "Restoring Ecosystem Integrity to the Northwest Delta".

We have also enclosed two Inquiry Submittals, one for Suisun Marsh and one for Lynch Canyon.

Thank you for overseeing this effort to fund projects to restore the health of the Bay-Delta system.

Sincerely,


Pam Muick
Executive Director

DEPARTMENT OF FISH AND GAME

REGION 2
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CALIFORNIA 95870
Telephone (916) 358-2900



July 25, 1997

Dr. Pam Muick
The Solano County Farmlands
and Open Space Foundation
Post Office Box 115
Fairfield, California 94533

Dear Dr. Muick:

This letter is provided in support of your organization's proposal to the CALFED Bay-Delta Program. The proposal is entitled "Restoring Ecosystem Integrity: Designing A Riparian Corridor Connecting Jepson Prairie to Prospect Island, Restoring Riparian Habitat Along Two Delta Sloughs, and Restoring Adjacent Perennial Grasslands At Jepson Prairie, Solano County." Habitat values of both the Jepson Prairie Preserve and the Department of Fish and Game's (DFG) Calhoun Cut Ecological Reserve (CCER) would be greatly enhanced by the project that you have proposed. Conservation planning to increase the connectivity of these two adjacent reserves to the Delta would increase their values to native fish and wildlife species in providing more continuous stretches of protected riparian and wetland habitats. These benefits would be increased by the proposed riparian restoration and non-native pest plant control components.

We are particularly interested in conducting cooperative pest plant control activities, since these actions are most effective when coordinated between adjacent properties. The benefit of the modest endowment funds available for managing the CCER could be maximized through working together on the contracted activities described in the proposal.

Dr. Pat Muick
July 25, 1997
Page 2

The DFG, the Nature Conservancy, and the Solano County Farmland and Open Space Foundation have successfully completed a number of cooperative projects between our adjacent lands over the last several years. We hope your organization's proposal is successful and that we will conduct future projects together with the support of this CALFED grant. If we can be of further assistance in this matter, please contact Ms. Julie Horenstein, Plant Ecologist, at (916) 358-2874.

Sincerely,



Becky E. Curtis
Regional Manager

cc: Dr. Oren Pollack
Dr. Richard Reiner
The Nature Conservancy
201 Mission Street, 4th Floor
San Francisco, California 94105

Ms. Kate Hansel ✓
CALFED Bay-Delta Program
1416 Ninth Street, Room 1155
Sacramento, California 95814

Ms. Julie Horenstein
Mr. Roger Scoonover
Department of Fish and Game
Rancho Cordova, California

LETTER OF SUPPORT FROM THE NATURE CONSERVANCY



California Regional Office
201 Mission Street, 4th Floor
San Francisco, California 94103

International Headquarters
Arlington, Virginia
Tel. 703 841-3300

Tel. 415 777-0487
Fax 415 777-0244 & 415 777-0772

July 27, 1997

To: CALFED Proposal Review Panel

Dear Panel Members,

I am writing in support of the Solano County Farmland and Open Space Foundation's proposal to restore ecosystem integrity in the northwestern delta. I am familiar with the Jepson Prairie/ Calhoun Cut area, having worked on management issues at this site for nearly ten years. The restoration, management and planning actions proposed by the Foundation are urgently needed to prevent further degradation of this critical delta slough ecosystem. This proposal is well thought out and represents the next, most important steps towards restoring vital delta habitat that will be perpetuated at this site through natural processes.

The project proposed would accomplish a number of CALFED objectives including, restoring natural processes and providing additional habitat for a large number of CALFED priority species. The Jepson Prairie/ Calhoun Cut site represents one of the best locations to provide a naturally sustained linkage between the heart of the delta and the surrounding north delta perennial grasslands. Virtually all of the delta's native fish species are found in the sloughs at this site. Without the active weed control, restoration, and conservation planning proposed by this project, this site will soon lose much of its habitat value (due to recent, and rapidly expanding infestation by weeds).

The Foundation has demonstrated its capability to manage this area on contract to The Nature Conservancy. The fact that TNC is transferring ownership to the Foundation reflects the confidence we have in their ability to provide for the long-term conservation of this area. TNC staff will continue to work with the Foundation to provide technical support when necessary. Funding this proposal will further strengthen the Foundations capacity to protect and restore lands in this area. In short, I urge you to support this very cost effective and important proposal.

Sincerely,

A handwritten signature in cursive script, appearing to read "Oren Pollak".

Oren Pollak, Ph.D.
Regional Ecologist
The Nature Conservancy
201 Mission St. 4th Floor
San Francisco, CA 94105

LETTER OF SUPPORT FROM JEPSON PRAIRIE DOCENTS

Katherine F. Mawdsley
1211 Stanford Place
Davis, California 95616

July 18, 1997

CALFED Bay-Delta Program
1416 Ninth Street Suite 1155
Sacramento CA 95814

Dear Colleagues:

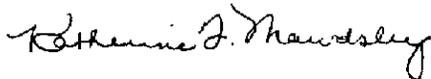
As the volunteer coordinator of almost 50 volunteer docents who lead weekend tours during the Spring at Jepson Prairie Preserve, I would like to support as strongly as possible the Solano Farmland and Open Space Foundation's proposal to provide increased and more regular staff management of the preserve and an enhanced program for prescribed burning, vegetation restoration and eucalyptus control.

I have been associated with the docent program since about 1987. During that time I have seen a great increase in public interest in the Preserve, as the general public has become more aware of and concerned about reduced and threatened natural communities. Vernal pools have been particularly "popular," because of their colorful spring floral displays and because of the publicity about the endangered invertebrates in the pools. The quality of the pools and grasslands at Jepson and its location in the midst of major population areas make it a natural focus for this interest and an important regional and state habitat and educational resource.

At the same time, it has been apparent that the organizations previously cooperating in the management of the preserve have been unable to devote adequate staff resources to managing and overseeing the property, simply because they have been stretched too thin with other responsibilities. The purposes for which Solano Farmland and Open Space Foundation proposes to add staffing have been identified as major goals in management plans for years. Docents have seen the beneficial effects of prescribed burns in exotic weed control and promotion of the bunchgrasses and annual forbs. We have participated in native grass plantings as part of habitat restoration projects. We have discussed how grazing can be managed to enhance the recovery of native plants. We would look forward to interpreting the changes enhanced management would bring--and perhaps to providing volunteer assistance as well, should there be projects which could use it.

I urge your support for the proposal to protect and enhance the resources of Jepson Prairie Preserve.

Yours very truly,



Katherine F. Mawdsley

DEPARTMENT OF FISH AND GAME LETTER OF SUPPORT FROM FISH & GAME

REGION 2
1701 NIMBUS ROAD, SUITE A
RANCHO CONDOVA, CALIFORNIA 94570
Telephone (916) 358-2800



July 25, 1997

Dr. Pam Muick
The Solano County Farmlands
and Open Space Foundation
Post Office Box 115
Fairfield, California 94533

Dear Dr. Muick:

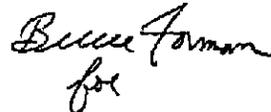
This letter is provided in support of your organization's proposal to the CALFED Bay-Delta Program. The proposal is entitled "Restoring Ecosystem Integrity: Designing A Riparian Corridor Connecting Jepson Prairie to Prospect Island, Restoring Riparian Habitat Along Two Delta Sloughs, and Restoring Adjacent Perennial Grasslands At Jepson Prairie, Solano County." Habitat values of both the Jepson Prairie Preserve and the Department of Fish and Game's (DFG) Calhoun Cut Ecological Reserve (CCER) would be greatly enhanced by the project that you have proposed. Conservation planning to increase the connectivity of these two adjacent reserves to the Delta would increase their values to native fish and wildlife species in providing more continuous stretches of protected riparian and wetland habitats. These benefits would be increased by the proposed riparian restoration and non-native pest plant control components.

We are particularly interested in conducting cooperative pest plant control activities, since these actions are most effective when coordinated between adjacent properties. The benefit of the modest endowment funds available for managing the CCER could be maximized through working together on the contracted activities described in the proposal.

Dr. Pam Muick
July 25, 1997
Page 2

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Sincerely,



Becky E. Curtis
Regional Manager

cc: Dr. Oren Pollack
Dr. Richard Reiner
The Nature Conservancy
201 Mission Street, 4th Floor
San Francisco, California 94105

Ms. Kate Hansel
CALFED Bay-Delta Program
1416 Ninth Street, Room 1155
Sacramento, California 95814

Ms. Julie Horenstein
Mr. Roger Scoonover
Department of Fish and Game
Rancho Cordova, California

VII. Compliance, page 1

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

SOLANO COUNTY FARMLANDS AND OPEN SPACE FOUNDATION

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

PAMELA C. MUICK, EXECUTIVE DIRECTOR

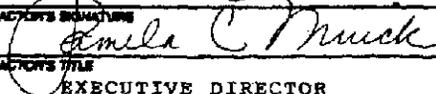
DATE EXECUTED

JULY 28, 1997

EXECUTED IN THE COUNTY OF

SOLANO

PROSPECTIVE CONTRACTOR'S SIGNATURE



PROSPECTIVE CONTRACTOR'S TITLE

EXECUTIVE DIRECTOR

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

SOLANO COUNTY FARMLANDS AND OPEN SPACE FOUNDATION

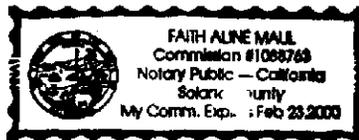
STATE OF CALIFORNIA)

) ss

COUNTY OF SOLANO)

On 7/28/97 before me, Faith Aline Maul, Notary Public, personally appeared Pamela C. Muick personally known to me or ~~proved to me on the basis of satisfactory evidence~~ to be the person whose name is subscribed to the within instrument and acknowledged to me that ~~he~~/she executed the same in ~~his~~/her authorized capacity, and that by ~~his~~/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.



Faith Aline Maul
Signature of Notary Public

91 JUL 28 PM 1:17
DIVERS WASHINGTON 10/25
P1-10

I. Executive Summary

a. Project title: "Restoring Ecosystem Integrity in the Northwestern Delta"

Applicant name: Solano County Farmlands and Open Space Foundation (the Foundation)

b. Project description and primary biological/ecological objectives: We are seeking \$244,800 in CALFED Category III funding to implement a three year, three-component program along two Northwest Delta sloughs and adjacent perennial grasslands at Jepson Prairie. Together, these components will result in direct benefits to several key CALFED priority habitats and species and set the stage for future conservation actions. We propose to:

1. **Restore Shaded Riverine Aquatic Habitat along Two Delta Sloughs.** One mile of shaded riverine aquatic habitat along portions of Barker Slough and Calhoun Cut at the Jepson Prairie Preserve will be restored. Plantings will become naturally sustaining features of the site and will improve shaded riverine aquatic habitat and tidal perennial aquatic habitat to benefit Delta smelt and longfin smelt spawning populations, splittail, other native fish, and riparian associated animals, including shorebirds, waterfowl and Neotropical guild species.
2. **Restore Perennial Grasslands at Jepson Prairie,** located adjacent to seasonal wetlands, floodplain, and vernal pools at Jepson Prairie by controlling invasive exotic weed species and enhancing native plant composition. To ensure sustainability of these actions we will increase the Jepson Prairie Stewardship endowment dedicated to long-term management.
3. **Design A Habitat Corridor Connecting Jepson Prairie to Prospect Island.** We will prepare a Site Conservation / Restoration Plan for a continuous, shaded riverine aquatic and wetland corridor between the Jepson Prairie Preserve and Prospect Island in the Delta. The plan includes a biological assessment of adjacent wetlands to identify potential wetland restoration sites, and an assessment of threats and opportunities. The plan will include funding proposals for plan implementation.

c. Approach/tasks/schedule: The shaded riverine aquatic and grassland restoration will occur over a three-year period and will be coordinated by the Foundation. Restoration will be accomplished by a combination of staff, contractors and volunteer labor. Weed control will be accomplished through a prescribed burning, managed grazing, herbicide and mechanical treatments. Vegetation management will be repeated each year as needed. Development of a Site Conservation / Restoration Plan will be completed in the first year. Fundraising for the endowment and to implement the Plan will continue over the three years of the project.

d. Justification for Project and Funding by CALFED: This project addresses the need to maintain and restore connectivity of the shaded riverine aquatic and native perennial grassland habitats of Jepson Prairie with Delta aquatic systems. Each component could be separated and funded independently. However, we think that linking the components provides the greatest conservation value and best fulfills the CALFED objectives. The Jepson Prairie Preserve includes one of the best examples of native perennial grassland and vernal pool habitat in the

Central Valley and supports numerous state and federally listed species (see figure 1). The ecosystem is bisected by two sloughs, which connect the upland grasslands and vernal pools to the San Francisco Bay/Sacramento-San Joaquin Delta. These sloughs provide habitat for virtually all fish species native to the Delta (Peter Moyle, pers. comm.). Invasive exotic weeds threaten these habitats by replacing native vegetation and altering ecosystem functions.

e. Budget costs and third party impacts: We are seeking \$244,800 in CALFED funds. Through the use of volunteer labor, collaborative efforts, and our low overhead (14%) budget costs have been kept to a minimum. The Foundation will share costs of the project coordinator. CALFED funds will also be used to leverage the Foundation's Jepson Prairie endowment, which is dedicated to supporting management in the project region in perpetuity.

There are no known ~~negative~~ third party impacts. Control of exotics on Jepson Prairie and Calhoun Cut Ecological Reserve will reduce the spread of invasive exotic weed species onto neighboring properties. Any future purchase of private property or easements (as a result of the Site Conservation Plan) will be from willing sellers only (CALFED and Foundation policy).

f. Applicant qualifications: The primary mission of the Foundation is to preserve open space lands and farmlands throughout Solano County. Currently, the Foundation owns 3200 acres and manages an additional 3300 acres under contracts with TNC, DFG, and Fairfield. To finance acquisitions, the Foundation has raised over \$5.2 million from local, state, and federal sources. Since 1994, the Foundation has managed Jepson Prairie in collaboration with TNC and DFG. In July 1997, the Board initiated transfer of Jepson Prairie Preserve to the Foundation from TNC. The Foundation has received restoration grants from the Coastal Conservancy and initiated projects on Laurel Creek and Suisun Creek. Restoration of Lynch Creek will begin shortly. Perennial grassland restoration projects have begun at Lynch Canyon and Barker Slough.

g. Monitoring and data evaluation: Data will be collected on a) fish populations and b) habitat parameters, within Barker Slough and Calhoun Cut, and on c) weed species distribution, abundance, d) species composition, e) restoration success, f) weed control, in wetlands and uplands. Data will be evaluated to provide measures of success and for adaptive management.

h. Local support/coordination with other programs/compatibility with CALFED objectives: TNC and DFG both support this project. TNC staff with decades of experience on Jepson Prairie will serve in an advisory capacity to help implement the project. Volunteer groups, including the Jepson Prairie Docents and the Rush Ranch Educational Council, will provide assistance. Letters of support from TNC, DFG and the Jepson Prairie Docents are included.

"Restoring ecosystem integrity in the Northwest Delta" exemplifies the second CALFED objective. At its completion, this locally based project will result in 1) more and better quality aquatic and terrestrial habitat and 2) improved ecological functions in two Northwest Delta sloughs. These changes will result in a net increase in the area's capacity to sustain populations of diverse and valued plant and animal species.

Restoring Ecosystem Integrity in the Northwest Delta

1. Restoring Riparian Habitat along Two Delta Sloughs,
2. Restoring Adjacent Perennial Grasslands at Jepson Prairie, and
3. Designing a Habitat Corridor to Connect Jepson Prairie to Prospect Island

Applicant/principal investigator: Pam Muick, Executive Director
Solano County Farmland & Open Space Foundation
744 Empire Street, Suite 112
PO Box 115, Fairfield, CA 94533
(707) 428-7580 (707) 428-7673 (fax)

Type of organization and tax status: Non-profit, public benefit, 501(c3) organization

Tax identification number: 94-3015363

Technical contact persons: Pam Muick, Ph.D. and Karen Tuenge
Solano County Farmland & Open Space Foundation

Administrative person: Karen Tuenge, Administrative Assistant
Solano County Farmland & Open Space Foundation

Participants/collaborators in implementation:

The Solano County Farmland & Open Space Foundation will manage project implementation.

Collaborators include:
The Nature Conservancy staff:
Oren Pollak, Regional Ecologist,
Rich Reiner, Area Ecologist,
Tamara Kan, Conservation Science Associate;
Department of Fish and Game:
Julie Horenstein, Plant Ecologist;
Burrows Hamilton, grazing lessee; and,
The Jepson Prairie Docents, a volunteer group.

RFP project group type: Category III: Other Services

III. Project Description

a. Project description and approach

In the Delta, few opportunities exist where restoration of entire slough systems is feasible. Such an opportunity exists in Solano County where Calhoun Cut and Barker Slough bisect the Jepson Prairie Preserve and the California Department of Fish and Game's Calhoun Cut Ecological Reserve.

This proposal to restore ecosystem integrity in the Northwest Delta contains three components. Combined, these components achieve several CALFED objectives including the restoration, conservation, and long-term management of this Delta ecosystem for the benefit of priority species (Figure 1). Component One will restore the riparian vegetation along one mile of Barker Slough and Calhoun Cut (\$81,392 in CALFED funding). Component Two will restore approximately 600 acres of adjacent North Delta perennial grasslands along these sloughs within Jepson Prairie Preserve (\$116,009 in CALFED funding). Component Three will develop a Site Restoration and Conservation Plan to identify actions necessary to protect and restore the habitat corridors along Barker Slough and Calhoun Cut which will connect the uppermost reaches of the sloughs with the Delta, Prospect Island Ecological Reserve (\$47,400 in CALFED funding). This work will be conducted in collaboration with The Nature Conservancy (TNC) and the Department of Fish and Game (DFG).

Component One - Restoration of shaded riverine aquatic/tidal slough habitat along Barker Slough and Calhoun Cut at Jepson Prairie Preserve.

- Set up temporary electric fencing to manage sheep along degraded portions of Barker Slough and Calhoun Cut (approximately 1 mile).
- Control perennial pepperweed (*Lepidium latifolium*) along Barker Slough and Calhoun Cut by mowing, grazing and herbicide application.
- Plant native riparian trees along these sections of Barker Slough and Calhoun Cut.
- Monitor effectiveness of riparian plantings and perennial pepperweed control.

Cuttings of riparian species to be used for restoration plantings will be collected on site, and will include Fremont's cottonwood, narrow-leaved willow, Goodding's black willow, red willow and arroyo willow. Supervised volunteer labor will be used to implement the plantings.

The non-native and highly invasive perennial pepperweed growing along the sloughs will be controlled in a two step process to minimize the amount of herbicide required. First the plants will be mowed and/or grazed, then sprouts will be sprayed with herbicide. Wetland formulated Garlon, which is 80-90% effective will be used in the riparian areas. Telar, the most effective herbicide for this species, will be used to control upland infestations. No water quality impacts will occur.

Component Two - Restoration of native perennial grasslands adjacent to Barker Slough and Calhoun Cut at Jepson Prairie Preserve.

A baseline inventory of weed species on the Preserve conducted in 1996 identified the following species as the highest priority for control: perennial pepperweed, yellow starthistle, medusahead, Eucalyptus, fennel, cocklebur and lippia. An exotic weed control plan has been written for the Preserve. The

proposed control methods include prescribed fire, herbicide spraying, grazing, and mechanical removal. Figure 2 summarizes the major weed species, their threats to the ecology of the Preserve and recommended control strategies. Results of these control activities will be monitored and methods will be modified if necessary as new information arises. Removal of Eucalyptus will be permanent. Control of the other weed species will require periodic monitoring and control to prevent re-establishment. The existing management endowment for Jepson Prairie will be doubled to ensure the availability of funds for these long-term activities.

Component Three - Conservation planning for riparian and wetland linkages to the Delta.

- Conduct biological assessment along Barker Slough, Calhoun Cut and Lindsey Slough, including information on aquatic and riparian habitat quality and fish use.
- Survey adjacent wetlands and farmed wetlands. Identify potential wetland restoration projects along the corridor.
- Conduct a "threats and opportunities" analysis, using TNC methodologies, for the establishment of a habitat corridor between Prospect Island and Jepson Prairie.
- Prepare a Site Restoration and Conservation Plan based on the above information and using TNC formats and guidelines.
- Raise funds to ensure the implementation the Site Restoration and Conservation Plan.

b. Location and/or geographic boundaries of project

Components 1 and 2 will take place within Jepson Prairie Preserve and Calhoun Cut Ecological Reserve in Solano County (map 2). Component 3 will encompass Barker Slough and Calhoun Cut on Jepson Prairie Preserve to Prospect Island via Lindsey Slough in Solano County (map 1).

c. Expected benefits

The following CALFED priority stressors will be addressed:

- **Loss of existing riparian zone.** Approximately one mile of riparian habitat will be restored.
- **Grazing.** Impacts to slough vegetation will be reduced by moveable electric fencing.
- **Water temperature.** Water temperature will be lowered due to shading by riparian plantings.
- **Invasive exotic species.** Seven exotic species will be eradicated or controlled along sloughs and in adjacent perennial grasslands.

Component One - Riparian Restoration

Direct Benefits:

- Increase shaded riverine aquatic habitat (a CALFED priority) in Barker Slough and Calhoun Cut.
- Benefit the CALFED priority species, Delta smelt and longfin smelt spawning populations as well as Chinook salmon, splittail, and other native fish species in the sloughs, as well as the neotropical migratory bird guild.
- Improve habitat values for slough associated wildlife such as shorebirds, wading birds, waterfowl, and upland game.
- Eradicate perennial pepperweed locally, improving quality and quantity of native habitats, and document control techniques applicable throughout the Delta.

- Reduce grazing pressure on the riparian zone.

Component Two - Perennial Grassland Restoration

Direct Benefits:

- Improve habitat for waterfowl, Swainson's hawk, California tiger salamander, delta green ground beetle, and upland game species.
- Reduce or eradicate seven invasive exotic weed species.
- Reintroduce the natural process of fire to restore approximately 600 acres of native perennial grassland, a CALFED priority habitat.
- Increase native species diversity as a result of prescribed burning and habitat alteration.

Indirect Benefits:

- Improve hydrologic integrity of grassland/vernal pool matrix by reducing water loss to Eucalyptus trees.
- Reduce toxic inputs from Eucalyptus trees into grassland, vernal pool other aquatic habitats.

Component Three - Conservation Planning

Indirect Benefits:

- Strengthen the Foundation's local capacity to plan and implement future delta conservation work.
- Benefit numerous CALFED priority species and habitats including: delta smelt, splittail, white sturgeon, Chinook salmon, resident fish species, shaded riparian aquatic habitat, and seasonal wetlands from establishment of a habitat corridor.

d. Background and biological/technical justification

Component One - Riparian Restoration

Several CALFED priority fish species have been observed in Barker Slough, Calhoun Cut and neighboring sloughs, including Delta smelt, longfin smelt, splittail, white sturgeon, Chinook salmon, and resident native fish species (Peter Moyle, pers. comm.). Portions of Barker Slough, and to a lesser degree Calhoun Cut, have been degraded by sheep grazing and have recently become infested with the non-native and highly invasive perennial pepperweed. Restoration of the riparian vegetation will increase shaded riverine aquatic habitat, provide critical spawning habitat, and enhance the Delta food web process. These fish species will benefit from permanent increase in shaded aquatic habitat. Numerous birds, including shorebirds, wading birds, the neotropical migratory bird guild and waterfowl as well as other riparian associated animals will also benefit from the increase in riparian habitat.

Perennial pepperweed is a highly invasive weed in wetland and seasonally flooded areas throughout the Delta. This exotic species rapidly outcompetes the native flora and forms dense stands. It occurs along both Barker Slough and Calhoun Cut on Jepson Prairie as well as on the neighboring DFG's Calhoun Cut Ecological Reserve. Control of this species is required to restore the native vegetation along the slough and in upland habitats.

Component Two - Perennial Grassland Restoration

Jepson Prairie has some of the best remaining examples of North Delta native perennial grassland and vernal pool habitat in the Central Valley of California. The Jepson Prairie Preserve contains a highly diverse flora and fauna and supports the California tiger salamander, Delta green ground beetle, three species of listed fairy shrimp, and eleven special status plant species. Over one hundred species of birds utilize Jepson Prairie including Swainson's hawk and numerous shorebirds, wading birds, and waterfowl.

Invasive weeds compete with and physically displace native species, often forming monospecific stands that can alter the environment and have lasting ecosystem-wide impacts. The control of several invasive exotic weed species is critical to the health of grasslands on the preserve. TNC has developed an exotics control program to be implemented by the Foundation. The plan entails using a broad range of control methods tailored to the specific priority weed species.

Prescribed burning is one control method with the collateral benefit of encouraging many native grassland species. In the past three years, research at Jepson Prairie has shown that late spring burning, after most of the native species have dispersed their seeds, is most effective in controlling medusahead and yellow starthistle. Burns are timed to destroy the weed species' seed crop.

Late-spring burning, especially when combined with mowing (or short-term, intensive grazing) the following year, can help to control yellow starthistle; burning prior to seed maturation helps to eliminate the year's reproductive output. Since yellow starthistle seeds can survive for several years in the soil seed bank, control activities must be continued for several years following the burn to prevent new seed production. The management endowment for Jepson Prairie will ensure the benefits of weed control can be continued as long as necessary.

Component Three - Conservation Planning

Limited opportunities exist to establish protected corridors to connect upland communities with the Delta. Freshwater tidal slough corridors are necessary for species that must move in and out of the Delta to fulfill life cycle requirements or in response to floods. For example, fish such as the Federally Endangered Delta smelt seasonally move in and out of the sloughs to spawn. Large animals such as deer use the cover provided by riparian vegetation to reestablish populations in the Delta after flood events.

The Jepson Prairie/Calhoun Cut area is one location where the protection and restoration of habitat corridors from uplands into the Delta appears feasible. The contiguous Jepson Prairie Preserve and the Department of Fish and Game's Calhoun Cut Ecological Reserve form a 2,700 acre complex which includes the upland-most ends of two freshwater tidal sloughs, Barker Slough and Calhoun Cut. Both sloughs continue east into the Delta via Lindsey Slough to the Prospect Island restoration area. The development of a Site Restoration and Conservation Plan is the important initial step to establish an ecologically healthy, continuous linkage from two upland sloughs to the heart of the Delta.

The Foundation has managed Jepson Prairie Preserve and Calhoun Cut Ecological Reserve over the last three years on contract to TNC and DFG. TNC is currently transferring its ownership of Jepson Prairie Preserve to the Foundation. Funding of this proposal will enable the Foundation to design a habitat

linkage connecting Jepson Prairie with the lower Delta and provide the active management needed to restore and maintain this ecologically diverse ecosystem.

e. Proposed scope of work

Component One - Restoration of riparian habitat along Barker Slough and Calhoun Cut.

Implementation of the slough restoration plan will occur over a three -year period and will be coordinated by the Foundation. The following tasks will be completed in year one:

- All perennial pepperweed along sloughs will be grazed and/or mowed then treated with herbicide.
- Temporary electric fencing will be set up along approximately 1 mile of Barker Slough and Calhoun Cut.
- Willow and cottonwood cuttings will be collected and transplanted by supervised volunteers along degraded areas of Barker Slough and Calhoun Cut.
- Restoration plantings and treatments will be monitored and effectiveness reported.

In years two and three:

- Riparian restoration plantings will continue as needed, with adjustments made based on monitoring.
- Herbicide treatment of perennial pepperweed will be repeated as needed.
- Program Coordinator will raise funds to ensure the long-term management of the Jepson Prairie ecosystem.

Component Two - Restoration of native perennial grasslands adjacent to Barker Slough and Calhoun Cut.

- Approximately 8 acres of Eucalyptus trees will be cut down and removed in year one. Stumps will be treated with herbicide to prevent sprouting.
- All upland perennial pepperweed and fennel populations will be treated with herbicide annually.
- Approximately 200 acres of grassland/vernal pool habitat will be burned annually to control medusahead and yellow starthistle and encourage growth of native species.
- Approximately 180 acres of yellow starthistle populations will be mowed or grazed annually to prevent additional seed production.
- Cocklebur populations will be removed by volunteers annually.
- Lippia infestations that threaten rare native plants will be treated with herbicide annually.
- Monitoring and reporting for all control efforts, including increases in native perennial species, will be completed annually.

Component Three - Conservation planning for riparian corridor and wetland linkages to the Delta.

- Conduct a biological assessment of wetland habitats along Barker Slough, Calhoun Cut and Lindsey Slough, using methodology and formats developed by TNC. Collect information on aquatic and riparian habitat quality and fish use.
- Survey adjacent wetlands and farmed lands. Identify potential wetland restoration projects along the corridor.

- Conduct a "threats and opportunity analysis" for a project which will lead to the establishment of a connecting riparian and wetland corridor between Lindsey slough and Jepson Prairie.
- Based on the above information, prepare a Site Conservation Plan by end of year one.
- Raise funds to ensure the implementation of the Site Conservation Plan.
- By year three, begin implementation of the Site Conservation Plan.

f. *Monitoring and data evaluation*

We will be conducting 1) aquatic monitoring of fish populations and habitat parameters within Barker Slough and Calhoun Cut and 2) terrestrial monitoring of riparian planting and weed species.

Fish habitat monitoring will entail 1) monthly diel measurements of water temperature (surface, mid-depth, and bottom), 2) macroinvertebrate measurements of percentage of stream surface in shade, and 3) annual population sampling of those macroinvertebrate species contributing to the diet of the sloughs' fish. Inventories of juvenile native fish are currently being conducted at the downstream Barker Slough Pumping Station. We will coordinate with their monitoring efforts and extend their inventory technique 1) upstream into our study area, and 2) to include inventorying of adult and juvenile fish of native and exotic origins.

For plant species, statistical trend analyses will be conducted to test the hypotheses that cover of each target weed species is declining over time. Hypothesis testing is preferable to descriptive summaries because hypothesis testing accounts for uncertainty in the data. When analyses have been completed, we will prepare a data summary that will be sent out for peer review to relevant agency personnel and university biologists.

g. *Implementability*

The proposed riparian restoration area is not a designated floodway therefore permits are not required for tree plantings. All permits required for surveys, implementation and monitoring will be obtained. Plans for control of exotic species and prescribed burn plans have been completed. Prescribed burning activities have been conducted at Jepson Prairie since 1983. TNC will provide technical assistance to the Foundation for conducting prescribed burns. Burn permits and air quality permits will be obtained and neighbors will be notified prior to conducting prescribed burns. Acquisition of properties identified during this project will be acquired from willing sellers at appraised, fair-market value only (Foundation policy).

TNC, DFG, the Jepson Prairie Docents and the current grazing lessee, fully support this project (see attached letters of support). In addition, there is a dedicated, local group of volunteers who are experienced in restoration activities and willing to assist with implementing these projects.

Map 1. Project Planning Area.

Legend



Project Planning Area is located in the northwest Delta

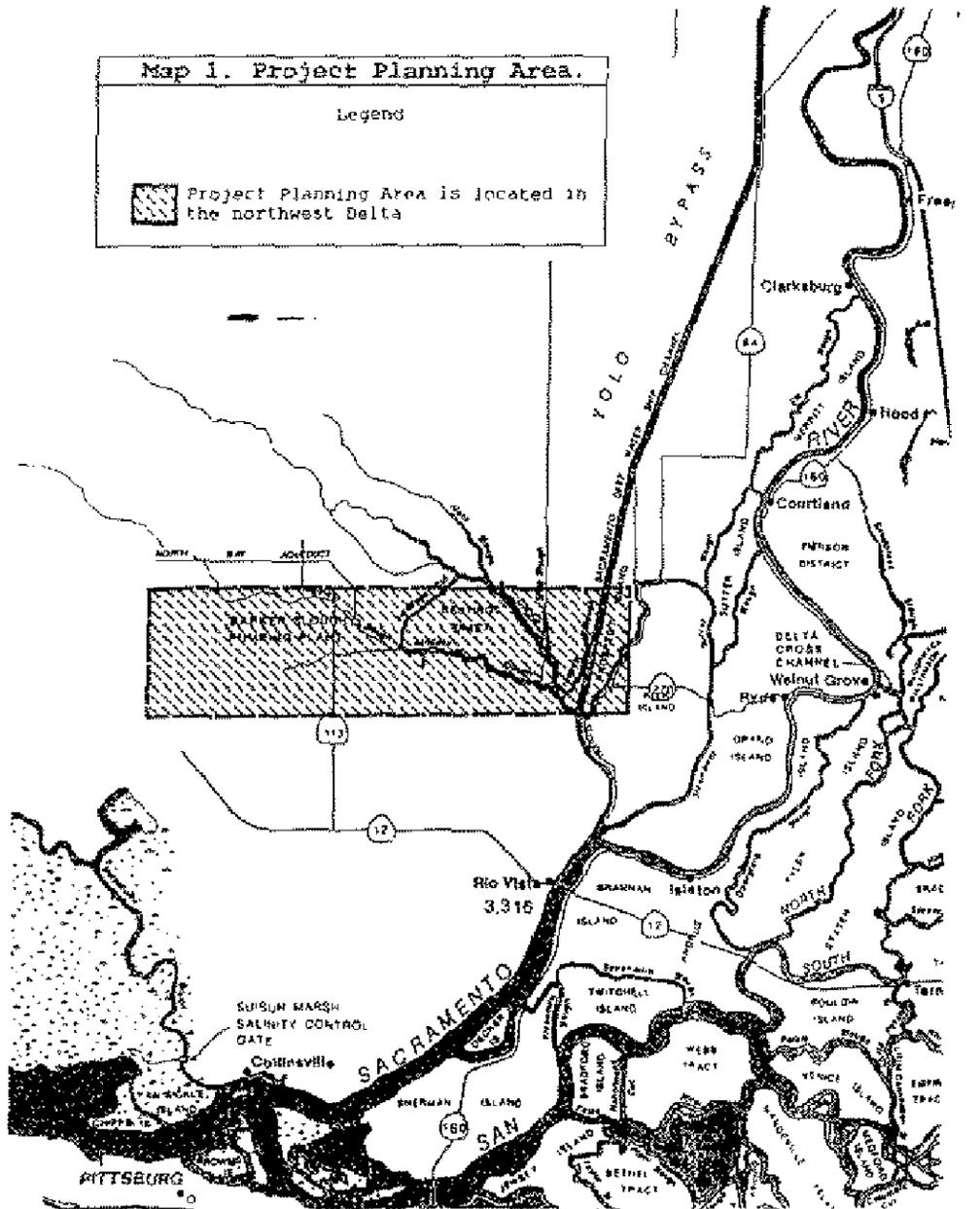


FIGURE 1. SPECIAL STATUS SPECIES FOUND ON JEPSON PRAIRIE PRESERVE

CALFED Priority Species and Species Guilds

Chinook salmon
Delta smelt
Longfin smelt
Splittail
Green sturgeon
Resident fish
Bay/Delta aquatic foodweb organisms
California tiger salamander
Delta green ground beetle
Swainson's hawk
Bank swallow

Waterfowl

Tundra swan, White-fronted goose, Snow goose, Weed duck, Green-winged teal, Mallard, Northern pintail, Cinnamon teal, Northern shoveler, Gadwall, American wigeon, Lesser scaup, Common goldeneye, Bufflehead, Common merganser, and Ruddy duck

Shorebird and wading bird guild

Great blue heron, Great egret, Snowy egret, Killdeer, Black-necked stilt, American avocet, Greater yellowlegs, Lesser yellowlegs, Solitary sandpiper, Spotted sandpiper, Whimbrel, Long-billed curlew, Western sandpiper, Least sandpiper, Dunlin, Long-billed dowitcher, Common snipe

Neotropical migratory bird guild

Western wood pewee, Western kingbird, Tree swallow, Cliff swallow, Wilson's warbler

Other Animal Species

Conservancy fairy shrimp (*Branchinecta conservatio*): FEDERAL ENDANGERED
Vernal pool fairy shrimp (*Branchinecta lynchi*): FEDERAL THREATENED
Vernal pool tadpole shrimp (*Lepidurus packardii*): FEDERAL and STATE ENDANGERED
Burrowing owl (*Speotyto cunicularia*): STATE SPECIES OF SPECIAL CONCERN

Plant Species

Suisun marsh aster (*Aster lentus*): FEDERAL CATEGORY 2
Fragrant fritillary (*Fritillaria liliacea*): FEDERAL CATEGORY 2
Bogg's lake hedge-hyacinth (*Gratiola heterosepala*): FED. CAT. 3C; STATE ENDANGERED
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*): FEDERAL CATEGORY 2
Legenere (*Legenere litorea*): FEDERAL CATEGORY 2
Mason's lilacopsis (*Lilacopsis masonii*): FEDERAL CATEGORY 2; STATE RARE
Colusa grass (*Neostaphyle calusana*): FEDERAL PROPOSED THREATENED; STATE ENDANGERED
Solano grass (*Tuctoria macronata*): FEDERAL ENDANGERED; STATE ENDANGERED

FIGURE 2. PRIORITY WEED SPECIES ON JEPSON PRAIRIE PRESERVE, THREATS, AND CONTROL STRATEGIES.

Common Name	Latin Name	Threats	Control Strategy
Perennial pepperweed	<i>Lepidium latifolium</i>	Highly invasive in the Delta region; threatens riparian, seasonally wet, and upland habitats.	Mow or graze then spray sprouts with herbicide, use Telar in uplands and Garlon in riparian areas.
Fennel	<i>Foeniculum vulgare</i>	Highly invasive in the Delta region; currently along Cook Lane, likely to spread into riparian and upland habitat.	Cut and spray sprouts with herbicide Garlon.
Yellow starthistle	<i>Centaurea solstitialis</i>	Highly invasive in grasslands; dominates one pasture and isolated patches are spreading in the grasslands.	Manage with late-spring prescribed burns followed by several years of late spring mowing and/or sheep grazing.
Eucalyptus	<i>Eucalyptus globulus</i>	Persistent, but not spreading on the preserve; lowers the water table and changes the vegetation structure of grassland/vernal pool habitat; contributes tannins and other organic material to soil and flood waters.	Cut trees, treat stumps with herbicide (Garlon) to prevent sprouting.
Medusahead	<i>Taeniatherum caput-medusae</i>	Highly invasive in grasslands; common in several pastures, displaces native vegetation.	Conduct late spring prescribed burns.
Cocklebur	<i>Xanthium strumarium</i>	Highly invasive in vernal pools; small infestation is spreading into Olcott Lake.	Hand-pull all plants annually until seed bank is exhausted.
Lippia (mat-grass)	<i>Phyla nodiflora</i>	Invasive in vernal pools; outcompetes and displaces rare vernal pool species.	Herbicide plants that threaten the rare Delta-Green Ground Beetle and <i>Tuctoria mucronata</i> habitat.

IV. Costs and Schedules to Implement Proposed Project

PROJECT COMPONENT & TASKS	Direct Labor Hours	Direct Salary, Benefits	Overhead (General, Admin and Fee)	Service Contracts	Materials/ Acquisition Contracts	Miscellaneous and other Direct Costs	TOTAL COSTS
COMPONENT 1							
Riparian planting	1000	\$20,000	\$2,800		\$9,000	\$500	\$32,300
Aquatic Monitoring	100	\$2,000	\$280	\$15,000			\$17,280
Vegetation Monitoring	30	\$600	\$84	\$1,050		\$500	\$2,234
Aquatic and Vegetation Monitoring Design, Data Analysis	30	\$600	\$84	\$9,643			\$10,327
Pepperweed control	30	\$600	\$84	\$4,000			\$4,684
Pepperweed Monitoring	210	\$4,200	\$588	\$7,350		\$100	\$12,238
Monitoring Design, Data Analysis	30	\$600	\$84	\$1,645			\$2,329
Subtotal	1430 hours	\$28,600	\$4,004	\$38,688	\$9,000	\$1,100	\$81,392
COMPONENT 2							
Medusahead & yellow starthistle control (prescribed burning)	200	\$4,000	\$560	\$12,000	\$10,000	\$500	\$27,060
Field monitoring	192	\$3840	\$538	\$6,720			\$11,098
Monitoring Design, Data Analysis	30	\$600	\$84	\$3,220		\$200	\$4,104
Eucalyptus removal	60	\$1,200	\$168	\$30,000			\$31,368
Field monitoring	20	\$400	\$56	\$700		\$200	\$1,356
Monitoring Design, Data Analysis	30	\$600	\$84	\$490			\$1,174
Other weed control	720	\$14,400	\$2,016	\$5,000	\$1,000	\$1,000	\$23,416
Field monitoring	180	\$3,600	\$504	\$6,300		\$200	\$10,604
Monitoring Design, Data Analysis	30	\$600	\$84	\$5,145			\$5,829
Subtotal	1,462 hours	\$29,240	\$4,094	\$69,575	\$11,000	\$2,100	\$116,009
COMPONENT 3							
Conservation Planning	600	\$15,000	\$2,100	\$10,000	\$2,000	\$600	\$29,700
Fund-raising	600	\$15,000	\$2,100			\$600	\$17,700
Subtotal	1200 hours	\$30,000	\$4,200	\$10,000	\$2,000	\$1,200	\$47,400
TOTALS	4,092 hrs	\$87,840	\$12,298	\$118,263	\$22,000	\$4,400	\$244,801

GRAND TOTAL = \$244,801

b. *Schedule milestones*

TASK TIMELINE

TASKS	1997-98				1998-99				1999-2000			
	W	SP	SU	F	W	SP	SU	F	W	SP	SU	F
COMPONENT 1												
Riparian Planting	■				■				■			
Monitoring		■				■				■		
Pepperweed control			■				■				■	
Monitoring				■				■				■
COMPONENT 2												
Prescribed burns		■				■				■		
Monitoring		■				■				■		
Eucalyptus removal			■				■				■	
Monitoring			■				■				■	
Other weed control		■				■				■		■
Monitoring						■				■		
COMPONENT 3												
Conservation Planning	■	■										
Fund-raising			■	■	■	■	■	■	■	■	■	■

- **Riparian Plantings** will be conducted in winter (exact dates depend on rains) of 1997-8, 1998-9, and 1999-2000. Monitoring will be conducted annually.
- **Perennial pepperweed control** will be conducted annually as necessary from 1998 through 2000. Plants will be mowed and/or grazed in spring. Sprouts will be sprayed with herbicide prior to flowering in summer. Monitoring will occur each fall.
- **Prescribed burns** to control medusahead and yellow starthistle will be conducted from 1998 through 2000. Burns will take place in late spring and will be monitored the following spring.
- **Eucalyptus removal** will be completed by end of summer of 1998, with follow-up treatments of re-sprouts as needed.
- **Other weed control** will be conducted at the appropriate time for each species annually from 1998 through 2000 and will be monitored the following spring.
- **Conservation Planning** will be completed and a final Habitat Corridor Conservation Plan will be written by June of 1998.
- **Fund-raising** for implementation of Conservation Plan will occur from 1998 through 2000 as necessary.

c. Third party impacts

There are no known negative third party impacts of this project. Control of exotics on Jepson Prairie and Calhoun Cut Ecological Reserve will reduce the spread of invasive exotic weed species to neighboring properties.

Any purchase of private property or easements (resulting from the Habitat Corridor Conservation Plan) will be from willing sellers only.

Grazing activities, which support the local economy, will continue to be maintained and will serve to demonstrate grazing techniques compatible with maintaining healthy riparian habitat.

V. Applicant Qualifications

The Solano County Farmlands and Open Space Foundation was incorporated as a public benefit, non-profit corporation (501 c3) in 1986 to acquire and preserve farmlands and open space lands throughout Solano County. An eleven member board of directors governs the Foundation. The officers are Frank Andrews, Jr., President; Marci Coglianesse, Vice-President; Russ Lester, Treasurer; and John Isaacson, Secretary.

Day to day operation of the Foundation is the responsibility of Pam Muick, Ph.D., Executive Director; Karen Tuenge, Administrative Assistant; and Tom Klimowski, Ranger. For some short term projects the Foundation hires consultants. Since 1997 Arthur Anderson, Inc. has conducted the annual financial audit.

The Foundation also receives extensive public support. Volunteer groups such as the Jepson Prairie Docents, the Rush Ranch Educational Council (volunteers and docents), Rockville Hills Ambassadors, as well as interns annually contribute hundreds of hours on a variety of management, educational, and restoration projects.

a. Specific individual responsibilities covering technical, administrative and project management roles are described below.

Pam Muick, Ph.D., Executive Director of the Foundation will administer the proposed project "Restoring ecosystem integrity in the Northwest Delta". Muick has administered and implemented restoration projects since 1978 and supervised large projects since 1984.

The Foundation will hire a Project Coordinator to staff this project who will be paid with a combination of CALFED and Foundation funds. The Project Coordinator will work out of the Foundation office and be responsible for day to day project activities. Karen Tuenge, Administrative Assistant, will be responsible for financial and contract administration. Table 1 presents the responsibilities by Component.

Project collaborators include the following. **The Nature Conservancy** staff: Oren Pollak, Regional Ecologist, Rich Reiner, Area Ecologist, Tamara Kan, Conservation Science Associate. **The Department of Fish and Game**, Julie Horenstein, Plant Ecologist. **The grazing lessee**, Burrows Hamilton, who advises on grazing management. **The Jepson Prairie Docents**, a volunteer group, whom advise on educational and natural history aspects of the project and provides volunteers. **The UC Natural Reserve System**, which provides part-time ranger support. Roger Albright, founder of Nitrogreen, who advises on technical weed control issues.

Table 1. Assignment of responsibilities and designated collaborators for project tasks.

PROJECT COMPONENT & TASKS	Responsibility for Task	Collaborators
COMPONENT 1		
Riparian Planting	Project Coordinator and Volunteers	Jepson Prairie Docents, Rush Ranch Educational Council
Aquatic & Vegetation Monitoring	Project Coordinator and Consultants	TNC, DFG, Jepson Prairie Docents
Aquatic and Vegetation Monitoring Design, Data Analysis	Project Coordinator and Consultants	TNC DFG
Pepperweed control	Project Coordinator and Contractor	TNC
Monitoring Design, Data Analysis	Project Coordinator and Consultants	TNC
COMPONENT 2		
Medusahead & yellow starthistle control (prescribed burning & grazing)	Project Coordinator, Burrows Hamilton, UC Natural Reserve System Ranger, Volunteers	Montezuma Hills Fire Department, Air Quality Resources Control Board, TNC,
Eucalyptus removal	Contractor	DFG
Other weed control	Consultants and Burrows Hamilton	TNC, Jepson Prairie Management Committee
Field monitoring for Component Two	Project Coordinator and Consultants	TNC
Monitoring Design, Data Analysis for Component Two	Project Coordinator and Consultants	TNC
COMPONENT 3		
Conservation Planning	Project Coordinator & Executive Director	TNC, DFG, Solano County,
Fund-raising	Project Coordinator & Executive Director	

b. Brief biosketches

Pamela C. Muick, Ph.D., Executive Director of the Foundation. Muick will administer the proposed project. Muick received M.S. and Ph.D. degrees from UC, Berkeley, Department of Forestry and Resource Management, and an undergraduate degree in Biology from Sonoma State. She has administered and implemented restoration projects since 1978 throughout the coastal and Central Valley counties of Sonoma, Monterey, San Joaquin and Solano. On these and other projects she worked with a variety of public and private entities. She has supervised large projects since 1984. She serves on the Board of the Society of Ecological Restoration, California Chapter. She has authored and edited many popular and technical papers. She is an author of "Oaks of California" and an editor of "The Ecological City: preserving and protecting urban biodiversity".

The Foundation manages over 5500 acres throughout Solano County. Over the past ten years the Foundation has acquired over 3200 acres, most of which are under contract with local ranchers and are grazed by cattle or sheep. Grazing plans are developed in collaboration with ranchers and other stakeholders to achieve Foundation standards for good stewardship. The Foundation manages an additional 3300 acres under contracts with the Nature Conservancy, the Department of Fish and Game, and the City of Fairfield.

The Foundation has managed Jepson Prairie in collaboration with The Nature Conservancy since 1994. The Jepson Prairie Management Committee developed the Jepson Prairie Management Plan. The Committee is a long standing consortium of representatives from The Nature Conservancy, the Foundation, Department of Fish and Game, UC Davis, the UC Reserve System, Jepson Prairie Docents, grazing lessees, and other interested parties.

The Foundation has an annual budget of operating budget of \$250,000, drawn from local Mello-Roos assessment districts, rental income, contracts, donations and grants. Land holdings are valued at \$6.5 million dollars. Increasingly, Foundation properties are endowed and the endowment fund (expenditure of interest only) totals \$55,000, as of July 1997, with an additional \$35,000 anticipated by November 1997.

The Foundation has raised grants in excess of \$5.2 million from the following sources: Federal ISTEA, State of California, State Coastal Conservancy, State Parks, State Environmental Enhancement and Mitigation Fund, and numerous local sources.

c. Disclose and discuss any potential conflicts of interest.

Potential conflicts of interest have been reviewed and none have been identified.

d. References for similar projects.

Muick: Restoration and monitoring projects:

1. Elkhorn Slough, Monterey County* (*reports available)
Mark Silberstein, Elkhorn Slough Foundation, Moss Landing, CA
2. Buckeye Ranch, San Joaquin County
Dave Fisher, Robertson Homes
6653 Embarcadero, Stockton, CA 95219 (209) 481-2062

Foundation: Restoration and monitoring projects

1. Rush Ranch, Solano County
Reed Holderman, State Coastal Conservancy
1330 Broadway, 11th Floor, Oakland, CA 94612 (510) 286-4183
2. Suisun Marsh Mitigation Project* (*reports available)
Harry Engelbright, Department of Environmental Health
601 Texas St., Fairfield, CA 94533 (707) 421-6765