



California Regional Office  
201 Mission Street, 4th Floor  
San Francisco, California 94105

International Headquarters  
Arlington, Virginia  
TEL 703 841-5300

TEL 415 777-0487  
FAX 415 777-0244 & 415 777-0772

January 6, 1996

Mr. Lester Snow  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento CA 95814

re: TNC comments on draft CALFED ERPP Objectives and Targets

Dear Mr Snow:

Thank you for the opportunity to review and comment on the November 15, 1996 "Preliminary Working Draft CALFED Bay-Delta Program Ecosystem Restoration Program Plan Implementation Objectives and Targets". We are impressed by the job you have done to date in tackling this extraordinarily complex task.

The following summarizes the comments of several TNC science and project staff from various sites throughout the region. We hope you will find these comments helpful. We would be happy to elaborate in writing or to meet with you and/or your staff to further discuss these issues.

#### GENERAL COMMENTS

1. The Nature Conservancy (TNC) strongly supports the natural process orientation of the proposed program. We believe that the limitations of science and our lack of specific knowledge about how ecosystems function limits our ability to reliably anticipate the cause and effect of specific restoration actions. Given this, a bias toward the restoration of natural processes is warranted and wise.
2. We believe that the Implementation Objectives should be, in some fashion, measurable and that some time scale for their completion should be given. We were heartened to hear at the last workshop that "...in order to..." elaborations will be added to each implementation objective. This will help put the implementation measures into context, but it is also important to provide performance measures, measures of success, or so-called indicators as part of that "...in order to ...." statement so that one can judge the effectiveness of the strategies described in the "Target" statements.

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We would add a cautionary note here. It is, in our view, possible to distort the intent of the implementation objectives. When quantitative indicators are added, the tendency will be to reduce these natural process-oriented objectives to simply the indicators. Given this temptation we recommend that when indicators or performance criteria are incorporated into the implementation objectives they be chosen carefully to fully express the wide range of expected ecological outcomes and not over-focus on any single indicator.

3. We would like to see how all of these Ecosystem Quality objectives, Implementation Objectives and Targets relate on a landscape level. At the last workshop we were told that "vision" narratives were being developed. Perhaps these will clarify this issue, but we also recommend that you consider a review of the program by a team of conservation scientists/landscape ecologists. This relatively new science has much to offer once the initial targets are identified and the program has begun to take shape. Scientists like Reed Noss, Dennis Murphy, Barry Noon, and Peter Brussard are experts in this field and are experienced in the challenges of conservation planning. They may offer the process some valuable insights.

4. We were concerned by the modest size of the restoration targets especially the riparian and delta targets. While we certainly appreciate the feasibility aspects of target setting we questioned whether the ecosystem health objectives are achievable by such relatively small-scale restoration efforts. From our understanding of the ecosystem, targets for riparian habitats are off by an order of magnitude, delta island restoration by two orders of magnitude and vernal pools three or more orders of magnitude. This discrepancy in perceived need may be the result of our lack of understanding of the program, but if that is the case it is shared by our environmental and industry colleagues. Perhaps a statement regarding the scientific basis for target setting would help. We recommend that in future documents you include the scientific basis for these numbers.

5. Exotics. The removal of a small percentage of any exotic, plant or animal is typically an exercise in futility. Most exotics are invasive and soon return. A more prudent strategy is to first identify those exotics that disrupt the natural processes and selectively attempt to eradicate the species throughout its distribution. For example *Arundo donax*, the giant reed, displaces natives, destroys breeding habitat for neotropical migrant bird species, and changes stream morphology. It is conceptually possible to begin a program of eradication for this plant if done on a whole watershed basis. Exotic plants and animals are a real threat to the natural processes and diversity of the Delta. They should be addressed in a more comprehensive and carefully considered fashion than they have been in the targets.

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6. Are they "targets" or are they "strategies"? Much confusion has arisen over the use of the term "targets". There is no right way to do this and we sympathize with your efforts to pick a set of terms and stick with them however you might consider renaming the "targets" as "strategies", keeping the strategy-like targets in there, culling the "Action"-like targets and putting them in a future "actions" column.

7. The restoration targets should consider potential sea level rise as probable. Protection and restoration of delta edge uplands should be an acknowledged priority.

**SPECIFIC COMMENTS:**

Page 14 Table 1 page 4

section 3 add e. Increase river meander within flood plains.

*Change 6 to- to increase the amount of short grass habitat to better support wintering crane populations.* We believe this more general statement provides for a more appropriate diversity of land use options than the objective you state.

Page 41 Table 8 page 1

**Natural hydrologic regime.** If the intent is to set a baseline of "health", using a date pre-SWP out of any flow context is questionable. It would be better to set these targets from a vision of a restored system.

Page 41 Table 8 page 1

**Natural sediment supply.** This is key to riparian vegetation succession and even more important to delta island restoration efforts.

Page 42 Table 8 page 2

**Geomorphology.** Armoring channel islands will likely adversely impact rare plant species. The concept seems counter to the natural process goals. Is there a short-term nature to this target that is missed in the description? Armoring may be acceptable in a short-term vision but it shouldn't be a key component of a long-term restoration concept for the delta.

Page 45 Table 9 page 1

**Stream Meander migration.** Should include the lower Mokelumne and Cosumnes.

Page 46 Table 9 page 2,

**Nutrient inputs and availability.** Consider adding a flooded ricelands target. Clearly flooded ricelands act in some fashion as a surrogate for seasonally flooded natural wetlands

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in terms of supplying nutrients especially since these lands are generally under an existing program that reduces water quality conflicts with winter flooding return flows.

Page 49 Table 10 page 1

**Land Use.** A. Not sure what an "internal buffer zone" is. B. What is the rationale for singling out Swainson's hawk, what about giant garter snakes, yellow throat, etc?

Page 51 Table 10 page 3

**Exotic species.** See general comments.

Page 52 Table 10 page 4

**A. and B. Dams.** An option in the targets should be the removal of obsolete dams and/or consolidation of points of diversion.

Page 56 Table 10 page 8

**Artificial production of fish.** We support your targets and suggest that in fact hatcheries be viewed as a "last resort".

Page 59 Table 11 page 3

**C. Increase the area of vernal pool habitats.** We firmly believe that "increasing" the area of vernal pool habitats is not a feasible or positive conservation action. This implementation objective should be focused solely on the preservation of existing vernal pools and the grassland matrix in which they occur. This is compatibly done in the context of the conservation of rangelands. The acreage that needs to be preserved in this context is on the order of ten thousand acres for the delta green ground beetle in the area around Jepson Prairie and on the order of tens of thousands of acres for shrimp and rare plants distributed along the vernal pool belt rimming the valley floor. Little needs to be done (or can be done) to "enhance" pools. The targets should exclusively focus on protection and proper management of existing pools and the grassland matrix they occur in. There is no known scientifically credible technology for beneficially "restoring" vernal pools that results in increase their acreage.

Page 62,63 Table 11 page 6

**Increase the area of riparian habitat.** We agree with the implementation objective, but found the target treatment confusing. Our primary expertise and experience was gained along the Sacramento River so we will confine our comments to this area, but we believe the issues we raise are relevant elsewhere in the study area.

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As we understand them, your targets are aimed at fixing four different situations on the river. Target 1 addresses unvegetated riprapped banks, Target 2 looks at waterside levee restoration, Target 3, land side of levee restoration and Target 4, floodplain. Various miles of restoration are suggested. Our experience on the Sacramento suggests a different way to divide the targets. This subdivision is based on river reaches and the geomorphological/facilities development/ecological setting of each reach. We suggest the following:

Suggested Target 1. From Colusa to Chico Landing the river is controlled by levees and riprap, but there is considerable land on the waterside of the levees. Beyond Chico landing to Red Bluff there are only private levees, generally set back considerably from the river. The best existing riparian vegetation along the river occurs in these two reaches, the best opportunities for significant ecological restoration occurs along these two reaches. The vision here is a meandering river flowing through a flood plain comprised of primarily native riparian habitats but mixed with compatible agriculture. Expressed as a restoration target, the focus would be on managing the hydrology to restore natural successional processes, removing carefully selected levees and bank protection to restore the meanders, compensating agriculture put at risk by this process, and actively revegetating areas that will not restore naturally in a manner or in a time-frame needed to achieve the objective. The estimated area addressed by this target between Colusa (river mile 143) and Chico Landing (river mile 194) is 30,000 acres. From Chico Landing to Red Bluff (river mile 243) there are again about 30,000 acres that would be restored by this target for a total of 60,000 acres. Restoring these reaches would not necessitate wholesale removal of levees or expensive changes in flood control operations. Restoration of these reaches in this manner would maximize benefit for all riparian species, provide clear benefit to salmon spawning areas, be largely naturally self-sustaining, and have additional benefits in terms of gravel recruitment, water quality, and nutrient contributions.

Target 2. From Sacramento to Colusa the river is tightly constrained by levees and is widely riprapped. We believe that flood control constraints likely preclude significant restoration unless a program of levee setback is developed as part of a restoration effort. The vision for this reach is a narrow band of riparian vegetation planted on or near the levees providing shaded aquatic habitat. Punctuating this band are 100-300 acre nodes of native vegetation with some in excess of 300 acres in size planted on the waterside of newly setback levees. Areas such as China Bend are conducive to this sort of treatment. The optimal spacing of these nodes has not been established by any research we are aware of. Likely the spacing will be determined by topography.

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A target for this section could be a program of levee setbacks coupled with restoration aimed at providing shaded riverine aquatic habitat. This is not the place to provide much in the way of benefits for riparian species. Telemetry work on the So. Fork Kern River have shown that long narrow bands of riparian vegetation might actually be detrimental to species such as the yellow-billed cuckoo, by inducing nesting yet providing insufficient foraging for nest success. Additionally, small or narrow riparian patches are heavily impacted by cowbird nest parasitism. Research indicates that along the Sacramento River patches of at least 90 acres were needed to support breeding songbirds and patches of 300 acres were needed to support the suite of species found in riparian areas. This target would not create a naturally sustaining system, it would be extraordinarily expensive, and its main value would be to benefit some portion of the life-cycle of anadromous fish.

Note that we were somewhat confused by your target 3 calling for 100 miles of riparian habitat to be established on the land side of the levees. The very basis of vegetation succession that results in riparian scrub, woodland and forest is driven by river processes, primarily flooding, sediment deposition, and scour. This would be precluded on the land side. Clearly a wider band of riparian is more desirable than a narrow one and obviously the presence of levees constrains that width, yet there are ample opportunities north of Colusa, in the bypass areas and in the Delta for significantly widening this band waterside. Unflooded riparian-vegetated refugia are desirable and such places need to be created as part of an overall riparian restoration scheme, but they are not a target as such; rather, refugial land-side plantings for species like the riparian bush rabbit should be a design consideration for implementation planning.

Page 64 Table 11 page 8

**Agricultural Wetland Habitat.** We are unsure what the word "co-manage" means in this context. We understand that the intent of this target is to include a program of easements that support the objective. We are curious about the 100,000 acre number. The CVHJV number is 196,000 acres.

Page 71 Table 12 page 5

**Other non-native resident fishes.** What is the scientific basis for concluding that these species do not compete with native fishes? Are they are simply the "exotics" that we have learned to tolerate?

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Page 76 Table 12 page 10

**Foodweb organisms.** Consider adding a flooded ricelands target. Clearly flooded ricelands act in some fashion as a surrogate for seasonally flooded natural wetlands in terms supplying nutrients especially since these lands are generally under an existing program that reduces water quality conflicts with winter flooding return flows.

In summary, we are favorably impressed by the progress you have made on this very complex program. We strongly support your emphasis on the restoration of natural processes. Our comments are offered in a spirit of cooperation. We are prepared to share with you any documentation that we may have that you may find useful in this process and we are equally happy to bring our staff together with yours to share our understanding of these issues. We look forward to working with you as the process continues.

Sincerely,



Steve Johnson  
 Director of Conservation Science  
 The Nature Conservancy of California

cc:

Gary Bobker (TBI)  
 Dick Daniels (CALFED)  
 Rod Fujita, Karen Levy, David Yardas, Terry Young (EDF)  
 Pete Rhodes (MWD)  
 Phillip Williams (PWA)

TNC: John Carlon	Robin Cox
Mike Eaton	Leslie Friedman Johnson
Tom Griggs	Chris Kelly
Marlyce Myers	Daryl Peterson
Sabin Phelps	Rich Reiner
Emily Tibbott	Chris Unkel
Olen Zinkle	