

# Proposal Reviews

## #73: Bobcat Flat Instream Restoration 2

Friends of the Tuolumne, Inc.

**Research and Restoration Technical Panel Review**

**San Joaquin Regional Review**

**External Scientific Review**

**Prior Performance/Next Phase Funding**

**Environmental Compliance**

**Budget**

#1  
#2  
#3  
#4  
  
#1  
#2

## Research and Restoration Technical Panel Review:

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

**Proposal Number:** 73

**Applicant Organization:** Friends of the Tuolumne, Inc.

**Proposal Title:** Bobcat Flat Instream Restoration 2

**Review:**

**Please provide an overall evaluation summary rating:**

**Superior:** outstanding in all respects;

**Above Average:** Quality proposal, medium or high regional value, and no significant administrative concerns;

**Adequate:** No serious deficiencies, no significant regional impediments, and no significant administrative concerns;

**Not Recommended:** Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Superior	<b>Reviewers ranked the proposal as good to poor, though regional reviewers ranked it as High. The regional reviewers ranked it as high for its planning elements and suggested that CALFED may want to wait on funding implementation until the planning was completed. While the geomorphic approach includes several innovative elements, the geomorphic context was not adequately explained. The historical characteristics of this reach are not described, so there is no way for the reviewers to interpret how the designed channel properties are related to the range of conditions expected in this reach. The monitoring component should be designed to be statistically rigorous and incorporate reference sites and other comparative frameworks (e.g., paired sites, manipulative sampling sites). A more powerful monitoring system would create a better basis for interpreting the response and the degree to which it is a result of the restoration effort. The panel felt these gaps or uncertainties warranted major revisions before funding should be considered.</b>
-Above average	
-Adequate	
XNot recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

**The proposal develops a goal of reshaping the floodplain and replanting the riparian vegetation for 303 acres in a reach of the Tuolumne River. Objectives of implementation and monitoring are identified, though much of the monitoring description is brief. The hypotheses are more testable than many in other proposals, but the measurements will not provide complete or robust tests of many of these hypotheses. The proposal presents a compelling justification of the project based on prior investments and the potential**

**contribution to other restoration efforts. There is an explicit conceptual framework, but there is no link to historical conditions.**

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

**The overall approach has a relative high likelihood of at least partial success. The approach focuses on lowering the floodplain. Several reviewers noted that other alternatives (e.g., grade control structures, flow management operation plans to allow flooding) should be considered. Increasing channel meandering is a geomorphically sound approach if the project designers can demonstrate that such sinuosity is consistent with historical range of conditions. The proposal emphasizes hard engineering approaches, but the project designers could consider approaches that would integrate limited hard engineering to create a physical setting that would effectively direct natural channel processes to achieve the goals and objectives. The performance measures were generally adequate but many of the responses may be exhibited over longer timeframes. The project managers should consider options for long-term monitoring.**

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

**The project offers some innovative approaches and would contribute to understanding of the restoration of floodplains in meandering channels. Monitoring of salmon spawning and use of the restored habitat could be strengthened by use of reference sites or systems for comparison. Proposed measures would be extremely difficult to interpret. Applicants should carefully consider experimental designs for monitoring measures (e.g., reference systems, comparative sites, replication, power to detect a response).**

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

**The costs of the project are relatively high at \$2 million and the third year monitoring costs of \$385,000 are relatively high and seem disproportionate for the work proposed.**

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

**Regional review ranked the project as High. Concerns were raised about coordination with other efforts in the reach and local regulating agencies.**

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

**Admin reviewers commented favorably about the past performance of the applicants.**

**Miscellaneous comments:**

**None**

## San Joaquin Regional Review:

**Proposal Number:** 73

**Applicant Organization:** Friends of the Tuolumne, Inc.

**Proposal Title:** Bobcat Flat Instream Restoration 2

Overall Ranking:   -Low   -Medium   **XHigh**

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

**The high ranking was given for the planning element. The committee suggested that CalFed may want to wait for the planning element to be completed before funding the implementation. Group felt it was unclear how this project fit into the planning for the entire reach which has been done in a riverwide plan.**

1. Is the project feasible based on local constraints?

**X**Yes -No

How?

**The committee liked the plan. But some elements are unclear or involve much coordination that is not clearly evident yet. Particularly moving the river course seems potentially controversial.**

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

**X**Yes -No

How?

**They meet the first 4 priorities for the San Joaquin River. Possibly MR #6.**

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

**X**Yes -No

How?

**The project generally follows the restoration plan for the river channel. Many persons working on other projects in the river are involved in this project.**

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

**X**Yes -No

How?

**The applicants have involved the local watershed group. However there is a need for more coordination with local regulating agencies.**

Other Comments:

**The applicant should clarify how this project fits into the restoration of the reach identified in the restoration plan for the river. This work may require endangered species consultation. The committee felt CalFed might approve the planning element and wait for its completion before approving the implementation portion.**

## External Scientific: #1

### Research and Restoration External Scientific Review Form

Proposal Number: 73

Applicant Organization: Friends of the Tuolumne, Inc.

Proposal Title: Bobcat Flat Instream Restoration 2

#### Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

#### Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	This is a very good project and a huge undertaking. I give a great deal of credit to the persons inspired to take this effort upon themselves. I give an overall rating of "Good" because of misgivings described above due to limitations in what the project accomplishes in the direction of restoring underlying geomorphic integrity (with the understanding that going further to regrade the entire reach is an immense undertaking - no less so than the dredging that created it to begin with), in somewhat "locking in" site-specific improvements, and in the lack of post-monitoring action. Otherwise, I wish the very best of luck to the project managers and look forward to seeing the results of their work presented in final reports.
XGood	
-Poor	I very much appreciate the opportunity to participate in the CALFED Ecosystem Restoration Program in this small way and to have had the chance to review this proposal.

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

The problem is well-stated. Goals are less clearly stated but generally defined and implicit within the problem statement. The objectives are clearly listed and consistent with the nature of the problem and the goals for improvement of chinook salmon and steelhead spawning habitat.

The concept is timely. Climate change, demand for land and water use, invasive species and continually degrading habitats disturbed by past land use put increasing pressure on populations. These stocks of fish are on the fringe of their geographic range and in some of the most developed and intensively managed non-urban watersheds on the West Coast. They are severely depressed, fragile populations and will be the first to feel the effects of climate change. Further degradation from any source puts them at risk of extirpation. All factors presently limiting the populations should be considered for improvement. This project addresses spawning and rearing habitat limitations resulting from dredge mining and gravel extraction (within the external limitations imposed by a regulated flow regime and abbreviated floodplain). Also, the project follows in time FERC mandated river restoration. Re-establishing a river continuum should be the over-reaching goal of all projects on this river.

The concept is important because it addresses improvement of economically important resources and partial restoration of ecosystem functions and because the project is a grassroots initiative demonstrating the value that society may choose to put on natural systems.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

This is a full-scale implementation project, with an evidently sound basis in previous studies and demonstration projects on nearby sites (which I am not personally familiar with but take for granted, in the absence of supplemental information available). The problem is clearly demonstrated, though, in the described history and current condition of the site. The procedures for site evaluation, project design, and evaluation should be sufficient to insure sound design and accomplishment of goals to restore some of the lotic functions and habitat capability to the reach.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

Within the limitations defined by funding, site access, construction mitigation and best management practices concerns, the approach is well designed and appropriate. I am concerned that the approach does not do enough to restore a fully functional continuous reach morphology contiguous upstream and downstream. The plan and profile schematics show only partial reformation of the legacy "pool:cascade" morphology. Without full regrading of the reach, much of the structure of this legacy condition will persist and continue to drive the channel morphology in the reach. The project only partially restores the site. Benefits to spawning and possibly rearing capability will be realized, but only in isolated, static short segments of the river. Since the regulated hydrologic regime prevents major channel forming flow events from effecting large scale change naturally, committing resources to small scale, site specific improvements not only does not lead to restoration of the river continuum, but "locks in" a condition based on the need to protect the investment of resources to specific sites.

Another issue that needs to be addressed is the character of the material proposed to be used for creation of spawning habitat. Dredge tailings are typically well-sorted gravels and cobbles, with fines washed out. Spawning gravel is most suitable when composed of well-mixed and



assorted particle sizes. Studies have shown that sorted gravel is a poor substrate for salmonid spawning, for the particular reason that predators have access through interstices to eggs and alevins. I do not see any aspect of the project or monitoring which addresses this particular risk.

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

The approach is documented to the level of a feasibility study, with no detailed design specifications or work plan. It appears to be feasible on this basis. Much will depend on efficiency in moving large volumes of tailing, floodplain, and river bed material and regulatory limitations in timing, access, and techniques allowed. The scale of the project, in the context of operating within a contiguous reach, is consistent with objectives, although the limitation related above regarding the underlying structure imposed on the entire dredge impacted section of river is not addressed. Success will be measured on the scale of stability (within dynamics imposed by the flow regime and geomorphology of the site), suitability and persistence of created conditions, utilization by fish, and measured increases in production attributable to the project.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

The performance measures are appropriate within a limited time scale. Three years of monitoring was referenced. This should be considered a minimum. Much of the improvement may not be manifested, particularly riparian and floodplain vegetative management benefits, for a number of years following manipulation. For example, how floodplain vegetation responds to flood cycles in propagation of seedlings will take many years to determine if anything approaching a natural successional regime is established. (I am concerned that grazing will only be temporarily withdrawn from a portion of the site - grazing on seedlings is a huge disruption to natural development of healthy riparian stands.) Also, I see no contingency built in to accommodate needs to modify site conditions following short-term monitoring. Often, small errors in construction lead to large problems with site function. For example, if floodplain regrading does not accommodate the design flood or does not allow access by restored vegetation to phreatic water (water table too deep in relation to ground surface or soils too porous to create significant capillary fringe and moisture retention, etc.), the project may fail in this aspect unless resources may be provided to modify the site. It may also be something as simple as an unexpected flood washing out riparian plantings. Project implementation should either be phased to allow modifications or monitoring must be pulsed to account for changes that propagate over longer time spans.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

The products will be partly manifested in restoration of partial ecosystem functions and values, increased production and population robustness to target species, as well as improvements in restoration problem analysis, design, construction techniques, and monitoring methods as presented in final reports. An additional benefit will be in the good faith demonstrated to the community by the CALFED program, project managers, land stewards and volunteers conceiving of and realizing project goals and objectives. Upstream and downstream public land managers, private land owners, water resource agencies, hydroelectric project operators and the Federal Energy Regulatory Commission will be shown the community making

**a strong commitment to restoration of their river and will hopefully be held to a higher standard of civic responsibility for the future.**

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

**I can't speak to applicant track records. The consultants proposed to work on design, construction, and monitoring appear to have direct experience on other river restoration projects. Cross-teaming opportunities are available on this basis and will ideally be built into the organizational structure of the project or at least informally taken advantage of.**

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

**Moving material and site grading may be cost out fairly reliably. Detail work on river bank reconstruction, channel excavation, in-water work, erosion control and other best management practices may be more difficult to estimate. Revegetation can be costed reliably. Monitoring is more difficult to estimate, but, if comprehensive and detailed, is typically fairly expensive, so estimates budgeted are probably realistic. Cost saving measures should be encouraged at every phase, though, to allow for limited expansion of scope, contingency for unexpected site and permitting conditions, and follow up to monitoring.**

**Miscellaneous comments:**

## External Scientific: #2

### Research and Restoration External Scientific Review Form

Proposal Number: 73

Applicant Organization: Friends of the Tuolumne, Inc.

Proposal Title: Bobcat Flat Instream Restoration 2

#### Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

#### Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	<p>While this document has many technical aspects of merit, my overall evaluation is poor. The authors have not shown conclusively that a project of this scale, and with this degree of channel and floodplain disturbance, is warranted over softer approaches that work within the existing channel morphology and floodplain configuration. Also, not enough baseline assessment of geomorphic setting and thresholds have been done to assure a high likelihood of long-term project success. The project is too risky, with the long-term outcome too uncertain, potential negative impacts too great, and the potential benefits too local to be deserving of full funding. A scaled back planning and assessment study perhaps would be justified (for \$150-300 thousand, or more if a larger part of the Dredger Reach is considered), particularly if this would help resolve key project design uncertainties. I would also strongly encourage consideration of restoration methods that do not involve as much channel and floodplain reconstruction and that work within current flow regimes. Initially, a more limited, experimental restoration project with some gravel augmentation, but without channel filling and channel relocation, might also be considered. This could also provide an opportunity to assess bed mobility and fish response, prior to (or without) full implementation of the proposed project.</p>
-Good	
XPoor	

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

The goals, objectives, and hypotheses are reasonably clear. The primary goal is to restore high quality Chinook salmon and steelhead spawning/rearing habitat by gravel augmentation and channel reconstruction on a reach of the Tuolumne that was greatly altered by gold dredging in the past. A secondary, opportunistic goal is to reconstruct portions of the floodplain to increase flooding frequency, increase natural flood conveyance, and to plant riparian shrubs and trees to increase diversity of birds, mammals, etc. A broader set of objectives appear later in the proposal: to redesign and scale channel morphology to current regulated flows, ensure floodway conveyance of the 15,000 cfs flow, increase salmonid habitat, eliminate stranding and predation of young fish, rebuild the floodplain, and establish a riparian forest (on the site from which gravel fill will be taken). The hypotheses are clear and are testable by the proposed project and monitoring, at least for fish habitat and geomorphology. The riparian vegetation hypotheses - that planting will increase diversity and that floodplain reconstruction would enhance natural recruitment - are a little vague (e.g., what will increase in diversity?). The topic of channel restoration for salmonids is timely and of importance, particularly in a tributary which still has a naturally reproducing salmon population.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

The conceptual model is that salmonid spawning and rearing habitat in this reach (within the Dredger reach) of the Tuolumne has been degraded by past effects of gold dredging, with natural recovery of channel form and process impossible under the current, regulated flow regime. The existing channel has an unnatural ;°lake-cascade;± morphology, with existing riffles too few and too steep to function as high quality spawning habitat, and with off-channel ponds and backwaters acting as reservoirs for fish predators (bass) and invasive plants. The proposed project site is part of a reach in which the channel was not restored in the past, in contrast to higher quality spawning reaches upstream. Restoration of a more favorable channel morphology is proposed by gravel augmentation, filling of a small split channel to make a single thread channel, and moving the channel to increase sinuosity and reduce the gradient by redistributing the elevation drop over a longer reach. The authors speculate that improvements in instream habitat here will help to reduce overcrowding of fish on upstream high density spawning areas and thus improve reproduction. A sort of auxillary phase of the project is to lower a portion (19 acres?) of the floodplain (actually a high terrace under the current flow regime) in order to increase flooding frequency, and then to plant riparian species. Part of the purpose for lowering the floodplain is to use this gravel for filling the side channel and augmenting gravel riffles in the main channel.

The conceptual model adequately documents some of the reasons for poor salmonid habitat quality in the reach, in particular the effects of past dredging on channel and channel bed morphology. Generally too, the discussion of salmonid biology seems strong and the presence of a high quality, crowded spawning site upstream suggests that habitat restoration on this site could be valuable. So, the conceptual model is relatively clear and explains part of the underlying basis for the work. However, I think it falls far short of justifying the proposed channel and floodplain reconstruction. While the proposed actions may improve salmonid habitat in the short run, for a limited (0.5 mile) reach of the river, it is not at all

apparent that long-term results would be successful. Despite assertions to the contrary, it is not at all clear that reconstructing the channel would restore natural scour and fill processes, particularly given the regulated flow regime. On the other hand, if flows are sufficient to mobilize the bed sediment, it is not clear that the restored reach would retain its re-engineered structure. Perhaps large floods would destroy the reconstructed riffles and wash the added gravel out of the sub-reach. It is somewhat alarming that key uncertainties of the project are (1) what the flow levels needed to mobilize the gravels are and (2) whether such mobilization would improve or degrade the restored habitat. It is also not clear what will happen to the reconstructed channel meander under large flows, nor why constructing a new channel and filling an old one is really necessary. As advocated in Kondolf (2000: Restoration Ecology 8(1):48-56), a more complete assessment of the geomorphic setting and sediment transport are needed. Not enough information is given to verify whether the project has been designed with the current flow regime adequately considered. There was also insufficient information to judge whether the proposed channel design (particularly of moving the channel to a new location) would mimic the historic channel condition.

Some of these issues could be resolved by a pre-project planning and assessment study. Without a more rigorous and independently reviewed baseline hydraulic/geomorphic assessment, funding this as a full-implementation project seems risky. This is particularly the case given the expense of the project (\$ 2 million), the relatively small area restored (19 acres of riparian forest and 0.5 mile of channel), and the inherent disturbance to the channel, riparian vegetation, and floodplain.

The conceptual model behind the floodplain restoration seems weak. We are not given sufficient information to discern to what extent terrace lowering is needed to inundate the surface, nor why the effort and expense of this operation is worth restoring just 19 acres of floodplain forest (at \$12,000 per acre for planting and irrigating). Little information is given on the sites to be "restored." I would imagine that some riparian vegetation will be destroyed in the process, and elsewhere in the reach "undesirable" riparian vegetation is being removed because it is viewed as preventing channel movement. It is also not clear that this action will help to restore natural vegetation regeneration.

All in all, the authors are proposing a fairly intensive "hard engineering" solution, by filling one channel, backwater areas and dredger ponds; reconstructing an area of floodplain, removing gravel, and putting the fill in the channel; constructing a new channel through existing floodplain, and then planting and irrigating 19 acres of riparian trees on the reconstructed floodplain, while removing trees elsewhere. For the level of possible disturbance and expense involved with this project implementation, there is insufficient evidence that the project will be successful over the long term. Thus, the degree of channel/floodplain reconstruction being proposed is not adequately justified by existing knowledge. If this is a high priority site for in-stream restoration, then less obtrusive ways should be explored for working with current river processes and channel morphology. Even if the proposed project is warranted, a planning and baseline geomorphic assessment should be completed before full implementation is funded.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

The approach is relatively well-designed for carrying out the actual project design (the actual physical work of re-engineering the channel). However, as I suggest above, the project design itself is questionable, given key uncertainties in geomorphic processes, long-term

sustainability of the restored conditions, and possible negative consequences of channel and floodplain re-engineering. The lowering, removal of fill, and reconstruction of the floodplain seems to be poorly justified, as is the necessity of removing ;°encroaching vegetation;± elsewhere.

These criticisms notwithstanding, successful implementation of the project could lead to increased knowledge about how to restore habitat for salmon and steelhead spawning. According to the authors, the proposed channel relocation and lengthening to redistribute elevation drop over a longer reach, and thus create lower gradient riffles, is a novel, alternative approach to channel slope reduction. The monitoring of fish habitat quality, utilization, aquatic invertebrate populations, and geomorphic form and process appears to be reasonably well-designed for assessing project success and could add to the knowledge base for future restorations. A later section of the proposal mentions that this project will give more attention to the habitat needs of steelhead than have other restoration projects in the basin and will be designed to provide for the different habitat needs of steelhead and Chinook salmon.

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

While much of the approach seems technically sound, documentation is somewhat scarce, with few total citations, and no scientific journal articles at all. The primary citation used is the Restoration Plan that was designed by one of the subcontractors on this project. The likelihood of success is questionable, first depending on the response of the fish to the newly constructed channel and then depending on whether the new channel conditions are sustainable in the long run. The authors acknowledge that key uncertainties in the project include the fundamental issues of what the threshold flows are that will move the spawning gravels and whether future high flows will improve or degrade the restored habitat. A project of this scale, with this degree of disturbance to floodplain and channel, and with questionable long-term sustainability, does not seem justified. Not a strong enough case is made for the necessity of this approach and of the inadequacy of a ;°softer;± approach that works with natural channel processes.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

The project-specific performance measures are generally appropriate for measuring project success. Levels of detail are adequate for the fish habitat work and geomorphic assessment, which are the main focus of the project. Some valuable and interesting information could be gained from the pre- and post-monitoring of fish and geomorphology. However, little information is given on the vegetation monitoring and NO information is given on the proposed bird monitoring. Although the proposal briefly mentions that PRBO will do the bird monitoring, no further details are given, nor is the full name of PRBO (Point Reyes Bird Observatory) ever given.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

The main products appear to be monitoring reports that will be submitted by the respective contractors. These could provide some value, as indicated above. Of course, the successful restoration of the site, and long-term improvement of salmonid spawning/rearing habitats would be a valuable product in and of itself.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

The principal applicant, Friends of the Tuolumne, Inc., has experience in conservation and restoration of floodplains and instream channel habitats in the region (including the successful Grayson River Ranch project), and in project management. The subcontracting consulting firms, McBain & Trush and Stillwater Science, appear to have the expertise, experience, and resources to carry out the proposed work. McBain and Trush wrote the Restoration Plan for the Tuolumne River and have expertise in geomorphic monitoring and channel restoration. Stillwater Science appears to have strong expertise in salmonid biology and restoration. Although not listed as a subcontractor, Point Reyes Bird Observatory staff have high expertise in bird population assessment using scientifically rigorous techniques and have conducted avian censuses on many sites on the Tuolumne and Sacramento Rivers.

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

In my view, the cost of this project (\$2 million) is high, given the small area to be restored (1/2 mile of river and 19 acres of floodplain), the significant uncertainties in long-term project feasibility, possible negative impacts of channel and floodplain reconstruction, and the lack of adequate baseline assessment and justification for the scale of project. The cost of replanting riparian vegetation (\$12,000 per acre, over 19 acres), while removing vegetation elsewhere also did not seem reasonable. Success of the project could bring valuable improvement and expansion of salmonid habitats and increased understanding of fish responses to habitat restoration approaches. However, the uncertainties outweigh these possible benefits.

While a full implementation project of this cost does not seem warranted, a smaller planning project for perhaps \$150-300 thousand (perhaps just doing the year 1 proposed work of hydraulic modeling, assessment of geomorphic setting, historic conditions, survey, design, etc. and initiating geomorphic and fish monitoring) would be warranted, if restoration of this site is of high enough priority. Such a study (with independent review) should be a required first step prior to granting of funding for full project implementation. Also, similar assessment over the entire Bobcat Flat reach (or over the whole Dredger Reach) would be of potentially greater value for long-term, large-scale restoration planning than focusing on just one short sub-reach. A more limited implementation of the proposed in-stream restoration on this sub-reach (i.e., augmentation of spawning gravels without moving the channel) is another alternative, particularly if treated as an adaptive management experiment with adequate pre- and post-project monitoring.

**Miscellaneous comments:**

## External Scientific: #3

### Research and Restoration External Scientific Review Form

Proposal Number: 73

Applicant Organization: Friends of the Tuolumne, Inc.

Proposal Title: Bobcat Flat Instream Restoration 2

#### Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

#### Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	While the geomorphic approach includes several innovative elements, the geomorphic context was not adequately explained. The historical characteristics of this reach are not described, so there is no way for the reviewers to interpret how the designed channel properties are related to the range of conditions expected in this reach. The monitoring component should be designed to be statistically rigorous and incorporate reference sites and other comparative frameworks (e.g., paired sites, manipulative sampling sites). A more powerful monitoring system would create a better basis for interpreting the response and the degree to which it is a result of the restoration effort. The panel felt these gaps or uncertainties warranted major revisions before funding should be considered.
XGood	
-Poor	

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

The proposal clearly states the goal of reconfiguring the channel in a reach of the Tuolumne River. Objectives of implementation and monitoring are identified, though much of the monitoring description is brief. The hypotheses are more testable than many in other proposals, but the measurements will not provide complete or robust tests of many of these hypotheses.



2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

**The proposal presents a compelling justification of the project based on prior investments and the potential contribution to other restoration efforts. There is an explicit conceptual framework and its is clearly linked to the proposed restoration actions.**

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

**The approach of lengthening the channel to decrease slope is sound and consistent with the site history.**

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

**The proposed restoration efforts have a relatively high potential for success, based on the sound assessment and the nature of the stream reach and its floodplain.**

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

**The measures of performance are adequate for measuring the success of the project.**

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

**The project will contribute to the understanding of the Bay Delta Watershed. It would benefit greatly from a stronger experimental design. Before and after spawner counts are notoriously insensitive measures of salmonid response. Paired studies with reference system would provide a far more rigorous approach. The project will contribute to the restoration of this reach of the Tuolumne River. Chinook and steelhead trout may benefit. Ecologists and environmental scientists will gain information from the proposed restoration project if more rigorous monitoring is developed.**

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

**no comment**

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

**The budget is over \$2 million. Several of the costs seem unusually high. For example, monitoring in Year 3 will cost over \$300,000. That is a large budget for this limited set of measurements.**

**Miscellaneous comments:**

## External Scientific: #4

### Research and Restoration External Scientific Review Form

Proposal Number: 73

Applicant Organization: Friends of the Tuolumne, Inc.

Proposal Title: Bobcat Flat Instream Restoration 2

#### Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

#### Review:

Please provide an overall evaluation summary rating:

**Excellent:** outstanding in all respects;

**Good:** quality but some deficiencies;

**Poor:** serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	<b>The project is interesting. The design concept needs to be reconsidered in the light of alternative ways to raise water levels on the floodplain. Accordingly, the costs need to be reconsidered.</b>
XGood	
-Poor	

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

**The goals, objectives and hypotheses are well formed and explained.**

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

**The problem and causes are presented. However, the early and pre-history context is not presented. What were the pre-settlement conditions of Bobcat Flat? What was the nature of the salmonid habitat before Europeans? The model concept, as far as the target conditions are concerned, is well explained and timely.**

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

**The approach is reasonable relative to past experience but little thought was given to alternatives. Excavating material from the floodplain is one way of increasing water depths. The other way is to raise water levels by grade controls (installation of small weirs like beaver dams). Still, some useful information will come from the project but other approaches need to be tried.**

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

**The construction work is feasible. The likelihood of success depends on whether the necessary hydrologic conditions are established. If more grading is required, despite the contingency, the proposed budget would not likely cover the cost and the project would fail. The scale of the project is adequate.**

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

**The performance measures and the related monitoring program are well described.**

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

**The products (reports and restored landscape) are well described. The new landscape will offer many interpretive opportunities.**

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

**The staff seem well qualified for the work.**

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

**The construction and replanting costs seem very high. The monitoring cost, particularly for one year, is excessive--monitoring should be extended for at least two more years. If the monitoring cost were used to cover three years, the cost would be more reasonable.**

**Miscellaneous comments:**

**The budget needs to be comma delimited. A simple time line needs to be presented.**

## **Prior Performance/Next Phase Funding: #1**

**New Proposal Number:** 73

**New Proposal Title:** Bobcat Flat Instream Restoration 2

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

**00-F01 Bobcat Flat Floodplain Acquisition; 98-F07 Grayson River Ranch Perpetual Conservation Easement & Restoration, CALFED ERP**

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

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

If no, please explain any difficulties:

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

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

If no, please explain any inaccuracies:

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

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

If no, please explain deficiencies:

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

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

If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

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

If no, please explain:

Other Comments:

**Cooperator submits timely and accurate quarterly reports and is very responsive to Project Officer inquiries.**

## **Prior Performance/Next Phase Funding: #2**

**New Proposal Number:** 73

**New Proposal Title:** Bobcat Flat Instream Restoration 2

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

### **11332-8-G121 Grayson River Ranch Perpetual Conservation Easement and Restoration**

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

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

If no, please explain any difficulties:

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

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

If no, please explain any inaccuracies:

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

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

If no, please explain deficiencies:

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

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

If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

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

If no, please explain:

Other Comments:



## **Environmental Compliance:**

**Proposal Number:** 73

**Applicant Organization:** Friends of the Tuolumne, Inc.

**Proposal Title:** Bobcat Flat Instream Restoration 2

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

-Yes ☒No

If no, please explain:

**State Lands Commission lease required.**

**CESA documentation required.**

**CA Dept. of Pesticide Regulation/County Agriculture Commission approvals required for pesticide applications.**

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

☒Yes -No

If no, please explain:

**Part of 1,250 hours and \$75,000.**

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

-Yes ☒No

If yes, please explain:

Other Comments:

## **Budget:**

**Proposal Number:** 73

**Applicant Organization:** Friends of the Tuolumne, Inc.

**Proposal Title:** Bobcat Flat Instream Restoration 2

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

**X**Yes -No

If no, please explain:

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

**X**Yes -No

If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

**X**Yes -No

If no, please explain:

4. Are appropriate project management costs clearly identified?

**X**Yes -No

If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

**X**Yes -No

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

6. Does the budget justification adequately explain major expenses?

**X**Yes -No

If no, please explain:

7. Are there other budget issues that warrant consideration?

-Yes ☒No

If yes, please explain:

Other Comments: