Panel Scientific and Technical Review Form
(Note: Review comments will be anonymous, but public.)

Proposal number: 2001-C214 **Short Proposal Title: Sacramento Floodplain Acquisition**

1a) Are the objectives and hypotheses clearly stated?

Summary of Reviewers comments:
"Yes, although this is a restoration project, aimed only at the conversion of agricultural land to riparian habitat." "The hypotheses are overly general and quite weak, with little explanation of how 'research' will be designed to produce rigorous assessment of vegetation and wildlife trends." "Yes, but see comments below about the degree to which the primary hypothesis will actually be tested."

Panel Summary:
The panel found that acquisition and full scale implementation proposals have rarely been proposed in a form that conveniently fits the form of a scientific investigation. This proposal is no better than the average in this regard.

1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?

Summary of Reviewers comments:
"Difficult to determine, since restoration actions are discussed in general terms only, i.e. 'return orchard to riparian forest.' " "Reasonably well."

Panel Summary:
The conceptual model appears to be "build it and they will come." Other conceptual model statement may be deduced from the proposal, relating to creating community awareness of habitat restoration value and hydraulic effects, but the concepts are not explicitly stated.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?

Summary of Reviewers comments:
"Difficult to determine, since restoration actions are discussed in general terms only, i.e. 'return orchard to riparian forest.' " "The project certainly offers some potential to conduct a more scientifically sound study, but perhaps the proposer did not anticipate that scientific criteria would be as critical to determining whether work would be supported." "While the goals are reasonable and desirable, there is not as much ecological benefit to this particular project as may first appear: there will be no change in hydro-geomorphic features like levees at the sites, so it is not clear that solely changing the land tenure

status and planting trees will yield self-sustaining riparian habitat. Furthermore, the orchards are considered non-productive at this point anyway so maybe they would have returned to riparian vegetation anyway (although admittedly with uncertain chance of resulting in high quality habitat) without the expenditures of $6,500/acre for poor quality agricultural land. The concept of studying how agricultural land-use can interact with ecological processes does seem interesting and useful, with a lot of potential for application elsewhere, although there was little explanation of just how management practices would be altered and studied. Interactions with flow regimes was mentioned, but is this to compare resistance to bank erosion? To measure hydrological 'roughness' factors caused by orchards? Is a comparison of wildlife use of orchards vs. native plants, or of organic material between the two vegetation types really novel? If so, this needs to be better framed. Experiments to compare 'various types' of restored vegetation is a good start, and a lot of the important parameters were mentioned, but were minimally addressed. Again, a more comprehensive description of how the work might be done and how it would compare with related research and applications would increase the strength of this proposal." "In addition, it is unclear how other hypotheses will be tested. A major hypothesis is that riparian habitat will produce more organic matter for aquatic organisms. While substantial monitoring is proposed, none of the monitoring parameters listed appeared appropriate to test this hypothesis. Likewise, it is unclear how the project will test the hypothesis that "wildlife-friendly" farming practices will minimize negative water quality impacts. I see no water quality monitoring in this plan.

Panel Summary:
The panel agreed that acquisition would provide a site that would be valuable for scientific evaluation of the effects of forest restoration and compatibility with agricultural uses on adjacent floodplain lands. However, the study aspects of this proposal are too vague to provide any notable scientific merit.

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?

Summary of Reviewers comments:
"The applicant intends to build on existing techniques already being employed **in** this full-scale restoration project." "My biggest concern is that the applicants have not justified why an "active" restoration approach is needed. For example, the Nature Conservancy spent years doing "active" restoration (i.e. plantings) of riparian forest at their Cosumnes Reserve, but has since abandoned this approach in favor of more successful "passive" methods. The project site already includes 27 acres of high quality riparian habitat-why won't natural processes allow the conversion of the 95 acres to riparian forest after orchard removal? At the very least, the applicants should test "active" versus "passive" approaches-this seems a good opportunity to do so. Indeed, a comparison between "active" and "passive" approaches is the most justifiable approach to address the primary stated hypothesis (Page 6, Para. 2, Line 1). Unfortunately, this is not part of the proposed design.

Panel Summary:
The panel recognizes the proposal as principally an acquisition, with the speculative potential for

research, pilot scale implementation and mid-scale implementation.

1c2) Is the project likely to generate information that can be used to inform future decision making?

Summary of Reviewers comments:
"Probably not to any significant degree." "Even for the proposed design, I have serious reservations about the study. The major approach is to compare orchard to restored areas over a three year (or less) period. Several variables to be evaluated will not be relevant over that time period. For example, there will be hydraulic measurements (depth/velocity) between the two plots. Yet the riparian vegetation will be relatively poorly established over this time period. As a result, the study will only be measuring the effects of orchard versus a sparsely vegetated site. The hydraulic conclusions are predictable (i.e. better flood conveyance on the treatment site), but are not meaningful." "Because of the experimental approach, this could be a very important project to guide decision making. My only hesitation is that I was unable to determine what factors would be tested using the experimental block design. It appears that treatments will be split into riparian and orchards, but it is unclear whether the blocks will consist of different vegetation types, physical or biological conditions, or some other factors. The usefulness of information from the study will depend largely on the experimental design and its statistical power."

Panel Summary:
This site has potential to be used to generate information of importance to CALFED. It would be in the interest of several CALFED agencies to help devise experiments at this site to answer important questions. Unfortunately, it is not the proposal's strength to convey study designs or to address these kinds of needs.

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?

Summary of Reviewers comments:
"Somewhat generally described, difficult to determine actual monitoring levels." "As stated above, many of the important parameters that would be monitored in a project such as this were mentioned, but were not well-described and gave limited basis for determining whether methods and data handling plans were adequate. This is unfortunate, because the framework otherwise looks good for providing increased habitat and is of sufficient spatial scale to allow some useful experimental studies to be developed." "The variables to be measured are reasonable, but (as stated earlier) the time scale is insufficient to provide a "fair" comparison of the restoration versus the orchard sites."

Panel Summary:
The panel would encourage scientists from CALFED agencies to work with the proponents if this land is acquired to ensure experimental design, monitoring and information assessment plans meet their

needs.

2b) Are data collection, data management, data analysis, and reporting plans well described, scientifically sound and adequate to meet the proposed objectives?

Summary of Reviewers comments:
"...descriptions such as: Hydrological monitoring which involves 'Set-up procedures for monitoring during flood events, and compare between restored area and orchards' hardly inspires confidence that rigorous data will result." "Use of dBase IV data management may not be compatible with other data sets." "See previous concerns about the experimental design."

Panel Summary:
See previous concerns about the experimental design.

3) Is the proposed work likely to be technically feasible?

Summary of Reviewers comments:
"Yes, appears to be standard construction and re-vegetation practices." "Based on other work that the Sacramento River Partners are involved in, many of the management actions should prove to be feasible for improving the quality of these streamside habitats. However, feasibility of the monitoring projects has not been adequately justified in this proposal, nor has the practicality of the proposed comparisons between orchard and natural habitats. Another uncertainty is that some of the areas to be restored appear to be patches within the orchard system - are these really appropriate locations to do restoration as they don't appear to be creating contiguous riparian habitat? I had difficulty reading these details in the maps provided, so maybe they are something else?" "The feasibility of this study may depend on a finding that the restoration project is "flood neutral". There are no apparent contingency plans if the study determines that it has negative impacts."

Panel Summary:
The panel agreed acquisition of a site with the potential to support interesting research is inherently technically feasible. It may arouse opposition from county tax assessors, but that does not relate to the merits of studying the restoration of such a property. It is well located for interesting research.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?

Summary of Reviewers comments:
"Yes, although USFWS participation is not specific enough." "The team has only recently (1998) been incorporated, yet has undertaken impressive responsibilities for restoring and managing riparian lands in

the region. The principals have excellent experience with agronomics and reasonable experience with riparian vegetation management, but it would be useful to see some of the other subsidiary partners (academic and FWS researchers, PRBO scientists, etc.) get more involved in project development." "For most aspects of the project, I question the team's qualifications to handle the scientific side of the study-previously described deficiencies in the monitoring plan and hypotheses suggest that science could be one of their weaknesses."

Panel Summary:
The panel agrees the principal investigators have been active on riparian tree planting projects, and can be relied on to grow trees. This is simply not enough – the study design is not developed well enough to expect a successful program of lasting value scientifically.

5)Other comments
The panel felt this proposal could stand alone as an acquisition of a site for prospective research. It was not satisfied that the investigative aspects were ready for funding, and would encourage the proponents to communicate with academic or other researchers with a strong qualification in design of research to design planing plans to test hypotheses.

Overall Evaluation
PANEL SUMMARY COMMENTS

The panel was divided in its evaluation, scoring the acquisition for an investigation site as very good, but fair-to-poor for the study design.

Summary Rating

Excellent
Very Good X
Good
Fair X-
Poor

Your Rating: VERY GOOD/FAIR