Proposal Reviews

#171: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

The Nature Conservancy

Initial Selection Panel Review	
Research and Restoration Technical Panel Review	
Sacramento Regional Review	
External Scientific Review	#1 #2 #3 #4
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Environmental Compliance	
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Initial Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Initial Selection Panel Review

Proposal Number: 171

Applicant Organization: The Nature Conservancy

Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

Please provide an overall evaluation rating.

Explanation of Recommendation Categories: Fund

- **As Is** (a proposal recommended for funding as proposed)
- **In Part** (a proposal for which partial funding is recommended for selected project phases or components)
- **With Conditions** (a proposal for which funds are recommended if the applicant contractually agrees to meet the specified conditions)

Consider as Directed Action in Annual Workplan (a proposal addressing a high priority action that requires some revision followed by additional review prior to being recommended for funding)
Not Recommended (a proposal not currently recommended for funding-after revision may be considered in the future)

Note on "Amount":

For proposals recommended as Fund As Is, Fund In Part or Fund With Conditions, the dollar amount is the amount recommended by the Selection Panel.

For proposals recommended as Consider as Directed Action in Annual Workplan, the dollar amount is the amount requested by the applicant(s).

Fund	
As Is	**-**
In Part	**-**
With Conditions	**-**
Consider as Directed Action	**X**
Not Recommended	**-**

Amount: **$4,950,032.00**

Conditions, if any, of approval (if there are no conditions, please put "None"):

none

Provide a brief explanation of your rating:

This proposal, along with #170, have the potential for high ecosystem benefits and would help fulfill CALFED's Record of Decision commitment to protect Sacramento River meanderbelt as well as tributary floodplain habitats. However, #170 and #171 do not have a well-developed adaptive management approach with hypothesis testing and experimental design. The Selection Panel would like the applicant to stengthen the scientific approach in order to better judge future acquisition and to increase the information value of restoration projects. This effort to improve the scientific approach would also be informed by completion of the currently on-going sub-reach planning studies which are underway under previous grant funding. The Nature Conservancy is recognized as having many efforts in progress for Sacramento River corridor restoration planning and implementation and CALFED requests the applicants to work with the CALFED science program and ERP Independent Science Board prior to resubmitting a revised proposal or proposals for the Chico Landing sub-reach activities. These proposals will be considered for directed action.

Research and Restoration Technical Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Research and Restoration Technical Panel Review Form

Proposal Number: 171

Applicant Organization: The Nature Conservancy

Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

Review:

Please provide an overall evaluation summary rating:

Superior: outstanding in all respects;
Above Average: Quality proposal, medium or high regional value, and no significant administrative concerns;
Adequate: No serious deficiencies, no significant regional impediments, and no significant administrative concerns;
Not Recommended: Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
XSuperior	**The panel was extremely impressed with the 1) extent of restoration accomplished, 2) excellent potential for experimental assessment of vegetation restoration approaches, 3) potential for nesting plots within multiple sampling reaches. We recommend CalFed to request a detailed Addendum to 1) incorporate BOTH low intensity and high intensity approaches for vegetation restoration and 2) describe the experimental protocol in detail. If they develop a technically sound experimental protocol for a matrix of approaches, the panel emphatically recommends funding of this proposal. Without this addition, the outcomes will be less than the potential contributions of this project.**
-Above average	
-Adequate	
-Not recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

   The proposal clearly states the goal of restoring 1200 acres of riparian forest along the Sacramento River. The objectives and hypotheses are clearly identified and the hypothesis generally are testable. The proposal presents a compelling justification of the project and the proposed actions are linked to previous restoration in the reach. The experiments and monitoring have the potential to be well designed and could be more rigorous than those presented in most proposals. Unfortunately, the experiments and monitoring are not described in sufficient detail to evaluate. The conceptual framework is clearly linked to the proposed restoration actions.

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

   The proposed restoration efforts are likely to be successful because they employ established approaches for revegetation. However, the proposed restoration practices are high intensity approaches, almost a gardening approach. Lower intensity approaches for revegetation by native colonists should be included in the mix of practices investigated in this project. The four reaches provide a form of replication that will greatly strengthen interpretation of the results. Use of plot designs for evaluating success of planting and revegetation is a major strength of the proposal, but better description of measurement protocols is essential. Reviewers stress that the use of herbicides should be considered with great caution and eliminated or minimized where possible. The measures of performance are directed mostly at revegetation objectives.

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

   The project will increase the understanding of the Bay Delta Watershed, particularly if TNC is successful in obtaining research funds to track additional responses. The outcomes of this proposal will be useful for designers of other efforts to restore riparian plant communities, though users of the information should be cautious about differences in systems. The overall evaluation approach is the aspect of the project that is most transferable.

4. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The budget is extremely large (<$5 million). If resources are available, this proposal would be a good investment because it creates more ecologically healthy conditions on a large tract of land and contributes more to our understanding of restoration than most proposals.

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

   The regional review panel thought it was an important area for restoration but were not clear about benefits to fisheries. The panel gave the proposal a Medium ranking.

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

   Several problems were identified in past negotiations with both the applicants and the state. U.S. Fish & Wildlife Service stated that TNC was an excellent contractor to work with. Several permits may be necessary.

Miscellaneous comments:

None

Sacramento Regional Review:

Proposal Number: 171

Applicant Organization: The Nature Conservancy

Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

Overall Ranking: **-**Low **X**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

The panel felt this was an important area. Benefit to fisheries not clear. Possibly fund the Sunset Ranch project as a first phase to evaluate cost benefit ratio. Review overall budget.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   It appears so. TNC has coordinated activities early on with Glenn County, locals and the Sacramento River Conservation Area (SRCA) Board of Directors.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   XYes **-**No

   How?

   Sacramento Region PSP Restoration Priorities No. 1, 3, 4 and 7.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   The proposed project is closely lined with SRCA, the Corpos of Engineers Comprehensive Study and the "J" Levee Project, among others.

4. Does the project adequately involve local people and institutions?

   XYes **-**No

   How?

The proposed project was presented to the SRCA Board of Directors and Technical Advisory Committee, Glenn County Board of Supervisors, Hamilton City Community Service District and Butte County.

Other Comments:

A plus that the project included proper well abandonment to protect the groundwater supply as part of the project.

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **171**

Applicant Organization: **The Nature Conservancy**

Proposal Title: **Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
XExcellent	**This proposal offers an excellent opportunity to restore floodplain habitat and LEARN about processes of recolonization. Unfortunately, the proposed actions are more like intensive gardening. The authors should consider a sequence of restoration aimed at capturing the beneficial outcomes of natural processes and simply amending undesired outcomes.**
-Good	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The proposal clearly states the goal of restoring 1200 acres of riparian forest along the Sacramento River. The objectives and hypotheses are clearly identified and the hypothesis generally are testable.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

The proposal presents a compelling justification of the project and its links to previous restoration in the reach. The conceptual framework is clearly linked to the proposed restoration actions.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The proposed restoration efforts are likely to be successful because they employ established approaches for revegetation. The four reaches provide a form of replication that will help in the interpretation of the results.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   no comment

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   The measures of performance are clearly linked to the objectives and the hypotheses. This proposal provided a better experimental design than most proposals.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   The project will increase the understanding of the Bay Delta Watershed, particularly if TNC is successful in obtaining research funds to track additional responses. The outcome of this proposal has significance to decision makers. Ecologists and environmental scientists will gain insights from the proposed restoration project.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   no comment

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The budget is large (<$5 million). If resources are available, this proposal would be a good investment because it creates more ecologically healthy conditions on a large tract of land.

Miscellaneous comments:

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **171**

Applicant Organization: **The Nature Conservancy**

Proposal Title: **Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

<u>Excellent:</u> outstanding in all respects;
<u>Good:</u> quality but some deficiencies;
<u>Poor:</u> serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
XExcellent	**This proposal is rated as excellent because 1) it fills a critically important need to increase acreage of riparian habitat along the Sacramento River, thereby protecting large numbers of both at-risk and common and typical species, and will improve water quality for endangered fish, 2) the approach, including hypothesis testing components, is well-designed and feasible, 3) the various products are biologically valuable, will contribute to the advancement of restoration science and will be useful to decision-makers, 4) monitoring plans and performance criteria meet high standards, 5) the applicant and its subcontractors have a proven track record with projects of this type and have received five CALFED and three CVPIA grants previously, and 6) the project's cost/benefit rating is excellent due to cost per acre that is below industry standards.**
-Good	
-Poor	

1. **<u>Goals.</u>** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   Yes, the goals, objectives and hypotheses of this project are clearly stated and internally consistent.

The main goal of this project is to improve the ecological health and long-term viability of Sacramento River riparian communities and species through habitat restoration. Flood damage reduction and water quality improvement are additional goals. In this reviewer's viewpoint, these goals are timely and important because 95% of the Sacramento River's riparian forests and associated aquatic habitats have been lost due to agricultural and urban development and other causes, and these habitats support a wide range of plant and animal species, including many that are threatened, endangered or otherwise at-risk.

This reviewer found that the proposal did, in fact, address all the CALFED ERP and CVPIA goals that it claimed to address. CALFED ERP goals addressed by the project include: 1) at-risk species, 2) ecosystem processes and biotic communities, 3) habitats, 4) non-native invasive species, and 5) sediment and water quality. CVPIA goals addressed by the project include: 1) protect, restore and enhance fish, wildlife and associated habitats in the Central Valley of California, 2) improve habitat for all life stages of anadromous fish, and 3) involve partners in the implementation and evaluation of restoration actions.

The objectives are clearly stated and lead to achievement of the project goals. The objectives include: 1) develop site-specific restoration plans, 2) replace 1,218 acres of flood-prone ag land with native riparian communities that support native wildlife, 3) assess short-term (3-year) revegetation success by monitoring plant survival and growth, and 4) enhance knowledge of best-available techniques by relating monitoring data to physical and biological characteristics of restored tracts. A longer-term monitoring period would be preferable, but outside the timeframe of the project. The proposal discusses separate long-term monitoring projects that would include this project.

Three separate hypotheses will be tested. These are described in detail, and are designed to advance the science of riparian restoration by improving the efficiency of field techniques. Two additional hypotheses related to this project are proposed for testing under a separate proposal. Results of these tests will benefit other restorationists throughout California and the Western U.S. There is a great need for this information, since riparian restoration is much-needed throughout the West and many past projects have failed or achieved less-than-expected success due to deficiencies in the science.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

The study (implementation with hypothesis testing) is justified because there is a need for better information on all aspects of riparian restoration. (See also response to question 1, above.)

The proposal presents three conceptual models that provide the foundation for the proposed Sacramento River work. All three are outlined in figures at the end of the proposal. They are based on The Nature Conservancy's current framework for conservation, called Conservation by Design (2001), which is available for review on the web, and is based on TNC's many years of experience in implementing conservation projects.

According to the proposal, the Programmatic Conceptual Model (Figure 1) demonstrates how restoration activities are organized to accomplish the specified objectives; the Ecological Conceptual Model (Figure 2) shows the anticipated positive response that the proposed restoration activities will have on the ecosystem; and the Restoration Conceptual Model (Figure 3) provides a framework for specific restoration activities.

For people who view conceptual models as important components of projects of this type, the conceptual models in this proposal provide an organized and thoroughly adequate overview of the process from three different perspectives. In this reviewer's experience, conceptual models are less important in predicting and achieving project success than the following: a detailed and thorough restoration plan, an experienced project manager, an organized and committed staff, reliable contractors, and the organization's track record in work of this kind. These factors more accurately predict an organization's ability to deal with on-the-ground situations that so frequently develop during restoration projects. The applicant does an excellent job of satisfying these criteria. Previous experience of the applicant and the scope of this project justify the selection of "full-scale implementation" for project type.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The approach is rated as excellent. The proposal presents an approach that is specifically geared to the biological, physical and social conditions existant within the project area, and is directly related to achievement of project objectives.

   Riparian restoration will be implemented on four tracts within the Chico Landing Sub-reach, in an area of the Sacramento River ecosystem dominated by agriculture and wildlife refuges. A "Sub-reach planning process" will be used. This reviewer agrees that Sub-reach planning is more efficient because it is applied at a larger floodplain scale than previously used parcel-sized planning.

   Each tract will have a tract-specific restoration plan, focusing on horticultural restoration using plants native to the restoration area. Plant propagules most appropriate for the species (e.g., oak acorns, willow cuttings, etc.) will be used. This reviewer notes that the restoration process outlined in the proposal, including site preparation, planting, maintenance and monitoring, and use of performance standards, follows the guidelines taught in revegetation classes sponsored by the Society for Ecological Restoration and by other revegetation and restoration experts.

   Another positive aspect of the proposal is the inclusion of appropriately experienced contractors, including local farmers and nurseries, to assist with a variety of project tasks, including plant propagation, tract preparation, planting and maintenance. Giving local farmers responsibility for on-the-ground planting and maintenance is an especially positive aspect of this proposal's approach.

   Monitoring and hypothesis testing are additional strongly positive aspects of the approach. (See also question 1, above.)

   The results of this project will undoubtedly add to our understanding of better methods for riparian restoration. The Nature Conservancy was one of the earliest practitioners of riparian restoration in California and has consistently strived to improve methods and techniques within the field. TNC has regularly published results of its efforts, making these available to other restorationists. The detailed hypotheses that will be tested during this project should provide information that will point towards numerous valuable refinements to techniques in use at present.

Decision-makers will benefit in a variety of ways from information generated by this project. Better information leads to better decisions on what is effective mitigation, and to more efficient use of conservation dollars, both public and private.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The approach is fully documented and technically feasible. The proposal includes a detailed description of the approach, including restoration methods and specific contractors, implementation schedule, 3-year monitoring plan, and project deliverable schedule. Access rights and permission to carry out restoration activities have been obtained from landowners. Environmental compliance under CEQA and NEPA will be completed by a subcontractor with extensive experience preparing the appropriate environmental documents. The applicant has conducted riparian restoration along the Sacramento River since 1989, with increasing success as new findings have been incorporated into the restoration approach.

   Based on this reviewer's experience in evaluating similar projects and the applicant's track record in riparian restoration in the Central Valley, this project has a very high likelihood of success.

   This is a large-scale project, covering 1,218 acres. The objectives stated in the proposal are consistent with completing a restoration project of this magnitude.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   Performance criteria for successful establishment of trees, shrubs and forbs, and weed presence are specifically quantified in the proposal. Criteria include 80% survival averaged across woody species (tree and shrub potted stock, acorns, cuttings); 80% or more frequency for planted understory species (grasses and forbs); and 20% or less frequency for weeds. The 80% success criteria are higher than what has been proposed for other projects of this type, but the applicant states that these criteria are based on what has been achieved on other sites, and are therefore considered reasonable and achievable. These criteria will adequately measure the success of several important aspects of revegetation, an important component of the overall restoration process. The monitoring program in the proposal is includes enough monitoring events to accurately determine whether performance criteria are being met.

   Performance will be measured more subjectively as a result of hypothesis testing of the following hypotheses: 1) Edaphic factors, geology and hydrology affect planted species performance; 2) Planting grass and forb species in a patchy, heterogeneous pattern will produce vegetation communities that resemble natural understory floristic patterns; and 3) Planting a native grass and forb layer in the riparian understory will help control the extent of non-native invasive species. These hypotheses will be tested using appropriate methods, and will provide another method of evaluating the success of the project's methods.

   The evaluation of success of restoration projects like this one could be greatly improved by including longer term monitoring that focuses on development of plant community structure and biological diversity as a measure of the development of ecosystem processes (the "functions and values" referred to in many agency documents). Unfortunately, the short durations of most restoration projects (3 years in this case) do not provide for this type of evaluation. TNC proposes

to fill this gap by including these tracts in separate long-term monitoring studies that are not formally a part of this proposal.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   The product value of this project is rated as very high. Specific products include: 1) 1,218 acres of newly restored riparian habitat, 2) improved conditions for 10 threatened or endangered animals, including fish such as the Chinook salmon that have experienced dramatic recent declines in numbers, 3) improved conditons for dozens of common and typical native fish, wildlife and plant species, 4) improved water quality in the Sacramento River through reduction in pesticide and herbicide use on lands near the river, 5) reduced acreages of invasive non-native plants, and 6) permanently sealed wells that will protect local water supplies.

   The results of the monitoring/hypothesis testing component of this project will provide valuable information that will be made accessible to all restorationists and any other interested persons. These results will allow other restorationists to refine their techniques and procedures based on this project's outcomes. In addition to the specific monitoring outcomes of this project, TNC is engaged in long-term (10 years and longer) monitoring studies that incorporate data from all their Central Valley projects. The results of this project will contribute to this extremely valuable data set.

   TNC's project office in Chico will provide local access to monitoring data for 3 years following project completion. More importantly, the project's data, annual and quarterly results will be made available by the Information Center for the Environment (ICE) at UC Davis. ICE assists agencies and others throughout the state by providing data-based products used in report preparation, public presentations, analysis and evaluation. ICE's information is available to the public through their Web server. In addition, it is recommended that TNC commit to publishing results of this work in an applied restoration journal, such as Ecological Restoration.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The track record of the applicant with regard to past projects is rated as excellent.

   The applicant and its named subcontractors have maintained excellent long-term reputations for quality work in their disciplines. The Nature Conservancy is one of the nation's foremost conservation organizations. In California it has been involved in successful riparian restorations throughout the state since at least 1989, including large-scale projects on the Kern, Cosumnes and Sacramento rivers. These projects have all included partnerships with local landowners and large crews of well-trained volunteers. TNC has previously been awarded five CALFED and three CVPIA grants for protection and restoration within the Sacramento River Conservation Area.

   Hedgerow Farms has been an innovator in the field of restoring native grasses and grasslands, and has pioneered the use of agricultural methods in propagating native grasses and revegetating native grasslands. John Anderson has been very active in the California Native Grass Association and has conducted numerous workshops on restoring native grasslands and propagating native grasses.

EDAW, Inc. is a well-established firm that has many years of experience in environmental compliance issues, including CEQA and NEPA compliance.

The use of local nurseries, Chico State Farms and Floral Native Nursery, assures that native plants will be propagated in an environment similar to the outplanting sites, leading to a higher level of successful establishment.

In summary, the project applicant and its named subcontractors possess the appropriate skills, experience, infrastructure and equipment for this project, and are fully capable of bringing it to successful completion.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

The cost/benefit ratio of this project is rated as excellent. The per acre cost of this project works out to approximately $4000, using the maximum total cost provided in the proposal -- $4,950,000 (see miscellaneous comments, below).

Riparian restoration projects in California typically cost between $5000 and $20,000 per acre, generally higher for smaller-scale projects. The large scope of this project clearly has permitted economies of scale, a very important benefit when considering the critical need to restore large acreages of riparian habitat while conserving public dollars allocated to conservation.

Miscellaneous comments:

The proposal includes 3 different grand total costs: $4,881,184 in the Budget Summary; $3,560,536 in the Budget Justification; and $4,950,000 in the Executive Summary. This reviewer was unable to correlate the Position Hours and Position Hourly Rates provided in the Budget Justification with the Direct Labor Hours, Salaries and Benefits in the Budget Summary.

External Scientific: #3

Research and Restoration External Scientific Review Form

Proposal Number: **171**

Applicant Organization: **The Nature Conservancy**

Proposal Title: **Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**This is a very well written and interesting proposal by a strong group of scientists and conservationists. The methods are clearly outlined in an experimental framework so that we are likely to have useful results (that may inform other restoration projects. However, there were several aspects that were not fully explained or justified.**
XGood	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   This is an extremely well written proposal with the goals and objectives very clearly stated. The explanation of how these goals will be reached is clear and every goal is linked directly to a specific task. The statement of hypotheses (page 5) is among the best of the proposals Ive read. They are not trivial but scientifically substantial and also testable (although see below)

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

The proposed work is justified based on the importance of this site as habitat for birds as well as, migratory and resident fish. The conceptual model is very clearly stated (pages 27-28) and while very general in nature, it is clear they wish to progress from assessment, restoration of plants, toward restoration of function. It would have been nice to see more on the latter but evidently that is the topic of another proposal.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The approach is very solid. The work is well grounded in state of the art science and they have selected the most appropriate methods for each task. The use of replicated plots to assess the success of the planting efforts (and how the plants may be influenced by context (local factors) makes this stronger than most of the proposals I have read. This will add to the general knowledge base in terms of the experimental evaluation of planting success (although how this will be specifically tested is very vague at best).

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The project does appear technically feasible. The approach is very clearly outlined and within the grasp of the authors. The team is very well qualified and the likelihood of success high. Two aspects were not fully documented: 1) how will edaphic factors, geology, and hydrology be assessed? i.e., these are broad, generic categories of factors and we are not told exactly what will be measured nor how hypothesis 1 will be specifically tested. 2) what was the basis for the selection of the relative compositions of plants per tract (forest, savannah, grassland) chosen for each tract? The statistical analysis of the factors (1) and the community composition factors (2) was not explained. This is clearly a factorial experiment but we are not quite given enough information to figure out # replicates per treatment, type of statistical design, etc.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   Measures are specified and include primarily plant survival and growth. The performance measures could have included more information on the statistical design as outlined in 4) above

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   The product will be, if successful, removal of invasives and replanting with particular species. Contributions to larger restoration framework/other areas may be high (see earlier comments). While this is lean on analysis methods (stats), there is enough information here (and the PIs are highly qualified) that I am convinced we will have interpretable outcomes.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

From what is provided the team is certainly well qualified and has done past restoration work as well as some research.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The budget is very high but a great deal of work will be accomplished.

Miscellaneous comments:

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: **171**

Applicant Organization: **The Nature Conservancy**

Proposal Title: **Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**Revegetation of marginal farmland with riparian plant species, coupled with a science-based assessment of the success of the revegetation techniques, makes this project worthy of funding. The reason I assigned an overall score of good vs. excellent was uncertainty about the types of restoration-guiding information to be gained and concern over the exclusive use of the high-cost horticultural planting approach (vs. other approaches such as seeding).**
XGood	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The general goal, which is to plant native riparian trees, forbs, and grasses to marginal farmlands to achieve a wide range of riparian functions, is timely and important. The first three objectives seem clear (develop restoration plans, replace 1,218 acres of flood-prone agricultural land with native riparian communities, and assess short-term planting success) but I was unsure of the intent of the 4th, which reads "Relate monitoring data to physical and biological tract characteristics to enhance our knowledge of the best available techniques for restoring high-quality riparian habitats". Does this mean, determine the optimal species to plant given a set of site conditions, determine optimal planting techniques for a given set of site conditions, or does it encompass both? The first hypotheses (edaphic

factors, geology, and hydrology affect planted species performance) relates to Objective 4 but is too general to have merit. The second hypotheses (planting herbaceous species in patchy pattern will resemble natural floristic patterns) does not clearly relate to the objectives, can not be tested given the absence of identified natural reference sites, and is a bit vague as to its intent. The third hypotheses seems sound (planting a native grass and forb understory will reduce abundance of non-native species). The fourth and fifth hypotheses seem intriguing and useful but relate only to funds being sought for a separate, complimentary proposal.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The selection of full-scale implementation project seems justified given the prior track record of this approach, if one wishes to have rapid but costly results. However, there are other alternatives. Rather than proceeding with full-scale implementation of horticultural plantings (which follows on their past successes), perhaps emphasis could be placed on including natural or assisted regeneration from seed, to cut costs of this and future similar efforts. A variety of justifications were given for active horticultural restoration (i.e., for irrigation assisted plantings) but they weren't completely convincing. One justification is that active horticultural restoration is useful where natural regeneration is slow; that is true, but if natural regeneration is only slow, but not absent, can not a slower and less costly strategy involving natural or assisted regeneration from seed be justified? It is also stated that horticultural restoration is important where invasives dominate a site; but given that a herbicide-weed control treatment will be applied, and given that this site receives regular flooding, it seems like this could be an opportunity to attempt seed-based restoration following weed control and site flooding.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The approaches for hypothesis testing are not adequate. The first hypothesis should be reformulated to be more specific and testable. Can they draw from their older restoration tracts, as they indicate will be done, to formulate testable hypotheses such as "growth rate of willow shrubs decreases as soils become coarser". The second hypotheses can not be tested without including natural reference sites (e.g., control sites). The second hypotheses would be improved by incorporating some specific functional value of natural understory floristic patterns (or do we simply assume that natural' and native' are inherently superior?). This second hypothesis will be tested by experimenting with seeding rates, plug densities, species mixes, and tract preparation methods; these seem to relate to potentially useful hypotheses about the efficacy of different approaches to restoring plant species diversity and composition, but not to the stated hypothesis. The approach for testing hypothesis three seems sounds. It involves using experimental plots to test how various native seeding rates, plug densities, species mixes, and tract preparation methods will influence native vs. exotic composition of the understory. species. However, I wanted a bit more detail on how they would select herbaceous species for their trials- will species be matched for successional stage? for soil conditions? How many species will be used? Will unmodified control plots be included? Appropriate literature should be cited here.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

The general approach seems feasible. Past accomplishments suggest that future success is likely.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   The performance measures relate to monitoring for height growth and survivorship of planted trees and frequency of planted forbs and grasses. Survivorship and frequency of plantings are being used as an index of overall functional success. This is only a loose surrogate, at best. In only one case do the performance criteria relate to hypotheses testing (i.e., the criterion of <20 % frequency for invasive exotics relates to hypothesis 3).

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   The project should result in more acreage of planted riparian vegetation and should improve water quality and bird habitat. The project probably will increase knowledge and ability to horticulturally restore vegetation, by testing various methods for restoring native understory species and by increase our understanding of how site factors influence planting decisions and success of riparian plantings. However, more specifics and more clarity is needed on exactly what type of information will be generated. The notion that this project will provide information on how best to establish native understory vegetation in riparian restoration projects' seems ambitious.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The track record of the applicants with respect to riparian restoration efforts seems good, as do their efforts to document and share results of their restoration efforts.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The total budget is $4,950,032 for restoring 1,218 acres ($4,000 per acre) This seems high. Could costs be reduced by emphasizing establishment from seed vs. establishment from potted stock?

Miscellaneous comments:

Prior Performance/Next Phase Funding: #1

New Proposal Number: 171

New Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   97-N02, Sacramento River Floodplain Acquisition and Riparian Forest Restoration 97-N03, Sacramento River and Riparian Forest Restoration 97-N04, Sacramento River Meander Restoration 97-N08, Lower Mill Creek Riparian Restoration 97-N14a, Cosumnes Floodplain Acquisition and Restoration 01-N10, Cosumnes/Mokelumne Corridor Floodplain Acquisitions, Management, and Restoration Planning 01-N23, Staten Island Acquisition All Ecosystem Restoration

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   N/A

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   -Yes **X**No -N/A

   If no, please explain any difficulties:

   There were two related difficulties: first, after outlining six terms during the PSP process to be reconsidered, applicant raised several additional terms for renegotiation; and second, the State brought several terms back to the table as well. Both difficulties resulted in unanticipated negotiations over terms not raised during the PSP process which diverted considerable time as well as State resources. This situation was amplified due to NFWF's limited ability to negotiate contract terms.

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   XYes -No -N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

   XYes -No -N/A

   If no, please explain:

Other Comments:

Prior Performance/Next Phase Funding: #2

New Proposal Number: 171

New Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   00-F03 Flood plain acquisition and Sub-Reach/Site specific management planning: Sacramento River (Red Bluff to Colusa); 98-F18 Flood plain Acquisition, Management and monitoring on the Sacramento River, CALFED ERP

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   XYes -No -N/A

   If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   XYes -No -N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

   -Yes -No **X**N/A

If no, please explain:

Other Comments:

Prior Performance/Next Phase Funding: #3

New Proposal Number: 171

New Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   Acquisition of Southam Orchard Properties for Preservation of Riparian Habitat, CVPIA grant Hartley Island Acquisition, CVPIA 11332-7-G017 Singh Walnut Orchard, 11223-0-G014 L&L/Hamilton, 11332-7-G030 Birkes, 11332-8-G124 Dana, 11332-8-G048 Latimer, 11332-8-G123 Deer Creek Fencing, 11332-0-G016 Eagle Canyon (Pelton) Ranch, 11332-0-G104 Leininger easement, 11332-7-G030

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   XYes -No -N/A

   If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   XYes -No -N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

   XYes -No -N/A

If no, please explain:

Other Comments:

I have listed all the projects funded by the AFRP through The Nature Conservancy. Excellent contractor to work with. Always on time and within budget and provides high level products.

Environmental Compliance:

Proposal Number: 171

Applicant Organization: The Nature Conservancy

Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

   XYes **-**No

   If no, please explain:

   Scientific Collecting Permit required for seed collection and taking of cuttings from native species.

   Local Permits and Approvals: *May need Williamson Contract Act cancellation. *Look at land use change permit requirements, may need a conditional use permit or rezone amendment.

   Sounds like hypothesis 4 and 5 will not be part of this proposal but if the applicant were to restore connectivity between the river and floodplain, a 1600 Agreement would be necessary. May also need 404 permit.

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

   XYes **-**No

   If no, please explain:

   Budget and permit timeline not specific.

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

   -Yes **X**No

   If yes, please explain:

   Applicant should look into the above mentioned permits before proceeding.

Other Comments:

Budget:

Proposal Number: 171

Applicant Organization: The Nature Conservancy

Proposal Title: Sacramento River Restoration: Chico Landing Sub-Reach (RM 178-206)

1. Does the proposal include a detailed budget for each year of requested support?

   XYes **-**No

   If no, please explain:

2. Does the proposal include a detailed budget for each task identified?

   XYes **-**No

   If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

   XYes **-**No

   If no, please explain:

4. Are appropriate project management costs clearly identified?

   XYes **-**No

   If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

   -Yes **X**No

   If no, please explain (for example, are costs to be reimbursed by cost share funds included in the budget summary).

   Since there is no cost share, it appears that they carried the total forward wrong.

6. Does the budget justification adequately explain major expenses?

   XYes **-**No

If no, please explain:

7. Are there other budget issues that warrant consideration?

   -Yes **X**No

   If yes, please explain:

Other Comments: