# **Tuolumne River - Big Bend Project**

# **Project Information**

#### 1. Proposal Title:

Tuolumne River - Big Bend Project

#### 2. Proposal applicants:

Patrick Koepele, Tuolumne River Preservation Trust

#### 3. Corresponding Contact Person:

Patrick Koepele Tuolumne River Preservation Trust 914 Thirteenth Street Modesto, CA 95354 209 236-0330 patrick@tuolumne.org

#### 4. Project Keywords:

At-risk species, fish Flood Plain and Bypass Management Habitat Restoration, Riparian

#### 5. Type of project:

Implementation\_Full

#### 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?

Yes

#### 7. Topic Area:

Floodplains and Bypasses as Ecosystem Tools

#### 8. Type of applicant:

Private non-profit

#### 9. Location - GIS coordinates:

Latitude: 37.5789528 Longitude: -121.1157074

Datum:

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

239 acres of floodplain along the Tuolumne River, river miles 5.7 - 6.6, east of Shiloh Bridge.

#### 10. Location - Ecozone:

13.2 Tuolumne River

#### 11. Location - County:

Stanislaus

#### 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:

18th Congressional District - Gary Condit

#### 15. Location:

California State Senate District Number: 12

California Assembly District Number: 26

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

3 yrs

#### 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: \$1,681,123

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

Yes

If yes, list partners and amount contributed by each:

Natural Resources Conservation Service \$377,600

Tuolumne River Preservation Trust \$3,500

c) Do you have potential cost share partners?

#### Yes

If yes, list partners and amount contributed by each:

East Stanislaus Resource Conservation Service \$22,000

National Oceanic and Atmospheric Administration-National Marine Fisheries Service \$50,000

California Department of Water Resources \$1,364,247

California Wildlife Conservation Board \$1,364,247

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?

No

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

Yes

If yes, identify project number(s), title(s) and CALFED program.

2001-H-202 Tuolumne River Watershed Outreach and Stewardship ERP/CVPIA-AFRP

#### 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?

Yes

If yes, identify project number(s), title(s) and CVPIA program.

2001-H-202 Tuolumne River Watershed Outreach and Stewardship ERP/CVPIA-AFRP

# 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)

21. Comments:

# **Environmental Compliance Checklist**

## **Tuolumne River - Big Bend Project**

#### 1. CEQA or NEPA Compliance

a) Will this project require compliance with CEQA?

Yes

b) Will this project require compliance with NEPA?

Yes

- c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.
- 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> Stanislaus County <u>NEPA Lead Agency (or co-lead:)</u> US Department of Agriculture - Natural Resources Conservation Service <u>NEPA Co-Lead Agency (if applicable):</u>

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

#### CEQA

-Categorical Exemption XNegative Declaration or Mitigated Negative Declaration -EIR -none

#### NEPA

-Categorical Exclusion XEnvironmental Assessment/FONSI -EIS -none

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?

No

If the CEQA/NEPA process is not complete, please describe the dates for completing draft and/or final CEQA/NEPA documents.

Final CEQA/NEPA documents will be completed May 1, 2003

- 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 Required Other

#### STATE PERMITS AND APPROVALS

Scientific Collecting Permit CESA Compliance: 2081

CESA Compliance: NCCP

1601/03 Required

CWA 401 certification Required

Coastal Development Permit

Reclamation Board Approval Required

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 Required Other

#### PERMISSION TO ACCESS PROPERTY

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

Permission to access state land. Agency Name:

Permission to access federal land. Agency Name:

Permission to access private land. Landowner Name: Chris Todd, Tim Venn, John Dickerson

Required, Obtained

#### 6. Comments.

## Land Use Checklist

#### **Tuolumne River - Big Bend Project**

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>: 65 <u>Easement</u>: 181 <u>Total</u>: 197

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?

#### Yes

If you answered yes to #3, please answer the following questions:

a) How many acres of land will be subject to a land use change under the proposal?

181 acres

b) Describe what changes will occur on the land involved in the proposal.

Riparian forest will be created on cultivated and fallow land.

c) List current and proposed land use, zoning and general plan designations of the area subject to a land use change under the proposal.

Category	Current	Proposed (if no change, specify "none")
Land Use	irrigated cropland and riparian areas	riparian areas and wetlands
Zoning	General Agriculture, 40-acre minimum parcel size	none
General Plan Designation	agriculture	none

d) Is the land currently under a Williamson Act contract?

Yes

e) Is the land mapped as Prime Farmland, Farmland of Statewide Importance, Unique Farmland or Farmland of Local Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program?

Yes

If yes, please list classification:

Prime

f) Describe what entity or organization will manage the property and provide operations and maintenance services.

Todd - East Stanislaus Resource Conservation District Venn - USDA-Natural Resources Conservation Service Bancroft II - Tuolumne River Preservation Trust, until a long-term manager, such as the East Stanislaus RCD, is agrees to take over management.

#### 4. Comments.

1.a) We plan to aquire both fee and an easement on one of the parcels (50 acres). The total, therefore, is not the sum of acres acquired in fee and easement. 1.b) The properties acquired will come with riparian water rights. 3.d) All three parcels are under Williamson Act. 3.e) Some of the soils on all three parcels met the criteria for "Prime Farmland" designation when the soil survey was completed by the NRCS in 1964. However, when these lists were created, the vulnerability to flooding was not known. The lands now qualify for NRCS Floodplain Protection Program, which was created to remove floodprone lands from production, which is directly in conflict with one of the criteria for Prime Farmland Designation.

## **Conflict of Interest Checklist**

#### **Tuolumne River - Big Bend Project**

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):** 

Patrick Koepele, Tuolumne River Preservation Trust

**Subcontractor(s):** 

Are specific subcontractors identified in this proposal? Yes

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

Noah Hume Stillwater Sciences

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Noah Hume Stillwater Sciences

#### **Comments:**

# **Budget Summary**

#### **Tuolumne River - Big Bend Project**

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	Todd Acquisition	208	4811	722	621	1556	1375		132908	141993.0	4398	146391.00
2	Venn Acquisition	208	4811	722	621	1556	3375		432208	443293.0	18458	461751.00
3	Bancroft Acquisition	208	4811	722	621	1556	6675		79538	93923.0	4584	98507.00
4	Todd Restoration	208	4811	722	155	389	13094	17000	3617	39788.0	7958	47746.00
5	Venn Restoration	208	4811	722	155	389	65006	40250	11133	122466.0	24493	146959.00
6	Bancroft Restoration	208	4811	722	155	389	10156	5000	2123	23356.0	4671	28027.00
		1248	28866.00	4332.00	2328.00	5835.00	99681.00	62250.00	661527.00	864819.00	64562.00	929381.00

Year 2												
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	Todd Restoration	416	10109	1516	621	1556	31425		4523	49750.0	9950	59700.00
2	Venn Restoration	416	10109	1516	621	1556	156015		16982	186799.0	37360	224159.00
3	Bancroft Restoration	416	10109	1516	621	1556	24375		3818	41995.0	8399	50394.00
		1248	30327.00	4548.00	1863.00	4668.00	211815.00	0.00	25323.00	278544.00	55709.00	334253.00

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
1	Todd Restoration	70	1786	268	155	389	18856		2145	23599.0	4720	28319.00
2	Venn Restoration	70	1786	268	155	389	75004		7760	85362.0	17072	102434.00
3	Bancroft Restoration	70	1786	268	155	389	10094		1269	13961.0	2792	16753.00
4	Todd Monitoring	70	1786	268	362	5170	33124		4071	44781.0	8956	53737.00
5	Venn Monitoring	70	1786	268	362	17437	128440		14829	163122.0	32624	195746.00
6	Bancroft Monitoring	70	1786	268	362	2299	10816		1553	17084.0	3417	20501.00
		420	10716.00	1608.00	1551.00	26073.00	276334.00	0.00	31627.00	347909.00	69581.00	417490.00

#### Grand Total=<u>1681124.00</u>

Comments.

## **Budget Justification**

#### **Tuolumne River - Big Bend Project**

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

Patrick Koepele - Central Valley Program Director, total hours 2,336 (50% time for 2 yrs, 4 months) Jenna Olsen, Executive Director, total hours - 467 (10% time for 2 yrs, 4 months)

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

Rates of compensation account for annual salary increases of 5%. Also, the salaries of the Central Valley Program Director and the Executive Director are averaged for each task to simplify the budget sheet. Year 1: Central Valley Program Director - \$23,625, Executive Director - \$5,250. Year 2: Central Valley Program Director - \$24,806, Executive Director - \$5513. Year 3 (4 months): Central Valley Program Director - \$8,682, Executive Director - \$1,929.

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

The benefits rate is 15% for all employees.

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

All travel is local (to/fr meeetings, local conferences).

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

Field Supplies: 22175. Office Supplies: 5,391. Computing Supplies: 9,000.

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.

Environmental Documentation and Permitting: 8 months, \$196/day Baseline Conditions, Construction & Planting Designs: 10 months, \$243/day Earthwork: 2 months, \$1,867/day Planting: 7 months, \$786/day Monitoring: 253 days, \$681/day

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.

Equipment includes: top soil, silt fence, fencing, tree cuttings, container stock, fertilizer, rebar, woodchips.

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.

Costs are those associated with the Central Valley Program Director and the Executive Director, as explained above.

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

Other direct costs include a contingency fund, amount to 10% of other direct costs. Other direct costs also include land and easement funds. They are as follows: Todd total acquisition cost: \$220,000; CALFED share: \$98,000. Venn II total easement cost: \$660,000; CALFED share: \$396,000. Bancroft total land cost: \$71,000; CALFED share: \$71,000.

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.

Includes rent, utilities, phone, postage, insurance, office and computer maintenance.

## **Executive Summary**

## **Tuolumne River - Big Bend Project**

This is a proposal to acquire approximately 197 acres and restore approximately 254 acres of floodplain and riparian habitat along the lower Tuolumne (Fig. 1). The project area, west of the City of Modesto is within a sand-bedded reach that has been subject to agricultural encroachment in the floodway, rip-rap, private levees, loss of riparian vegetation, loss of off-channel wetlands, and loss of channel migration. The problem this project addresses, common to all rivers throughout Californias Central Valley, is insufficient channel-floodplain connectivity to support riparian species, Sacramento splittail (Pogonichthys macrolepidotus), juvenile chinook (Oncorhynchus tshawytscha), and steelhead (O. mykiss). This proposed project would address many of the problems described above to reduce flood damages, improve riparian vegetation, channel-floodplain connectivity, and fish spawning and rearing habitat. The following CALFED ERP goals will be met by implementing this project: recovery of at-risk native species, rehabilitation of natural processes, maintenance and enhancement of populations of selected species for sustainable commercial and recreational harvest, protection and/or restoration of functional habitat types in the Bay-Delta watershed, reduction of the negative biological and economic impacts of established non-native species in the Bay-Delta estuary and its watershed, improvement and/or maintenance of water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay-Delta watershed. The goals of this project are to improve the functionality of the Tuolumne River floodplain to support riparian species. Sacramento splittail, juvenile chinook and steelhead by acquiring approximately 197 acres of floodplain and restoring approximately 254 acres of floodplain. The objectives for the restoration project are: a. Acquire fee/easements on three parcels in separate phases, totaling 197 acres. b. Improve channel-floodplain connectivity to allow inundation at a greater frequency, improve natural regeneration of native riparian species, and improve spawning habitat for Sacramento splittail and rearing habitat for juvenile chinook and steelhead. c. Remove invasive exotic hardwood vegetation. d. Preserve existing riparian vegetation and plant native riparian hardwoods on floodway surfaces appropriate for each species' life history. e. Construct a loop trail on the Todd property for limited public access. The hypothesis of this project is that a reconstructed floodplain and vegetation management will improve floodplain connectivity, rehabilitate riparian regeneration processes, increase riparian habitat complexity, and improve splittail spawning and salmon and steelhead rearing habitats.

# Proposal

**Tuolumne River Preservation Trust** 

**Tuolumne River - Big Bend Project** 

Patrick Koepele, Tuolumne River Preservation Trust

#### A. Project Description: Project Goals and Scope of Work

#### 1. Problem

This is a proposal to acquire approximately 197 acres and restore approximately 254 acres of floodplain and riparian habitat along the lower Tuolumne (Fig. 1). The project area, west of the City of Modesto is within a sand-bedded reach that has been subject to agricultural encroachment in the floodway, rip-rap, private levees, loss of riparian vegetation, loss of off-channel wetlands, and loss of channel migration. The problem this project addresses, common to all rivers throughout California's Central Valley, is insufficient channel-floodplain connectivity to support riparian species, Sacramento splittail (*Pogonichthys macrolepidotus*), juvenile chinook (*Oncorhynchus tshawytscha*), and steelhead (*O. mykiss*). This proposed project would address many of the problems described above to reduce flood damages, improve riparian vegetation, channel-floodplain connectivity, and fish spawning and rearing habitat.

<u>Project Location</u>. This project will occur along both the north and south banks of the Tuolumne River from river mile (RM) 5.7-6.6 and is located approximately 5.5 miles west of the City of Modesto.

<u>Review of Existing Studies and Plans.</u> The definitive study of the problem of insufficient channel-floodplain connectivity is the *Habitat Restoration Plan for the Lower Tuolumne River Corridor* (McBain and Trush, 2000), which provides the conceptual plan for this project. The *Restoration Plan* provides a comprehensive study of the Tuolumne River's salmon population, fluvial geomorphology, and riparian habitat, as well as a review of previous studies of these items. The *Restoration Plan* details the history, present condition, and prescribed actions for the entire lower Tuolumne, including this reach.

As detailed in the *Restoration Plan*, the problems of a dysfunctional floodplain and lack of riparian habitat sufficient for riparian species and San Joaquin fall-run chinook, steelhead, and Sacramento splittail is the result of a complex suite of inter-related past and present actions and issues. A 60-year legacy of agricultural encroachment, flood control, and water diversions has resulted in fragmented riparian stands, poor or non-existent valley oak and cottonwood regeneration, and reduced access to the floodplain for splittail spawning and chinook rearing. The January 1997 floods caused extensive damage to farmland and infrastructure and created an impetus to restore floodplains both for habitat values and flood storage benefits. To date, three parcels totaling 255 acres along the sand-bedded reach of the lower Tuolumne have conservation easements on them. One of them, Grayson River Ranch, a 140-acre easement, has undergone extensive floodplain restoration.

Additional studies of the Tuolumne River beyond the *Restoration Plan* include multiple past and ongoing monitoring programs. The Tuolumne River has a comparatively long history of monitoring and data collection going back to 1897 when Turlock Irrigation District and Modesto Irrigation District (TID/MID) began collecting annual water yield from the Tuolumne Watershed. Since 1971, TID/MID in cooperation with the California Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Service (USFWS) have conducted extensive studies of chinook salmon population dynamics and habitat in the lower Tuolumne River as part of the Don Pedro Project Federal Energy Regulatory Commission (FERC) Study Program and other investigations. In 1995, through a FERC-required re-evaluation of the effects of the NDPP on the anadromous fish population, TID/MID, and the City and County of San Francisco (CCSF) entered into a FERC Settlement Agreement (FSA) with the USFWS, DFG, the Tuolumne River Preservation Trust, Friends of the Tuolumne, Tuolumne River Expeditions, the California Sports Fishing Protection Alliance, and the San Francisco Bay Area Water Users Association. The FSA includes a river-wide program to monitor the chinook salmon population and salmon habitat, including monitoring of adult escapement, spawning/incubation habitat quality (with regard to substrate composition), fry and juvenile stranding and entrapment, fry and juvenile distribution, outmigrant survival, and water temperature. Additionally, the DFG monitors outmigrant abundance and timing under the CVPIA Comprehensive Assessment and Monitoring Program. The U.S. Geological Survey monitors flow. These monitoring programs inform the Big Bend Restoration Project and will contribute to monitoring the success of the Big Bend project.

In addition to being the definitive study of the Lower Tuolumne, the *Restoration Plan* provides the conceptual plan for the Big Bend project. Below is a summary of the main symptoms of the problem of insufficient channel-floodplain connectivity and the suggested solutions (or actions to address the problems) outlined in the *Restoration Plan*.

The Tuolumne River is disconnected from its floodplain. On the lower Tuolumne River, flows inundate the floodplain much less frequently than historically occurred due to flow regulation and flood control (McBain and Trush, 2000). Annual streamflow patterns and riparian plant life cycles interact to produce a dynamic relationship between (1) mortality caused by surface or groundwater inundation or desiccation and (2) survival when adequate soil moisture conditions correspond to seed availability. High flows that exceed the bankfull stage inundate floodplains and recharge groundwater tables in floodplains, oxbow lakes, and sloughs (McBain and Trush, 2000). Additionally, substantial loss of the high flow regime has further discouraged riparian regeneration. Some plant species have evolved rapidly growing roots to follow the dwindling sub-surface soil moisture (Segelquist et al., 1993). Flows inundate the floodplain much less frequently due to flow regulation and flood control (McBain and Trush, 2000). We propose to breach agricultural berms and create sloughs that allow inundation at greater frequency.

Floodplain inundation is a significant element required to maintain strong year classes of Sacramento splittail (Sommer et al, 1997). Floodplains are important habitat refugia for rearing juvenile chinook salmon, however these shallow rearing habitats along stream margins have been reduced or replaced with lower quality, deeper margin areas with poorer depth/velocity profiles (McBain and Trush, 2000). Access to habitat throughout the geographic range of splittail and chinook salmon has been greatly diminished by human-caused actions (McBain and Trush, 2000; CALFED, 2000). Dams and levees restrict access to historical, seasonally flooded spawning and rearing habitat (McBain and Trush, 2000; CALFED, 2000). The proposed floodplain modifications will improve access to the floodplain for splittail and salmon.

Riparian habitat loss has been great, with less than 15% of the historical riparian forests remaining along the river (McBain and Trush, 2000). Urban and agricultural encroachments have continued to directly remove large tracts of riparian vegetation. For example, farm practices in this reach of the river include riprap, berms, and laser-leveling of floodplains.

Changes to riparian vegetation directly affect microclimate, nutrient availability, habitat quality, and diversity (Gregory et al., 1991). Loss of vegetative cover, including clearing of valley oaks and cottonwoods, due to agricultural encroachment has additionally reduced woody plant cover along the river corridor, encouraged exotic plants to infiltrate into the riparian zone, and increased ambient temperatures within the river corridor (McBain and Trush, 2000). The interaction between floodplain elevation, riparian vegetation and contemporary bankfull discharge must be restored to restore natural fluvial and vegetative growth processes.

<u>Goals and Objectives.</u> The goals of this project are to improve the functionality of the Tuolumne River floodplain to support riparian species, Sacramento splittail, juvenile chinook and steelhead by acquiring approximately 197 acres of floodplain and restoring approximately 254 acres of floodplain. The objectives for the restoration project are:

- a. Acquire fee/easements on three parcels in separate phases, totaling 197 acres.
- b. Improve channel-floodplain connectivity to allow inundation at a greater frequency, improve natural regeneration of native riparian species, and improve spawning habitat for Sacramento splittail and rearing habitat for juvenile chinook and steelhead.
- c. Remove invasive exotic hardwood vegetation.
- d. Preserve existing riparian vegetation and plant native riparian hardwoods on floodway surfaces appropriate for each species' life history.
- e. Construct a loop trail on the Todd property for limited public access.

<u>Partners.</u> The Tuolumne River Preservation Trust will implement this project in partnership with several entities. The Todd property will be purchased by the Tuolumne River Preservation Trust (Trust) while the Natural Resources Conservation Service (NRCS) simultaneously purchases a permanent floodplain easement. This joint transaction capitalizes on the experience of the NRCS with easement agreements and the trust the NRCS engenders among landowners in this reach while satisfying the landowners desire to sell fee title. NRCS alone is unable to purchase an easement because the program has a limit of \$2000/acre, which is below the appraised value. After the purchase is complete, the Trust will transfer the deed to the East Stanislaus Resource Conservation District (RCD) who will hold the land in perpetuity.

The Venn II acquisition will be a permanent conservation easement held by NRCS, who is able to provide up to \$2000/acre, which is below the appraised value. Through this proposal, the Trust seeks the additional funding to complete the purchase. The owner does not wish to sell fee simple.

Finally, the Bancroft II project will sell be a fee title transaction held by the Trust. Once restoration is complete, the Trust will seek an appropriate organization, such as the RCD, to permanently hold the title of the property.

<u>Hypothesis</u>. The hypothesis of this project is that a reconstructed floodplain and vegetation management will improve floodplain connectivity, rehabilitate riparian regeneration processes, increase riparian habitat complexity, and improve splittail spawning and salmon and steelhead rearing habitats.

#### 2. Justification

<u>Conceptual Model.</u> A conceptual model for the proposed actions, the anticipated results, and measured parameters is included (Fig. 2). This conceptual model is an adaptation of a conceptual model prepared by Stillwater Sciences for the Tuolumne River Technical Advisory Committee for the AFRP/CALFED Adaptive Management Forum and presented on June 19, 2001. We adapted this model to focus on floodplain and riparian processes, whereas the original model contains the additional attributes of channel function and sediment supply.

The conceptual model describes how reducing agricultural activities and reconstructing the floodplain leads to a series of effects that restore natural riparian regeneration and succession progression and improve splittail spawning and salmon rearing habitat. Managing vegetation contributes to the restoration of riparian processes.

The model reflects the physical and biotic responses of the system to past and present stressors and limiting factors. For example, intensive agricultural practices that have employed such tools as laser-leveled floodplains, berms and low levees, and riprap, have resulted in a perched floodplain disconnected from frequent inundation during winter and spring flows. This, in turn, limits access of fish to spawning and rearing habitat. It also limits the success of vegetation. Removal or reduction of the stressors and limiting factors improves the biotic and physical processes.

<u>Hypothesis Test.</u> The Big Bend Project is designed to test the hypothesis by comparing baseline data (pre-test) with post-project monitoring data (post-test) to determine whether the proposed solutions contributed to the anticipated outcomes. The actions to be implemented are:

- 1. Breach agricultural berms and create swales.
- 2. Remove nonnative invasive vegetation
- 3. Preserve existing vegetation and plant riparian vegetation
- 4. Construct a loop trail on the Todd property.

The anticipated outcomes are restored natural riparian regeneration and succession progression and improved fish habitat.

The elements that will be monitored to test the project hypothesis are as follows:

- 1. Change in floodplain inundation frequency.
- 2. Change in utilization of the floodplain by fish for spawning and rearing.
- 3. Change in nonnative invasive species and native riparian vegetation.

The next sections describe this process in greater detail.

<u>Key Uncertainties.</u> The key uncertainty of this project is the impact of improved channelfloodplain connectivity on riparian vegetative growth. We assume that vegetation is unable to develop in this reach because of this factor (among others), but this has not been demonstrated conclusively on the Tuolumne. The initial success of the Grayson River Ranch restoration project has reduced this uncertainty somewhat, but additional projects such as the Big Bend Project will reduce the uncertainty even further. Additionally, the Grayson River Ranch project has revealed that native trees can be successfully grown in this reach of the river, but oak seedlings tend to be prone to predation by animals such as gophers. Monitoring will reveal whether the improvements in these attributes improve riparian development, while adaptive management will allow modifications in project management for changes in conditions as they arise.

Adaptive Management and Project Type. The Big Bend Restoration Project is a full-scale implementation project. Through the extensive history of monitoring and the development of the *Restoration Plan*, stakeholders have developed a very good basis for ecosystem rehabilitation. Similar projects, such as the Grayson River Ranch, have been completed along the lower river, and have had initial success. The Big Bend project qualifies as full-scale implementation because we have a wealth of knowledge from past projects to inform what is needed for additional projects. The Big Bend project will provide additional information about the effectiveness of these types of projects in rehabilitating the riparian habitats along the lower Tuolumne River.

The Tuolumne Trust intends to incorporate adaptive management into the restoration project itself. For example, we expect that breaching berms will improve channel-floodplain connectivity and improve riparian regeneration processes. If floodplain terraces are not inundating at predicted frequencies, we could potentially modify the planting design and replant vegetation on appropriate elevations to match flood inundation levels.

The information and learning obtained from implementation of the Big Bend Project will contribute to the adaptive management of the CALFED Ecosystem Restoration Project as a whole as well. The project may yield information that could revise future restoration projects or lead to larger scale restoration at similar sites. For example, we will refine our knowledge of reconstruction design and rating curves based on whether the reconstructed floodplains inundate at predicted frequencies. Changes in the rates of juvenile salmon stranding will also provide information useful to future floodplain terrace reconstruction projects, especially in spawning reaches. Likewise, the success of our methods of removing invasive hardwoods and planting native vegetation can improve future projects.

#### 3. Approach

The study design is a pre- and post-project comparison of key indicators, with data collected in a time series. We will use the most rigorous statistical analysis the data allow. The approach follows:

#### 1) (Corresponds to Objective a.) Purchase easements and/or fee simple on 3 parcels.

We propose to purchase fee simple on 2 parcels and a conservation easement on a third. Since a different landowner owns each parcel, we propose to complete each transaction as a separate phase:

 Todd (APN 017-45-17) – a 50-acre parcel on the north side of the river. This is the highest priority parcel because the Trust has signed an option with the landowner that expires on March 15, 2002. The owners are interested in selling for conservation purposes, though they are unwilling to extend the option beyond the deadline. Additionally, the owners do not wish to sell only an easement, but rather are interested in fee simple. This parcel lies on the inside of a sharp meander bend and therefore is an excellent opportunity to restore natural channel-migration processes. NRCS will purchase a permanent floodplain easement. Simultaneously, the Trust will purchase fee simple for the difference between the price of the easement (\$2,000/acre) and fee title. Based on the appraisal completed by Edwards Appraisal Service (Hilmar, CA) on 2/23/01, we anticipate this difference will be approximately \$2,400 for a total appraised value of \$4,400/acre.

- 2. Venn II (APN 017-49-07) a 132-acre parcel on the south side of the river. This parcel lies directly across the river from the Todd parcel. This would be an easement acquisition only. The owners have sold a floodplain easement to the Natural Resources Conservation Service (NRCS) on an adjacent 56-acre parcel (Venn I). The NRCS has an option to purchase an easement on the second parcel, which expires on 11/24/01, but needs matching funds because the easement program has a \$2,000/acre limit. We propose to provide the necessary funds over and above the NRCS contribution to complete the purchase, expected to be approximately \$3,000/acre, for a total value of \$5,000/acre based on the appraisal completed by Edwards Appraisal Service (Hilmar, CA) on 2/6/01.
- 3. Bancroft II (a portion of APN 017-45-01) approximately 16-acres located adjacent to the Todd property and making up the remaining portion of the inside of the meander bend. Together the Todd and Bancroft properties would be important for restoring natural fluvial processes in this stretch of the river. Although this parcel has not been appraised, we anticipate the cost to be similar to that of the Todd property (\$4,400/acre).

The three parcels would complement existing conservation easements on Grayson River Ranch (140-acres), Venn I (56-acres), and Bancroft I (58-acres). Together, all of the parcels would total 452 acres of land preserved for conservation purposes. About 3 miles of river frontage on both sides of the river would be preserved.

# 2) Restoration of Todd, Venn I, Venn II, and Bancroft II would occur simultaneously and would begin with clearly defining the baseline conditions and finalizing conceptual designs.

The *Restoration Plan* has documented much of the historical and baseline conditions of the site, and subsequent reports to the Federal Energy Regulatory Commission (FERC), as required by the license to TID/MID for the New Don Pedro Project, contain additional baseline information. The information pertinent to this project will be compiled into a single report to be used for comparison to post-project conditions. Initial surveys of topography will also be completed for design purposes. Conceptual designs will be finalized to take into account the study constraints of the project. This would include such features as designing tree planting on a variety of elevations to better understand the effects of flooding. NRCS engineers and geomorphologists will be integral to this design development. A contractor will be hired to work with NRCS staff.

3) Develop environmental documentation, obtain permits, and develop final designs.

This will be a necessary step for project implementation. NRCS would be a lead agency in NEPA compliance and a contractor with experience in completing environmental reports

would assist in CEQA compliance and permitting. Final designs would be created by an appropriate engineering/geomorphology firm.

# 4) (Corresponds to Objective b.) Regrade floodway surfaces and breach berms to improve channel-floodplain connectivity.

The floodplain has been stabilized with riprap, berms, and small levees. Additionally, the floodplain has been laser-leveled on most of the land for cultivation purposes. Breaching berms and regrading the floodplain to create a small number of swales and sloughs will allow access to floodplain surfaces more frequently than presently occurs. While the Grayson River Ranch project (adjacent to the Venn I easement), created two swales that drain to a single point in the river, we plan less intensive earthmoving. Most earthmoving would be on the Venn parcels and will consist of breaching two low agricultural berms to allow floodwaters to flow more freely across the floodplain (Fig. 3). Any floodplain depressions will be carefully contoured to ensure they drain back out to the river to ensure stranding of juvenile salmonids does not occur. On the Todd and Bancroft II parcels, we propose to enhance an existing small (less than 5-acre) wetland area (Fig. 3) by enlarging it slightly and removing nonnative invasive vegetation. On the Venn easements, we would contract directly with the landowner to implement these actions, as he is a farmer with access to equipment and employees.

#### 5) (Corresponds to Objective c.) Remove invasive exotic vegetation.

All woody exotic plant species within the reach should be removed during floodplain regrading. Three plant species should be targeted for removal: giant reed, tree of heaven, and all Eucalyptus species. The San Joaquin River Management Program Advisory Council has identified giant reed as a plant to eliminate throughout the San Joaquin River and its tributaries (SJRMP, 1995). Eucalyptus sp. has been planted and naturalized throughout the lower project reach. To ensure that resprouting does not occur, the above ground portion and the stump/root wads of exotic plants must be removed. After initial removal, exotic species should be removed in perpetuity because these plants prevent native species from naturally recruiting and establishing.

# 6) (Corresponds to Objective c.) Preserve existing riparian vegetation and plant native riparian hardwoods on floodway surfaces appropriate for each species life history requirements.

Preserving as much existing native woody riparian vegetation as feasible is a primary goal of the project. Cottonwood, tree willow, and valley oak stands should not be removed during construction. The valley oaks that are present in this reach will be utilized for seed collection, and are important contributors to future recruitment. Nearly all cottonwoods should be preserved to increase age class diversity and riparian canopy structure. Mature cottonwoods (>25 years), regardless of stand size, should not be removed because they provide the seed source for future recruitment.

After earthwork is completed, valley oak, Fremont cottonwood, and willows will be planted on floodplain surfaces appropriate for their life history requirements. Floodplain species will be willows, alders and cottonwoods. Willows will be planted nearer the active channelbankfull channel transition, while valley oaks will be planted on higher floodplains and terraces near the valley walls. Revegetation patterns will reflect plant species patterns identified during the riparian inventory conducted in 1996.

Because of cost, material supply, and species characteristics, some hardwood species have priority over others. Cottonwood and willow plantings on floodplain surfaces are prioritized because of their fast growth, structural contribution to the riparian corridor, and aesthetics. Valley oaks are the next priority because of their large-scale removal over the past 100 years. Increasing the valley oak stand size is desirable, not only for their long-term wildlife habitat contribution, but also for the valuable structural components they add to the riparian corridor.

Much of the revegetation materials will come from onsite sources (valley oak seeds, willow cuttings, cottonwood cuttings), and species not found onsite (sedges, alder, and Oregon ash) should be purchased from local nurseries that obtain it from within the Tuolumne River corridor. Cluster planting (vegetation patches) rather than row planting should be encouraged to recreate a more natural site appearance, ease watering and maintenance, and increase habitat diversity. A plant ecology/biology consultant will be hired to complete the planting designs and implement the planting. We would also like to work closely with the landowner of the Venn properties to implement the planting and irrigation systems. The landowner, as an orchardist, has excellent experience growing trees, and has crews on hand to do the work efficiently and affordably.

To the extent possible, we would like to include volunteers in the planting of trees, on the Todd and Bancroft II parcels as a means of involving the local community in the restoration effort.

# 7) (Corresponds to Objective d.) Construct a /walking trail system through the property with a fishing access to the river on the Todd property.

The East Stanislaus RCD would like to provide limited public access, allowing supervised groups to visit and experience the project through a loop trail and access point to the river. This trail will be well signed to inform visitors of the ongoing restoration efforts. The supervised public access will provide an excellent opportunity to educate local schoolchildren and other visitors about the benefits of riparian habitat.

#### 8) Undertake monitoring of the site and evaluation of hypotheses.

Monitoring will commence, as described in Section 5 - Performance Measures, below. The monitoring phase of any project must focus on whether the project objectives have been satisfied. Is the regraded floodplain accessible to the 5000 cfs flow? How successful is the riparian revegetation? Was exotic species removal successful?

Monitoring reports will be produced for the first two years and at the end of the fifth year a final monitoring report will be produced that summarizes monitoring data. This final report will interpret the data and make recommendations that will improve future designs.

#### 9) Adjust management of the site based upon the results of monitoring.

Management of the site can be adjusted based on the results of project monitoring. Some of the possible outcomes of monitoring, and resulting actions, are described in Section 2 - Justification, above.

This approach maximizes the information richness and value to decision-makers. The approach will provide detailed information regarding reconstruction of floodplains, and methods of removing nonnative vegetation and planting native riparian species. This project has great potential for improving our understanding of the interrelation among floodplain processes and riparian vegetation and habitat.

#### 4. Feasibility

The Todd property and Venn II are both under option agreements, the former with the Trust and NRCS, the latter with NRCS only. The owners of Bancroft II have expressed interest in selling the topic parcel for conservation purposes. The project is not only feasible but also urgent due to the time-sensitive nature of the options. Property access agreements will not be an impediment to restoration because the properties will either have an easement that guarantees access for restoration, or fee title will be held.

The methods proposed in this work plan are known to be effective. Similar transactions have been undertaken for the Grayson River Ranch, Bancroft I, Venn I, and the Bobcat Flat project. The restoration phase of the project is based upon the restoration at Grayson River Ranch, which has just been completed and appears to be highly successful. The Trust, through its relationship with the Tuolumne River Technical Advisory Committee (TRTAC) has a strong network of technical advisors available. The NRCS will play a lead in completing environmental documentation and permitting and a contractor with experience in completing environmental reports will be hired to assist with this process.

Regrading floodplains and planting riparian vegetation as proposed for this project are techniques that have been undertaken through other projects along the Tuolumne (Grayson River Ranch, SRP 9) and California (Cosumnes River, Clear Creek, Merced River). They are techniques commonly used and will not pose a problem on this project.

#### 5. Performance Measures

We will evaluate a series of measures by comparing pre- and post-project data. In addition to ongoing monitoring programs conducted by members of the Tuolumne River Technical Advisory Committee (TRTAC), Stillwater Sciences of Berkeley, CA will conduct project-specific monitoring at Big Bend. With extensive expertise in aquatic and terrestrial ecology, fisheries biology, and geomorphology, Stillwater Sciences has worked directly with the TRTAC and the Turlock and Modesto Irrigation Districts to implement the 1995 FERC Settlement Agreement monitoring program. Performance measures to test the project hypothesis will be evaluated through the following monitoring plan:

<u>Change in floodplain inundation frequency</u>. Re-establishment of the river's access to the floodplain by regrading within the project reach should increase floodplain inundation

frequency within the contemporary (post NDPP) flow regime. We will test this by comparing measurements of post-project flood-inundation extent and duration with known flood frequency relationships for the lower Tuolumne River. Inundation during one or more high flow events from 4,000 - 5,000 cfs will be measured by placing stakes to demarcate the extent of flooding, which will be delineated by a follow-up survey. In the event that flood peaks are not captured, passive flood stage recorders (*i.e.*, primitive stilling well arrangement or recording pressure transducer) will also be used.

<u>Utilization of floodplain for splittail spawning and salmonid rearing.</u> Floodplains designed to inundate at the current (post-NDPP) flow regime (*i.e.*, 4,000 – 5,000 cfs) should improve spawning conditions for Sacramento splittail and rearing conditions for Tuolumne River salmonids. This will be documented by a combination of water surface elevation surveys at these flows and fish habitat utilization surveys (*e.g.*, seining and direct observation). Utilization of the floodplain and swales by splittail, juvenile chinook salmon, and steelhead will be monitored by seining when there is an opportunity to take advantage of a four day duration event in excess of 4,500 cubic feet per second (cfs) at Modesto. Submerged floodplain habitat, primarily in the Venn parcel, will be seined along with two nearby river sites, one downstream of the project near Shiloh Road, and one adjacent to or just upstream of the project floodplain. In-stream sites will be used to demonstrate the presence of fish that could potentially utilize the site. This project site-specific seine monitoring will also take advantage of the FSA seining program that occurs every two weeks during the outmigration period (January - May).

Non-native invasive species and restoration of native riparian vegetation. The ecological disturbance associated with increased flood frequency and inundation duration should be accompanied by increases in riparian vegetation diversity and recruitment of native plant species. In addition to documenting hydroperiod and groundwater changes at the site, we will monitor changes in vegetation composition, distribution and seedling recruitment. Coarse-scale riparian vegetation mapping at the site was completed as part of the *Restoration Plan*. These maps will be used as baseline information for post-project comparison. Prior to project construction, we will survey base-line photo points. After the project has been implemented, we will follow up with further riparian mapping and surveys to determine the success of the project in terms of riparian regeneration.

In addition to site vegetation mapping, monitoring will include experimental plots at different locations within the floodplain (e.g., heads of bars, near the summer low water surface, floodplains, outsides of meander bends, isolated ponds, and terraces), which will also correspond to a gradient of floodplain and groundwater elevations. The success of non-native species removal will be monitored over at least two seasons by quadrat counts of seedling germination and recruitment. Similarly, the success of native species germination and survival will be followed through two seasons (*i.e.*, after germination, at summer low flow, following winter scour events, etc.).

Several physical factors will be monitored to provide ecological context and control for factors in the experimental design, including soil texture (by sieving bulk samples at several locations), groundwater depth (using piezometers) and river stage (using a pressure transducer and/or staff gauge). Morphologic observations will associate periods of

inundation with periods of developmental milestones such as, bud swelling, bud break, leaf growth, floral development, flowering, fertilization, fruit development, fruit dehiscence and seed dispersal following methods similar to those identified in Beck et al. (1991). Plant morphologic development will be monitored weekly until seed dispersal has ended to define the periods that each developmental stage was observed. To the extent possible, these observations will also take advantage of local volunteer groups.

#### 6. Data Handling and Storage

All documents, posters, publications, and web sites that result from this proposal will be made available to the public, either electronically or in printed form. Progress and final project reports will be made to the Tuolumne River Technical Advisory Committee and the Tuolumne River Coalition. Data will be stored on the applicant's hard drive, as well as on cd-rom, and will be available to the CALFED and CVPIA programs in draft form prior to dissemination. A final report with all data collected will be made available to CALFED or the CVPIA.

#### 7. Expected Products/Outcomes

Reports generated through this project will include appropriate environmental documentation, a summary report of baseline conditions, a final project report, and a monitoring report after 1, 2, and 5 years. Progress reports will be presented to the Tuolumne River Technical Advisory Committee for its quarterly meetings, and the Tuolumne River Coalition for its monthly meetings. We anticipate presenting the results of the project to other forums, such as the San Joaquin Riparian Management Program, and the CALFED Science Conference via a talk or poster presentation. Additionally, we will publicize this project widely to the general public, and generate media tours and resulting newspaper or television stories.

#### 8. Work Schedule

Phase	Task	Month	Date <sup>1</sup>
Phase I (Todd acquisition) <sup>2</sup>	Enter escrow	0.5	February 15, 2002
	Close	1.5	March 14, 2002
Phase II (Venn II acquisition)	Enter escrow	7	September 1, 2002
	Close	8	December 1, 2001
Phase III (Bancroft II acquisition)	Sign option agreement	7	September 1, 2002
	Complete Preliminary Title	8	October 1, 2002
	Report		
	Complete Appraisal	9	November 1, 2002
	Complete Survey	11	January 1, 2003
	Enter escrow	11.5	January 15, 2003
	Close	12.5	February 15, 2002
Phase IV - Restoration Planning and	Notify public, adjoining	8	October 1, 2003
Permitting (Todd, Bancroft II, Venn I,	property owners, and local		
and Venn II)	watershed groups, and local		
	governments		
	Initiate surveys and aerial	8	October 1, 2002
	photographic work to establish		
	baseline conditions, including		
	topography.		
	Public scoping meeting	9	November 1, 2002
	Complete Conceptual Designs	11	January 1, 2003
	Begin Environmental	11.5	January 15, 2003
	Documentation/Permitting		
	Complete Draft	13.5	March 15, 2003
	Environmental Document		
	Complete Final Environmental	15	May 1, 2003
	Document		
	Complete Permitting	16	June 1, 2003
	Complete Final Designs	18	August 1, 2003
Phase V - Implementation	Begin construction (grading)	18	August 1, 2003
	Complete construction	20	October 1, 2003
	(grading and trail)		
	Complete planting and	27	May 1, 2004
	nonnative vegetation removal		
Phase VI – Monitoring	Shown below		

The date assumes a start date of February 1, which is necessary to complete the Todd proposal within the option period. Other tasks will start on September 1<sup>st</sup>, which we assume will allow time for a contract to be completed if this is a successful grant. If a contract is completed earlier or later, the project tasks will shift accordingly.

2) The Todd option expires on March 15, 2002. We are assuming this will occur well before a CALFED contract will be completed if this is a successful proposal. The Trust may take out a loan from an organization such as the Packard Foundation to meet this deadline. The Trust will need to recover all hard costs (cost of the land over and above NRCS contribution and interest) associated with completing this purchase.

Phase VI - Monitoring Schedule

Monitoring Objective	<b><u>Time after construction</u></b>			
Document pre-construction topography and vegetative conditions,	0 (pre-construction)			
including presence of exotic species and condition of native species.				
Document post-construction vegetative conditions, including presence	0 (post-construction)			
of exotic species and condition of native species.				
Document over-summer plant survival and recruitment, presence of	4 months (pre-summer)			
exotic species				
Document over-winter/pre-summer plant survival, and deposition on	12 months			
floodplain				
Document scour/inundation mortality in plots and through photo	first flood $>$ 4,000 cfs			
surveys. Conduct fish surveys. Conduct field surveys to measure flood				
extent.				
Document scour/inundation mortality in plots and through photo	first flood > 8,000 cfs			
surveys. Conduct fish surveys. Conduct field surveys to measure flood				
extent.				
Document drought related mortality and presence of exotic plant	2 consecutive drought years			
species.				
Document overall survival and recruitment, exotic species, and	5 years			
conclude monitoring program				

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

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

This project would address all 6 strategic goals described in the ERP Draft Stage 1 Implementation Plan and CVPIA goals (as described in pp 22–39 of the ERP Draft Stage 1 Implementation Plan) as follows:

- Strategic Goal 1: Achieve recovery of at-risk native species dependent on the Bay-Delta watershed and minimize the need for future endangered species listings by reversing downward population trends of native species that are not listed. This project would contribute to the recovery of Sacramento splittail, San Joaquin fall-run chinook salmon, and steelhead.
- Strategic Goal 2: Rehabilitate natural processes in the Bay-Delta system to support, with minimal ongoing human intervention, natural aquatic and associated terrestrial biotic communities and habitats, in ways that favor native members of those communities. This project would contribute to the rehabilitation of natural fluvial geomorphic and riparian processes.
- Strategic Goal 3: Maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest, consistent with the other ERP Strategic Goals. This project would contribute to the recovery of San Joaquin fall-run chinook salmon and steelhead.
- Strategic Goal 4: Protect and/or restore functional habitat types in the Bay-Delta watershed for ecological and public values such as supporting species and biotic communities, ecological processes, recreation, scientific research, and aesthetics. This project would contribute to the recovery of floodplain and riparian habitats.
- Strategic Goal 5: Reduce the negative biological and economic impacts of established non-native species in the Bay-Delta estuary and its watershed. This project would contribute to the removal and management of nonnative invasive species.

• Strategic Goal 6: Improve and/or maintain water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay-Delta watershed. This project would contribute to maintaining or improving water quality conditions.

This project would address the following ERP priorities as described in pp. 40 - 47 and 69 - 74 of the ERP Draft Stage 1 Implementation Plan:

- MR-1) Nonnative invasive species control
- MR-3) Implement environmental education actions throughout the geographic scope. One of our secondary objectives is to include volunteers in the planting and monitoring of the project, as well as provide environmental education opportunities for local schools, which will contribute to this ERP priority.
- SJ-1) Continue habitat restoration actions including channel-floodplain reconstruction projects and habitat restoration studies in collaboration with local groups
- SJ-2) Restore geomorphic processes in stream and riparian corridors
- SJ-3) Improve rearing and spawning habitat and downstream fish passage on tributary streams and the main stem San Joaquin River, particularly for chinook salmon, steelhead trout and splittail.
- SJ-4) Implement actions to improve understanding of at-risk species in the region. This will be accomplished through including the general public in planting and monitoring.

The project would help improve stream meander and natural floodplain and flood processes by creating a floodplain that is more frequently inundated and that is less confined by nonnative invasive species. The project would target riparian, freshwater fish, and essential fish habitats. The project would improve habitat of splittail, chinook salmon, and steelhead by improving channel-floodplain connectivity. Other species that may benefit include the western pond turtle and Swainson's hawk.

#### 2. Relationship to Other Ecosystem Restoration Projects

The Big Bend project is an integral component in the restoration of floodplains and riparian habitat on the lower Tuolumne River. It contributes to the overall goals of the *Restoration Plan* by restoring the riparian corridor, reconnecting the floodplain to the channel, and enhancing the supply of self-sustaining, dynamic, native woody riparian vegetation. This project is additionally important to reducing flood damages to cropland and farm infrastructure, and meets the goals of the U. S. Army Corps of Engineers Comprehensive Study.

Other projects completed, under construction, and planned for the Tuolumne include channel and floodplain restoration of the Gravel Mining Reach; SRP 9; SRP 10; Mile 43 Channel Restoration; gravel additions; gravel cleaning; fine sediment management; Bobcat Flat floodplain restoration; Grayson River Ranch floodplain restoration; and the Tuolumne River Regional Park riparian restoration. Each of these projects is designed for the specific needs of the location of the project, and each is designed to be complementary to the other projects. Funding for these other projects has come from CALFED, AFRP, the Natural Resources Conservation Service, Delta Pumps Fish Protection Agreement Lump Sum (Four Pumps), and other sources.

#### 3. Requests for Next-Phase Funding

Not applicable

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

The Tuolumne River Preservation Trust has previously been awarded two CALFED grants. Tuolumne River Watershed Outreach and Stewardship, Proposal # 2001 H-202 is a CVPIA funded project. The Tuolumne River Initiative: Developing an Integrated Plan (Proposal # 151) was approved through the CALFED Watershed Program 2000 – 2001 PSP. We have just received the contract for the Outreach Stewardship project and we are awaiting a contract for the other. Consequently, work has not begun on either of these grants.

#### 5. System-Wide Ecosystem Benefits

This project will increase the total area and improve the quality of riparian forest, thereby improving the riparian corridor along the Tuolumne River. Riparian corridors of San Joaquin tributaries provide important linkages between the mainstem river, its riparian forest, and nearby wetlands, with foothill communities. This linkage provides an important migratory route for terrestrial and avian species.

Additionally, habitat will be improved for splittail, chinook salmon, and steelhead trout, both of which are species that have received attention throughout the Central Valley. Improvements to habitat for these species at any one location will provide system-wide benefits by reducing the risk of endangering these species.

Finally, community involvement in these projects will improve the knowledge-base of the general public, thereby increasing support for ecosystem projects. System-wide support from a wide spectrum of people is necessary for the overall success of CALFED.

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

These land transactions involve only willing sellers (Attachments 1-3).

This project is consistent with several goals of the Conservation/Open Space Element of Stanislaus County's General Plan, including: Goal One - encourage the protection and preservation of natural and scenic areas throughout the county; Goal Four - Provide for the open-space recreational needs of the residents of the county; Goal Five - Reserve, as open space, lands subject to natural disaster in order to minimize loss of life and property of residents of Stanislaus County; and Goal Ten - protect fish and wildlife species of the county.

The attached letter from the Tuolumne River Coalition (TRC) provides evidence of local government support (Attachment 4).

These parcels are key to the restoration of this reach of the Tuolumne River because they would build upon ongoing restoration and easement programs, and they lie at an important location along the river. Todd and Bancroft II occupy the inside of a very tight meander bend and therefore represent an excellent opportunity to restore natural fluvial processes, especially in conjunction with properties on the south side of the river.

Finally, the Todd and Venn II parcels are both under option agreements. The Todd option expires March 15, 2001, at which point the opportunity may be permanently lost, because the

parcel would return to the open market. The Venn II option is with the NRCS, and will require cost-share funding to be completed. If this deal is lost, we seriously risk losing an excellent private partner/landowner. Though the Bancroft II property is not under option, we have discussed the project with the landowner and he is very interested. It could prove difficult to restore floodplain processes on this meander bend without including the Bancroft II parcel.

#### C. Qualifications

The Tuolumne River Preservation Trust will be the fiscal agent and has the ability to administer the funds. The Trust is a small non-profit organization, so institutional structure is minimal. However, we have a consultant with extensive experience in non-profit financial management who handles our bookkeeping. The Tuolumne Trust has experience with grants from government sources (via grants from the National Fish and Wildlife Foundation). In addition, the Trust will be working very closely with the Tuolumne River Technical Advisory Committee in implementing this project.

Patrick Koepele will manage this project for the Tuolumne River Preservation Trust. Patrick has an MS in Geology from UC Davis and a BA in Geology from Colgate University in Hamilton New York. He has worked as the Central Valley Program Director for the Trust since July 2000 and has served as the Trust's representative on the Tuolumne River Technical Advisory Committee and the San Joaquin River Management Plan. Before joining the Trust, Patrick worked for the U.S. Army Corps of Engineers as a Planner for the Sacramento and San Joaquin River Basins Comprehensive Study.

The Natural Resources Conservation Service and its District Conservationist for Stanislaus County, Mike McElhiney, have successfully completed 12 previous floodplain easements on the lower Tuolumne and San Joaquin Rivers through its Floodplain Easement and Wetlands Reserve Programs. Additionally, several restoration projects have been completed by the NRCS on the easements. Partner funding is critical to the success of these unique projects administered through these programs.

The East Stanislaus Resource Conservation District was organized in 1997 to provide services to the eastern half of Stanislaus County. The RCD is the product of a consolidation of four previously existing Resource Conservation Districts that had served the community for over forty years. The RCD has previously been the recipient of CALFED funds for the Grayson River Ranch project, a successful 140-acre floodplain restoration project. The RCD provided excellent leadership and skills to this project.

Stillwater Sciences is a firm of biological and geological scientists. The company specializes in developing new scientific approaches and technologies for environmental problem solving in aquatic and terrestrial systems. Its founding members are experienced in freshwater ecology, fisheries, and wildlife biology, riparian and wetland ecology, entomology, botany, and hillslope and fluvial geomorphology. Stillwater's experience includes evaluation of the environmental impacts of a variety of projects and the development of wetland and riparian mitigation and monitoring plans. Stillwater Sciences team members have conducted extensive biological, geomorphic, hydraulic, and hydrologic analyses on the Tuolumne, Merced, and Stanislaus Rivers.

#### D. Cost

#### 1. Budget

Input directly into website.

#### 2. Cost-Sharing

Cost Sharing for this project is provided by several other sources. Most importantly, the USDA - NRCS is providing funds towards the purchase of easements on the Todd and Venn II properties, not to exceed \$2,000/acre. This amount is about half of the appraised value of the easements and therefore partner funding is critical to move these projects forward. On the Todd parcel, both an NRCS easement and fee simple will be purchased.

The East Stanislaus RCD is also able to contribute \$22,000 (up to 10% of land costs, not to exceed \$30,000) towards the Todd property.

The National Oceanic and Atmospheric Administration-National Marine Fisheries Service has granted the Trust \$50,000 towards the restoration of the Todd property through its Community-Based Restoration Program. This funding is contingent upon the acquisition of the property.

The Trust has applied for funding from the California Department of Water Resources (DWR) through its Flood Corridor Protection Program and from the California Wildlife Conservation Board (WCB). Both of these applications (DWR and WCB) are presently in review. These proposals are for the unmet need for acquisition and restoration of Todd and Venn II (they are equivalent to this CALFED proposal). If either one of the grants is successful in funding any portion of the project, then that portion could be eliminated from this CALFED grant proposal. Funding for the Bancroft II parcel's acquisition and restoration would still be needed from CALFED.

Finally, the Trust is contributing to pre-acquisition expenses, such as appraisals and option agreements. To this point, the Trust has contributed \$3,500.

#### E. Local Involvement

The project has been coordinated with and received the support of the Tuolumne River Coalition (Attachment 4) and the Tuolumne River Technical Advisory Committee (TRTAC). The TRTAC letter of support is available upon request. The Tuolumne River Coalition includes Stanislaus County Department of Parks and Recreation, the City of Modesto, City of Waterford, City of Ceres, Friends of the Tuolumne, Turlock and Modesto Irrigation Districts, Tuolumne River Preservation Trust, the California Department of Fish and Game, and others. The San Joaquin River Management Plan has also reviewed the project and support for the project is under consideration.

#### F. Compliance with Standard Terms and Conditions

The applicant agrees to comply with the standard State and Federal contract terms described in Attachments D and E of the ERP 2002 Proposal Solicitation Package.

#### G. Literature Cited

Beck N.G., Arpaia M.L., Eckard K.J., Reints J.S., and E.M. Lord. 1991. "The effect of chlorpyrifos on flower and fruit development in grapefruit, *Citrus paradisi* Macfayden." *Scientia Horticulturae* 47:35-50.

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Gregory, S. V., Swanson, F. J., McKee, W. A., and K. W. Cummins. 1991. "An ecosystem perspective of riparian zones." *Bioscience* 41(8): 540 – 551.

McBain and Trush. 2000. *Habitat Restoration Plan for the Lower Tuolumne River Corridor*. Arcata, CA. Prepared for the Tuolumne River Technical Advisory Committee. 216 pp.

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SJRMP. 1995. *San Joaquin River Management Plan*. California Resources Agency. Sommer, T., Baxter, R., and B. Herbold. 1997. "Resilience of splittail in the

Sacramento-San Joaquin Estuary." *Transactions of the American Fisheries Society* 126: 961–976.





Figure 2 - Big Bend Floodplain Acquisition and Restoration Conceptual Model. Effects of regrading the floodplain, removing NIS, and revegetating the floodplain on riparian habitat and salmon spawning riffle quality. Tuolumne River Preservation Trust application to CALFED, 2002. Modified from Stillwater Sciences, 2001.



Patrick Koepele Central Valley Program Director Tuolumne River Preservation Trust 914 Thirteenth Street Modesto, CA 95354

Dear Patrick,

September 12, 2001

For the purposes of the CALFED proposal, I would like to confirm to you that I have willingly entered negotiations for the sale of approximately 50 acres along the Tuolumne River. Furthermore, due to personal financial goals, I listed this property for sale with Andy Van Dyk of Century 21 before I received the offer from the Tuolumne River Preservation Trust.

Additionally, we have always wanted to keep this property as a natural habitat and are excited about the conservation project that the Tuolumne River Preservation Trust is proposing.

If you have any further questions, feel free to contact me at work in Tracy at (209) 833-4988 or at home in Wilton at (916) 687-7636.

Thank you,

Christina Todd

Christina Todd 11269 Gay Road Wilton, CA 95693

Patrick Koepele Central Valley Program Director Tuolumne River Preservation Trust 914 Thirteenth Street Modesto, CA 95354

September 12, 2001

Dear Patrick,

For the purposes of the CALFED proposal, I would like to confirm to you that I have willingly entered negotiations for the sale of a conservation easement of approximately 117 acres along the Tuolumne River. Additionally, I am interested in seeing a restoration project completed on the land.

If you have any questions, feel free to contact at 209-537-9996

Thank you,

Tim Venn Owner Venn Farms 4507 Broyle rd Modesto CA 95358 PO Box 673 Diablo, CA 94528 September 12, 2001

Patrick Koepele Central Valley Program Director Tuolumne River Preservation Trust 914 Thirteenth Street Modesto, CA 95354

Dear Patrick,

In regards to the CALFED proposal, we are open to negotiating a sale of approximately 16 acres of our land, referred to as "Bancroft II," along the Tuolumne River.

Sincerely,

John Dickerson Bancroft Fruit Farm Ph 925-837-3783 email: chicken1@flash.net

9/12/2001 9:12 AM

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#### TUOLUMNE RIVER COALITION 914 13<sup>th</sup> Street, Modesto, CA 95354, 209/236-0330

Patrick Wright CALFED Bay/Delta Program 1416 9th Street, Room 1155 Sacramento, CA 95814

Dear Mr. Wright:

I am writing on behalf of the Tuolumne River Coalition in support of the project entitled "Big Bend Acquisition and Restoration" submitted by the Tuolumne River Preservation Trust for support under the 2002 Proposal Solicitation Package for the Ecosystem Restoration Program.

This project is consistent with the Lower Tuolumne River Vision Statement. The TRC Steering Committee recommended support for this project, which was approved by the supporters listed at the end of the Vision Statement.

The Tuolumne River Coalition urges CALFED to support this project. Please contact me should you require further information.

Sincerely, Patrick Koeple

Patrick Koepele I Coordinator, Tuolumne River Coalition

TRC Steering Committee

California Department of Fish and Game \* City of Ceres \* City of Waterford \* East Stanislaus Resource Conservation District \* Friends of the Tuolumne \* Stanislaus County Parks and Recreation \* Tuolumne River Regional Park \* Tuolumne River Preservation Trust \* Turlock and Modesto Irrigation Districts

Attachment 4 25