

DA 12

January 31, 1999

To: Wendy Halverson Martin
Restoration Coordinator
CALFED

From: Mike Eaton
Director, Cosumnes/Delta Projects
The Nature Conservancy

Re: Updated Information, McCormack-Williamson Tract, Directed Action Proposal

This memo and attachments present updated information for CALFED staff and advisory bodies on this project.

Background

- In early 1998, CALFED approved a \$5 million augmentation to our grant 97-N14 for the acquisition of the high-priority McCormack-Williamson Tract. Because CALFED envisioned an early transfer of title to a public agency, that grant expressly did not include any funding for stewardship, restoration, or management.
- This subgrant, now referred to as 97-N14B, was subsequently increased by CALFED to \$5.21 million to reflect a proposed acquisition price of \$5.1 million and an early estimate of transaction-related costs of \$110,000.
- In early summer, 1998, the seller's appraisal of the property, at \$5.2 million, was rejected by the Department of General Services for technical reasons related to methodology.
- In December, 1998, General Services approved a revised appraisal at \$6.1 million.
- On January 15, 1999, The Nature Conservancy submitted a "directed action" proposal for management, restoration, and scientific surveys on the McCormack-Williamson Tract.
- On January 18, 1999, seller and The Nature Conservancy reached agreement on a sale at \$5.2 million. This agreement provides as follows:
 1. 90-day option period, beginning on or about February 15, 1999, and 30-day close. Timing reflects seller's need to complete acquisition of an exchange property within the same time frame.
 2. Seller to operate property, bear costs of ownership (including property taxes, normal costs of levee maintenance, etc.), and retain lease income through calendar year 2000, or for approximately 18 months after closing. Buyer to have rights of access for research, monitoring, and surveys, and for levee-related habitat enhancements. Buyer to have a seat on the Reclamation District Board of Directors beginning immediately.
- A property boundary survey and a hazardous materials survey were completed in Fall 1998 and indicated no problems that would delay or otherwise effect the transaction.
- During 1998, staff of CALFED, DWR, and The Nature Conservancy discussed future

ownership and management options for the property, and determined that we could not identify an agency willing to commit to ownership and management of the property in the near-term. The proposed "directed action" funding to The Nature Conservancy for three years of ownership and management of the McCormack-Williamson Tract resolves this problem by providing The Nature Conservancy with funding to hold the property for a minimum of three years.

The Revised Directed Action Funding Proposal

Because the January 15, 1999 Directed Action Proposal was prepared prior to negotiation of a final price and structure for the acquisition, some of the task descriptions and the budget have been revised. These revisions were described in overview in a January 21 memo from The Nature Conservancy to CALFED staff. This memo and attachment provide further detail in support of the revised proposal.

The attached revised task description and budget address only The Nature Conservancy tasks and not the research, monitoring and restoration planning tasks proposed to be carried out by the UC Davis Center for Integrated Watershed Science and Management. Of the UC Davis tasks, we strongly urge a commitment to funding now for Task 4, Restoration Planning. Funding at this time will allow for field work aimed at developing a field research program to be conducted during the summer and fall of 1999, which will in turn enable us to coordinate Year 2000 and 2001 farming operations with field research needs. Loss of a year in implementing this program will be costly in terms of progress toward long term restoration objectives.

McCormack-Williamson Tract Directed Action Proposal
Revised Task List and Budget
January 31, 1999

Task 1: Start-up stewardship (3 year period)

The January 15 proposal identified \$278,940 in costs in this category. The revised proposal is for \$224,172 in funding. The reductions are in year one and two staffing and other costs, reflecting the fact that the current owner will continue to manage and bear normal costs for all of year one (FY 00) and half of year two (FY 01). (For purposes of this budget, we assume a closing on July 1, 1999.)

For year one, our costs as owners will include staffing, insurance, and property taxes (the difference between the current tax and tax after reappraisal). In addition, we will want to begin analysis of infrastructure and drainage infrastructure. In year two, these costs increase because we will have a half-year of full expenses as well as the staffing costs associated with transition to management.

Task 1 - year	Direct Labor Hours	Direct Salary and Benefits	Insurance and taxes	Service contracts	Miscellaneous and other Direct Costs	Overhead and Indirect Costs	Total Cost
FY 00	300	9,489	14,000	10,000		6,698	40,187
FY 01	500	12,652	22,000	10,000	10,000	10,930	65,582
FY 02	637	20,148	39,000	20,000	20,000	19,830	118,978
TOTAL	1437	42,289	75,000	40,000	30,000	37,458	224,747

Task 1A - Acquisition-related costs (new)

Because the revised purchase agreement requires devoting all (except \$10,000) of the 97-N14B grant to acquisition, funding is requested in this grant to cover acquisition-related costs previously proposed to be covered out of grant 97-N14B. In addition, we have revised our estimate of acquisition-related costs to more realistically incorporate both costs incurred to date and projected costs prior to closing. These costs include:

Salary & overhead (non-legal staff)	\$60,000
Services	
Appraisal	\$ 2,750
Haz Mat and Cleanup	\$20,000

Boundary Survey	\$20,000
Contract legal	\$30,000
Closing costs	\$ 2,000
TOTAL REQUESTED	\$134,750*

* Total includes \$10,000 awarded for non-capital costs under 97-N14B award. All Task 1A costs should be administered under the directed action contract.

Task 2: Wildlife-friendly levee program – The purpose of this program is to test, through pilot implementation, levee improvement strategies that achieve multiple benefits. The template for this work is provided by preliminary work carried out by Woodward-Clyde (TNC, 1996). The Woodward-Clyde prescription for the McCormack-Williamson Tract is for broader levees with an interior slope of 10-1 – even if the levees are ultimately breached at the downstream end to allow entry of tidal water. While the treatment of the entire island as suggested by Woodward-Clyde (with an estimated cost of \$7 million) is outside the scope of this proposal, the level of work proposed in this budget will enable us to achieve some important objectives. These include refining design and engineering, carrying out field tests at several locations on the McCormack-Williamson Tract, determining actual field costs for earthwork and planting, conducting trials of alternate planting strategies (species, density, and methods), and refining costs based on actual field experience. This information is an important input into planning for long range restoration. In addition, the field sites selected for this work will include levee sections identified as most needing reinforcement, so there will be an incidental flood control benefit. Work to be carried out in FY 00 will either be coordinated so as to avoid conflicts with the farm operation (and avoid Swainson's hawk nesting sites), or carried out post-harvest in 2000.

Because this program will provide information important to restoration planning, significant long term habitat benefits, and short term levee stability benefits, we believe it to be an essential element of this funding proposal.

Task 2 - year	Direct Labor Hours	Direct Salary and Benefits	Insurance and taxes	Service contracts	Miscellaneous and other Direct Costs	Overhead and Indirect Costs	Total Cost
FY 00	150	4,744	0	30,000	0	6,949	41,693
FY 01	280	8,856	0	150,000	0	31,771	190,628
FY 02	650	20,560	0	180,000	0	40,112	240,671
TOTAL	1080	34,160	0	360,000	0	78,832	472,992

Task 3: Stakeholder outreach

This task remains as proposed in the January 15 submission, at a total of \$13,200 for staffing over three years.

Revised Table 2A. Budget for TNC Tasks 1 through 3

Task	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Miscellaneous and other Direct Costs	Overhead and Indirect Costs	Total Cost
Task 1	1337	\$42,289	\$40,000		\$30,000	\$37,458	\$224,747
Task 1A							\$124,750
Task 2	1080	\$34,160	\$360,000			\$78,832	\$472,992
Task 3	285	\$9,015			\$2,000	\$2,203	\$13,217
TOTAL	2702	\$85,464	\$400,000	0	\$32,000	\$118,492	\$835,707



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Wendy Halverson-Martin
Chief Ecosystem Restoration Program Manager
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, California 95814

15 January 1999

Dear Ms. Halverson-Martin,

Enclosed please find The Nature Conservancy's Designated Action Proposal for the McCormack-Williamson Tract's Wildlife-Friendly Levee Management Program. If you should have any questions, please do not hesitate to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Eaton".

Michael Eaton
Project Director
Cosumnes River Project

**Designated Action Proposal
McCormack-Williamson Tract,
Wildlife-Friendly Levee Management Program**

**The Nature Conservancy
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Galt, California 95632
Phone: 916-683-1699 / Fax: 916-683-1702 / Email: meaton@cosumnes.org
Primary Contact: Mike Eaton**

Project Participants and collaborators:

The Nature Conservancy, UC Davis, Center for Integrated Watershed Science,
California Department of Water Resources, U.S. Army Corps of Engineers,
Sacramento District

I. Executive Summary

A prior Calfed grant award (97-N14, \$5,210,000) covers acquisition and acquisition-related funding only for the McCormack-Williamson Tract. The property consists of 1654 acres surrounded by approximately 8.8 miles of levee. The current proposal augments the acquisition grant by lining up funding for wildlife-friendly levee maintenance, staffing and other costs to support environmentally compatible farming operations and preliminary planning for long term restoration of the island. This additional funding will allow The Nature Conservancy to pursue acquisition, hold and manage the island pending development of a long term management and restoration plan.

II. Proposed Scope of Work

The Nature Conservancy proposes a three-year project with the major elements described as Tasks 1, 2, and 3. In addition, UC Davis will carry out Tasks 4 and 5. The Nature Conservancy prefers that Calfed directly fund UC Davis through their Interagency Agreement. However, if this is not possible The Nature Conservancy will consider administering the funds for UC Davis. (The Nature Conservancy does not typically budget project management as a separate task. Indirect costs, calculated as 20% of direct costs for each task, will largely include project management costs.)

A. Tasks to be completed by The Nature Conservancy

1. **Task 1: Start-up stewardship** – Deliverables include an annual report describing the details of the stewardship actions and accomplishments, which are anticipated to be carried out over three years.

a. Stewardship staffing costs. In order to adequately assume our role as owners of the McCormack-Williamson Tract, TNC will be required to commit a portion of the time of four of its employees to this project (Project Director, Project Ecologist, Project Planner, Farm Coordinator). Work to be accomplished under this task includes: working with agencies to incorporate long-term restoration of the tract with Calfed goals; working with UC Davis to design and implement research and baseline monitoring; and conducting research, farm operations and levee maintenance.

b. Ownership costs and infrastructure repair (Service and other costs): insurance, property taxes, pumps, roads, and other maintenance necessary to continue with the farming operation.

2. **Task 2: Wildlife-friendly levee program** – The Nature Conservancy will use a combination of staff time and outside services to implement a wildlife-friendly levee program. Any levee work undertaken will take into consideration the recommendations of the Levee Program and Ecosystem Restoration Program staff. New approaches to maintaining and creating habitat both on and off the levee will be favored, and will be consistent with flood control considerations. Deliverables include an annual report and photos documenting current condition of levees with yearly photographic updates. It is anticipated that this task will be implemented over three years.

3. **Task 3: Stakeholder outreach** – Development and implementation of a long term restoration plan for the McCormack-Williamson Tract, such as will be necessary to achieve the full range of ecological objectives for the property, is a complex, multi-year project involving multiple private and public-sector stakeholders. Two specific activities are proposed which will help establish this foundation of private and public support. These include:

a. Establishment of a formal advisory committee, consisting of representatives of key agencies (at a minimum Calfed, DWR, and the Corps of Engineers) to review and offer expert assistance on the design of the short-term actions. Specifically, the committee will review and comment on planned levee- and habitat-related expenditures under this grant, and

b. Formal and informal outreach to other public and private

stakeholders, working directly with the Delta Protection Commission, local landowners, farmers, and Reclamation Districts. We will periodically convene this informal stakeholders group for the purpose of sharing information, airing concerns, and establishing a foundation for evaluation of long term restoration alternatives.

Deliverables will include three meetings per year for both the advisory committee and the stakeholders group, and an annual report including a list of participants in both groups, issues of concern raised, and proposed solutions.

B. Tasks to be completed by UC Davis Center for Integrated Watershed Science and Management.

1. **Task 4. Restoration Planning.** The University of California, Davis Center for Integrated Watershed Science and Management (CIWSM) will assist The Nature Conservancy in the environmental research necessary for long-range restoration planning in the McCormack-Williamson Tract. The general objective of this study is to determine the geomorphic potential of the site to revert back to a functional tidal freshwater marsh with an array of beneficial aquatic and riparian habitats. The geomorphic potential is defined as the elevational, stratigraphic, and sedimentary conditions necessary for a tidal freshwater wetland to exist and function. As studies outside of the Bay-Delta have shown, if intertidal hydrodynamics are restored and plants begin to grow, the long term ecological success of the restoration will depend on watershed-delta interactions that are manifest in the geomorphic conditions. This portion of the project will be conducted by Dr. Geoffrey Schladow and Dr. Gregory Pasternack of UC Davis. Matching funds for this project will be provided by a Packard Foundation Conservation Program grant to CIWSM.

Specific objectives of this task include: a) assessing the stability of the physical structure of the system in the past, b) determining the amount and direction of energy driving changes in sediment patterns in the system, c) quantifying the potential relative proportion of vertical accretion due to watershed influx of inorganic sediment versus *in situ* biomass accumulation, and d) characterizing the potential spatio-temporal distributions of habitats within each site. The approach proposed to meet the objective of this study is to reconstruct and compare the historical environmental conditions on McCormack-Williamson Tract and in a nearby reference tidal freshwater wetland. Since the reference wetland has been functioning more or less continuously over time, it should have a complete record of the environmental conditions experienced by this type of system in the Sacramento-San Joaquin Delta. The record from McCormack-

Williamson Tract will have been truncated at the top by agricultural activities, so environmental conditions reconstructed from the near-surface peat will indicate the nature of the watershed-estuary interactions at the previous time when the elevation was the same as it is now. The method for reconstructing environmental conditions involves characterizing the general lithological stratigraphic framework using a large number of cores taken from the field sites and then selecting a subset of those cores for radiocarbon dating and detailed paleoenvironmental analysis.

In order to guide restoration planning, the historical analysis of the McCormack-Williamson Tract marsh will be coupled with on-going experiments, funded by a Packard Foundation Conservation Program grant, to evaluate the hydrologic and sedimentologic regime of the lowermost Mokelumne and Cosumnes Rivers. These experiments are designed to document and model the potential turbulent velocity field, the background stratification that acts to suppress turbulence, the suspended sediment flux and the vertical dissolved oxygen profile that may develop within a restored tidal freshwater marsh at the McCormack-Williamson Tract. These experiments, when combined with the historical analysis, will guide the restoration plan for the tract.

In conjunction with surveys of aquatic resources conducted in Task 4, this information will be used to evaluate restoration success and to guide future efforts in accelerating restoration projects. The measurements will be conducted at semi-diurnal and spring-neap time scales. In addition, detailed, sub-surface sonar measurements will enable the quantification of the precise elevation of the evolving tidal marsh to be documented and reconciled with the turbulent flux measurements.

2. **Task 5. Baseline Studies and Monitoring Plan Design.** During the first two years of this project, the Center for Integrated Watershed Science and Management will conduct a series of surveys of baseline conditions. These surveys will be used to establish baseline biologic conditions prior to the implementation of a final restoration plan for the Tract and will serve as the basis for a long-term monitoring program that assesses restoration effectiveness and informs future tidal freshwater marsh restoration projects in the Bay-Delta. Baseline studies will emphasize documentation of aquatic resources (Task 5a), riparian resources (Task 5b), and avian communities (Task 5c) within and closely adjacent to the Tract. All information collected for this project will be incorporated into a GIS currently under development at UC Davis. New methods of analysis of this dataset will be established to fit within the goals of CMARP (Task 5d). During the third year, the Cosumnes Consortium will develop a comprehensive long-term monitoring program for the project that is tied to

monitoring programs currently under development within the Cosumnes River Preserve and the Mokelumne River.

The baseline survey of aquatic resources will be directed by Dr. Peter Moyle of UC Davis (Task 5a). The recently issued Strategic Plan for CALFED lists as two of its major goals for ecosystem restoration to (1) establish large-self sustaining populations of at-risk species dependent on the estuary and watershed and (2) rehabilitate the capacity of the Bay-Delta system to support natural aquatic and associated terrestrial communities. The Plan recognizes that accomplishing these goals requires large-scale experimentation and monitoring that are part of an adaptive management strategy for ecosystem restoration. For many of the key at-risk fishes, such as splittail, Chinook salmon, and Delta smelt, a key component of their restoration is development of shallow water habitat for breeding and/or rearing.

Currently, we do not know exactly what the characteristics of suitable habitat should be. Important questions remain unanswered, including: 1.) how and when do native fishes use flood plains? and 2.) how can flooded areas can be managed to favor native fishes while discouraging the non-native species that compete with or prey on them? We are beginning studies to address these issues and others on the Cosumnes River Preserve, supported by funds from the Packard Foundation. These funds have "jump-started" fish studies in order to take advantage of the diverse habitats available in the lower Cosumnes River and areas of "new" flood plain (of various ages) on the Preserve.

It is highly desirable to expand our present limited study to encompass year-round sampling for juvenile fishes in the lower Cosumnes and Mokelumne Rivers. These studies are needed to examine the trophic interactions of the fishes using the flooded areas, and to develop a study/monitoring plan for the newly acquired McCormack-Williamson Tract, downstream of our present study areas. Year-round sampling in various habitats in the lower rivers will allow us to determine how native (and non-native) fishes use these habitats, even in the absence of flooding. This, in turn, should allow us to develop hypotheses leading to adaptive management strategies to improve these areas for native fish rearing (e.g., increased habitat complexity, such as submerged trees, in areas with moderate current favors native fishes). Year-round sampling will also allow us to compare growth and diets of fish inside and outside the flood plains. If flooded areas do indeed enhance growth and survival, we need to determine what characteristics of flooded areas are optimal for fish (e.g., open areas vs. forested areas) by examining diets to provide insights into factors making areas favorable.

The McCormack-Williamson tract is located in an optimal location for restoration of freshwater tidal marsh and floodplain habitat. Depending upon the outcome of restoration planning in Task 4, it is anticipated that the Tract will be the site of major restoration projects. These restoration projects, as indicated in the CALFED Strategic Plan, will necessarily be experimental, even if conducted on a large scale. To find out how well these experiments work in relation to the rehabilitation of at-risk fishes, an intensive monitoring program will be needed. We propose to develop such an aquatic monitoring program in conjunction with the restoration projects, but to start sampling as soon as possible, using standard techniques, to determine pre-project conditions.

We will be sampling fishes using a variety of techniques including standard seines and traps, specially designed fyke nets, and light traps (for larvae). Part of our initial study is simply to determine which techniques are most effective for sampling target species and life history stages in the flood plain habitats, which are notoriously difficult to sample. We will be taking advantage of the sampling knowledge gained by T. Sommer and crew (DWR) in sampling the Yolo By-pass, and our cooperation with this study will also allow comparison of fish use of the artificial by-pass habitat with that of the newly opened flood plain habitat. Matching funds for a portion of this work will be provided by a Packard Foundation Conservation Program grant to CIWSM.

With guidance from the advisory team, CIWSM and The UC Davis Information Center for the Environment (ICE) will design a vegetation inventory and classification system based on the methods used by TNC and CNPS (Task 5b). The vegetation inventory will produce a baseline dataset of riparian habitat resources in the McCormack-Williamson Tract and adjacent riparian areas. This survey will build on the existing wetland mapping efforts of Ducks Unlimited and CDFG. The dataset will be integrated into the current ICE GIS system of biological and abiotic data for the Cosumnes River Watershed. ICE will work with the Point Reyes Bird Observatory (PRBO) to design and implement a riparian bird survey over a three year period (Task 5c). PRBO already has extensive experience in monitoring riparian bird occurrences in the Cosumnes Reserve and upstream in the watershed. They also chair and provide much of the technical support to the Riparian Habitat Joint Venture, a consortium of agencies, universities and other scientists coordinating riparian bird surveys throughout the state. The Joint Venture has proposed a methodology using 14 target species to identify stress to riparian system health and to assess the effectiveness of restoration efforts. We propose to implement and test their methodology in the McCormack-Williamson tract as a pilot for wider deployment in the CALFED region. ICE has a long record of collaboration with PRBO (Professor Quinn is on

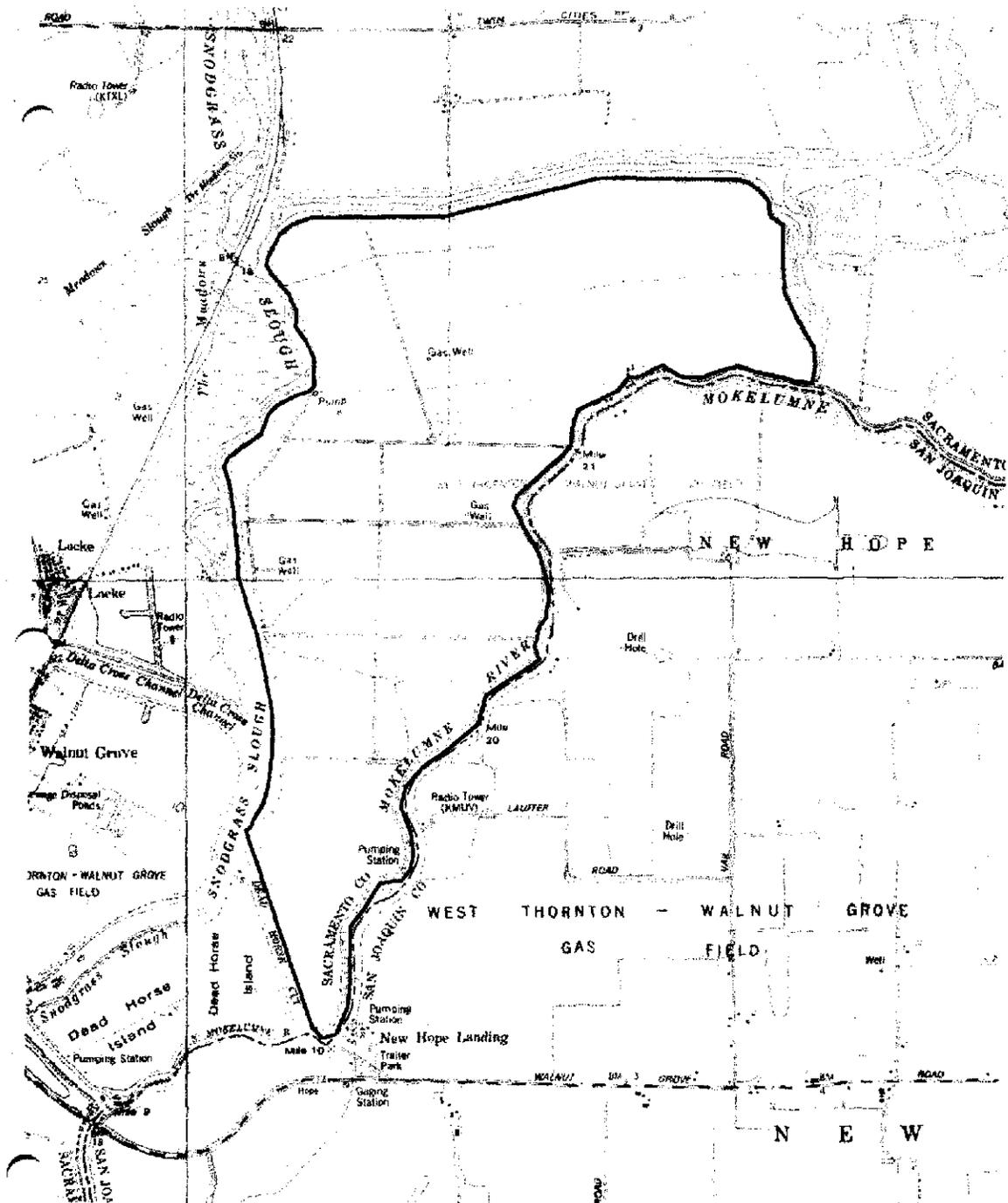
their Board), and can assist in coordinating their methodology with those proposed or implemented by IEP, CMARP, CDFG, and others.

Based on this dataset, ICE will develop refined Wildlife Habitat Relations (WHR, developed by CDFG) and/or Gap Analysis Program (GAP developed by USGS) models to identify potential species value and potential species monitoring sites where data are sparse (Task 5d). This work will require mapping WHR habitat elements on a finer scale and with greater detail in classification than is currently available from existing statewide maps (GAP). This work will be done in close cooperation with the WHR and GAP investigators. Barry Garrison, head of the WHR program for CDFG, recently completed a Resources Fellowship with ICE, with one objective of improving the detail and accuracy of species occurrence predictions in riparian habitats. Allan Hollander, who did the vertebrate modeling and accuracy assessment portion of the California GAP at UC Santa Barbara, will be joining ICE as a postdoc, and will coordinate our activities with the other GAP investigators.

As is repeatedly noted in the draft CMARP documents, data systems for handling the influx of biological monitoring data from CALFED projects are not yet in place, particularly for data not taken from fixed stations (in contrast with most IEP monitoring data). We propose to adapt an existing software environment, "Observe" and its derivatives, that was first developed by TNC and ICE to manage volunteer monitoring data in the Cosumnes reserve. Observe was later modified for use in national parks, California state parks, and UNESCO Biosphere Reserves. It forms a basis for a proposed Biological Observation Database (BOD) that CDFG will develop to manage comparable data (other than listed species occurrences, which will continue to be managed by the CA Natural Diversity Database.) BOD is now being prototyped for use with salmonid data from Endangered Species Act permits on the North Coast (in cooperation with NMFS). The software will be adapted for the monitoring described above, and tested more generally for its applicability to the riparian bird, riparian vegetation, and fish occurrence data expected from this study and similar CALFED projects and CMARP activities. An important aspect of the project is to make the data available to the public and other cooperators in the watershed. ICE will make the appropriate spatial data available through an interactive mapping tool over the World Wide Web.

III. Location and/or Geographic Boundaries of the Project

The property is in Sacramento County, within the floodway of the Cosumnes and Mokelumne Rivers. A USGS quad map is attached, with property boundaries



McCormack-Williamson Tract

noted.

IV. Ecological Objectives and Related Benefits

A. This supplemental grant is a prerequisite for implementation of the prior grant (McCormack-Williamson acquisition grant, Calfed agreement # 97-N14) and thus key to achieving the objectives identified in the proposal for that prior grant. These objectives include:

1. Permanent elimination of certain ecosystem stressors. The management of portions of the Tract that formerly contained riparian forest and wetlands directly addresses one of the most significant ecosystem stressors of the Delta and Central Valley: the loss of existing riparian vegetation and the lack of regeneration of such habitat. The establishment of riparian habitat on the water-side of the existing levees will add to the existing inventory of such habitat. Seasonal wetlands inside the existing levees will be protected from future reclamation.

2. Protection and restoration of priority habitats. Levees managed for their ecological values will preserve seasonal wetlands and aquatic habitat, shaded riverine aquatic habitat, and tidal perennial aquatic habitat.

3. Benefits to priority species and other important species.

- Managed levee habitat will provide habitat for a suite of migratory birds, including waterfowl and shorebird guilds
- Protecting and managing riparian oak forest will significantly increase capacity for nesting Swainson's hawks and will assist the migration, dispersal, and nesting of neotropical passerine bird guilds.
- Restoring the natural process of flooding to an expanded riparian zone will immediately provide natal and non-natal rearing habitat for fall-run Chinook salmon (and possibly other Chinook races) and create excellent conditions for spawning splittail.
- A managed, diverse riparian zone along the levees will potentially expand existing populations of the giant garter snake, western pond turtle, and other species associated with permanent wetlands, such as the tricolored blackbird and white-faced ibis.
- Expanding tidally-inundated acreage in the lower floodplain will benefit delta smelt, green sturgeon, and other native resident fishes, as well as striped bass.

B. The objectives of this project focus upon the reduction of ecosystem stressors, enhancement of habitat abundance and diversity, and restoration of habitat for priority and important species. The important scientific questions that

must be addressed in this project involve:

1. **Performance of wildlife-friendly managed levees.** The monitoring and evaluation component of this project will address the benefit associated with management of levees in order to enhance riparian and aquatic habitat. Due to the limited number of pre-project baseline surveys and long-term monitoring studies, there is insufficient information to quantitatively assess the impacts that improved levee management has on community and species diversity.

2. **Freshwater marsh restoration potential.** A fundamental issue currently being addressed in the Calfed ERPP is whether--given the current changes in hydrologic, sedimentologic and geomorphic conditions--the ecological function of tidal freshwater marsh environments can adequately be restored in Delta islands. The combined historical analysis of McCormack-Williamson Tract and analysis of existing hydrologic and sedimentologic conditions will specifically address this issue and develop a new methodology for assessment of potential restoration success.

3. **Ecosystem benefits of flooded areas.** Task 5a will address the importance of flooded areas in enhancing rearing and survival of species of concern. Specific hypothesis to be tested include: riparian areas that are flooded continuously in March and April provide optimal rearing habitat for juvenile Chinook salmon, as demonstrated by accelerated growth and survival; short-term (<3 mo.) flooding of riparian areas in spring favors native fishes over non-native fishes; splittail spawn in flooded areas with dense growths of herbaceous plants; and early life history stages (larvae) of native cyprinids and catostomids depend on shallow flooded areas for survival.

4. **Adequacy of data handling of biological monitoring programs.** Given the lack of defined monitoring and data handling protocols within CMARP, this project will experiment with several approaches to assembly and analysis of biological data collected for baseline studies.

C. Acquisition of the McCormack-Williamson Tract has been funded by Calfed through agreement # 97-N14. The additional funding proposed will allow TNC to pursue the acquisition process, hold and operate the property while long term management and planning is conducted, and begin initial restoration activities to improve wildlife habitats and demonstrate wildlife-friendly levee improvement techniques.

V. **Monitoring and Data Collection Methodology**

As outlined in the description of Task 4 above, extensive pre-project data collection will be conducted for project design and implementation. The focus of this data collection will be upon historical analyses of the Tract in order to document spatial and temporal distribution of historic riparian and wetland communities. This information will be compared against on-going studies of the current hydrologic and sedimentologic regime in order to assess the physical processes that may limit the effectiveness of restoration of tidal freshwater marshes (see Task description).

Task 5 focuses on the development of baseline surveys of riparian, avian and aquatic resources within and adjacent to the Tract, the design of a long-term monitoring program that assesses restoration effectiveness, and development of web-based tools for dissemination of monitoring results(see Task description).

VI. Technical Feasibility and Timing

A. Not applicable.

B. We do not propose or plan to carry out any activities under this grant that would require permits which would trigger CEQA or NEPA review, and we have not budgeted for the costs associated with this permitting or review. In the event that we determine, in consultation with the McCormack-Williamson Advisory Committee, that it would be advantageous to expand the program, within the constraints of the committed funding or with additional funding from another source, to include activities that do trigger environmental review, we will seek approval from CALFED of a revised budget and task order to accomplish this work.

C. Development and implementation of a long term restoration plan for the McCormack-Williamson Tract, such as will be necessary to achieve the full range of ecological objectives for the property, is a complex, multi-year project involving multiple private and public-sector stakeholders. The program proposed for funding in this proposal will help establish the stakeholder support for successfully addressing this challenge. Two specific activities are proposed as part of The Nature Conservancy's Task 3 which will help establish this support: 1) establishment of a formal advisory committee, consisting of representatives of key agencies (at a minimum Calfed, DWR, and the Corps of Engineers) to review and offer expert assistance on the design of the short-term actions proposed for funding herein; and 2) formal and informal outreach to other public and private

stakeholders, working directly with the Delta Protection Commission.

VII. Cost and Cost-Sharing

A. Identify the total budgeted costs requested from CALFED for each task listed in the Scope of Work broken down in the categories in Table 2. Identify the budget for each task on a quarterly basis using the format in Table 3. Quarters are Oct-Dec, Jan-Mar, Apr-June, and July-Sept.

Table 2A. Budget for TNC Tasks 1 through 3 (CALFED funds only)

Total CALFED funds requested by TNC: \$958,680

Task	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Miscellaneous and other Direct Costs	Overhead and Indirect Costs ¹	Total Cost
Task 1	1911	60,450	70,000		102,000	46,490	278,940
Task 2	1911	60,450	495,000			111,090	666,540
Task 3	328	9,000			2,000	2,200	13,200
TOTAL	4150	129,900	565,000	0	104,000	159,780	958,680

Task 1: Start-up Stewardship -- Funds are requested for staff time, indirect costs, services for infrastructure repair and other direct costs associated with owning and managing the property including property taxes and insurance. Funds budgeted for salary and benefits may be used to hire outside services depending on workload and other factors. In addition, it may be necessary for TNC to hire a new employee to assist with Task 1 activities.

Task 2: Wildlife-friendly levee program -- Funds are requested for staff time, indirect costs and outside services to implement a wildlife-friendly levee program. Funds budgeted for salary and benefits may be used to hire outside services depending on workload and other factors.

Task 3: Stakeholder outreach -- Funds are requested for staff time, indirect costs and miscellaneous costs (printing/copying, travel, phone) to organize and participate in an average of 6 stakeholder meetings each year. Funds budgeted for salary and benefits may be used to hire outside services depending on workload and other factors.

At this stage in the McCormack Williamson Project, The Nature Conservancy is unable to estimate a quarterly budget. We anticipate that

once the McCormack Williamson Tract is acquired and project details are established, a quarterly budget could be submitted.

Table 2B. Budget for UC Davis Tasks 4 and 5 (CALFED funds only)

Total CALFED funds requested by UC Davis CIWSM: \$385,718*

Task	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Miscellaneous and other Direct Costs	Overhead and Indirect Costs ²	Total Cost
Task 4 Schladow and Pasternack	RA: 2,200 hours	29,469		29,000 Sampling Equipment; Laboratory supplies and equipment	3,000 Travel:	6,145 (10%) : 8,750 Fee Remission	76,364*
Task 5a Moyle	PGR: 4,400 hours; RA: 2,200 hours	116,937		7,000 Sampling Equipment; Laboratory Supplies	3,000 Travel 5,000 Boat Operation	13,192 (10%) 8,750 Fee Remission	153,879*
Task 5b Quinn	CRS; 832	17,581			3,000 Travel	2,058 (10%)	22,639*
Task 5c PRBO			25,000 /year				75,000
Task 5d Quinn	PGR, PA, AA, PM: 1,923	47,790		4,770 Computer		5,256 (10%)	57,816*
TOTAL		211,777	75,000	40,770	14,000	44,151	385,698

*These monies are the full amount requested from Calfed. The UC Davis Center for Integrated Watershed Science and Management will provide a match of \$270,000 toward the total amount requested along with in-kind services.

B. Additional funding by The Nature Conservancy: The Nature Conservancy plans to contribute additional funds to the McCormack-Williamson project for annual levee maintenance and a levee restoration program (either short-term emergency levee repair or long-term construction of wildlife-friendly levees), depending on the availability of

McCormack-Williamson farm income. Because the farm income is variable on a year-to-year basis, The Nature Conservancy is unable to commit to a specific cost-share. However, the Conservancy anticipates contributing all funds available from these sources (from \$0 to \$250,000 each year) during the 3-year McCormack-Williamson project.

Additional funding by UC Davis: The University of California Davis Center for Integrated Watershed Science and Management will support cost-sharing of this project. The Packard Foundation has granted \$500k to the Center to support the Cosumnes Consortium. The Consortium will supply \$78k to match the monies requested for Task 4. The Consortium will provide \$192,700 in partial matching monies for Tasks 5a,b and d. The Center, with matching funds from the UC Davis administration, will also provide an academic coordinator at no cost to the project to coordinate directly with Calfed and agencies working in the basin. In addition, the project will have access to existing technologic and data resources at UC Davis; UC Davis will supply all faculty salaries and full access to existing research equipment.

C. Not applicable.

VIII. Local Impacts, Support and Involvement

A. Because this project involves a real estate acquisition which is not complete, we have not formally communicated with the relevant local agencies nor sought their official comment. We have consulted informally with both Sacramento and San Joaquin Counties, and with the Sacramento Area Flood Control Agency (SAFCA), and have their informal support.

B. There is broad awareness of and general support for acquisition of this property by TNC. The property, for example, is included on the Natural Heritage Institute's map of restoration opportunities (developed with the Delta Protection Commission and others). We know of no opposition to the acquisition.

There may be divergences of opinion on just what the long term restoration and management plan should consist of or attempt to accomplish. This proposed program includes funding for activities that assure early stakeholder involvement in this decision process.

C. We know of no opposition. Both upstream stakeholders (those affected by Franklin Pond flood elevations and Morrison Stream Group flooding) and

downstream stakeholders (specifically Staten Island) support this acquisition.

D. Yes. See VI-C above.

E. We know of no potential third party impacts that would result from the activities proposed under this grant.

IX. Applicant's Ability

A. **The Nature Conservancy** is the project's main contractor.

The Nature Conservancy is an international, private, non-profit membership organization. Its mission is to preserve plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. The Conservancy has more than 45 years of experience in identifying, protecting, and managing significant natural areas. Its strength and reputation are built on the organization's policy and practice of applying the best available conservation science and of building partnerships with local communities, private organizations, and public agencies to achieve mutual conservation goals.

The Nature Conservancy of California uses a wide variety of tools to forge solutions to conservation issues. We employ the following four methods most frequently: land acquisition; land management and restoration; land-use planning and conflict resolution; and community education and outreach.

Several of the Conservancy's landmark conservation projects have focused on riparian ecosystems. Conservation efforts aimed at these complex natural communities must include maintaining and restoring the natural processes that are essential to the long-term health of the hydrological system. In addition, The Nature Conservancy strives to balance the protection and restoration of natural communities with compatible human uses.

B. **The Cosumnes Consortium, through the UC Davis Center for Integrated Watershed Science and Management** is the project's co-applicant. It is sponsored by The David and Lucille Packard Foundation Conservation Program.

The University of California, Davis, in association with the 7 agency and non-profit partners of the Cosumnes River Preserve, has established the Cosumnes

Consortium: a coordinated university/agency/foundation partnership dedicated to evaluation and monitoring of ecosystem conservation and restoration efforts, and supporting the information needs of adaptive management in the Cosumnes River watershed. The partnership will focus on achieving five mutually supportive goals:

- 1) Provide technical analysis and decision-support for land and water rights acquisitions under consideration by the Cosumnes River Preserve partners, with an initial emphasis on the lower floodplain reaches of the Cosumnes and Mokelumne Rivers.
- 2) Develop and implement baseline studies, monitoring strategies, and new analytic methods that allow the partnership to provide long-term (10-20 year) evaluation of the success of this large conservation and restoration effort. Emphasis would be placed on monitoring that charts the progress of restoration projects as well as providing decision-support for adaptive management.
- 3) Communicate the results of this work, including new methods and findings, to a wide range of decisionmakers and stakeholders in the Sacramento/San Joaquin basin with the intent to improve and guide the management and understanding of linked watershed-scale ecosystem function.
- 4) Establish infrastructure, baseline data, and monitoring resources within the Cosumnes watershed that will attract researchers and agencies wishing to conduct fundamental and applied watershed research and education.
- 5) Educate and train the next generation of watershed scientists and planners by closely involving university students in all phases of this partnership.

The first phase of this project involves development of a linked surface water-groundwater model for the entire Cosumnes River watershed. This phase, which builds upon research conducted by The Nature Conservancy and the US Geological Survey, has been funded by a US Fish and Wildlife Service Anadromous Fisheries Restoration Program grant for \$300k. The second phase involves the coordination of agency, foundation, and university research and monitoring activities, evaluation of current restoration efforts, design and implementation of long-term environmental and ecologic monitoring and modeling programs, and development of outreach and decision-support programs for stakeholders and agencies currently active within the watershed. Initial funding of \$500k has been received from the Packard Foundation to support a portion of this effort for a period of two years. This support is intended to encourage additional financial participation of private and public agencies with long-term restoration interests in the Cosumnes watershed and the Sacramento/San Joaquin basin. Annual reports, bi-annual meetings, and final reports will focus on evaluations of, and recommendations for, long-term

restoration strategies and monitoring within the Cosumnes watershed.

This project is administered through the UC Davis Center for Integrated Watershed Science and Management.

X. Compatibility with Non-Ecosystem Objectives

The project is compatible with other Calfed objectives, because it is key to activities to improve habitat conditions and conveyance within the Mokelumne floodway.

Table 1.

D) Biological/Ecological Objective			
Question to be Evaluated/ Hypothesis	Monitoring Parameter(s) and Data Collection Approach ¹	Data Evaluation Approach	Comments
Performance of wildlife- friendly levees	Riparian, aquatic and avian resource baseline surveys established in first two years.	Studies form basis for long- term monitoring of project impact on local ecosystems	Studies will be utilized in design of final monitoring program
Assessment of restoration potential of tidal freshwater marshes	Stratigraphic and chronostratigraphic analysis of Tract cores; assessment of hydrologic and sedimentologic regime of lower Mokelumne/Cosumnes	Comparison of stratigraphic analysis with nearby reference wetland; modeling of potential sedimentation rates and aquatic/riparian plant communities	Studies will be utilized in project design and design of monitoring program
Ecosystem benefits of flooded areas	Year around sampling program focused on usage of flooded areas in lower Cosumnes/Mokelumne by native and exotic fish species	Comparison of data analysis techniques with range of current methods employed in Delta, specifically those employed by DWR	Data handling and sampling methods will be incorporated in final monitoring program design
Data handling and analysis of biological monitoring programs	Assembly of data into project GIS, analysis using modified "Observe" program	Comparison of data analysis techniques with range of current methods employed in Delta	Data handling methods will be incorporated in final monitoring program design

Notes: 1 - Indicate if monitoring will be performed in this phase or in subsequent phases of the project.

COSUMNES RIV. PRESERVE

TO SACRAMENTO

ELK GROVE

DILLARD ROAD

COSUMNES RIVER

LAGUNA CREEK

TWIN CITIES ROAD

COSUMNES RIVER PRESERVE

GALT



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