

Proposal Reviews

#65: RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER

Environmental Science Associates

Initial Selection Panel Review

Research and Restoration Technical Panel Review

Sacramento Regional Review

External Scientific Review

#1

#2

Prior Performance/Next Phase Funding

Environmental Compliance

Budget

Initial Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP Initial Selection Panel Review

Proposal Number: 65

Applicant Organization: Environmental Science Associates

Proposal Title: RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER

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	-
Not Recommended	X

Amount: **\$0**

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

None

Provide a brief explanation of your rating:

The proposal addressed several topics with potential value in understanding the relationship between physical river processes and riparian vegetation growth and survival. However, there are substantial questions about the value of the studies of transpiration in the proposal as well as problems with the technical feasibility of tree-ring studies. The proposal was not well-crafted and the technical reviewers were dubious about the final integration of various component studies in the proposal.

Research and Restoration Technical Panel Review:

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

Proposal Number: 65

Applicant Organization: Environmental Science Associates

Proposal Title: RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER

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
-Superior	Although there were interesting questions raised, reviewers had some reservations about the approach and the applicability of the study. The regional panel gave it a low rating.
-Above average	
X 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 goal is to use dendrochronology to determine historical growth rates of riparian vegetation in relation to flow patterns along the Sacramento. This would help determine how riparian trees have responded to regulated water flows and whether existing conditions are favorable to the long-term persistence of riparian vegetation. The conceptual model is reasonable, but specific hypotheses are not presented.

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 feasibility of the study is somewhat speculative. No previous studies on the use of dendrochronology for dating valley oak, box elder or Fremont cottonwood were listed. The proposed approach may not be able to detect the critical linkages with a regulated hydrologic regime, given the myriad of variables that can affect tree growth. Reviewers were concerned that the ecophysiological tasks would not lead to a solid understanding of the linkage with hydrology and climate.

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 main product will be a final integrated report, but it was unclear how the various aspects will be integrated. No task was listed to synthesize and integrate the results. Results will also be published in peer-reviewed journals. The results of the study will be of interest to the academic community, but how the results would be applied to restoration planning is unclear. Reviewers questioned whether understanding the historical conditions is relevant if restoration cannot reproduce any condition within that set. It was unclear how this project fit with ongoing studies and other efforts in the region. The performance measure is a high level of correlation and accuracy with respect to measured growth, hydrology and climate. How high is high enough and what happens if the tree rings are not well correlated with the hydrologic regime? Also, the reviewers were confused about what the previous CH2M Hill study had covered, and how much work had already been done on this effort.

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

The costs seem high for the application of a technique that has not been proven to work in this area, to a problem that only may exist.

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 panel ranked this proposal as low. The study would not evaluate any specific restoration activity or effort, and tree ring data may not be informative for some woody riparian plant species.

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?

No information was listed under Prior performance because the applicants were subcontractors, not the primary contractor, on previous projects. No concerns on budget or compliance were noted.

Miscellaneous comments:

None

Sacramento Regional Review:

Proposal Number: 65

Applicant Organization: Environmental Science Associates

Proposal Title: RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER

Overall Ranking: ☒Low ☐Medium ☐High

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

The panel felt this research would be interesting if the methods are successful. However, the panel was skeptical of the relevance of the results to CALFED restoration projects.

1. Is the project feasible based on local constraints?

☒Yes ☐No

How?

Our yes is qualified. The project includes qualified researchers and appears to be feasible. However, it may be difficult to determine the year of establishment from stem size. An evaluation of older trees established prior to the dam may not be relevant to current conditions.

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

☒Yes ☐No

How?

The project addresses regional PSP priority 4), to conduct riparian vegetation research projects.

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

☐Yes ☒No

How?

This study would not evaluate any specific restoration activity or effort. The study would develop a historical model. The project states that it is applicable to restoration efforts, however understanding the historical conditions may not be relevant if restoration cannot reproduce any condition within that set.

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

-Yes XNo

How?

This project was not brought before the Sacramento River Conservation Area Non-Profit Organization, and has not been integrated with other modeling efforts being conducted in the region. The proposal did not explain any involvement with local people or institutions.

Other Comments:

Tree ring data may not be informative for some woody riparian plant species which can sprout from larger, older stems that have broken off and been buried in the sediments.

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **65**

Applicant Organization: **Environmental Science Associates**

Proposal Title: **RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER**

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	By better understanding the connections between river flows, geomorphic surfaces, and the establishment and growth of riparian vegetation, this proposal seeks to provide the scientific rationale for restoration efforts. This is important for the CALFED program (e.g., MSCS Research Milestone - develop and begin implementation of a study to determine appropriate conditions for the germination and establishment of riparian woody plants along the Sacramento River). I have a few problems with the research approach - it is not clear if the PIs can develop a solid understanding of the ecophysiological response of riparian trees to existing hydrology and climate, and there does not appear to be adequate room in the budget for the PI's to provide guidance to on the Sacramento River flow regimes that foster the development and growth of riparian vegetation. This proposal probably needs to go around the track again before funding can be considered.
XGood	
-Poor	

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

The key concept of this proposal is that restoration efforts suffer from a high degree of uncertainty due to a lack of understanding of the effects of fluvial processes on the establishment and growth response of individual riparian tree species. By better understanding the connections between river flows, geomorphic surfaces, and the establishment and growth of riparian vegetation, this proposal seeks to provide the scientific rationale for restoration efforts. This is important for the CALFED program (e.g., MSCS Research Milestone - develop and begin implementation of a study to determine appropriate conditions for the germination and establishment of riparian woody plants along the Sacramento River).

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 conceptual model for the research is clearly described in the proposal, and the research thrusts are closely tied to CALFED goals. I have a few problems with the ecophysiological studies in task 1. This research element appears to be rather expensive, and may be removed from the project without a detrimental effect on the project.

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?

It is not clear to me if the investigators can develop a solid understanding of the ecophysiological response of riparian trees to existing hydrology and climate. They plan to correlate specific physiological responses, such as leaf transpiration rate, with tree ring widths over two growing seasons. Measurements of the transpiration rate will be taken only five times each growing season. My concerns are two-fold. First, will measurements of the transpiration rate on 5 days provide an adequate portrayal of leaf transpiration over the entire growing season (surely tree-ring widths are influenced by hydro-climate conditions over the entire season)? Second, will the climate conditions the two years provide enough information on the variability and extremes in climate, and the effects on tree growth?

Another concern is that the ultimate aim of this project is to develop a tree-ring and riparian growth model that will determine the Sacramento River flow regimes that provide the conditions for establishment and growth of riparian vegetation. All resources of this project are devoted to the individual tasks (riparian vegetation, tree-ring study, geomorphology and hydrology, sediment deposition), and it appears that no resources are reserved for the development of the integrative model that will serve as the ultimate product of their research.

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?

Success of this project should be measured in terms of the ability of the PIs to determine the Sacramento River flow regimes that provide conditions for establishment and growth of riparian vegetation. Because it appears that no resources are devoted to developing the tree-ring and riparian growth model, it is unclear if this project will succeed. All methods (apart from the ecophysiological work) appear to be technically feasible.

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 measures are clearly defined, although it is unclear if the investigators will have the resources necessary to provide guidance on Sacramento River flow regimes that favor the establishment and growth of riparian vegetation.

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?

If the research is successful, it will provide products that are useful to decision-makers.

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 team appear to be have the capabilities to complete the project.

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

The budget appears reasonable.

Miscellaneous comments:

None

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **65**

Applicant Organization: **Environmental Science Associates**

Proposal Title: **RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER**

Conflict of Interest Statements:

I have no financial interest in this proposal.

☒Correct

☐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	There are several thought-provoking key questions raised in the proposal, but whether the approach will actually be able to answer those topics is questionable. The study is of interest academically, and the interdisciplinary nature is laudable. The direct benefits to CALFED restoration efforts are not clear, however.
☒ Good	
-Poor	

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

The goal is to use dendrochronology to determine historical growth rates of riparian vegetation in relation to flow patterns along the Sacramento. This would help determine how riparian trees have responded to regulated water flows and whether existing conditions are favorable to the long-term persistence of riparian vegetation.

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?

Table 4 identifies several goals of the CALFED program regarding regeneration and maintenance of riparian zones, to which this proposal is applicable. One of the proposed tasks will be to determine whether recruitment and establishment of riparian vegetation is occurring' (p. 3). This implies to me that a problem with riparian recruitment has not yet been identified, and that this is an exploratory project, rather than one addressing a pressing problem.

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?

There are four main tasks listed. The list of tasks and key questions (Table 1, p. 15) was valuable in putting the tasks in perspective. In task 1, white alder is not included under riparian community structure and diversity' studies, but then, for an unknown reason, is included in the ecophysiological response study. They also assume the rooting height is the same height of the floodplain when the vegetation was established. Species that display adventitious roots may adapt to flood deposition by sending out new roots, effectively changing their rooting height during the course of their life. The authors assume that all species of willow will have the same response to hydrologic changes. Just because a tree grew under certain conditions, it doesn't mean those are the only conditions under which it can grow. There were confusing references to both box elder and white alder, and it was unclear which species would be studied.

Task 3 will use photogrammetry to measure elevations of channels from aerial photographs. The authors state this method was used successfully before on Stony Creek (although the reference was omitted). It was unclear what the resolution of this technique is and how it is calibrated with field measurements. The channel bed cannot be measured if water was present at the time of the air photos, so some stage/discharge stability must be assumed. What dates and scales of air photos are available, and how far back can the history of the channel be extended through air photo analysis?

Task 4, coring sediments in cottonwood stands, assumes permission and access will be obtained for truck-mounted sampling. Alternatively, hand bucket augers will be used, but the depth to which sediments can be sampled by this technique is not listed.

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 feasibility of the study is generally good. Past studies with black willow have established recruitment dates for willow stands on the Kern River. It is not known how well this technique will work on the Sacramento. Also, willows resprout after damage from floods, so tree rings may not show a true relationship with floodplain elevation. No previous studies on the use of dendrochronology for dating valley oak, box elder or Fremont cottonwood were listed. The proposed approach may not be able to detect whether the growth of these species is more strongly related to the seasonal distribution of water rather than flooding events, for example. Before spending \$700,000 on a project, I would like to be assured that the dendrochronologic techniques will work on the species of interest.

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?

A high correlation between riparian tree growth and tree-ring growth indices would be a measure of success. The authors do not describe what the approach will be and how the project will be affected if there is not a high correlation for the trees in this study area.

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?

Table 3 lists the products. The main product will be a final integrated report. Results will also be published in peer-reviewed journals. The results of the study will be of interest to the academic community, but how the results would be applied to restoration planning is unclear. It was unclear how this project fit with ongoing studies and other efforts in the region.

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 staff is well qualified to conduct this study. Researchers have a good track record for publishing results in peer reviewed journals.

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

The costs seem high for the application of a technique that has not been proven to work in this area, to a problem that only may' exist.

Miscellaneous comments:

The proposal was full of misspellings and typos, misnumbered figures, and many citations were missing from the reference list. I hope the researchers will give their study more attention to detail and will have higher standards for their final product.

Prior Performance/Next Phase Funding:

New Proposal Number: 65

New Proposal Title: RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER

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

98-F23 South Napa River Tidal Slough Restoration this project was listed in table provided to me and also identified in the applicants proposal, but I have not administered any projects with this applicant. They functioned as a subcontractor in the prior contract listed.

2. Prior CVPIA project numbers, titles, and programs: *(list only projects for which you are the contract manager)*
3. Have negotiations about contracts or contract amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

-Yes -No **X**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?

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

If no, please explain any inaccuracies:

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

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

If no, please explain deficiencies:

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

-Yes -No **X**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:

Applicant was not primary contractor in previous project listed.

Environmental Compliance:

Proposal Number: 65

Applicant Organization: Environmental Science Associates

Proposal Title: RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER

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

☒Yes ☐No

If no, please explain:

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

☒Yes ☐No

If no, please explain:

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

☐Yes ☒No

If yes, please explain:

Other Comments:

Budget:

Proposal Number: 65

Applicant Organization: Environmental Science Associates

Proposal Title: RIPARIAN VEGETATION ESTABLISHMENT AND RESPONSE TO CHANGES IN THE HYDROLOGY AND GEOMORPHOLOGICAL PROCESSES ALONG THE SACRAMENTO RIVER

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:

no OH

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?

XYes -No

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

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 ☒No

If yes, please explain:

Other Comments: