# Proposal Reviews

## #87: Rare Plants of the Suisun Marsh Ecosystem

L.C. Lee & Associates, Inc.

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| **Research and Restoration Technical Panel Review** | |
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# Research and Restoration Technical Panel Review:

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

**Proposal Number:** 87

**Applicant Organization:** L.C. Lee & Associates, Inc.

**Proposal Title:** Rare Plants of the Suisun Marsh Ecosystem

**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 | **While the proposed research is focused on CalFed priority research, which the panel recognizes as valuable, and the research team is excellent, the lack of adequately documented and explained methodology makes the likelihood of success hard to judge, and the lack of environmentally controlled greenhouse facilities increases the risk of failure. Research will duplicate some work already in progress. We would echo the comments of the Bay Regional Review regarding collaboration.** |
| -Above average | |
| -Adequate | |
| **X**Not recommended | |

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

   **The goals of this project are to document the current distribution of 4 CalFed ID'd "at-risk" plant species, and to perform research focused on reproduction and propagation of these species. These goals are clearly explained, internally consistent, timely, and important. The study will focus on gaps in our knowledge, performing research which CalFed has determined is necessary for the preservation of these plants. The panel recognizes the need for research on rare plants. However, we were concerned with duplication of efforts already underway by Dr. Pavlik at Mills on the Oenothera, and Dr. Rejmankova at UCD on the Cordylanthus, and the lack of a literature review (which we felt should have been part of the preparation for the proposal).**

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?

**In general, there is a lack of detail on approach. Some of this vagueness is due to conditions of their collecting permit (which they do not have), some is due to ongoing work by other researchers that will inform their methodology, but these factors do not adequately explain the almost complete absence of details on sampling design, methodologies, data and statistical analyses or the lack of details on GIS methods. Seemingly random field surveys appear inefficient if not an inappropriate way to assess distribution (why not use existing habitat maps to target areas to search?) The research team is excellent, but doesnt have local support or infrastructure the field team will travel from Seattle, they dont have a greenhouse to perform the work.**

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 listed work products will be a distribution map of all 4 species, detailed information on fecundity, and precise methodology on artificial propagation on 2 species- all of which will substantially aid in the preservation of these species.**

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

   **Yes, although the panel felt that local grad students could have performed much of the work and would not incur a $20K travel expense.**

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?

   **Bay Regional Review ranked the proposal High for Astragalus and Circium, LOW for Cordylanthus and Oenothera (where there was duplication of work already in progress). The panel suggests a collaboration between these applicants and proposal # Population Biology, Geneticsfor 3 CalFed at-risk plants (a restoration panel proposal).**

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?

   **Yes. The applicants need to comply with CESA and ESA because they are collecting federally listed species that may occur in ESA protected habitats. However, no time or money has been budgeted to complete the environmental docs and applications.**

**Miscellaneous comments:**

**None**

## Bay Regional Review:

**Proposal Number:** 87

**Applicant Organization:** L.C. Lee & Associates, Inc.

**Proposal Title:** Rare Plants of the Suisun Marsh Ecosystem

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

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

**HIGH for Astragalus tener tener and Cirsium hydrophilum hydrophilum, LOW for the other species. The panel believes that sufficient information exists regarding distribution, reasons for rarity and restoration methods for the Cordylanthus and Oenothera. Almost nothing is known about the other two taxa, however. Panel suggests these applicants collaborate with applicants of "Population Biology, Genetics...for Three CALFED At-risk Plants..." proposal to study the Astragalus and Cirsium and that CALFED fund the collaboration this funding cycle.**

1. Is the project feasible based on local constraints?

   **X**Yes **-**No

   How?

   **(Or likely.)It may be difficult get access to all or most potential habitat for Astragalus tener var. tener, since some is suspected to be on private lands. Permits from DFG and USFWS to work on the four subject species have not yet been sought, and may limit the final scope of the research (as acknowledged by the applicants), although undoubtedly portions of the scope will be possible. For example, seed collection of the Cirsium may be limited given the small populations size(s).**

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

   **X**Yes **-**No

   How?

   **Partially, it relates to Bay Region priority 1 (restore wetlands in critical areas throughout the Bay) by investigating best methods of reintroducing several endangered plant species. It also partially relates to priority 4 (understand performance of wetland restoration efforts) in the same way. It directly addresses CALFED Ecosystem Restoration Goal 1 objectives 1 and 2, by providing information useful for eventual recovery of four identified CALFED species. It directly addresses the MSCS Study Needs for these same species.**

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 applicants are aware of other studies (including one CALFED study) and projects relating to the four species and intend to coordinate further. However, the study as proposed appears to duplicate other work being done on Cordylanthus (see comments) and previous and ongoing work on Oenothera.**

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

**-**Yes **X**No

How?

**No outreach or involvement of local groups is identified by the applicants.**

Other Comments:

**The task of identifying the most likely cause of rarity for Cordylanthus mollis ssp. mollis is unnecessary; this species is locally abundant where habitat (marsh to upland transition) is still intact. As per Baye et al. in the Goals Project, as cited in the proposal, the cause of rarity is habitat loss. Likewise, the reason for rarity for Oenothera howellii ssp deltoides is habitat loss, and the species has been the object of study and reintroduction at Antioch Dunes.**

**Dr. Eliska Rejmankovas and Brenda Grewells work on Cordylanthus mollis ssp. mollis is already addressing habitat requirements, salinity limits, and parasite hosts (among other factors) and reintroduction factors. The proposed project can drop this species or be modified to carry on Rejmankovas/Grewells work and not duplicate it.**

**The methods and goals for field/greenhouse experiments are sketchy and would need to be refined substantially in consultation with USFWS and DFG for permitting, and with other researchers to avoid duplication of effort.**

**Panel suggests these applicants collaborate with applicants of "Population Biology, Genetics...for Three CALFED At-risk Plants..." proposal to study the Astragalus and Cirsium and that CALFED fund the collaboration this funding cycle.**

# External Scientific: #1

**Research and Restoration External Scientific Review Form**

Proposal Number: **87**

Applicant Organization: **L.C. Lee & Associates, Inc.**

Proposal Title: **Rare Plants of the Suisun Marsh Ecosystem**

**Conflict of Interest Statements:**
I have no financial interest in this proposal.
**X**Correct
**-**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 proposed research is focused on CalFed priority research, and the research team is excellent, the lack of adequately documented and explained methodology makes the likelihood of success hard to judge, and the lack of environmentally controlled greenhouse facilities increases the risk of failure. Research may duplicate work already in progress.** |
| **X**Good | |
| **-**Poor | |

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

   **The goals of this project are to document the current distribution of 4 CalFed ID'd "at-risk" plant species, and to perform research focused on reproduction and propagation of these species. These goals are clearly explained, internally consistent, timely, and important**

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

**The study will focus on gaps in our knowledge, performing research which CalFed has determined is necessary for the preservation of these plants. I am concerned with duplication of efforts already underway by Dr. Pavlik at Mills on the Oenothera, and Dr. Rejmankova at UCD on the Cordylanthus.**

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?

   **In general, there is a lack of detail on methodology. Some of this vagueness is due to conditions of their collecting permit (which they do not have), some is due to ongoing work by other researchers that will inform their methodology, but these factors do not adequately explain the complete absence of details on what is meant by "competition experiments". Similarly, there is a lack of details regarding GPS protocol ; i.e. what equipment will be used (no budget for this item, either), what software will be used to generate the GIS and maps. Given the lack of details, its difficult to judge whether their approach is sound.**

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 project methodology is not well documented. They have not explained how each task will fulfill the stated goal of determining causes of rarity. The scale of the project is consistent with the objective.**

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?

   **Performance measures are brief and consist of written reports only, however, the proposed work schedule table details specific tasks and time lines.**

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 listed work products will be a distribution map of all 4 species, detailed information on fecundity, and precise methodology on artificial propagation on 2 species- all of which will substantially aid in the preservation of these species.**

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 research team combines experts in rare plant biology with experts in wetland ecology. However, they may lack the necessary infrastructure to complete the work. Specifically, all greenhouse work (i.e. germination, competition, and Astragalus propagation; budgeted at $26K) will be conducted in a small plastic greenhouse (budgeted at $3K). Without adequate environmental controls, a hot spell in the summer could ruin their experiments and kill the rare plants. This could be a serious problem as the germination work is key to the research.**

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

   **The budget seems reasonable and adequate.**

**Miscellaneous comments:**

# External Scientific: #2

**Research and Restoration External Scientific Review Form**

Proposal Number: **87**

Applicant Organization: **L.C. Lee & Associates, Inc.**

Proposal Title: **Rare Plants of the Suisun Marsh Ecosystem**

**Conflict of Interest Statements:**
I have no financial interest in this proposal.
**X**Correct
**-**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:**

**<u>Excellent:</u> outstanding in all respects;**
**<u>Good:</u> quality but some deficiencies;**
**<u>Poor:</u> serious deficiencies.**

| **Overall Evaluation Summary Rating** | **Provide a brief explanation of your summary rating** |
|---|---|
| **-**Excellent | **A clear articulation of testable hypotheses with links to the project conceptual model would strengthen the proposal.** |
| **X**Good | **Portions of this proposal are EXCELLENT and merit funding. The proposal was given a GOOD rating because not all of the proposed work can be justified due to existing knowledge and research.** |
| **-**Poor | |

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

   **The applicants clearly state the primary goal of this project is to provide scientifically defensible information on four rare plants of the Suisun Marsh Ecosystem that will be immediately useful for restoration and recovery. Ten supporting goals are also clearly stated which relate to describing species distributions, population sizes, restoration techniques, and reasons for rarity. The applicants do not specifically state testable hypotheses to support their objectives, but reasonable hypotheses are implied in the project tasks and study design.**

**Rare plant biology and recovery needs have been tragically understudied in the San Francisco Bay Delta Ecosystem. The applicants correctly argue that plants have been historically viewed as habitat, with little regard to historically abundant, infrequent, or rare plant taxa that add diversity to wetland ecosystems. Studies such as this proposed work are timely, and essential to increase our knowledge, and improve CALFED success for the conservation and recovery of endangered plant taxa.**

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?

   **Conceptual Model.: The applicants describe a broad, narrative conceptual model that links potential causal connections among ecosystem components relative to rare plant recovery. They point out that rarity is the product of a variety of causes and consequences, and task specific information regarding the biology of these rare plants that is needed to determine the causes of rarity, and reverse the extinction trajectory.**

   **Project Scale. The research approach is appropriate. Basic scientific research is needed before rare plant reintroductions are attempted in full-scale restoration efforts.**

   **Justification Relative to Existing Knowledge: Alkali Milkvetch. Very little information is available to assist with the restoration of Alkali milkvetch. Tasks outlined for this species will provide a good base for recovery planning.**

   **Antioch Dunes Evening Primrose: Dr. Bruce Pavlik and his students have conducted extensive research on Antioch Dunes Evening Primrose, and the applicant points out that recovery work on this species is underway by Pavlik. The applicant proposes to coordinate with the current work being conducted by Pavlik.**

   **Why has CALFED asked for new proposals while research is already in progress? The applicants have carefully looked for aspects of Antioch Dunes Evening Primrose restoration needs that need additional attention, and the proposed studies of seed fate may be warranted, but Pavlik et al. (1988) conducted a study on seed production and germination of Antioch Dunes endemic plants including evening primrose and submitted a report to the California Department of Fish and Game Endangered Plant Program.**

   **Inventory and survey work are not warranted, as this information has already been collected. It appears that the conclusions of the Pavlik studies should be reviewed before requests for additional research are entertained.**

   **It is difficult to justify funding for this research on Antioch Dunes Evening Primrose while other studies are already focusing on recovery of the species, and so many other rare plants in the CALFED restoration area have been completely overlooked.**

   **Suisun Thistle. If CALFED funds only one rare plant study this year, they should fund this work on Suisun thistle. This is the single most endangered plant in the Suisun Marsh Ecosystem and our knowledge of the species is not adequate for restoration planning and implementation.**

   **The applicant proposes to research the reasons for rarity of Suisun thistle. The applicant responded directly to CALFEDs request for this information. It is already widely accepted that the primary reason for rarity of this species is habitat loss (fragmentation and degradation of undiked, historic tidal marsh). Historic flora searches indicate this species was at one time widespread throughout the Suisun Marsh (Baye et al. 2000). This is a species which has not**

**always been rare. Habitat fragmentation and loss, along with census data of the two extant populations were the primary justifications for listing of the species as endangered in 1996 as detailed in the proposed rules (Federal Register 60:112, 1995). Further CALFED expenditures to investigate this primary cause of rarity are not warranted.**

**The other proposed investigations into the causes of rarity are warranted and must be understood to support recovery of this extremely rare plant. While descriptive information and past census data are available, we know next to nothing about the basic life history and habitat requirements of this plant that are also potential reasons for rarity. The proposed population census is warranted. Long term monitoring of the species has not been supported, so we have no information regarding population dynamics. The applicants propose to investigate competitive effects on this species. The applicants should be encouraged to focus this effort on the interactions between Suisun thistle and native Lepidium latifolium. This invasive, non-native plant is directly displacing the remaining populations of Suisun thistle. The applicants intent to examine limitation to the reproductive viability of this species due to seed predation by the non-native introduced thistle weevil should be supported.**

**The applicants did not respond to CALFEDs request for information on potential hybridization of Suisun thistle with introduced bull thistle. Rare plant ecologists familiar with this species (Grewell, Baye) have not found morphological evidence of hybridization, and details of reproductive structure indicate hybridization is not likely. The applicants propose a reasonable and economical approach. It is most important to begin with basic research on the life history, community interactions, and habitat requirements of this rare plant. During the course of this research, if solid evidence is presented regarding a potential hybridization threat this could be the focus of a future study.**

**Fund this work! Suisun thistle is a Suisun Marsh endemic. It was not historically known anywhere else in the world. The plant was at one time a prominent, abundant member of the Suisun Marsh flora. Anthropogenic effects have posed an extinction threat. We could lose this species if we dont learn enough to facilitate well-informed recovery efforts.**

**Soft Birds-Beak: The CALFED call for proposals requested information on the habitat requirements, reasons for rarity, microhabitat characteristics, and habitat management needs of this endangered plant. The applicants have proposed a logical course of research to address these concerns. Unfortunately, this work as requested is not justified due to the on-going CALFED funded study (CALFED-99N05) being conducted by Dr. Eliska Rejmankova and Brenda Grewell at the University of California, Davis. This CALFED study (January 2000 December 2001 with approved budget augmentation and extension through September 2002) includes an experimental reintroduction of soft birds-beak to restored habitat in Suisun Marsh. Agency personnel, technical advisors, and CALFED contract managers have been continuously informed of the progress of this work.. The Study Needs and Surveys Needed to Achieve Recovery Goals suggests a communication problem within CALFED. Perhaps current researchers should be contacted to scope additional research needs, before potential applicants invest considerable time in proposing requested work that is already in progress.**

**The UC Davis project implemented for CALFED by Grewell and Rejmankova includes research into the habitat characteristics and microsite differences within soft birds-beak populations. There scope of work includes studies of physical and biological factors relevant to conservation and recovery of this rare plant. They have collected extensive information on the physico-chemical and biological community characteristics of soft-birds beak habitat, have conducted detailed hydrology studies in successful and unsuccessful habitat, and have experimentally reintroduced a population within Suisun Marsh and are tracking critical life**

**stage information through demographic studies of tagged individual plants in restored and extant populations. They have conducted research on pollinators and seed predators of soft birds beak. Their final report will include recommendations for reintroduction techniques.**

**While the current research covers much of what CALFED has requested, there is certain to be additional information needs for recovery of this endangered plant. CALFED could consider accepting this proposal for funding, and allow the applicant to collaborate with the on-going UC Davis research and refine the scope of work on soft birds-beak to reflect additional research needs.**

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 applicants provide appropriate procedures for field surveys. Details of propagation methods are not provided, but the applicants propose to determine specific approaches after consultation with permitting authorities and researchers familiar with these rare plants. Replicated experimental designs of greenhouse and field germination behavior are proposed, but the applicants do not provide details of analytical methods.**

   **Some of the proposed work will generate novel information needed for restoration and recovery of these species, but some of the tasks are being addressed by other concurrent research studies. Details were already described in the discussion of justification relative to existing knowledge.**

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?

   **I believe the approach is complete, and appropriate for achieving the stated objectives. There is a high likelihood of success if this project is implemented. The scale of the proposed work is consistant with stated objectives.**

   **The applicant did not explicitly address issues surrounding required rare plant research permits. This proposed research will require compliance with CESA and the Federal ESA. Specifically, state rare plant research permits and rare plant collection permits will be required in addition to standard scientific collection permits. Current research permits issued to Pavlik for Antioch Dunes Evening Primrose; Rejmankova and Grewell for Soft Birds Beak/CALFED; and Grewell/UCD for additional research on Soft Birds Beak MAY prohibit additional research until work under existing permits is complete in order to ensure protection and conservation needs of these endangered species. The permits explicitly limit the proportion of these rare plant populations that can be impacted by research. The proposed work on Antioch Dunes Evening Primrose may also require a rare plant research permit under the ESA as this work will be conducted on federal land. The applicant may have to delay work on this species until the current research by Pavlik is complete to avoid cumulative impacts to the species from research. These permit issues are important due to the conservation concerns surrounding the species. It is possible start time delays could jeopardize timely completion of the project.**

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

**The applicant lists appropriate progress and final reports as performance measures for this research 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 applicants suggest the final written report as the means to transfer the information to resource managers and the interested public.**

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?

   **Peggy Fiedlers expertise in rare plant biology is internationally recognized. Dr. Fiedler has also made substantial contributions to the understanding and restoration of sensitive California wetlands. Dr. Fiedler conducted five years of thorough research on the rare Masons lilaeopsis in the San Francisco Estuary. Results of this work have been used extensively by resource managers. Dr. Fielder is currently involved in survey and restoration efforts for Masons lilaeopsis along the lower Napa River. At a recent California Native Plant Society Rare Plant Symposium in Arcata, California, Bruce Pavlik paid tribute to Peggy Fiedler as one of the most influential rare plant biologists of our time. Clearly, Dr. Fiedler and her LCLA colleagues are widely respected and are highly qualified, and have the necessary infrastructure to implement this rare plant research for CALFED.**

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

   **The proposed budget for this project is refreshing. There has been a tendency by CALFED applicants to inflate budgets. This is an honest and reasonable budget. The work as proposed will provide a high return to CALFED for the dollars spent. This proposal is a bargain. Even if the scope of work is reduced, and the budget remains the same the proposal is a bargain.**

**Miscellaneous comments:**

**My recommendation is to fund portions of this proposal.**

**The highest priority is to fund the work on Suisun thistle (Cirsium hydrophilum var. hydrophilum). The applicants have proposed research to obtain critical information needs regarding this species, and the budget for this work is VERY reasonable.**

**We have little knowledge of Alkali milkvetch, and no one is doing this work. Fund the tasks associated with this species.**

**There is on-going research on both Antioch Dunes Evening Primrose and Soft Birds Beak that will assist with CALFED recovery goals. You can consider two options. Delay any additional funding on theses species until the existing studies make recommendations for further work, or fund selected tasks regarding these species that are not being covered in current research.**

**Most importantly, CALFED staff should make a concerted effort to communicate with existing researchers and read their progress reports BEFORE requesting duplication of effort.**

# External Scientific: #3

**Research and Restoration External Scientific Review Form**

Proposal Number: **87**

Applicant Organization: **L.C. Lee & Associates, Inc.**

Proposal Title: **Rare Plants of the Suisun Marsh Ecosystem**

**Conflict of Interest Statements:**
I have no financial interest in this proposal.
**X**Correct
**-**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 | **If the necessary permits can be obtained in a timely fashion, this is a very do-able project and should result in some useful information to guide restoration techniques. I would have preferred seeing specific hypotheses regarding the causes of rarity of the four species in question. A literature review is listed as a task, but some information on what is known about the plants, what inventories have already taken place, what critical changes in habitat have already occurred and the likelihood those change could be reversed for restoration purposes should have been part of the proposal.** |
| **X**Good | |
| -Poor | |

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

   **The project goals are straight-forward. Four species of rare plants will be studied in terms of geographic distribution, basic habitat requirements, and possible restoration techniques. The goals are timely for Calfed priorities; however integration with other regional studies on rare plants is necessary. Specific hypotheses regarding the cause of rarity of the four species are not given, but would presumably follow the reasoning laid out in "Project Description."**

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?

   **According to the proposal, most of these rare species historically grew on tidal marsh edges, which is a habitat type that is almost completely eliminated from the estuary. The proposal lists five cogent reasons to study these four species in the Suisun Marsh. The field area is appropriate because the species distribution is limited to this area. However, no literature review on existing inventories or previous work in this area was listed.**

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 basic approach was valid. Specifics on certain aspects were not given, but they depend on the conditions of the collection permit to be issued by the U.S. Fish and Wildlife Service. I assume the USFWS will closely review the details of the seed collection and field reintroduction experiments**

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 project seems very feasible, and the scale of the project is reasonable. The main constraint is the time required to obtain the necessary permits from USFWS, which was not included in the list of tasks. Because some seeds are scheduled to be collected in the spring of 2002, the permitting process might delay the field work. What happens if seed cannot be collected this spring?**

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 in the form of monthly and final reports, and dissemination of information to interested parties. There is no mention of a peer review process or other check on the adequacy of the surveys and experiments.**

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 proposal states that ten hard copies of the final report will be produced, and two electronic copies. This information should be more widely available to the public, through posting on a web page for example. If no peer-reviewed journal article appears as a product, then other performance evaluation is needed.**

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?

**LCLA staff have conducted wetland studies for several years. Dr. Fielder has extensive experience in this field. The team seems well qualified to carry out this study.**

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

   **The costs seem reasonable to conduct both the field studies and greenhouse experiments. Several trips from Seattle will be needed, so it might be more cost-effective to find local expertise to conduct field work. No office or field supplies are requested. The proposal will generate useful products to help guide restoration efforts for a reasonable cost.**

**Miscellaneous comments:**

# External Scientific: #4

**Research and Restoration External Scientific Review Form**

Proposal Number: **87**

Applicant Organization: **L.C. Lee & Associates, Inc.**

Proposal Title: **Rare Plants of the Suisun Marsh Ecosystem**

**Conflict of Interest Statements:**
I have no financial interest in this proposal.
**X**Correct
**-**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 | **Excellent concept and lots of pretty pictures, but almost complete lack of detail in approach, and weaknesses and inefficiencies in what is provided, prevents reasonable assessment of the proposals potential.** |
| **-**Good | |
| **X**Poor | |

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

   **Proposal goals and objectives are succinctly described and consistently linked to tasks; there is no mention of hypothesis/ses. The status and ecology of rare plants are definitely less appreciated and understood, and this proposal appears to make a timely step in the direction of filling information gaps by addressing four species in Suisun Marsh.**

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 concept of this proposal is easy to justify because of the neglect in research and conservation biology planning of rare marsh plants in Bay-Delta and CALFED. Suisun Marsh, because of its pivotal, brackish position along the estuarine gradient between the Delta and Bay proper, is an excellent study location.**

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?

   **Description of the approach is wholly inadequate; information on sampling design, methodologies, sample processing, and data and statistical analyses are almost completely lacking. Seemingly random field surveys appear inefficient (For instance, why not use existing habitat maps to target hypothesized distributions of the plants?) if not an inappropriate way to assess distribution. There is no indication how habitat fragmentation, which is one of three presumed sources of rare plant loss, would be evaluated.**

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?

   **Given the absurdly insufficient description of the study approach, it is impossible to evaluate its feasibility.**

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?

   **Performance measures are typical accounting of product completion according to schedule.**

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?

   **Only stated product will be a report. There is no mention of data availability, GIS data, maps, etc.**

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?

   **There is appearance of qualified expertise but the proposal doesnt reflect it.**

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

   **The estimated cost ($181,850) would not necessarily be out of line, if one had the details of the approach to actually determine the scope and extend of the proposed work.**

**Miscellaneous comments:**

## Environmental Compliance:

**Proposal Number:** 87

**Applicant Organization:** L.C. Lee & Associates, Inc.

**Proposal Title:** Rare Plants of the Suisun Marsh Ecosystem

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

   **-**Yes **X**No

   If no, please explain:

   **The applicant will need to comply with CESA and ESA because she is collecting state and federal listed species. The applicant will need a 2081(a) for state listed species and a Section 10 permit for the federal listed species. If the species is listed jointly, and the applicant obtains a federal permit, she can ask for a consistency determination 2080.1 from the state. For the one unlisted species, the applicant needs a Scientific Collecting Permit.**

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

   **-**Yes **X**No

   If no, please explain:

   **The applicant does not budget any time or money for completing the environmental documents and applications and obtaining the proper permits.**

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

   **X**Yes **-**No

   If yes, please explain:

   **The applicant must obtain the proper permits to collect the listed species. It may take up to 6 months to obtain the permits and there is no time allocated for this process.**

Other Comments:

## Budget:

**Proposal Number:** 87

**Applicant Organization:** L.C. Lee & Associates, Inc.

**Proposal Title:** Rare Plants of the Suisun Marsh Ecosystem

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 **X**No

If yes, please explain:

Other Comments: