Arundo donax Eradication and Coordination Program: Monitoring and Evaluation

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Initial Selection Panel Review

Recommendation: Reconsider if Revised

Amount Sought: **$**396,352

Fund This Amount: $**111,000**

Brief explanation of rating:

Controlling Arundo is important to the achievement of ERP objectives. The Selection Panel recognized that a uniform monitoring protocol framework is definitely needed. Team Arundo (Sonoma Ecology Center) should be funded to bring together an expert team to develop such a framework over a 1 year period, so that effective, comparable monitoring can take place. The proposal should be resubmitted focusing on Objective 1 and Tasks 11a, 12a, 12b, 13 a–c, 14 a–c, and validating the protocol and data management using one of the eradication sites. The Selection Panel believes this can be accomplished in one year with a budget not to exceed $111,000.

The proposal should be resubmitted focusing on Objective 1 and Tasks 11a, 12a, 12b, 13 a–c, 14 a–c, and the validating the protocol and data management using one of the eradication sites. The Selection Panel believes this can be accomplished in one year with a budget not to exceed $111,000.

The proposed grantee shall provide a description of qualifications and a short justification for contracting services with pre–selected subcontractors (as sited on page 16 of the PSP). The proposed grantee shall also submit a detailed budget identifying the labor rates and indirect costs of the proposed subcontractors.

Technical Panel Review

Technical Review Panel's Overall Evaluation Rating:
Inadequate

Explanation Of Summary Rating

The technical panel could not rank this higher without further information. Specifically: 1) How the currently funded work relates to what is proposed here. 2) A timeline showing what is being monitored in phase 1 vs. phase 2 vs. this proposal. 3) A monitoring protocol that shows how data collection would use performance measures to connect the conceptual model with appropriate tests of hypotheses. The technical review panel recognized the potential benefits of a uniform monitoring protocol; so if the above information were provided to the program's satisfaction, we would rank the development of a monitoring program based on WIMS "adequate". However, before any funds were released for implementation that monitoring scheme would need to be reviewed.

Goals And Justification

This proposal seeks funding for continued monitoring by ten partners of Arundo donax, which is a noxious weed. Phase 1 projects are funded through March 2006, while Phase 2 funding was awarded in September 2004. This proposal will monitor "changes in plant community structure and species composition" at eradication sites “at a higher level of detail and for a longer time period”. However, the original monitoring is not described in sufficient detail to see how much more detail the new monitoring will entail. The need for a standardized protocol that can be used by multiple programs is clearly established by the proposal; however, the details of how they will accomplish this goal are much less clear. All reviewers noted that the hypotheses are not scientific hypotheses and not testable using the proposed methods. The hypothesis that

Arundo removal will benefit native plants and animals is the underlying premise of the proposal. A general conceptual model is presented that identifies generic threats to streams and riparian vegetation.

Approach

The approach is to adapt the The Nature Conservancy's Weed Information Management System (WIMS) to evaluating impacts of Arundo eradication, and then to provide training workshops for the partner groups. A uniform protocol would be a benefit, but reviewers raised concerns whether this was possible given the large number of partner groups; the absence of details on the monitoring protocols make it difficult to judge the adequacy of this approach. No mention is made of reference sites, which are an essential feature of evaluating restoration success. External technical reviewers noted that the measures of vegetation recovery suggested are not adequate. Given that Arundo is considered a serious threat to streams, monitoring of stream geomorphology, water quality, habitat, and fish should also be considered.

Feasibility And Likelihood Of Success

The project is technically feasible, but external technical reviewers expressed concern that the time frame may be unrealistic; for example, workshops are not long enough and not enough time has been allowed for development of protocols. The project is incompletely documented with respect to the monitoring methodology that will be used. The repeatability and representativeness of the data collected are essential components to the success of the monitoring, and without details on the experimental design it is not possible to evaluate the potential success of their approach.

Performance Measures

It appears that all partners use the same eradication methods. Hence evaluation of different restoration actions does not seem to be part of this proposal. Three metrics to assess performance are proposed. An external technical reviewer

pointed out that the first two are the inverse of each other, and the the third (number of species) is a metric that is too blunt; that reviewer concluded that the proposed metrics are insufficient to accurately assess ecosystem restoration success. A description of the data currently collected and potential additional variables was not included and is a serious deficiency in the proposal.

Products

The proposed standardized monitoring protocol would be valuable for resource managers. There do not appear to be plans for production of any peer−reviewed documents, which is a shortcoming of the proposal. The details of the data collection and experimental design are not yet worked out; without this information, external and panel technical reviewers found it difficult to determine the likely quality of the results.

Capabilities

The objectives for the analysis of the data, and the personnel responsible for developing and producing data products are not clearly stated. However, the link to U.C. Davis indicates access to strong resources in this arena. Team Arundo del Norte is very strong in all appropriate disciplines save that of stream/fish ecology. One external technical reviewer suggests that they expand their perspective to take a more serious look at stream ecosystem response to eradication of Arundo donax, and to recognize that there may be streams in which invasives have had positive impacts(e.g. lower stream temperature from shading).

Budget

It is unclear how the budget of this proposal corresponds with what is funded in Phase 2, which contains funding for monitoring all 10 partner projects for 2−3 years. It seems that the amount budgeted for monitoring in this proposal could be reduced. Estimated amount of time required for monitoring by partners ranges from 223 to 800 hours over three years; the

reasons for this disparity are not explained and external reviewers could not assess whether this disparity is reasonable because there was no indications of number of plots to be monitored or frequency of monitoring. Hourly wages for 'Vegetation Managers' average around $35/hr, while a Staff Biologist only paid $24/hr, which all reviewers noted to be questionable. The IRS letter is addressed to the 'Local Earth Action Forum' rather than to the 'Sonoma Ecology Center', which is where the lead investigator is based.

Regional Review

Three regions reviewed this proposal. Rankings were two "high" and one "medium." The lower rankings were a result of eradication projects occurring in lower priority areas for the region and a concern that eradication projects were not designed in an ecosystem perspective, starting in upstream areas.

Administrative Review

Reviews of prior projects did not identify any problems arising in previous administration of CALFED contracts. Some concern was raised about overlap of funding between this proposal and Phase II of previously funded work. The detailed budget review indicated that considerable clarification and additional information is needed before project could be written up as a contract. Environmental compliance review noted that no additional permits were necessary for monitoring.

Additional Comments

The goals of this project are laudable and they seem well organized. One strength is that it is linked with so many outreach groups. The problem is that they have not yet worked out sampling protocols, and without that, the proposal cannot be adequately evaluated.

Bay Regional Review

Bay Regional Panel's Overall Ranking:
High

Summary:

1. Applicability To ERP Goals And Regional Priorities.

The proposed project will add 2 years of monitoring of habitat restoration at Arundo donax eradication sites for five partner projects begun in 2001 and located in the in the California Bay Delta Authority (CBDA) region The five original partner projects include the Napa River, Sonoma Creek, San Francisquito Creek , Putah Creek and Walnut Creek. The new partners are also located in the CBDA region and include Upper Cache Creek, Lower American River, Lindo Channel, San Joaquin River, and Gray Lodge Wildlife area.. All partners have used the surveying and monitoring protocols established by the Aundo del Norte team. They estimate that 223 acres of Arundo will be eradicated in the 3 years covered by this request. In addition to monitoring in the 10 watersheds of eradication sites, changes in the native and invasive plant cover and plant species composition will be tracked which will support analysis for evaluating the restoration of habitat for species listed in the CBDA ERP Multi−species Conservation Strategy. Restoration of habitat will be defined as observable trends toward native riparian plant communities such as higher percentages of native plant cover, lower percentages of invasive plant cover, and higher nmbers of native species compared to invasive species.

2. Links With Other Restoration Actions.

The proposed project will develop a monitoring protocol for plant communities that will be coordinated with the

eradication monitoring. This protocol will be based on accepted monitoring protocols for the riparian plant community such as CDFG'd Coastal Salmonid Restoration Monitoring and Evaluauation Program's Intrim Restoration Effectiveness and Valiforantion Monitoring Protocol (2003) and the vegetation monitoring for the Saltcedar leaf beetle (2000). Protocol documentation will be developed to instruct the partners in techniques for repeatable quantitative evaluation for comparable data collection across all partners. A data management system called Weed Information Management System (WIMS) will be adoped and intensive support for the partners in the use of this sysem will be undertaken. A data coordinator will combine, quality check, and analyze the data which wil be evaluated and shared after each monitoring season. The work proposed to improve the WIMS will be useful to other progams already using the WIMS such at The Nature conservancy, USFWS Natural Reserve System, and he California Weed Management System and will make the data system more relevant to CBDA funded partners so they will adopt the system and make the flow of monitoring data more successful from the local level to the regional and state level.

3. Local Circumstances.

The proposed monitoring and evaluation work is feasible and timely since there is current support from several agencies and organizations to adapt, improve, and implement advanced weed management services that also offers resource management tools. The protocol and WIMS Database Development Team has already been assembled and current access agreements exist. Current partners are watershed−based organizations and agencies actively engaged with local property owners and groups.There is little opposition among the landowners and opponants generally join the program when they see the benefits. Landowners are always slow to get into this sort of program but when they see the benefits, they are more receptive. This program has won over many private landownders already.

4. Local Involvement.

The Arundo Eradication and Coordination progam has had an active public outreach program through the dissemination of educational materials, comprehensive website information, public presentations, and representation at conferences. A brochure is in its third printing. There is increasing public awareness of the threat of the invasive Arundo. This work to broaden the WINS and expand the user base will result in increased coordination throught the CBDA region by making possible the exchange of data that measures invasive weed eradication and native habitat restoration efforts. Because of the interest of NGOs such as the California Invasive Plant Council, and state and federal agencies as well as academia it should be capable of attracting funds from multiple sources. They plan to continue with future grant requests from seveeral sources..

5. Local Value.

The Team Assembled To Supervise This Project Has Considerable Experince With Community Outreach And Project Planning, Protocol Design, Data Management And Information Technology Solutions, And Watershed Analysis Methods. The Review Team Expressed Considerable Enthusiasm For The Program, For Updating And Preparing A Uniform Protocal And For Doing Test Implementation. There Is A Substantial Element Of Training In Data Collecting Technology With Two Worshops Planned. There Was Some Amount Of Concern For The High Cost For Personnel For Ongoing Monitoring In This Proposal. The Effort To Look At Habitat Recovery While Monitoring Invasive Weed Eradication Will Help In Evaluating The Effectiveness Of The Program, The Achievement Of Their Objectives, And Will Enable Them To Look At Local Project Areas As Well As Watershed And Regional Effects. This Areawide Coordinated Program Will Be A Major Step Forward In Assessing The Benefit Of Weed Eradication And Habitat Restoration.

6. Other Comments:

The Effort To Draw In Partners From 10 Different Watersheds And Collect And Evaluate Parallel Data Advances The Field Of Restoration. This Gets A High Approval Rating However There Is Some Reservation About The Amount Of Funding For Ongoing Monitoring.

Sacramento Regional Review

Sacramento Regional Panel's Overall Ranking:
Medium

Summary:

The tools developed under this project could be used to monitor the results of CALFED ERP Arundo eradication efforts. The project does not address milestones, but would indirectly monitor impacts to Big R species from re-establishment of natural vegetation. The panel is concerned that the project is too dependent on computer hardware, software, and technical support and this may undermine the project's ability to operate smoothly and may affect its long term sustainability. Providing technical support to all the partners from Sonoma could be problematic. Dove-tailing current Phase 1 into Phase 2 may be a problem if funds are not available in a timely manner.

1. Applicability To ERP Goals And Regional Priorities.

Because this proposal addresses Arundo eradication it is applicable to several ERP and CVPIA goals. However, it does not address any high priority areas in the Sacramento Region. It will monitor habitat for Big R salmonids and native fishes and high priority ecosystems (riparian, Napa R.)

2. Links With Other Restoration Actions.

The project is linked to ongoing ecosystem restoration activities. The focus is on groups that have past and ongoing eradication efforts. The products from this proposal could be applied to Arundo eradication efforts throughout the CALFED region.

The proposal does not address cumulative responses, but it sets up greater ability to do this.

The project coordinates with 10 groups that have active eradication efforts. These groups include key regional organizations.

Data from this project will be regionally accessible. Part of the proposal's focus is disseminating methods and monitoring results via TAdN's website and BDAT.

The project continues previously funded monitoring such that it provides long−term data about status and trends. Proponents and partner organizations have long standing relationship with Arundo and non−native invasives management.

This project will provide tools and information for restorationists to assess the probable benefits and monitor eradication efforts.

3. Local Circumstances.

This project depends on involvement from numerous landowners, but that should not be a problem for this type of project. There are possible conflicts with the end date of Phase I and start dates for Phase II funded by this action.

4. Local Involvement.

The project has partners in several local areas. We are not sure the project could sustain this level of intensity over the long term ($100,000/yr budget). Hardware and software upgrades and ongoing technical support would be costly. The project is very software and hardware intensive. Software and hardware required to carry out the project may limit the project's scope beyond the ten partners and would require future upgrades. Use of open−source software would alleviate the need for users to purchase software.

5. Local Value.

This project will improve understanding of effectiveness of eradication methods at eliminating Arundo and restoring natural vegetation.

San Joaquin Regional Review

San Joaquin Regional Panel's Overall Ranking:
High

Summary:

This is an important project because it should provide a region-wide means of recording the extent of arundo problem and tracking and assessing the efficacy of arundo eradication efforts. Proposal is not rated as "very high" because the primary site in our region is not a site where the ERP has made its greatest investments; Arundo infestations that the proposal addresses are not currently a significant problem in San Joaquin River watershed. It is also unclear how outreach and dissemination of information will be conducted. Finally it is also a concern that the control strategies that have been used are not being properly applied (e.g. control strategy doesn't take an ecosystem approach where controls are first applied to upper reaches of a stream).

1. Applicability To ERP Goals And Regional Priorities.

The project addresses goal 5 of the ERP "to reduce negative biological and economic impacts of established non-native species. The project will fund the work of a team of local, state, and federal organizations; this team has already been active coordinating activities of its partners. The CBDA ERP has already funded the second phase of this project, Arundo Eradication and Coordination-Phase II, for $1.8 million. In our region, this monitoring and evaluation proposal will provide standardized monitoring for the San Joaquin River.

The project will contribute towards implementing the CBDA ERP Multi-Species Conservation Strategy by allowing project partners and others to gage the success of these weed control and revegetation projects. These projects will result in restoration of habitat for species listed in the Multi-Species Conservation Strategy.

The projects will monitor and evaluate streams listed above. These sites do not include those listed in our region as especially high priorities of the PSP (where ERP has made its greatest investments).

2. Links With Other Restoration Actions.

The project proposes to monitor and evaluate projects that have been previously funded through the Arundo donax Eradication and Coordination Program (phases I and II). It does not propose to monitor and evaluate other projects. The Team Arundo del Norte (TAdN) does, however, propose to "expand ties between TAdN and other agencies and organizations involved in ecosystem restoration work." These organizations include The Nature Conservancy (TNC), CDFA, USFWS, and Information Center for the Environment (ICE). TAdN will collaborate with TNC on an existing statewide weed mapping effort, the Weed Information Management System (WIMS). In this way it will potentially provide a useful tracking and assessment tool that can be used in conjunction with multiple invasive species control programs throughout the CBDA project area. Consideration appears to have been given to conveniently collecting and disseminating data.

3. Local Circumstances.

There appear to be no constraints on the project's ability to move forward in a timely and successful manner.

4. Local Involvement.

The project proponents are already coordinating the activities of partners in 5 watersheds (phase I funding) and will be doing the same for another 5 in phase II. The project has a plan to coordinate and monitor the success of local and statewide eradication efforts. It is also partnering with TNS, ICE, CDFA, and USFWS. The project will provide training and support to local partners. Information will be made available to the public through printed education materials, a website, public presentations, and by presentations made at conferences. It is unclear how much effort will be directed

towards outreach and dissemination of information. Approximatley $60K will be spent on task 12a, “outreach and presentation at appropriate conferences and meetings.” No other specifics are provided.

5. Local Value.

The project will synthesize data for the two Sonoma Ecology Center projects (phases I and II of the Arundo Eradication and Coordination) funded by CBDA. It will also make this data available through a database program used to manage weed eradication data throughout the state, WIMS. The project should provide a standard system for tracking and assessing statewide eradication and restoration efforts. This system will be useful at the local, CBDA project area, and statewide scales. This info should help to adaptively manage current and future projects, thereby making them more effective.

External Technical Review #1

Goals And Justification

This project seeks to develop and implement a standardized monitoring protocol and data system to support a multi−program effort aimed at eradicating the riparian invasive plant Arundo donax. The investigators pose three hypotheses composing this project: (1) partnering with resource agencies and organizations to codevelop a vegetation monitoring system will result in a superior monitoring protocol and lead to broader adoption and use; (2) an improved data management system and increased technical support will result in more consistently collected and higher quality data; (3) successful weed control and revegetation will result in restoration of habitat for species listed in the CBDA ERP Multi−Species Conservation Strategy.

The investigators present a conceptual model for their restoration efforts in Figure 1. The model outlines the major effects of the invasive plant Arundo on riverine ecosystems, and is clearly presented. The model does not, however, detail how they will develop and implement the standardized monitoring protocol. The need for such a standardized protocol that can be used by multiple programs is clearly established by the proposal, however, the details of how they will accomplish this goal are much less clear.

With regard to the hypotheses, they may not be truly testable. I am not sure this deficiency ultimately detracts from the goals of the proposal, but it is more of a management assessment proposal than a scientific test of varying management strategies. I think if they re−worded their hypotheses to simply be project objectives that it would be more congruent with the actual nature of this proposal.

Overall, though, I would like to give credit to the soundness and appropriateness of their goals, which are important and if accomplished could serve as a model for inter−agency (or inter−organizational) standardization and measurement of important ecosystem parameters of change.

Approach

The project leaders plan to bring together members of the Team Arundo del Norte, particularly plant community ecologists, to guide the development of a standard monitoring protocol. They will team up with an existing effort by the Nature Conservancy and its Weed Information Management System (WIMS) project, in association with other state and federal agencies. To accomplish the implementation phase of the project, they will conduct 2–3 day workshops that will include field collection and data management aspects. They provide a very explicit list of goals and approaches to addressing those goals in Table 1 in the proposal.

It is difficult to ascertain, however, how the WIMS approach will be implemented specifically within the context of this proposal. In fact, this aspect is largely left untreated, and so there is somewhat of an exploratory feel about the details of implementation within the body of the proposal text. Apparently the actual implementation of the protocols will be addressed during the work effort of the project, and has not yet been thought out.

This reviewer is left with a number of questions involving the scope of the project, including: How much sampling will be done on each site and at what frequency? Will the field sampling be repeatable – for example will permanent plots be established and therefore be tracked over time? And if so, what field methods will be used? In a rapid assessment as the project envisions for sustained monitoring, the repeatability and representativeness of the data collected are essential components to the success of the monitoring, and without details on the experimental design it is not possible to evaluate the potential success of their approach.

Technical Feasibility

The overall goals of the project are sound, and it appears that the team they have assembled (both internally and externally) will have the instruments and capability to accomplish their goals.

Performance Measures

The proposers briefly mention (4th sentence from bottom of page 5) that their measures will include: higher percentages of native plant cover, lower percentages of invasive plant cover, and higher numbers of native species compared to invasive species.

It should be noted that the first two measures are the inverse of one another (i.e. if you have higher percentages of native plant cover you will automatically have lower percentages of invasive plant cover). Further, in studies this reviewer has done on invasive vs native plant distribution in disturbed areas, it is not always the case that actual species numbers change (the third metric they list). Species number changes usually mean large community composition changes – so this metric is sort of blunt. A much more subtle way to address change is by using a diversity index (either Simpson or Shannon) that accounts not just for species number but also species evenness. I would suggest that they add a diversity index to the measures they take, and thereby augment the species cover and species number metrics. If they are using standard methods such as line–intercept or quadrat type sampling designs, they would be able to also compute species diversity with the same data as they are collecting for species cover and species number.

Overall, as mentioned above under Approach, it is not possible to evaluate the potential success of their approach without more details on their experimental design.

Products

If they are able to meet their goals, this type of standardization and coordination of measures of change and effectiveness of management for a serious ecosystem threat such as Arundo would be very laudable. Their overall framework to create a data clearinghouse and to coordinate standardized data collection and analysis procedures is a terrific goal, if they can achieve it. My primary misgiving, though, is that the details of the data collection and experimental design are not

yet worked out.

Capabilities

The assembled team appears to have all the expertise they need, and also the right balance of expertise.

Budget

The budget appears adequate and reasonable, with the exception that without working out the details of the sampling protocols it is difficult to say whether the stated budget will be adequate.

Additional Comments

I would like to just emphasize that the goals of this project are laudable. Organizationally, I think they have this wired. It's just that they have not yet worked out their sampling protocols, and so funding them would carry a non−trivial level of uncertainty. Possibly the proposers could be prompted to provide more details about their sampling and analysis strategy, as a contingency for funding.

External Technical Review #2

Goals And Justification

This proposal seeks funding for continued monitoring of Arundo donax at sites throughout the Bay–Delta region. A. donax is a noxious weed and requires monitoring to assess the long–term success of eradication efforts. Funding for such efforts is often inadequate. The proposed standardized monitoring protocol would be valuable for resource managers.

Ten partner projects are included in this proposal. Phase 1 projects are funded through March 2006, while funding for Phase 2 partners was awarded in September 2004 but has not yet been funded. I assume that CALFED funded these phases, but the proposal doesn't specifically state this. Phase 2 funding enables continued monitoring of the partner projects; this proposal will monitor "at a higher level of detail and for a longer time period" (p.5). However, the original monitoring is not described in sufficient detail to see how much more detail the new monitoring will entail.

The hypotheses presented (p.3) are not experimental, and cannot be tested by this proposal. For example, all areas will be assessed with the same monitoring protocol so the 'superiority' of this protocol cannot be quantified.

Approach

The approach involves support of monitoring at 10 sites ('partner projects').

The first objective is to build a standardized monitoring protocol based on The Nature Conservancy's Weed Information Management System (WIMS). A protocol that worked for all could be a tremendous asset to vegetation monitoring in California, particularly for data sharing and synthesis. The list of partners to participate in the development of this protocol is extensive (p.2–3). However, this could also be a concern in the development of a protocol: the 'wish list' of items to be

included in the protocol is likely to differ among partners. It appears that this protocol will focus on the vegetation (p.), which makes me wonder if it will be directly applicable to scientists involved in wildlife habitat issues. Different wildlife species have different habitat requirements, and the standardized protocol may or may not be collecting the 'right' data for a given wildlife species.

The second objective is to provide training and technical support for partners to implement the actual monitoring efforts. This is useful for adaptive management of the monitoring protocol, though changes in protocol from one year to the next will complicate the analysis of vegetation responses.

Technical Feasibility

While the activities are technically feasible, I suspect that they will take longer to implement than estimated. For example, 2–3 day workshops (objective two) might be unrealistic to cover the proposed topics: "set–up and use of the WIMS handheld–computer data collection techniques, proper evaluation of plant community attributes, identification of invasive and native riparian plants, and management of collected data will be covered IN DETAIL" (p.3, emphasis added).

I'd like to see more details about the monitoring protocol: the number of items and topics to be added to the WIMS system is not articulated, and will greatly affect the amount of time and effort this will require. How large of areas will be sampled, and how frequently will they be sampled? The Work Schedule (p.11) suggests that monitoring will be continuous for 30 months. I have serious reservations that the monitoring protocol can be developed in a single quarter (p.11), given the logistic difficulties of arranging meeting times together with the range of issues to be considered – what to measure, how to measure it, which species to focus on, etc.

All eradication efforts use the same treatment methods (p.13). This is beyond the scope of this proposal, but I wonder

whether these methods have been demonstrated to be so effective that there is no need for adaptive management with respect to eradication techniques.

According to the Budget Justification, the proposed monitoring protocol would be implemented on PDAs. What will be done to adapt to changing technology, including the possibility that PDAs may not be available in the future?

Performance Measures

The newly developed protocols will be based on currently accepted protocols (p.6) but will also have to be directly 'back−compatible' with the surveying and monitoring protocols established by Team Arundo (p.5) to ensure that all of the monitoring done to date remains useful. This should be recognized in the proposal.

Proposed indicators such as "percent cover of native plants" (p.2) are insufficient to accurately assess ecosystem restoration success. Species identity should be taken into account or, at a minimum, functional groups (life forms) should be measured separately. A description of the data currently collected and potential additional variables would be very helpful here; this is a serious deficiency in the proposal in my view.

Products

The proposed monitoring protocol would be a valuable product for resource managers in the Bay−Delta region. While the lead investigator and his collaborators would provide support for this protocol for the duration of this proposal's funding, I wonder whether thought has been given to how the protocol might be supported in the longer−term or over larger geographic areas if it was adopted by other agencies as the intention appears to be.

The Expected Products and Outcomes (p.8−9) does not include any peer−reviewed publications. It seems to me that, at a minimum, it would be valuable to disseminate the monitoring

protocol to other resource managers for their evaluation and potential use.

Data collection and management is described in detail.

Capabilities

The team appears well-qualified to conduct this work. The partnerships that have been formed and the significant level of cost sharing indicate strong organizational support.

Budget

If this proposal was funded, I'm unclear how it's timeline would correspond with that of Phase 2. Phase 2 already contains funding for monitoring all 10 partner projects for 2-3 years (p.5). If this proposal was awarded concurrently with Phase 2, it seems to me that the amount budgeted for monitoring in this proposal could be reduced. For example, if the two proposals overlapped for two years, then this proposal might only require funding for monitoring for the last year as the first two years would be covered by the Phase 2 funding.

Monitoring will be done by partners. Estimated amount of time required ranges from 223 to 800 hours over three years; I'm unclear why this ranges so widely among partner projects. I cannot assess whether these estimates are reasonable since I don't know how many plots are to be monitored at each site or how often plots are to be monitored (eg, annually or more frequently).

Hourly wages for 'Vegetation Managers' average around $35/hr (> $70,000/yr), which seems high to me. Why is a Staff Biologist only paid $24/hr ($50,000/yr) in comparison?

The IRS letter is addressed to the 'Local Earth Action Forum' rather than to the 'Sonoma Ecology Center', which is where the lead investigator is based. Is this the same organization? If so, this should be noted in the proposal in reference to this IRS letter.

External Technical Review #3

Goals And Justification

The proposal presumes a significant awareness of an already funded Arundo donax eradication effort, and therefore provides minimal background about this effort. A number of studies are cited to provide the basis for the restoration value of Arundo donax eradication. The proposal prompted a number of questions on the part of this reviewer such as: what human activities and environmental alterations facilitate Arundo establishment, and how does the eradication program address these. How "natural" are the areas being invaded, and how are restoration benchmarks identified? What is the basis for selecting species to be used for revegetation? Scientific hypotheses as such are not stated, although the hypothesis that Arundo removal will benefit native plants and animals is the underlying premise of the proposal. A general conceptual model is presented that identifies generic threats to streams and riparian vegetation. It is not clear whether there is a strong knowledge base regarding the processes that would degrade stream conditions, especially for fish. I do know of examples in our region where an invasive riparian species (Japaneese knotweed) seems to have protected an urban stream from severe degradation due to complete human removal of native riparian woody and herbaceous vegetation. The knotweed established and resisted human attempts at eradication, presumably stabilizing the banks, providing shade and cover, leaf litter to support the natural allochthonous food web, and allowing the persistence of a notable wild brook trout population.

The hypotheses stated are not questions that will be tested with the data to be collected through the monitoring system. The hypotheses do not lend themselves to formal testing. They are best thought of as statements of project outcomes.

Approach

The proposal is focused on the steps required to develop and implement a much-needed monitoring system for the Arundo

eradication effort at 5 existing and 5 additional sites. It outlines the development of much needed infrastructure and training to support adequate monitoring of an ongoing investment in Arundo eradication and native plant revegetation. The specific objectives of the monitoring program are not presented, other than to document changes in plant species identity and percent cover at eradication sites. There is no mention of the use of reference sites. Reference sites are generally required to separate changes do to management efforts from changes due to other factors. The monitoring program will be developed by a committee that is composed of weed mangers and plant ecologists. This seems odd considering that Arundo is considered a serious threat to streams. It seems monitoring of stream geomorphology, water quality, habitat, and fish should also be considered. The vegetation monitoring has the potential to make very significant contributions to our knowledge of interactions between Arundo and other plant species, but that would depend on the nature of the monitoring program developed. Based on the available expertise, there is good reason to believe that such a monitoring program could be developed. As described in the proposal, there will be no direct knowledge gained about the restoration of the stream habitats that have been presumably altered by the presence of Arundo. It is also not clear how the data will be georeferenced for landscape level analysis. The objectives for the analysis of the data, and the personnel responsible for developing and producing data products are not clearly stated, although the strong link to U.C. Davis indicates access to strong resources in this arena.

Technical Feasibility

The development and implementation of a robust restoration monitoring and data management system as described seems very feasible and worthwhile, given that the monitoring program developed is appropriate. I suggest that the monitoring program be reviewed and revised through Calfed before the training and data management aspects of the project are undertaken. There seem to be adequate personnel resources to train field staff to collect the data, and to develop the necessary software, database improvements, and internet user

interface. Although it is clear that much of this data will be served in geospatial formats, the collection of georeferenced data is not specifically addressed in the proposal, although there is one reference to PDA/GPS units.

Performance Measures

These questions cannot be addressed until the monitoring program is developped. These questions should be used as a guide in the development and review of the monitoring program. I suspect the conceptual model will need to be more explicitly stated before the monitoring program can be developed.

Products

Even without specifically stated restoration goals and an restoration evaluation program, it is safe to assume that much valuable resource management information will be aquired by this project. The strength of this proposal is in the outline of the personnel, communications/outreach/training and technology resources will be brought to bear in the cause of restoring riparian habitats invaded by Arundo donax. Again, the question about the adequacy of the restoration success monitoring cannot be answered at this time, but needs to be answered in the review of the monitoring program to be developed.

Capabilities

Team Arundo del Norte is very strong in all appropriate disciplines save that of stream/fish ecology. I strongly suggest that they expand their perspective to take a more serious look at stream ecosystem response to the establishment, expansion, and contraction/eradication of Arundo donax populations.

Budget

The budget certainly seems adequate to me. It is not clear who employs the vegetation managers, nor what their job descriptions entail, but I find it odd that they are so much

better compensated than the staff biologist. The indirect costs requested are a very small percentage of total project costs. I wonder what happens if one of the PDA/GPS units fails during the project.

Budget Review

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

If no, please explain:

Notes: 1. Cost share contribution is $318,920 2. Subcontractor portion of project $$ is 56% (see add'l notes below) 3. Check for duplication of charges for IDC (see add'l notes below)

Budget Detail/Administrative Overhead Fees – Budget detail combines the labor rates with the direct overhead rate. The labor rate, benefits and indirect rate should be itemized in the format provided by the PSP to enable reviewers to better evaluate and ensure that proposed labor rates are comparable to state rates.

If proposal is funded, a detailed list of items included in the indirect cost rate should provided by the grantee. Grantee must provide itemized and detailed information included and charged as part of Indirect Rates (IDC) charges.

Note: No overhead or indirect rate charges on the equipment purchases should be allowed as part of the budget that shall be funded as a result of this PSP.

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.

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

If no, please explain:

Comments 1. Difficult to determine rates (rolled up) need breakdown

The labor rate, benefits and indirect rate should be itemized in the format provided by the PSP to enable reviewers to better evaluate and ensure that proposed labor rates are comparable to state rates.

Tasks &Deliverables – Grantee must provide detailed info for all work including subcontractor work for each specific task, services, &work to be performed with the appropriate &corresponding deliverable or end product for each task(s) and/or sub-tasks. Costs associated with each task &deliverable should be evaluated on waht is considered to be reasonable for performing similar services.

3. Are project management expenses appropriately budgeted?
No.

If no, please explain

1. No $$ has been allocated to project mgmt. 2. All tasks/deliverables indicate ??? UNCLEAR

Budget detail combines the labor rates with the direct overhead rate. The labor rate, benefits and indirect rate should be itemized in the format provided by the PSP to enable reviewers to better evaluate and ensure that proposed labor rates are comparable to state rates.

4. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs? Are indirect rates, if used, appropriately applied?
No.

If no, please explain

The labor rate, benefits and indirect rate should be itemized in the format provided by the PSP to enable reviewers to better evaluate and ensure that proposed labor rates are

comparable to state rates.

If proposal is funded, a detailed list of items included in the indirect cost rate should provided by the grantee. Grantee must provide itemized and detailed information included and charged as part of Indirect Rates (IDC) charges.

Note: No overhead or indirect rate charges on the equipment purchases should be allowed as part of the budget that shall be funded as a result of this PSP.

5. Does the budget justification adequately explain major expenses? Are the labor rates and other charges proposed reasonable in relation to current state rates?
No.

If no, please explain:

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 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 &potential use for future projects. Grantee shall follow State Contracting Manual (SCM) section 7.61 to 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:

Need additional info.

Cost Sharing – Grantee shall provide information regarding its financial capability and stability as well as it’s level of

commitment for any proposed cost share funds. A detailed budget of the project's proposed cost share funds should be provided prior to grant funds being awarded. A financial evaluation is recommended for grant agreements that state/claim over 30 % or $250,000 (which ever is less) of matching funds. The evaluation will avoid likelihood of the grantee requesting an amendment to increase project funding due to lack of or miscalculation of matching funds to complete the project.

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?
Yes.

If no, please explain:

Will agree to T &C's

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

If yes, please explain:

Need additional detail.

Small and new Non-profit organizations - a financial evaluation of these types of organizations is recommended to ensure that entity is financially capable of doing business with the State. AND has the cash flow/capability of invoicing on a quarterly basis in arrears.

Other comments:

1. Schedule provided is unclear 2. Proposal will need MAJOR re-work to be a SOW/agreement &Budget

END OF REVIEW

Environmental Compliance Review

1. Is compliance with California Environmental Quality Act (CEQA) required for this project?
No.

2. Is compliance with National Environmental Policy Act (NEPA) required for this project?
No.

3. Does this project qualify for an Exemption or Exclusion under CEQA and NEPA, respectively?
Does not apply.

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

Comments

The underlying/original weed eradication project (proposal approved; funding pending) does require various permits, but the proposed monitoring project does not require any permits.

5. Did the applicant correctly identify the correct CEQA/NEPA document required for the project?
Does not apply.

6. Has the CEQA/NEPA document been completed?
Does not apply.

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

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

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

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.

Comments:

The underlying/original weed eradication project only includes willing landowners. Follow-up efforts are an important component of weed eradication efforts, thus the proposed monitoring project is very unlikely to have land access issues. However, it is still necessary to obtain written permission to access properties where monitoring will occur.

11. Do any of these issues affect the project's feasibility due to significant deficiencies in planning and/or budgeting for legal and regulatory compliance or access to property?
No.

Prior−Phase Funding Review #1

List the CALFED or CVPIA funded phases of this project for which your agency manages contracts:

Project Title	Arundo donax Eradication and Coordination Program, Phase 2
CALFED Contract Management Agency	GCAP
Amount Funded	1,840,791
Date Awarded	2004/01/01
Lead Institution	Sonoma Ecology Center
Project Number	151 DA

List the other CALFED or CVPIA grants received by this applicant for which your agency manages contracts:

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?
N/A

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

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?
No.

Project outcomes cannot be evaluated in fiscal year 2005/2006. GCAP is finalizing the SOW and Budget for award of the current project #151DA. The Recipient Agreement for this project is anticipated to have an end date of December 2007.

Prior−Phase Funding Review #2

Project Title	Arundo donax Eradication and Coordination
CALFED Contract Management Agency	US Fish and Wildlife Service
Amount Funded	1,063,595.00
Date Awarded	2001/01/01
Project Number	113320J033

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?
Yes.

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.