Selection Panel (Primary) Review

− ***Fund*** (a proposal recommended for funding at the amount sought or funding in part of selected project tasks or subtasks)

X Reconsider if Revised (a proposal that is a high priority but that requires some revision followed by additional review prior to being recommended for funding)

− Not Recommended

Amount Sought: $5,107,577

Fund This Amount: $***1,500,000***

Conditions recommended (Conditions that applicants would need to meet to obtain funds may be recommended for proposals suggested for either full or partial funding. For proposals recommended for partial funding, conditions that identify the funded tasks or subtasks must be recommended.)

Please provide a brief explanation of your rating, including an explanation of the reasons for any conditions that the panel recommends. Revisions required of proposals recommended for reconsideration should be outlined, together with a justification for the suggested revisions:

The proposed project is a large−scale, multi−institutional monitoring program for the Cosumnes−Yolo terrestrial−aquatic ecotone region. The project continues and expands upon ongoing monitoring of the Yolo Bypass and the Cosumnes River Preserve and adds comparable monitoring for Liberty Island. The project is multi−disciplinary and relatively comprehensive. The academic, agency and NGO partners proposing to collaborate in the project are highly qualified. However, the technical review panel rated the proposal as inadequate and had a number of serious concerns. The project is also extremly expensive. On these bases, the Selection Panel recommends that the proposal be revised to address the issues identifed by the Technical Review panel in their reviews, the issues identified by the Selection Panel (below), and to meet a level of funding not to exceed $1,5000,000 (note: this amount is provided as guidance). It will then be reconsidered for funding.

1. The proposal is clearly a request to continue ongoing and past work in both the Yolo Bypass and the Cosumnes River Preserve, work that has already produced valuable results and indications that floodplain restoration and/or manipulation can benefit ecosystems and priority species. The argument for the proposed COYOTE collaboration is to organize the effort and allow cross comparisons between the two systems. Rather than launch continued monitoring, it seems logical that a first step in the new project would be to evaluate existing

data, design performance measures for the proposed new project and then request funds for the monitoring and evaluation to continue. The revised proposal should therefore include some discussion and application of those results to the monitoring design proposed, draft performance measures (including responses of priority species, which can then be tested with the proposed monitoring and evaluation), and tools for adaptive management (including managed manipulation of the Yolo Bypass).

2. Use of a BACI design, even as modified as suggested in the proposal, is not an appropriate monitoring design. The monitoring design needs to be revised to more appropriately and clearly address the effects of restoration actions and, in the case of the Yolo Bypass where no restoration actions have been implemented to address potential managed manipulations of the system. The applicants need to make a clearer argument for connecting and relating monitoring of the two different floodplain systems (Yolo v Cosumnes).

3. Clarify and expand plans for integration of the various disciplines (tasks) of the proposed monitoring and evaluation (a consistent concern of the Technical reviewers, and apparent in the lack of integration evidenced in this proposal).

4. It is not realistic to request support from this PSP to initiate and implement a long−term monitoring program akin to LTER? If that is the objective, then the applicants need to develop (and include) a long−term funding plan to support this effort after completion of this 3−year project.

5. Clarify and provide additional information on the DWR financial support (i.e., matching funding) for ongoing and proposed monitoring in the Yolo Bypass.

Technical Panel (Primary) Review

inadequate

Explanation Of Summary Rating

The proposal describes a large−scale, multi−institutional monitoring program for the Cosumnes−Yolo Bypass region. The proposal emphasizes the importance of hydrologic connectivity, but the study fails to measure connectivity (as defined) in a way that can be related back to the restoration activities. The argument for combining studies of these two bodies of water is not compelling, and the proposed “modified BACI” design is not adequately justified. Lack of specificity regarding performance measures makes this area of the proposal difficult to evaluate. The proposal fails to integrate the many task areas adequately.

Review Form

Goals And Justification

The proposed COYOTE project is a large scale, multi−institutional monitoring program for the Cosumnes−Yolo terrestrial−aquatic ecotone region. The proposal clearly describes a large but selective set of monitoring activities for an aquatic landscape (summarized in a large table) that would provide an overall assessment of the effectiveness of the ERP projects implemented so far, as well as a baseline against which to judge the effects of future projects. The proposal presents a conceptually integrated framework for monitoring, data management, data synthesis and adaptive management. It fails to explain why monitoring has not already taken place as part of the restoration activities. Hypothesis testing will make use of the relatively intact Cosumnes River drainage to provide benchmarks for restoration response. This approach will undoubtedly have its limitations, given that the Cosumnes is a separate and unique drainage. The proposal fails to provide a strong scientific justification for combining studies of the Cosumnes and the Yolo Bypass into a single study.

The project description relies heavily on the concept of hydrologic connectivity, and external reviewers agreed that focusing on connectivity was appropriate to integrate results of the many manipulations that have taken place in the system. Connectivity is defined in the proposal as “the exchange of water, sediment, nutrients, food resources and organisms between floodplain and marsh habitats and their surrounding river channels.” After establishing the importance of hydrologic connectivity at some length, the concept then disappears from the proposal. The actual measurement of connectivity is hardly discussed.

Performance measures do not address changes in connectivity as a result of manipulations. As a result, the proposed approach will not evaluate changes in connectivity as a result of manipulations. This is a serious defect in the proposal.

Approach

The project involves four elements: observation, assessment, forecasting, and methods. The observation and assessment elements would be implemented in the current CALFED proposal, with funding sought for the forecasting and methods elements in future requests. The observation element will involve collecting and disseminating monitoring data as it is collected, while the assessment element will involve the periodic evaluation of performance measures and indicators, and refinement of conceptual ecosystem models. The proposal indicates that monitoring will be conducted in a modified BACI design. The Technical Panel concluded that there was a logical flaw in this design. Since no pre−settlement data or control sites exist, the proposed BACI design compares two systems modified in different ways with no reference site. This is inappropriate and reflects a significant weakness of the proposal. The proposal is based on a “modified BACI”; yet this approach s not adequately justified and implementation of the design for data analysis is not adequately explained.

The proposal indicates that data will be collected from the north end of the Yolo Bypass, but these data don’t seem to be used to address any hypothesis.

The breadth of the proposed work requires a strong central mechanism for project management and integration. However, while activities to bring researchers together are discussed, tight integration among the activities and specialists is lacking. Although the proposal claims to espouse an LTER−like approach, most LTER projects have a much stronger integrative approach than presented in this proposal. The technical panel did not see what attributes of this proposal make it LTER−like. While the program would have great value to managers, efforts to connect with the environment management community will “occur at regional and national meetings, and through publication” (section A.8). More direct and frequent contacts with managers, through briefings and specific communications, would be desirable.

Feasibility And Likelihood Of Success

The project as described is challenging, but sufficient technical expertise is apparent in the proposal to permit success. The scope of the project is appropriate for the objectives discussed. Several issues were identified in the compliance review that may impede the project, specifically the lack of details on permitting issues. This is a potentially serious problem. Moreover, the University of California, Davis (UCD) was singled out for non−compliance with reporting requirements in previous project phases.

Performance Measures

Overall, the proposal is fairly general on performance measures, although the mention of TNC performance measures was viewed favorably by the external reviewers. Moreover, the proposal indicates that indicators and performance measures will be developed during the course of the project. The lack of specificity in the proposal makes it difficult to evaluate the proposal in this area. As mentioned above, the lack of objective measures of hydrologic connectivity may prevent the project from addressing this key aim of restoration.

Products

The project will generate large amounts of data, which will be analyzed, interpreted, and made available to stakeholders and decision makers through a website (including real−time meterologic, hydrologic, and water quality data in graphical form), quarterly, annual, and final reports, meetings with public groups (e.g., Yolo Bypass Working Group), scientific presentations, and peer−reviewed publications. Data and metadata management and distribution are a specific program component of the project, and the proposal outlines the considerable capacity at UCD/ICE and BDAT committed to this purpose. Project scientists will submit data for inclusion in numeric and geospatial databases as appropriate. Preliminary data will be made available in real time from telemetered sites. Delays up to two years or more may be necessary for the distribution of some data. The specific identification and funding of data management and dissemination as a full fledged program component provides assurance that the project will be able to follow through with this commitment.

Capabilities

The project team is broad and diverse, and team members have the necessary experience and expertise to carry out the proposed work. The Principal Investigator has 15 years experience, and most project members have advanced degrees.

Budget

The budget is large but reasonable for the proposed work.

Regional Review

The Delta Regional review ranked this proposal "Very High" because it could contribute to the evaluation/design of other restoration or flood management tools under consideration in this region. The regional panel suggested that the ultimate success of the project would depend on whether funding could be obtained to continue monitoring beyond year 3. The

regional panel further suggested that the technical review panel evaluate the proposal's assumption that the Preserve and the Bypass can legitimately serve as reciprocal controls for purposes of BACI experimental design.

The Sacramento Regional review also ranked the proposal Very High because it would yield information crucial to several Big R species and address multiple ERP goals. The regional reviewer believed that the proposal represents a very high quality effort addressing several highly important species and issues and will serve to fill important data gaps.

Administrative Review

Prior phase funding

The prior phase funding review indicated that the University of California, Davis (UCD) failed to deliver a final report on a previous contract until 16 months after the expiration of the contract.

Environmental Compliance

No time or funding was allocated for environmental compliance. Because at least one Federally threatened species and incidentally other threatened species are involved, compliance with ESA/CESA may take substantial time. Both Scientific Collecting Permits and take permits will be required. Take permits may be take a long time to obtain, and the applicant wants to begin work on 1/2006, which may not allow sufficient time to go through the CESA/ESA process.

Budget administrative review

The budget reviewer indicated that equipment should be excluded from overhead and a detailed list of equipment needs to be provided. Furthermore, the budget should include a breakdown of task budgets and deliverables by subcontract. There should be a reduced IDC rate for services subcontracted by the grantee.

The budget reviewer found that the structure of the budget re−emphasized the lack of true integration of work, data, and thinking. The overall project plan had much the feel of a collection of organizations, activities, and researchers rather than a group investing in one integrated program. The budget illustrated this by listing a complete sub−budget (staff, operations, equipment) for each participant rather than sharing some operational costs under one service team.

Additional Comments

For such a large project, relatively little is said about project management.

Technical Review Panel's Overall Evaluation Rating:
inadequate

Delta Regional Review

Very High

Review:

1. ***Applicability to ERP goals and regional priorities.***

* This project would help evaluate some $50 million worth of ERP−funded efforts to restore floodplain and freshwater tidal habitat and riparian corridors in the North Delta and about $3 million worth of CVPIA−funded restoration actions to improve salmonid spawning and passage in the eastside tributaries.

* The project would further MSCS by developing and providing field−scale estimates for quantitative ecosystem restoration indicators and performance measures and by generating data on a number of species identified for recovery, specifically, Central Valley Fall−/late−fall−run Chinook Salmon ESU, Sacramento Perch, Central Valley Steelhead ESU, Giant Garter Snake, Central Valley Spring−run Chinook Salmon ESU, Greater Sandhill Crane, Delta smelt, Valley Elderberry Longhorn Beetle, Green Sturgeon, Swainson's Hawk and Sacramento Splittail.

* The project would focus on two high−priority systems: North Delta and Cosumnes River.

* The project would help assess the effectiveness of levee breaching as a tool for ecosystem restoration.

2. ***Links with other restoration actions.***

* This project could contribute to the evaluation/design of other restoration or flood management tools under consideration in this region, most notably the acquisition and deployment of 'environmental water' or the construction of set− back levees.

* The project would help assess multiple actions; although assigning benefits to a specific action may sometimes not be possible.

* The project proposal includes provisions for coordination with IEP and many other monitoring programs, but does not specify how some of this coordination will take place. The most important bases (e.g., methods, public access to data sets, attendance at regional work group meetings) seem to be covered, however.

* Data sets would be posted on a publicly−accessible web site.

* The project would continue data collection begun by a number of previously−funded monitoring efforts including IEP−funded special studies in the Yolo bypass and CBDA/CVPIA−sponsored monitoring on the Cosumnes. The ultimate success of the project in this regard would depend on whether funding could be obtained to continue monitoring beyond year 3.

* The project could provide useful information for designing other projects involving levee breaching. The indicators and performance measures stemming from this project may transfer well to evaluation of restoration actions in other regions.

3. ***Local Circumstances.***

The proposed project is feasible and appropriate to the project site. No local constraints are evident.

4. ***Local involvement.***

The project areas have effective local and regional forums for sharing information with stakeholders and other researchers and resource managers. The proposal contains provisions for PI participation in all of these forums.

5. ***Local Value.***

The project could benefit local and regional understanding by providing useful field data and by developing and quantifying ecosystem restoration indicators and performance measures. How ecosystems respond to specific actions may be very difficult to tease out for some processes or response variables, especially if funding is not found to continue the project after year 3. For example, if chinook salmon carcass counts made under CAMP in the Cosumnes River suggested an increasing trend in adult escapement, it would be difficult to determine the extent to which the increase was due to increases or improvements in rearing habitat documented for the Preserve or to improved fish passage actions undertaken by the AFRP or to ocean conditions, etc. This problem is shared by any project that attempts to assess the efficacy of ecosystem restoration actions, however. Perhaps an even more important contribution of this project would be its utility as a template for organizing other integrated, multi−objective monitoring and assessment programs in other geographic or disciplinary arenas.

6. ***Other comments:***

* Not sampling the benthos could leave a gaping hole in some of the analyses based on these data.

* Estimating inputs and outputs at the Preserve site is complicated by the multiple breaches. The panel wondered if the proponents considered the possibility of closing some breaches?

* The technical review panel should evaluate the proposal's assumption that the Preserve and the Bypass can legitimately serve as reciprocal controls for purposes of BACI experimental design.

* One panelist noted that flood control will likely remain the principal function of the Yolo Bypass and this function may limit restoration options for some habitat types, especially those that would increase hydraulic 'roughness' of the bypass.

* The technical panel should also determine the degree of overlap with the vegetation−bird monitoring proposed in Proposal #116 (Cosumnes River Preserve restoration monitoring data integration for adaptive management). If Proposal #116 is meant to complement this proposed study, it should be determined if the two projects would use the same field methods.

Overall Ranking:
Very High

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

The proposed project would bring together a highly qualified group of researchers, working as an integrated team on questions of considerable practical and theoretical importance to ERP/CVPIA actions in two high priority regions of the Central Vally−Bay−Delta system. The panel therefore ranked it very high.

Sacramento Regional Review

Very High

Review:

1. ***Applicability to ERP goals and regional priorities.***

The project is the initiation of a long−term and intensive monitoring effort in the Yolo Bypass and along the Cosumnes River, areas of high priority where major fund investments have been made by both ERP and CVPIA. The project will focus on effectiveness of restoration actions and model validation. To one degree or another, the project will, over time, meet all of the expressed PSP priorities. It will monitor and provide information necessary to evaluate several ERP and CVPIA restoration actions in these two areas and will provide some information about how these projects contribute towards MSCS milestones and several Big R species. It will not however provide information on long term population trends of either aquatic or terrestrial species. Instead, major emphasis will be on habitat processes. The project will assess actions in high priority ecosystems (Sacramento Region floodplains and freshwater tidal marshes). It will not compare restoration actions but some of the model verification information that results could be used for comparisons of restorations in these or very similar ecoystems in the region.

2. ***Links with other restoration actions.***

The project will expand upon and integrate some project specific research, monitoring and modeling efforts already underway, including some efforts funded by CBDA for which funding will expire in late 2005. It will incorporate information from these past and current data gathering efforts and build upon that data in monitoring effectiveness and validating models on habitat processes and stressors. It should provide information useful in assessing cumulative effects of multiple projects, more so perhaps than individual projects. It appears well coordinated with TNC, the Interagency Ecological Program and several other management and monitoring efforts currently underway. Data will be available through the Coyote website, through UC−Davis and through BDAT as well as being shared freely throughout the CBDA research and resource management community. The project integrates previously funded monitoring in a consistent fashion and will provide, over time, long−term data on ecosystem status and trends within these two study areas and useful information in the Yolo Bypass on upstream production and survival of juvenile salmonids. Validation of the model will also prove useful in design of restoration actions in other watersheds. Care needs to be exercised to assure no overlap with another UC Davis proposal which would also conduct fish sampling (for Sacramento perch) on the lower Cosumnes River.

3. ***Local Circumstances.***

There do not appear to be any local constraints on project implementation or feasibility. Access should not be a problem.

4. ***Local involvement.***

The project will involve the agencies and organizations that are landowners of the sites to be tested and the various resource agencies with major interest in the outcomes. Public outreach will be mainly to and through established stakeholder working groups, the non−profits and local land management organizations. It is unclear to what extent groups such as local sportsmen, farmers, and local goverments are part of these stakeholder groups or to what extent the outreach planned will serve to increase the local understanding of ecosystem issues. However, the Coyote website will make project information available to the general public. The partnerships formed should endure over the long term and should attract funding from additional sources over time.

5. ***Local Value.***

Over the long term, the model validation and ecosystem data gathered should produce results that will increase understanding of restoration actions and serve to guide future actions. It should also help to assess whether individual and multiple restoration actions are achieving their objectives and will permit managers to make adjustments to some project parameters. The project data will be useful at the local level while the model validation should have more widespread utility.

6. ***Other comments:***

This is a very expensive project and will need to be expanded and extended for several more years to realize its full potential. However, it is probably more cost efficient than funding several disparate and non−coordinated monitoring/research efforts producing data sets that may not be compatible.

Overall Ranking:
Very High

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

This proposal is for a very detailed (albeit expensive) long−term monitoring and model validation effort which, if continued, would yield information crucial to several Big R species

and addressing multiple ERP goals. Results would also apply nicely to other projects in other areas and could serve to guide future efforts. Because it is a coordinated effort covering multiple parameters (hydrology, geomorphology, water quality, aquatic and terrestrial wildlife and riparian vegetation) in crucial riverine, riparian, and floodplain habitats, it has great advantage over individual but less well coordinated monitoring efforts. Overall, this is a very high quality effort addressing several highly important species and issues and will serve to fill important data gaps.

External Technical Review

Goals And Justification

This proposal clearly and logically outlines a comprehensive long−term framework to evaluate the success of numerous ongoing and planned projects to restore ecosystem elements and processes in the floodplains and tidal marshes of the Consumnes River and Yolo bypass. This is a large scale ongoing effort in an area that appears to be critical to the protection and management of the regionally significant Noth Delta ecotone. Hypotheses focus on the evaluation of: hydrology/geomorphology, water quality, aquatic resources, terrestrial resources. The COYOTE team has put together an impressive, conceptually integrated framework for monitoring, data management, data synthesis and adaptive management. Hypothesis testing will make use of the relatively intact Consumnes River drainage to provide benchmarks for restoration response. This approach will undoubtedly have its limitations, given that the Consumnes is a separate and unique drainage. I expect the project team is well aware of this − and will consider this limitation in their analyses. There is seldom an "ideal" reference system when it comes to ecosystem evaluation of restoration success. Historical data of the system being restored can be invaluable. In this case, data on the ecology/hydrology of the Sacramento River and its flood plain before it was diverted would be very informative.

This project will provide the long−term database with which future predictive modelling (requiring additional resources) can be developed for use in restoration/land aquisition planning, and adaptive management of existing and future restoration efforts.

Approach

The project team is familiar with the NSF funded LTER program, and has borrowed from the LTER approach where appropriate. This project, with its LTER−like approach and commitment to aquatic ecosystem restoration has the potential to provide a much needed model to restoration scientists, practitioners and aquatic system managers across the US. I would look to the COYOTE group in the future to promote the need for a comprehensive, integrated, science−based approach to restoration at the regional scale. Such a model is desperately needed if restoration dollars are going to be put to best use, and if there is to be any accountability regarding project success at individual sites, and in aggregate at the regional level. Without funding this sort of ongoing evaluation program, decisionmakers have no quantitative assessment of the short and long term ecosystem response to restoration. Although not explicitly planned in the framework of this project, the data and syntheses from this project would allow an ecological economics analysis of the value of both natural and restored flood plain and tidal marsh systems in the North Delta.

Technical Feasibility

The COYOTE proposal is building upon a well−documented investment on the part of the project partners to restore/recreate ecosystem elements and processes in a significant portion of California's North Delta region. The proposal is extremely information−rich, but still reads clearly and easily. Standard methods will be used to measure the multiple variables identified within each program component. Project hypotheses and data collection are matched in scale, but as with all large scale "field experiments" − care must be taken to avoid pseudoreplication.

The team has pragmatically omitted the most expensive parts of any ecological aquatic monitoring program: the benthic invertebrates and contaminants. I would expect that these aspects of biology and water quality may be brought together in future studies of food web biomagnification of regional contaminants of concern.

Performance Measures

The ecosystem monitoring framework proposed is admirably comprehensive, and will provide the types of data needed to link hydrology with aquatic and terrestrial components of the North Delta. The team had developed a substantial and well chosen list of variables to measure within the four program components. To my knowledge these data will allow the most comprehensive assessment to date of tidal freshwater and floodplain ecotones and their response to restoration. Building on specific TNC efforts, specific indicators and performance measures will be developed with public input during the first year of the project. The team should guard against an overemphasis on the terrestrial portion of the ecotone, given national TNC's general program emphasis on terrestrial ecosystems.

Products

Data and metadata management and distribution are a specific program component of the project, and the proposal outlines the considerable capacity at UCD/ICE and BDAT committed to this purpose. Project scientists will submit data for inclusion in numeric and geospatial databases as appropriate. Preliminary data will be made available in real time from telemetered sites. Delays up to two years or more may be necessary for some data. The specific identification and funding of data management and dissemination as a full fledged program component provides assurance that the project will be able to follow through with this commitment. The project team is very familiar with the existing databases that will be built upon and integrated. The project is clearly designed to allow peer−reviewed publication of results. A public access website will be developed to serve written products, and real−time

data and data products. I suggest some resources be set aside to develop web−based tools targeting the key management groups that influence the protection and restoration of floodplain and freshwater tidal marsh ecotones in California. Tools would be designed to help these target audiences understand the outcome of different land−use and restoration project scenarios. They could incorporate the use of models to explore the outcomes of hypothetical management decisions and policies, using the outcomes of the COYOTE forcasting program element − when it is undertaken with future funding.

Capabilities

Each program component is the specific responsibility of a lead scientist, with all leads working together with other identified colleagues as a team. This framework avoids issues that arise when PI responsibilities are less clearly defined. All team members have considerable experience and publication records relevant to the project, with many working for some years within the study region. The mix of disciplines is admirably comprehensive. The team has real potential to develop important new understanding of the COYOTE ecotone.

Budget

The substantial budget is based upon a detailed assessment of man−hours needed to accomplish the objectives outlined. It appears that the project costs have been carefully considered and are adequate for the ambitious scope of the project, especially when leveraged by other investments mentioned on the part of CDWR−ARPI and UCD.

Additional Comments

External Technical Review

Goals And Justification

The CALFED Ecosystem Restoration Program (ERP) has implemented numerous land preservation and restoration projects in the Yolo Bypass and the Cosumnes Preserve. While many of these projects have included a monitoring component, there has been no large−scale comprehensive monitoring of the Yolo Bypass and the Cosumnes Preserve. The Cosumnes−Yolo Terrestrial−aquatic Ecotone (COYOTE) project described in this proposal would develop a monitoring program that would provide an overall assessment of the effectiveness of the ERP projects implemented so far, as well as a baseline against which to judge the effects of future projects. Because monitoring activities implemented piecemeal as part of many smaller projects may miss the “big picture” or cumulative effectiveness of the project, the approach presented in this proposal seems very worthwhile. The conceptual ecosystem model is detailed and in my view correctly emphasizes hydrologic connectivity as the model foundation. Hydrology is arguably the single most important variable in understanding floodplain and tidal wetland ecosystems.

Approach

The COYOTE project would involve four elements: observation, assessment, forecasting, and methods. The observation and assessment elements would be implemented in the current CALFED proposal, with funding sought for the forecasting and methods elements in future requests. The observation element will involve collecting and disseminating monitoring data as it is collected, while the assessment element will involve the periodic evaluation of performance measures and indicators, and refinement of conceptual ecosystem models. In short, these two elements are essentially an ongoing process of collection, analysis, and interpretation of large sets of monitoring data. The project proposes to build on a large existing data set, and the authors seem well−informed on what data already exist. The proposed large−scale monitoring includes a full suite of environmental and biological parameters that will be monitored over large spatial scales, and include measurements of hydrology/geomorphology, water quality, aquatic resources, and terrestrial resources. Monitoring will be conducted in a modified BACI design, which seems like the best approach given the nature of previous monitoring data and the landscape that will be monitored. The authors have adapted the strategy of the Long−Term Ecological Research network (LTER), which is based on technical methods that are straightforward but effective. The methods proposed have been widely used elsewhere and will provide a strong basis for evaluating ecosystem structure and function. Overall, I think the approach proposed is well thought out, comprehensive, and will yield valuable data on the ecosystems in the project area. Data collected will be useful to environmental decision makers for adaptive

management of existing restoration projects, identifying needs for future restoration, and quantifying the cumulative effectiveness of restoration activities.

Technical Feasibility

The authors seem well−versed in the collection, analysis, and interpretation of ecological and environmental data. Therefore, there should be few obstacles to implementing the proposed monitoring program. As mentioned above, the methods proposed are straightforward and should be easy to implement. The biggest challenge may be coordination between the parties involved in the monitoring (e.g., CDWR, UCD, USFWS, etc). However, the proposed arrangements for data storage and dissemination, project team meetings, and public outreach should be adequate to ensure clear communication and management of project activities. Additionally, many of the participants in the project have already coordinated on smaller scale since 1998 on other projects.

Performance Measures

According to the proposal, the CALFED ERP has not yet developed indicators or performance measures for floodplain and freshwater tidal marsh ecosystems like those of the project area. However, the proposed project would develop a set of indicators and performance measures for the restoration projects in the project area, based on the project team's conceptual ecosystem model. The authors have already identified indicators developed by TNC as a starting point for developing indicators under the proposed project. As noted earlier, the proposed monitoring design should be effective in determining if performance measures are attained.

Products

The project will generate large amounts of data, which will be analyzed, interpreted, and made available to stakeholders and decision makers through a website (including real−time meterologic, hydrologic, and water quality data in graphical form), quarterly, annual, and final reports, meetings with public groups (e.g. Yolo Bypass Working Group), scientific presentations, and peer−reviewed publications. There is no reason why the project will not result in a number of peer−reviewed scientific publications. As this may be the first attempt to monitor the cumulative effects of multiple restorations on ecosystem structure and function, some of the findings may be suitable for very prestigious journals.

Capabilities

The COYOTE team is comprised of individuals from a number of institutions, agencies, and companies, most of whom have experience in the project area and have worked together

previously. The PI has almost 15 years experience in the CA Dept. of Water Resources, and has a doctorate in Ecology from UC Davis. He has published research from the Yolo Bypass and other projects in the peer−reviewed literature. Many members of the team hold their doctorate in ecology, environmental science, or civil/environmental engineering, and almost all have at least a master's. The collected suite of capabilities seems very well−suited to excelling in completing the proposed project.

Budget

Given the technical scope of the project and large number of participating individuals and institutions, the budget seems reasonable. This project will require extensive field work and so necessitates considerable costs for technicians, supervisors, lab analyses, travel, supplies, and equipment. In my view the potential value of the findings from this project is well worth the funds requested.

Additional Comments

A forward−thinking approach to environmental monitoring.

External Technical Review

Goals And Justification

The proposed COYOTE project is a large scale, multi−institutional monitoring program for the Consumnes−Yolo Terrestrial−aquatic Ecotone region. The proposal clearly describes a large but selective set of monitoring activities for an aquatic landscape that has had many different restoration projects completed (summarized in a large table). There is a single logical and well justified basis − hydrologic connectivity − to the overall plan and selection of activities and parameters for monitoring. The proposed monitoring program has immediate needs defined and long term aims for increased scope and management impact. Tables are used to convey the extensive nature of past studies and data collections available from many organizations. In total, this proposal is for an ecosystem monitoring program that aims to relate restoration and management actions to prominent environmental features over a large landscape. I think this is the kind of effort that is needed to truly judge what society is accomplishing with major environmental management investments, and what we are achieving with the strategy of pushing human dominated systems toward former natural conditions and processes.

Approach

The proposal is clear in describing monitoring activities and methods. Many state−of−art techniques and instruments will be employed; often making such large scale and fine time scale data attainable. Two key weakness of the proposed program are that no real serious integration plan and process is defined. Activities that will put researchers together and in touch are given, but tight integration among the activities and specialists is not. Likewise, this program would have great value to managers but significant efforts and practices to connect with the environmental management community are not given. Some activities are listed that allow connections to users and information transfer, but the stated aim of promoting adaptive management are not addressed by real effort and work. The proposers say that they are not seeking support for all aspects of the program now, and one could expect more formal methods for integration and adaptive management support may come later. Yet the investment at this point is large and more should be done to carry that as one integrated effort and a genuine service to management.

Technical Feasibility

Many aspects of the proposed monitoring activities are technically challenging. Any time new technology and field instrumentation is employed there will be challenges to make it all work as hoped. However, the proposed team includes many specialists who have experiences

and expertise to meet challenges along the way. I judge the group as very capable to realize the monitoring program as described.

Performance Measures

The use of ecosystem scale quality indicators and measures of change through time are new. While some indicator sets are in use for ecosystems (e.g., Chesapeake Bay) they tend to be overly general and driven by public appeal. The TNC method put forth in the proposal is somewhat better so it is a good start. The proposal also invokes the statistical assessment method called BACI (before−after control−impacted) and that provides a template for rigorous analysis of large data sets. It does not fully fit the needs here so again it seems to me a good start. Overall, the proposal is fairly general on performance measures and this is understandable. The talented and diverse team behind this work should be able to pioneer measures needed as the program develops.

Products

The proposal lists some outputs that serve as products for an ongoing monitoring program. Care is used to plan quality control and database maintenance. Some outreach is given and the inclusion of the TNC will help make the most of this work in the public realm. Rapid reporting of data is stated and this should include the biological sets that often fail to reach wide accessibility. For an ongoing and large scale program, definitive endpoint products are not warranted.

Capabilities

As a start to a multi−institutional large scale program, this project team is really good. It includes a mix of organizations, specialties, and expertise. It is broad in talent and diverse in professional roles.

Budget

The budget is large. For the variety of promised activities and measures it is reasonable. However, my concern about lack of true integration of work, data, and thinking is seen in the budget. The overall project plan has much the feel of a COLLECTION of organizations, activities, and researchers rather than a group investing in one holistic program. The budget illustrates this by listing a complete sub−budget (staff, operations, equipment) for each participant. Some gain in cost efficiency might be achieved by sharing many operational costs under one service team. And this kind of integration of effort could help bring or really tie the participants together for one program.

Additional Comments

Given the size and cost of this effort, I would really like to see a serious effort made to develop specific plans to make a whole of it all. I fear that if someone and some staff are not dedicated to managing the whole, and effort like this could easily drift to a loose collection of small studies tied together by an annual conference and data depository. That would not serve the conservation challenge at stake or make the best use of the public investment in this effort.

Budget Review

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

If no, please explain:

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

If no, please explain:

3. Are project management expenses appropriately budgeted?
Yes.

If no, please explain:

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

If no, please explain:

Recommend equipment be excluded from overhead.

5. Does the budget justification adequately explain major expenses? Are the labor rates and other charges proposed reasonable in relation to current state rates?
Yes.

If no, please explain:

Labor rates are identified. Recommend detailed list of equipment.

Major Expenses –If the grant is awarded a detailed list of equipment purchases should be provided by the grantee so reviewers can better evaluate whether it is more cost effective for the state to purchase large dollar equipment items through the state procurement process. If

the equipment list is available within the State inventory or stock, then purchase of some or all of the listed items may be provided, loaned, or leased by the state to the grantee. In the event, that the equipment is purchased by the grantee, the grantee shall maintain an inventory of major equipment for auditing purposes and potential use for future projects. Grantee shall follow State Contracting Manual [SCM] Section 7.61 thru 7.62 rules pertinent to equipment purchase, lease, etc.

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

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

$3.5 mil DWR Aquatic. Recommend more detail provided on cost share.

7. 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 negotiating a grant agreement?
No.

If no, please explain:

Subcontractor (UCD) is requesting changes to general terms, travel expenses and per diem expenses.

Contract Language Exceptions –Proposals submitted by grantees which identify exceptions to State of California’s standard contract language provisions as provided in the 2004 PSP; and/or submit alternative contract language in lieu of the State’s standard contract language should be carefully reviewed prior to awarding grant funds. Review will initially be conducted by the funding agency’s contract office and referred to the legal department as needed.

8. Are there other budget issues that warrant consideration?
Yes.

If yes, please explain:

Recommend breakdown of task and budget detail of tasks and deliverables to be completed

by selected subcontractors. Subcontractors are State and Federal agencies.

Subcontracting – Proposals for work to be performed by subcontractors or other entities in excess of the 25% of the total project dollars the grantee is required to provide a justification for subcontracting services. If subcontractors are pre−selected and identified in the proposals as part of the project team, the grantee should provide a justification on how each subcontractor was selected. Grantee shall identify labor rates and indirect costs rates paid to each identified subcontractor to ensure that labor rates are comparable to State rates. The Subcontracted work should be identified with a rate and hours and attributed to each task and deliverable for each year. A performance evaluation is also recommended for subcontractors that receive more than 50% of the grant funds. If the subcontractor has not been identified, a position description complete with education level, experience, and abilities be submitted and the rate and hour associated with that position will be attributed to a task, and deliverable. The grantee must also comply with the State competitive bidding process as stated in the PSP.

The Grantee should charge a reduced indirect cost rate to the state for services that will be subcontracted by the grantee. (Researching SCM Section 3.06 B).

Other comments:

Recommend "Directed Action" for DFG since DFG is an implementing agency.

Environmental Compliance Review

1. Is compliance with California Environmental Quality Act (CEQA) required for this project?
YES***X*** NO−

2. Is compliance with National Environmental Policy Act (NEPA) required for this project?
YES***X*** NO−

3. Does this project qualify for an Exemption or Exclusion under CEQA and NEPA, respectively?
YES***X*** NO− N/A−
Comments:

Possibly. The applicant should consult with the CDFG and USFWS for take of listed species. Permitting for take of these species could trigger CEQA/NEPA and the regulatory agencies can determine if this project qualifies for an Exemption/Exclusion.

4. Did the applicant correctly identify if CEQA/NEPA compliance was required?
YES− NO***X***
Comments:

They stated that no CEQA/NEPA compliance was required.

5. Did the applicant correctly identify the correct CEQA/NEPA document required for the project?
YES− NO***X*** N/A−
Comments:

6. Has the CEQA/NEPA document been completed?
YES− NO***X*** N/A−

7. If the document has not been completed, did the applicant allot enough time to complete the document before the project start date?
YES− NO***X*** N/A−

8. If the document has not been completed, did the applicant allot enough funds to complete it?
YES− NO***X*** N/A−
Comments:

No time or funding was allocated for environmental compliance. The applicant is targeting at least one Federally threatened species and will incidentally take other threatened species which may require a lot of time for ESA/CESA compliance issues.

9. Did the applicant adequately identify other legal or regulatory compliance issues (Incidental Take permits, Scientific Collecting permits, etc,) that may affect the project?
YES− NO***X*** N/A−
Comments:

Identify those additional permits that may be needed by this project:

Scientific Collecting Permits will be required. Take permits will also be required for listed species.

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***X*** NO− Project is on public land/water or question is otherwise N/A−
Comments:

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?
YES***X*** NO−
Comments:

This is a large complex project with many regulatory compliance issues that were not addressed in the proposal. Take permits may be take a long time to obtain and the applicant wants to begin work on 1/2006. I am not sure if that is sufficient time to go through the CESA/ESA process.

Prior−Phase Funding Review

Project Title	Mc−Cormack−Williamson Tract Restoration Planning, Design and Monitoring
CALFED Contract Management Agency	USFWS
Amount Funded	$556,200
Date Awarded	1999/01/01
Project Number	ERP−99−B193

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

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

5. Has this organization made adequate progress towards these project(s)' milestones and outcomes, without unreasonable divergences from project schedules or poor−quality deliverables?
No.

University of California, Davis (UCD) was the cooperating organization for the above referenced contract. The technical work conducted, as described in the scope, was excellent and much of the information produced by this contract has been disseminated through briefings, talks, and meetings. However, the final report was not received until 16 months after the expiration of the contract, due to re−analyzing of data and modifications of the final report.

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

7. If this application is for a next phase of a project whose contract your agency currently manages, will the project(s) be ready for next−phase funding to monitor and evaluate project outcomes in fiscal year 2005/6, based on its current progress and expenditure rates?
Yes.

Other comments:

Prior−Phase Funding Review

Project Title	Linked Hydrogeomorphic−Ecosystem Models to Support Ecosystem Management
CALFED Contract Management Agency	NFWF
Amount Funded	$1,546,016
Date Awarded	1999/01/01
Project Number	ERP−99−NO6

Project Title	The Influence of Flood Regimes, Vegetative and Geomorphic Structures on the Links Between Aquatic and Terrestrial Systems
CALFED Contract Management Agency	NFWF
Amount Funded	$2,652,750
Date Awarded	2001/01/01
Project Number	ERP−01−NO1

Project Title	Yolo Bypass Habitat Resotoration Study
CALFED Contract Management Agency	National Fish ans Wildlife Foundation
Amount Funded	$151,228
Date Awarded	1996/01/01
Project Number	96−M13

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

We have had no direct agreements with the California Department of Water Resources under the CALFED ERP.

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

5. Has this organization made adequate progress towards these project(s)' milestones and outcomes, without unreasonable divergences from project schedules or poor−quality deliverables?
N/A

UCD, the lead organization on the previously funded actions managed by NFWF, made adequate progress.

6. Is the applicant's reporting, record keeping, and financial management of these projects satisfactory?
N/A

No direct agreements with the California Department of Water Resources.

7. If this application is for a next phase of a project whose contract your agency currently manages, will the project(s) be ready for next−phase funding to monitor and evaluate project outcomes in fiscal year 2005/6, based on its current progress and expenditure rates?
Yes.

Other comments:

99−N06 is complete and based on current the funding and schedule for 01−N01, the applicant will be ready.