

Scaling up riparian restoration; generating more cost-effective protocols

Truman P Young

Initial Selection Panel Review

0079

Scaling up riparian restoration; generating more cost-effective protocols

Davis, California University of

Applicant amount requested: \$101,220

Fund This Amount: \$0

This proposal was well put together, and had good experimental design. However, the selection panel felt this was a poor fit for this PSP. The information generated would be interesting, but does not clearly involve integrating ecosystem restoration with agricultural practices. The panel felt that the decrease in the cost of seeding would not guarantee that farmers would initiate restoration activities. The economic analysis was inadequate because it did not include an evaluation of increased costs due to burning for site preparation; burning as a part of the protocol for using seeds could "blow" the cost savings of seeding over container-based planting.

Do Not Fund

Technical Panel Review

Proposal Name: Scaling up riparian restoration; generating more cost-effective protocols

Applicant Organization: Davis, California University of

Amount Requested: \$101,220

Panel Rating:

Good - Quality but some deficiencies

Panel Summary

The panel stated that this was a well-constructed proposal with deficiencies that could easily be addressed. The panel suggested that the proposal should sharpen and focus its experimental design based upon better synthesis of existing knowledge of these practices and species, even if that comes with additional cost.

Key deficiencies would be addressed with better synthesis, review of existing data, and an additional control that compares the effect of planting shrubs to seeding treatments. Adding these components could be done for relatively little additional cost. The researchers need to be more explicit about outreach and the distribution of the information accrued through this work.

The Panel discussed and disagreed with several of the external reviewers that felt the justification for this proposal was not strong and there is a lot of similar knowledge applied by restoration practitioners. The panel agreed that the rigorous test of methods that may be already commonly applied would provide strong and needed scientific evidence about the practices evaluated. Also, while the external reviewers felt that selected species were not particularly suited to riparian restoration, the panel felt this statement was not well justified.

External Technical Review #1

Proposal Number: 0079

Proposal Name: Scaling up riparian restoration; generating more cost-effective protocols

Applicant Organization: Davis, California University of

Amount Requested: \$101,220

Goals

Rating	poor
Comments	The goals and objectives section describes what the project is, but does not clearly state project goals or associated tangible and measurable objectives. The description does describe how the project will assist farmers through information dissemination, a manual of restoration techniques and workshops.

Justification And Conceptual Model

Rating	fair
Comments	This is not an Adaptive Management model as described.

Approach

Rating	fair
Comments	Overall the approach is well laid out and very clear. However, I believe there is an existing body of knowledge regarding this subject that has not been tapped - primarily in the private sector. Unfortunately the private sector communicates the outcomes of their projects more frequently at conferences and is less likely to publish in scientific journals, thus reducing the overall accessibility of

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External Technical Review #1

	<p>information. (see other recommendations below) There is also a great deal of knowledge in the private and public sector regarding what works and what does not for irrigation, plant protection and weed control. I do not feel the applicant has adequately mined existing resources and information (or at least this is not reflected in the proposal). These techniques have been discussed and debated in the non-academic restoration community for years. In addition, this project is described as assisting riparian restoration; however the majority of the plants listed for direct seeding are upland species not riparian species.</p>
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Feasibility

Rating	good
Comments	<p>This project appears very feasible. I recommend the applicant consult with the native plant nursery industry. They have expertise in both seed collection, cleaning, scarification (if needed), storage, and germination success rates for all these species. These steps (even if the applicant is planning direct seeding in the field) are not addressed in the proposal, but the information is readily accessible and does not affect the projects feasibility.</p>

Performance Evaluation

Rating	good
Comments	<p>This proposal addresses a scientific protocol for monitoring sites, recording, and reporting data. The research design is well articulated.</p>

External Technical Review #1

Proposed Outcomes

Rating	good
Comments	The public outreach and information dissemination proposed are very good and the products proposed will likely be useful to the agricultural and ranching communities. The techniques being tested may only be generally applicable to other ecosystems.

Capabilities

Rating	good
Comments	The project team appears very capable.

Cost-Benefits

Rating	good
Comments	Budget and benefits are balanced.

Overall Evaluation Summary Rating

Rating	good
Comments	Some of the sepcies selected will be easy to direct seed - direct project experience over the past 15-20 years from many applied restoration ecologists would show this if the proposal team interviewed long-time professionals (both private and resource agency staff). Direct seeding of some of the species listed will be very challenging and require special treatments. I suggest the applicant broaden their circle of contacts beyond the non-profit and university supporters listed in the proposal and collect information from others who have been "experimenting" with these techniques on a project by project basis for a very long time. Many private projects also have substantial

External Technical Review #1

databases of monitoring information. There is a wealth of information to be tapped that would further refine the proposed experiment truly add to the larger body of knowledge regarding restoration.

External Technical Review #2

Proposal Number: 0079

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Applicant Organization: Davis, California University of

Amount Requested: \$101,220

Goals

Rating	good
Comments	The proposal does a good job of describing the problem, the goals, and project design. And does a good job of describing the future use of the data for agricultural implementation of ecosystem restoration.

Justification And Conceptual Model

Rating	good
Comments	Does a good job of hypotheses testing and justifies pilot project.

Approach

Rating	poor
Comments	Clear description of approach. However, most of this type of data is already known, so I do not believe that the proposed cost analysis is actually going to add to the current state of the science. A more cost effective proposal for such data would be to combine such information from projects from the last 20 years--many exist.

External Technical Review #2

Feasibility

Rating	fair
Comments	The approach is technically feasible. Environmental compliance is not adequately addressed

Performance Evaluation

Rating	fair
Comments	The performance evaluation will result in an analysis of the questions at hand, though the use of controls is somewhat lacking.

Proposed Outcomes

Rating	fair
Comments	Products will be generated that will contribute to the knowledge base; however, much of these data already exist.

Capabilities

Rating	good
Comments	Project team seem qualified

Cost-Benefits

Rating	poor
Comments	expensive project for the level of data produced.

Overall Evaluation Summary Rating

Rating	fair
Comments	While the proponents appear fully qualified, they propose to create a body of knowledge that duplicates exiting data. While the connections with private property owners will be a side

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External Technical Review #2

benefit of this project, it does not add to the science.

External Technical Review #3

Proposal Number: 0079

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Applicant Organization: Davis, California University of

Amount Requested: \$101,220

Goals

Rating	poor
Comments	The goals of testing different methods of restoration (seed vs planting) to reduce costs is commendable, but one is not sure how this relates to "scaling up". There is no question that it would be helpful to have some very efficient method of restoring riparian vegetation, but the goal of this study is to show that use of seeds will override costs of planting saplings or young plants, which they claim is nearly cost prohibitive but don't show the numbers. Another goal is to create four ecologically sound projects that can be used for demonstration purposes to land owners.

Justification And Conceptual Model

Rating	poor
Comments	There are no hypotheses on which the AM conceptual model is built. The model basically shows that if they do this study and have willing land owners they should be able to restore more riparian area. What are they testing, and how will they know they can expand the type of restoration. The justification is basically that there is a need to restore more riparian areas and it can be done if there are willing land owners and their method of using seeds is cheap and works, but there are no

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	hypotheses on what they expect to find.
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Approach

Rating	poor
Comments	<p>The approach is based on testing use of seeds on one species, an oak species. This is unacceptable as prior information because this study proposes using multiple species which have very different seed types. The methods section has many weaknesses. For example: 1. it is uncertain in the methods whether they are planting seeds or plants. Throughout the proposal when they talk about x number of plants or > 2000 species, what do they mean and where do the seed plantings come into the picture? 2. There is no description of how seeds are planted for each species... certainly the same method of planting won't work for every species. 3. In Table 1 with the list of species they should include for each species: a. type of seed, b. seed germination requirements, such as soil surface textures, planting depths, watering needs, groundwater depths, flooding preparation, etc. With these data they can better plan the factorial design they propose to use. 4. There is little indication of how the irrigation protective tubing and weed control will be used. Are these done separately or in combination. This again would be demonstrated if they had a better description of the factorial design they propose.</p>

Feasibility

Rating	fair
Comments	<p>The likelihood of success is low as the project is poorly designed and background information, critical to developing a conceptual model is missing (see approach comments). Even if they do enlist many land owners, they will not have shown the potential of the method of using seeds for restoration of a complex riparian community. Success with valley oak, their so called demonstration, is insufficient to show that a</p>

External Technical Review #3

	seed method is a viable restoration method. The literature cited is incomplete to support the seed method, other than primarily their own study on valley oak.
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Performance Evaluation

Rating	good
Comments	This requires a long-term monitoring program to assess the outcome of the study. This monitoring program should be part of the conceptual model from which one learns how successful the project is on an incremental basis. Monitoring is proposed to "every three months, all planted individuals will be surveyed for growth and mortality". One is uncertain with the planted individuals are seeds or plants, if the former than shouldn't they be looking at germination success under the conditions offered the seed. If plants, than what is the primary thrust of this study for..one is informed it is to look at use of seeds rather than plants? Although in their feasibility statement they say "a total of approximately 2500 plants will be planted"... are these seeds or plants, and what proportion of each species? It appears as though the PIs have support from some land owners and local agencies, so this is a positive aspect toward success. Also, the PIs have some experience, although limited, in riparian ecology and functional dynamics which makes one question if they really understand the issues they are facing.

Proposed Outcomes

Rating	poor
Comments	The reseach design is so questionable, or perhaps better said, uncertain, that the outcome is in doubt because one is uncertain about the steps taken to show that their method will allow "scaling up" of riparian restoration, whatever "scaling up" really means.

Capabilities

Rating	fair
Comments	The PI has tested one species using seed and thus assumes this can be translated into use of seeds of multiple species. There is no indication of study or experimentation in riparian areas although the PI has written about restoration but not in this context. There also is no indication of awareness of studies using soil seed banks in riparian restoration. It appears as though the PI is stretching his experience into a project that has not been well designed.

Cost-Benefits

Rating	poor
Comments	The proposal suggests that use of seeds will reduce restoration cost compared to planting whole plants or cuttings. The project does not test a comparison of the methods or assess the differences in costs. Cost benefits can only come after one determines the proposed method is effective and will have lower costs than those determined for present day riparian restoration. Relative to the proposal, the budget is modest and covers a cost of a grad student, but a modest budget for a poorly designed and supported project is not cost effective.

Overall Evaluation Summary Rating

Rating	poor
Comments	The goals of this project, to show that using seeds and weed control will be cost effective and successful as methods for riparian restoration are commendable but development of background material on seed germination and long-term maintenance requirements of species to be used is lacking and thus the methods can't be supported as the proposal doesn't build the appropriate model on the relationships between

External Technical Review #3

riparian environments and seed requirements. This is basically a seed planting, weed control and monitoring proposal with little support from the literature. Consequently, the potential for success is questionable and would be more so if the PI had tested several species with different seed types prior to writing the proposal.

Sacramento Regional Panel Review

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Applicant Organization: Davis, California University of

1. Applicability to ERP goals and regional priorities.

The project is consistent with the goals and objectives of the CALFED ERP in that it seeks to advance restoration by improving upon restoration approaches. It does not, however, appear particularly well suited to this particular PSP which is intended to assist farmers in implementing restoration. Because of this it does not seem to be a priority.

notes:

Research information is not critical for most regional restoration activities. This proposal is not a good fit with PSP priorities.

2. Links with other restoration actions.

This project does not expand very well upon previous investments in the region, at least not upon those investments made in the valley that I am aware of. Although CALFED has supported horticultural restoration, and this project seeks to improve upon the way this type of restoration is done, the project is not designed to evaluate the methods that are most commonly practiced. The activities proposed are only justifiable if one is to accept that direct seeding is the best method of establishing woody plants at restoration sites. Yet this is not the method most commonly practiced. The available paper (Young and Evans 2005) that is cited as providing evidence for the benefits of direct seeding does in

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Sacramento Regional Panel Review

fact conclude that it is preferable to container stock planting, but only in nonirrigated sites where predation is not a problem. In the valley, restoration sites are easily irrigated (most were previously irrigated croplands) and predation is a huge issue (especially due to the abundance of voles). The other paper cited is not yet published.

notes:

3. Local circumstances.

I expect that the project is feasible, at the scale that it is proposed. I don't know of any local constraints on the projects ability to move forward. It seems some consideration should be given as to what degree the study would be impacted if there is a major flood at one or more of the study sites.

notes:

4. Local involvement.

It seems the stakeholder involvement is with partners in the project and not more broad based. Also it appears that the outreach activities are aimed more locally and not directed at engaging with the major restorationists in the CALFED region. A benefit of the work is the commitment that the researchers have to publish, so at least the results would be made available to a broad audience through that avenue.

notes:

5. Local value.

Sacramento Regional Panel Review

I don't see there being great value in this project because it seeks to refine a restoration method that is not, to my knowledge, widely practiced.

notes:

6. Applicant history.

I have no knowledge of previous performance other than to be aware of some good theoretical papers that Young has written.

notes:

The methods were technically feasible.

7. Summary of Overall Panel Discussion and Review

The panel agreed that the proposed work could improve understanding of restoration methods but that the research is not of great importance or application to the PSP.

8. Panel Quality Ranking

Fair

notes:

9. Regional Priority Ranking

Low

notes:

Environmental Compliance Review

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Applicant Organization: Davis, California University of

1. Is compliance with California Environmental Quality Act (CEQA) required for this project?

No.

2. Is compliance with National Environmental Policy Act (NEPA) required for this project?

No.

3. Does this project qualify for an Exemption or Exclusion under CEQA and NEPA, respectively?

Does not apply.

4. Did the applicant correctly identify if CEQA/NEPA compliance was required?

Yes.

5. Did the applicant correctly identify the correct CEQA/NEPA document required for the project?

Yes.

6. Has the CEQA/NEPA document been completed?

Does not apply.

7. If the document has not been completed, did the applicant allot enough time to complete the document before the project start date?

Does not apply.

8. If the document has not been completed, did the applicant allot enough funds to complete it?

Does not apply.

9. Did the applicant adequately identify other legal or regulatory compliance issues (Incidental Take permits, Scientific Collecting permits, etc.) that may affect the project?

Does not apply.

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Environmental Compliance Review

10. Does the proposal include written permission from the owners of any private property on which project activities are proposed or, if specific locations for project activities are not yet determined, is it likely that permission for access can be obtained?

Yes.

11. Do any of these issues affect the project's feasibility due to significant deficiencies in planning and/or budgeting for legal and regulatory compliance or access to property?

No.

Budget Review

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

Yes.

2. Does the Budget Form include a detailed budget for each task identified on the Task and Deliverables Form and in the proposal text?

No.

If no, please explain:

Not enough description of the tasks.

3. Are the costs associated with each task and deliverable reasonable costs for performing the services?

No.

If no, please explain:

It's hard to evaluate. Not enough info. on the method and personnel hours used to accomplish the tasks. Very limited descriptions.

4. Is each person (employee, consultant, subcontractor, etc.) identified on the Personnel Form also included on the Budget Form?

Yes.

5. Are there estimated hours and an associated hourly rate of compensation for each person identified on the Personnel, Tasks and Deliverables, and Budget forms?

Yes.

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Budget Review

6. Does the budget include the benefit rate for all personnel identified on the Personnel and Budget forms?

Yes.

7. Are the proposed labor rates comparable to state rates?

Yes.

8. Is more than 25% of the work proposed to be performed by subcontractors?

No.

9. Are project management expenses appropriately budgeted?

Yes.

10. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs? Are indirect rates, if used, appropriately applied?

No.

If no, please explain:

No explanation of what's in O/H rate of 25%.

11. Does the proposal adequately explain major expenses? Are the labor rates and other charges proposed reasonable in relation to current state rates?

No.

If no, please explain:

What is Task 1 cost \$12,183.00? What is included? What is Task 3 cost \$4,438.00? What is included?

Travel mileage at \$.485/mi?

12. For equipment \geq \$5,000, was a separate worksheet filled out?

Please note: No overhead or indirect rate charges are allowed on the equipment purchases

No.

Budget Review

13. Is the purpose for all travel clearly represented in either the proposal itself, or in the Tasks and Deliverable Form?

Please note: Recurring travel costs for a specific task or subtask may be combined into one entry on the Budget Form, but the number of trips and cost for each trip must be clearly represented.

Yes.

14. Are travel and per diem at rates specified by the California Department of Personnel Administration for similar employees?

No.

15. Are other agencies contributing or likely to contribute a share of the projects? costs?

Yes.

If yes, when sufficient information is available, please total the amount of matching funds likely to be provided:

\$20K

If high school students will be doing the planting it isn't valued.

16. If the applicant identified cost share or matching funds, are they also described in the text of the proposal?

Yes.

17. Does the applicant take exception to the standard grant agreement's terms and conditions? If yes, are the approaches the applicant proposes to address these issues a reasonable starting point for negotiation a grant agreement?

Yes.

If no, please explain:

No reasonable starting point. Deviations are too great. The state needs to be able to administer many grants simultaneously without deference to one particular grantee with deviations that require special handling. The deviations asked for in this proposal would add to the cost of

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Budget Review

administering this particular grant.

18. Are there other budget issues or "red flags" that warrant consideration?

No.

19. Provide revised amount requested based upon your review:

\$