Proposal Reviews

#190: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

University of California, Davis

Initial Selection Panel Review

Research and Restoration Technical Panel Review

Bay Regional Review

Delta Regional Review

San Joaquin Regional Review

Sacramento Regional Review

External Scientific Review
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Environmental Compliance

Budget

Initial Selection Panel Review:

Proposal Number: 190

Applicant Organization: University of California, Davis

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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 development of a riparian habitat classification system is regarded as a valuable tool for restoration and other environmental management needs. The proposal involves two major tasks, developing a classification scheme using the releve method in 100 field locations, and developing a summary model of vegetation response to variation in soil and hydrologic environments. The technical panel recommended that the second task be dropped and the proposal be recrafted to budget time and funds for only the floristics analysis. The selection panel agrees with the merits of the overall concept, but has questions about the applicability of the methods developed for vernal pools to all types of riparian habitat in the CALFED area. Furthermore, the applicant appears not to be aware of recent large-scale riparian vegetation mapping done on the Sacramento Mainstem and tributaries, and on the San Joaquin River. The Sacramento and San Joaquin regional panels ranked the proposal as low, with a high from the Bay panel and a medium ranking from the Delta panel. Because of the serious weaknesses in the proposal, funding is not recommended.

Research and Restoration Technical Panel Review:

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

Proposal Number: 190

Applicant Organization: University of California, Davis

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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	**(Objective 2 only)**
XAbove average	This study proposes to generate an extremely valuable riparian plant assemblage classification to encompass the scope of the CALFED study area; the Panel is extremely supportive of this goal and the approach associated with it. However, the second objective, of quantifying the dynamic physical factors associated with each study site and community type, is poorly developed and inadequate in the characterizing of hydrology, soil chemistry, landscape setting and other critical processes/characteristics. The Panel viewed this as unfortunate because a project that truly integrated biological and physical/chemical factors is what is really needed. Given this dichotomous assessment, the Panel believes that the proposal should be forwarded as Above Average but only to support a two-year effort to develop the vegetation classification system; serious rebudgeting and budget justification will be required to separate the two study components. A particular concern is the relative lack of student support compared to the extensive support of non-academic consultants. The applicants are encouraged to use the results and data from the vegetation classification development, in combination with a more rigorous methodology on physical factor assessment, to resubmit to CALFED for support of the research on physical factors.
-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?

   This generally well-received proposal (2 excellent, 1 good, 1 poor) was considered extremely timely and beneficial to CALFEDs overall science program although there were concerns that it will not truly enable a process understanding that will truly be diagnostic about how invasive plant species fit within the system and prognostics about which native species displace invasive species, etc. There was no hypothesis structure to guide and organize the applicants approach. However, the overall goal to develop a hierarchical vegetation classification system that can be correlated with features of the environment is well defined and internally consistent with explicit hypotheses and tasks. Although effectively justified, there is no conceptual model developed to explain the rationale and organization of the study; a conceptual model is one product of the study.

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 panel determined that the applicants would have difficulty adequately assess the environmental factors influencing riparian vegetation assemblages, especially hydrology (e.g., 10 of 100 sites tracked with 3-m x 2-m trenches), to gain the proposed mechanistic understanding. Ordination of the vegetation and environmental data will not provide meaningful results if the environmental data are inadequate or incomplete.

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 classification system will constitute the primary product of the study, with four publications resulting from both objectives.

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

   A price tag of ~$0.5x106 is poorly justified. Need for extensive use of consultants and large travel budget needs to be justified in detail.

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 Bay Regional Review ranked the proposal as HIGH based on the valuable products and potential outreach resulting from the project, such as a common plant assemblage classification/language, plot data for reference sites, crosswalking of their classification to existing Manual of California Vegetation and USEPA classifications, and conducting training sessions on use of classification keys. The Bay Regional Review also acknowledged the applicants effectiveness in securing access to vernal pool sites through private lands. The Delta Regional Review rated the proposal MEDIUM, with some concern about the urgency of the need for this information and doubts about the ability of a vegetation classification system to enhance understanding with precision exactly how invasive species fit into the

ecosystem. The San Joaquin Regional Review rating was LOW based on the lack of meeting regional needs and uncertainty about the ability of 100 sites throughout the Central Valley to address the diversity of riparian vegetation and systems. That Review also noted no indication of regional recruitment, nor communication or involvement with regional expertise. The Sacramento Regional Review also rated it LOW, with concern that the project would not be directly relevant to restoration.

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?

   The Environmental Compliance Review noted only the lack of recognizing the need and acquisition of a scientific collecting permit for plants, and Budget Review noted only minor inconsistencies

Miscellaneous comments:

None

Bay Regional Review:

Proposal Number: 190

Applicant Organization: University of California, Davis

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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

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

Will provide common classification/language for use in quantifying all future CALFED (and other) riparian restoration and impact assessment work; will provide plot data for reference sites; will provide environmental data useful for other CALFED projects.

1. Is the project feasible based on local constraints?

    XYes **-**No

    How?

    The applicants have experience in this methodology from their similar work on vernal pools. No permits or environmental documentation will be required for work, and only sites for which access has been granted will be visited (landowner contacts have been initiated with TNC and other landowners who have agreed to allow access, although no written permission letters are included in the proposal). The applicants apparently had good success obtaining access for the vernal pool study. The timeline seems reasonable.

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

    XYes **-**No

    How?

    Multi Region Priority 1, prevent establishment of NIS: the classification and associated floristic data will promote understanding of how invasive weed species fit into ecosystem. Multi Region Priority 2, understand farming relative to wildlife: the classification will allow examination of vegetation in native habitats, so that effects of farming can be determined. Multi Region Priority 3, implement environmental education: the outreach/publications, including outreach by RCDs, proposed will further the understanding of riparian vegetation. Multi Region Priority 4, ensure restoration can be sustained under future environmental conditions: the proposed study will establish permanent plots that can be revisited in the future to note vegetation and environmental change. Also, the classification will describe the range of variation in various environmental conditions. Multi Region Priority 4 and Multi Region Priority 6 are also addressed.

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 applicants will compare their results to (or incorporate) existing data sets, and will crosswalk their classification to the Manual of California Vegetation (the states standard classification scheme) and work by Ferren et al (USEPA classification). The classification scheme will be useful for assessing and quantifying all other CALFED riparian restoration projects. The applicants should coordinate with the Riparian Habitat Joint Ventures new effort to establish a riparian habitat data layer/map for the state (for which RHJV will need a classification scheme such as this proposal addresses).

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

   XYes **-**No

   How?

   Will hold training sessions on use of classification keys. Applicants will also give formal presentations at conferences, and publish articles on various aspects of the study, and will seek other outreach opportunities, such as television and coordination with conservation organizations and RCDs.

Other Comments:

None.

Delta Regional Review:

Proposal Number: 190

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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

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

Panel felt the information could be beneficial to guiding future decisions about restoration of riparian in the Delta. Information, however, was not urgent.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   I could not identify any local constraints that would impede the project¡¦s ability to move forward in a timely and successful manner.

   Y Access to private lands should be available although permits were not included with application. Y Proposal acknowledges that permanent study plots must be restudied beyond two years. This could affect ability to achieve priority MR-4; ensuring restoration can be sustained.

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

   XYes **-**No

   How?

   ? Proposal claims it meets all six priorities; MR1through MR6. h Nonnative species impact reduction h Conduct studies to understand farming and wildlife habitat relationships h Environmental education h Restoration can be sustained under future climatic conditions h Ensure restoration is not threatened by degraded environmental water quality h Ensure recovery of at-risk species by developing conceptual understanding and models of process that cross multiple regions

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?

Proposal claims relationship to vernal pool classification project. By claiming to address our limited understanding of riparian plant communities by producing a robust, stable, and detailed classification of community types present across riparian ecosystems in Northern California and by improving knowledge of ecosystem-level physical traits such as ecosystem gradient with vegetation gradients. Work will have restoration and conservation consequences.

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

   XYes **-**No

   How?

   UCD and associated ecologists are involved. Locals, through the granting of access will be involved.

   The plan for local involvement appears adequate.

Other Comments:

Y Highly qualified researchers and vegetation ecologists such as Dr. Bob Holland and Dr. Michael Barber have the experience and perspective to ensure the success of this proposal.

Y The contribution of this project could be significant since extensive riparian restoration has been targeted by CALFED. The results could guide more successful restoration projects.

Y It isn¡¦t clear that the classification of vegetation will allow us to understand with precision exactly how invasive species fit into the ecosystem and which native species can displace invasive species.

Y It is unlikely, in my opinion, that this study will allow us to identify critical vegetation and habitat conditions necessary to species recovery.

San Joaquin Regional Review:

Proposal Number: 190

Applicant Organization: University of California, Davis

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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

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

The Committee felt that this proposal did not meet regional needs; it was not correlated with existing restoration projects and actions. Thus, the proposed classification system did not have a clear linkage with regional priorities. The proposal did not make a good case for the need for a new classification system.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   Feasible in that it can be implemented but not convincing that grand sect approach of 100 sites throughout Central Valley will be sufficient to link ecosystem gradients with vegetation gradients given diversity of riparian vegetation and systems. Interesting comparison that one grand sect was performed on the Feather River alone.

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

   -Yes **X**No

   How?

   Linkages with multi-regional priorities were forced in many instances. For example, linkage with agriculture and wildlife not well justified.

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

   -Yes **X**No

   How?

   It was unclear how the 100 study sites would be selected and what connection these might have to ongoing implementation projects. If such connections were made, proposal potentially could provide value-added information, complementary to the project. Proposal unaware of existing ERP projects and studies

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

   -Yes **X**No

   How?

   The proposal appears to be self-contained within the University, using existing staff from a similar project. No indication of regional recruitment, nor communication or involvement with regional expertise. Good idea to offer outreach to like-minded groups, put no specific performance measures stated (e.g., 10 presentations per year to local CNPS chapters, stakeholder groups, etc.).

Other Comments:

none

Sacramento Regional Review:

Proposal Number: 190

Applicant Organization: University of California, Davis

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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

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

The panel was concerned this project would not be directly relevant to restoration.

1. Is the project feasible based on local constraints?

    XYes **-**No

    How?

    The project is feasible. The investigators have demonstrated they are capable of implementing such a project, they have successfully negotiated access to study sites, and are well qualified to conduct the study.

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

    -Yes **X**No

    How?

    The project addresses regional PSP priority 4, to conduct riparian vegetation research projects. However, the relevance of a riparian classification system to restoration efforts is not clear.

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

    -Yes **X**No

    How?

    The project is not currently linked with any restoration activity or ongoing implementation project or regional planning effort. The researchers state they will communicate with agency and conservation staff through publishing and preparing field manuals after the research is complete.

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

-Yes **X**No

How?

Our no is qualified.. This research project involves researchers at UC Davis and consulting botanists. However, the proposal does not discuss any involvement with local people and institutions. The applicants indicate they will present their results at meetings.

Other Comments:

The lack of a strong hydrologic component to this project concerned panel members. The panel was concerned that the abiotic factors, such as soil type, this study proposes to correlate with vegetation community composition and distribution may not be relevant.

External Scientific: #1

Proposal Number: **190**

Applicant Organization: **University of California, Davis**

Proposal Title: **A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes**

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):

I am a researcher at UCD, but not in the same department, and have taken a graduate course from Dr. Barbour.

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	**The project is scientifically sound, and focuses on a community important to the Bay-Delta ecosystem, although claims to understand how invasive plants fit it are not supported by hypothesis testing. The budget seems excessive, and the team composition doesn't take advantage of UCD's highly able graduate students.**
XGood	
-Poor	

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

   The goal of this project is to analyze riparian vegetation and environmental factors to develop a hierarchical vegetation classification system which can be correlated with features of the environment. This is a well defined objective that is timely and important. However, no hypotheses are presented to "understand with precision exactly how invasive species fit into the ecosystem".

2. <u>**Justification.**</u> 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?

A hierarchical classification scheme for riparian vegetation does not exist, and due to extreme losses and fragmentation of these systems, a measure of what exists and its condition relative to invasive species is justified. The conceptual framework, that species associations do occur, is sound. This is, and should, be a research 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?

   Plant associational analysis has been employed by plant ecologists worldwide for decades to great success in classifying and understanding plant communities. Information from this study will be used to develop restoration plans and to explore factors that are associated with invasion by weeds.

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 documented and feasible, and has been "field tested" by previous work on vernal pools. The expertise of the research leader and team should warrant the success of the project.

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?

   Examples of performance measures and time lines are given, but performance measures are not summarized for the entirety of the project. There is not enough detail to quantify the performance measures.

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?

   Expected products are at least 4 substantial peer-reviewed publications. Implications for management will be presented.

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?

   Details of all personnel involved in the project are incomplete. Dr. Barbour and team members he has listed are well qualified to perform this research, and UC Davis will provide support.

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

The advantages to conducting this research from UC Davis are its central location relative to the communities they will be assessing, and the numerous, highly apt (and inexpensive) graduate students that could perform the work. However, the travel budget is ca. $39K per year ($78K total) - they will use UCD vehicles and travel 5,850 miles a year (!) at a cost of $4K per year- but there is no explanation for the extra $35K per year ($70K total) listed in the budget. Secondly, only 1 graduate student will be funded through the project. Instead the work will be done by consultants at a total cost of $276K. The 4 listed domestic consultants will cost $120K total; the number of foreign consultants (at $9K per year each) is not disclosed but the remaining budget could support 8.7 consultants per year. In previous work, Dr. Barbour has used 3 foreign consultants. For these reasons, this budget for this project seems to be about $150K too high.

<u>Miscellaneous comments:</u>

External Scientific: #2

Proposal Number: **190**

Applicant Organization: **University of California, Davis**

Proposal Title: **A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes**

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):

Institutional connection to applicant, though not in the same department

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	**In summary, this project has clearly stated objectives and testable hypotheses that are of high relevance to CALFED Ecosystem Restoration goals. The approach is intelligent, and based on a thorough knowledge of vegetation science and restoration planning. This project will provide a classification system that links riparian vegetation with hydrogeomorphic function, and it will provide products that are accessible and needed by the riparian conservation and restoration community.**
-Good	
-Poor	

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

   This is a well written, and scientifically sound proposal. The authors state the following objectives clearly and concisely: 1) develop a taxonomic and ecological classification of riparian plant community types for the CALFED restoration area, and 2) develop a robust model of environmental factors linked to riparian vegetation types with the river delta system. The objectives are strongly supported with testable hypotheses which are internally consistent.

This concept is long overdue. CALFED funding has already been allocated for riparian restoration efforts, and baseline data are not available. Riparian vegetation data sets are as fragmented as the historic habitat of concern. Furthermore, a simple review of existing data is inadequate as much of this information is incomplete or inaccurate. We do not have a comprehensive overview of the floristic and ecological diversity of these important communities. The information will help identify priority riparian community types that should be targets of conservation and restoration efforts.

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?

   Riparian habitat restoration is a stated CALFED objective, and a restoration priority is to understand the performance of wetland restoration efforts on a local and regional scale. While there has been a long history of attempts to classify California vegetation types, including wetlands. There has been a historical tendency to minimize the richness of California wetland types that has continued to the present (e.g., Sawyer and Keeler-Wolf 1994). While these efforts have application in the broadest sense, they have not been useful in applied restoration science.

   The taxonomic and ecological classification of riparian community types as proposed is long overdue. This information would be eagerly applied by riparian reserve and restoration managers. The work is highly justified. It will provide detailed knowledge of the floristic diversity and structure of relict riparian ecosystems needed for setting riparian restoration goals and objectives throughout the Bay-Delta Ecosystem. The conceptual model is presented verbally in the proposal. The model includes the importance for describing plant community composition and differences in diversity between a dense network of sample sites. The model recognizes the dynamic and unstable landscape position of riparian plant communities, and describes causal interconnections among key ecosystem components. Soil characteristics, hydrology, and landscape position are specified as examples of links between vegetation communities and hydrogeomorphic function.

   This effort is justified as a research project. Very little is known about the floristic diversity and hydrogeomorphic function of riparian communities. This project will reduce the uncertainty regarding riparian communities to support restoration goals and strategies.

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 application of releve sampling methods to over 100 sampling locations and over 1000 samples should provide a comprehensive picture of riparian vegetation communities. The collection of environmental data associated with the described vegetation provides a critical link to ecosystem function. The use of multivariate ordination methods to evaluate vegetation and environmental gradients have been widely used in Europe for some time, but have not been widely applied in California. The proposed methods should provide a useful description of riparian community structure. This information will be useful to decision makers and will improve restoration planning efforts.

   The proposal briefly mentions the creation of permanent study plots, which would be important for tracking vegetation change over time. While this information may go beyond the stated project objectives, details of how long term monitoring will be conducted and who will

assume responsibility for long term monitoring are not provided.

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

   I believe the approach is complete, and appropriate for testing the stated hypotheses.

   The structure of this research plan, scale of the project, and intensive level of sampling should result in successful achievement of project objectives.

   The team of knowledgeable vegetation scientists assembled for this project know the California riparian flora, have extensive experience in this geographic region, have chosen excellent methods to test their model, have the expertise to collect and analyze these data, and have the ability to clearly communicate their results in a way that is useful and understandable by resource managers. I really dont think you can go wrong by funding this proposal. The information is needed and highly qualified individuals have stepped forward and presented a plan to provide it at a fair price.

5. <u>**Project-Specific Performance Measures.**</u> 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?

   This is a research proposal. The applicants provide immediate and ultimate performance measures. Immediate performance measures like sampling progress and timely data analyses can be easily tracked through progress reports. The most significant ultimate performance measure will include a final comprehensive report to CALFED, which can be reviewed prior to final payment and contract closure. The applicants also state their intentions to publish and make oral presentations of their results to the broader scientific community. The goal of peer-reviewed publication of this research also provides a level of assurance to CALFED that the project will be conducted in a scientifically defensible manner.

6. <u>**Products.**</u> 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 applicants promise a CALFED final report, and plan to complete four scientific publications on riparian vegetation. They also express a desire to hold field training sessions on use of the classification keys for interested agency personnel. The project leader is a University professor with demonstrated commitments to education and public outreach. He has been involved in numerous projects with the California Native Plant Society to bring science-based research to the hands of applied practitioners within the agencies. The project will result in a classification key, and the applicants have stated their intent to train interested users in its interpretation and application.

7. <u>**Capabilities.**</u> 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?

   This is an all-star team of researchers. Michael Barbour, the primary applicant, is recognized as one of the top plant ecologists in California and the world. He has been recognized as an outstanding scientist and responsive grant manager for more than 30 years, and has

consistently published research results which have contributed to our understanding of vegetation ecology within academia, and to the resource management community. Dr. Barbour has made significant contributions to California Native Plant Society and agency effots to understand, conserve, and restore the California flora. The consultants involved in this proposal are well known contributors to California vegetation studies, and their reports are used and cited extensively by resource managers. Dr. Holland and Carol Whitham have been particularly successful in providing sound vegetation science for resource conservation and management application. The proposed project is well supported by infrastructure at UC Davis.

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

   The proposal as budgeted is high value for CALFED investment. The budget appears to be an honest estimate of what will be required to complete the work. The donation of University faculty time and lab resources, low overhead (10%) charged by the University for state funds, and highly trained graduate student contributions at near volunteer level of pay is a bargain for CALFED. The consultants involved in this project are experts and leaders in this field, and are budgeted at standard professional rates.

Miscellaneous comments:

External Scientific: #3

Proposal Number: **190**

Applicant Organization: **University of California, Davis**

Proposal Title: **A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes**

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):

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	
-Good	**In my opinion the proposed work would be a major contribution and should receive strong consideration for funding.**
-Poor	

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

   The current understanding of (i) riparian plant communities and (ii) fluvial ecosystem dynamics are, as the PI states, limited due to poor (overal) information. The proposed project would "very likely" provide the type of new high quality (focused) information that would faciliate the establishment of standard classification schemes. The standard classification schemes would be an important and timely contribution. The proposed study is well planned (e.g., 100 sites in the Central Valley and Delta riverine systems) and can be completed within the two year study period.

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 standard classification schemes, to be developed from the proposed research, would be a significant contribution. The project (all aspects) is justified and would provide a foundation for future research.

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 well designed to meet the objectives of the proposed study. The informaiton would be very useful to decision-makers

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?

   There is no question that the proposed study is feasible and that it has a high likelihood of success. The scale of the project is consistent with the objectives of the proposed study.

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 of the proposed project are well characterized and would in all likelihood be achieved.

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 taxonomic and ecological classifications, based upon new information (that would be of use to many research groups and decision-makers), are the most important products of the proposed research.

   Several peer-reviewed papers in top journals would likely be the result of the proposed study.

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 PI is more that qualified to conduct the proposed research. The team is qualified and the infrastructure to support the proposed reasearch is in place.

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

   I see no problem with the budget. The PI is not asking for salary. The proposed effort would support students.

Miscellaneous comments:

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: **190**

Applicant Organization: **University of California, Davis**

Proposal Title: **A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes**

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	**Poorly conceived and justified study, although the proposed product could be helpful to the restoration community.**
-Good	
XPoor	

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

   The proposal?s objectives and hypotheses are clearly stated, although they tend to be rather ?straw person? rather than diagnostic of a process-level understanding, as CALFED needs. The concept is useful at this time, although perhaps not essential?

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 is very poorly justified, with little understanding how the products would be explicitly applied to CALFED restoration?..they would just be ?useful.? There is no conceptual model.

3. <u>Approach.</u> 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?

   Although thinly described, the approach does appear to be reasonable and based somewhat on an extent of knowledge of the system.

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

   Although difficult to evaluate given the almost complete lack of specificity to the approach, the project ?could? be feasible. Likelihood of success is also impossible to assess.

5. <u>Project-Specific Performance Measures.</u> 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?

   Several reasonable, simple performance measures are provided.

6. <u>Products.</u> 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 expected products could be of value, especially to CALFED restoration practitioners, but impossible to evaluate given lack of detail in proposal.

7. <u>Capabilities.</u> 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 principal investigator and institution should be highly qualified to conduct this study, although the applicant does not provide much in the way of examples of that expertise (e.g., literature cited).

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

   Given what is proposed, the budget (~$0.5 million) is somewhat unreasonable and unjustified.

<u>Miscellaneous comments:</u>

A very risky study given the lack of specificity.

Environmental Compliance:

Proposal Number: 190

Applicant Organization: University of California, Davis

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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

    -Yes **X**No

    If no, please explain:

    Text says no permits needed from government agencies. As properly noted onj the Environmental Compliance checklist, a scientific collecting permit for plants will be needed (and has been obtained). This should be reflected in the text.

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:

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

    -Yes **X**No

    If yes, please explain:

Other Comments:

Budget:

Proposal Number: 190

Applicant Organization: University of California, Davis

Proposal Title: A taxonomic and ecological classification of riparian plant community types for management, conservation, and restoration purposes

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?

   -Yes **X**No

   If no, please explain:

   Narrative to Indirect Costs is a general statement, not actual cost or how calculated.

4. Are appropriate project management costs clearly identified?

   -Yes **X**No

   If no, please explain:

   No dollars attached to PM, some costs included in overhead.

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).

   State funds.

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: