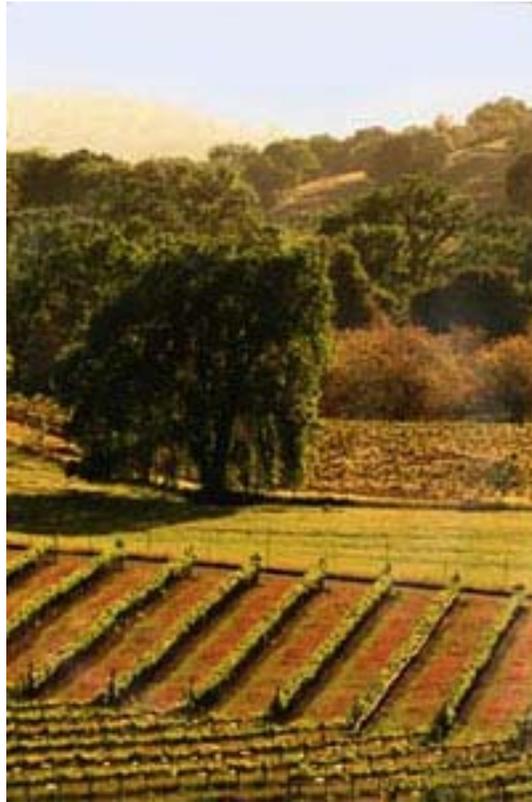


**SIERRA FOOTHILL VINEYARDS:  
PROMOTING WATER MANAGEMENT PRACTICES  
FOR PUBLIC BENEFITS**



**A Feasibility Study**

**Offered By:  
Natural Heritage Institute**

**To:**

**Department of Water Resources**

**11 January 2005**

# SIERRA FOOTHILL VINEYARDS: PROMOTING WATER MANAGEMENT PRACTICES FOR PUBLIC BENEFITS

## I. Statement of Work: Relevance and Importance

The **overall goal** of this project entitled: “Sierra Foothill Vineyards: Promoting Water Management Practices for Public Benefit: (Sierra Foothill Vineyards) is to research the feasibility of managing water use on the rapidly growing vineyards in the Sierra foothills to meet agricultural goals of the industry, while also achieving multiple public benefits, including reducing losses that currently return to the water system, making water available for instream flows, and improving water quality. The Sierra Foothill Vineyards Study is a new initiative to look at the potential of linking a growing agricultural sector in the Sierra Foothills into CALFED’s goals and objectives.

More specific **project objectives** include:

- ❖ To analyze lessons-learned in sustainable water management on vineyards and transfer those components that are applicable to the Sierra foothills
- ❖ To use a grower-assessment approach to better understand water use and movement on study-vineyards and to make recommendations for improving water use management, including efficient water management practices (EWMP)
- ❖ Explore links between these proposed management actions and California Bay-Delta targeted benefits
- ❖ To test the feasibility of an incentive-based system through technical and planning assistance to the viticulture community in the foothills

This feasibility study will take place within the CALFED Bay-Delta Program watershed, namely adjacent to tributaries that drain into the Sacramento and San Joaquin Rivers. The project will aim to work with wineries that are located in disadvantaged communities. There are several counties and many communities within the Sierra foothills that meet the criteria (annual median household income less than \$38,000).

The Natural Heritage Institute (NHI) requests support for this 30 month project from the California Bay-Delta Program Water Use Efficiency (WUE) Program. This study fits within the goals and objectives of the WUE Program in that it aims to advance the implementation of cost-effective agricultural water conservation and sustainable water use management practices that contribute to California Bay Delta Program water quality and ecosystem restoration goals. In addition, this project will support the following WUE Program commitments:

- ❖ Develop partnerships with local and regional entities to assess the costs, benefits, and feasibility of potential WUE actions
- ❖ Support and inform sound water management decisions
- ❖ Develop quantified performance measures
- ❖ Facilitate implementation of WUE actions at the grower level
- ❖ Help implement WUE practices that are not locally cost effective but still contribute to California Bay-Delta objectives
- ❖ Provide technical assistance to help local entities overcome technical hurdles

The Sierra Nevada region is expected to grow by 50 percent from about 700,000 people in 2000 to 1.1 million people by 2020. Most of this growth will occur in the foothills where meadows, rangelands, woodlands including oaks and foothill pine, are found interspersed with forests along streams and rivers. This Sierra foothill region is a new area for vineyard expansion; at present there are over 40 wineries. Numerous tracts of environmentally fragile lands are being converted from open space to vineyards. Vineyards, however, do not need to be classified as “environmentally destructive” but can coexist as “working landscapes” if managed with care. At present, there is limited available information or guidelines specific to the foothill ecosystem with regards to siting, design or sustainable water use management of these new agricultural areas.

It is critical that during this shift in land use from open space to productive vineyards that wine growers and planners have the information and tools to proceed with this transformation in the most sustainable way possible. This feasibility project will take the first step towards helping to tip the present and future Sierra foothill winegrowers towards sustainable action that provide public benefits.

The cost of no action is high. Without an initiative such as this, Sierra foothill vineyards would lose the opportunity to leapfrog over the costly ecological mistakes made elsewhere in California. Repeating those ecological mistakes would be costly financially and exact avoidable detrimental impacts on the rivers and creeks that flow through these agricultural areas. In addition, without the proposed technical assistance, vineyards will continue to operate and be developed in the Sierra foothills without consideration of their links to the Bay-Delta system.

## **II. Statement of Work: Technical Merit**

This project is designed with several key principles in mind. First, it follows a collaborative approach through the development of a Core Team that includes wine growers, relevant state agencies, extension services, and NHI scientists. Second, this project follows a deliberate and step-wise approach that builds on past knowledge, understands local conditions, works with growers to recommend potential best management practices in the context of specific foothill vineyards, links potential management actions with targeted benefits, establishes practical monitoring and verification protocols, and finally disseminates results.

This collaborative, scientific, step-wise methodology is a slow process when compared with full-fledged implementation based on a desk-top study, but we believe that it ensures that the proposed practices are appropriate, demonstrable, and widely adopted.

If from this feasibility study we conclude that there is significant potential in linking improvements in on-vineyard management practices with CALFED’s targeted benefits, then we will seek additional funding to implement pilot projects to quantify and verify the benefits using the methodology established during this phase of the project.

Below are nine tasks that we have developed to implement this project and to achieve our goals and objectives.

### **Task 1: Ensure Smooth Project Management**

This task is often not called out in a project plan, but we have found that attention to management issues is critical to the success of any project and thus we have outlined the following subtasks to support smooth and effective project management:

- 1.1 Finalize project plan and work schedule, monitoring and evaluation plan, and budget
- 1.2 Develop subcontracts or agreements with partner organizations
- 1.3 Prepare quarterly fiscal and programmatic reports
- 1.4 Draft and finalize final report

### **Task 2: Identify Core Team of Growers and Partners**

This task will involve identification of 2-3 growers in the Sierra Nevada Foothills interested in helping to implement this feasibility project. Already, we have received positive feedback from several growers, including the Fitzpatrick Winery (<http://www.fitzpatrickwinery.com/>) based in Fairplay. In addition, the project will coordinate with the University of California Cooperative Extension, the Natural Resources Conservation Service, the Regional Water Quality Control Board, the Nevada County Winegrape Growers, and the Amador Winegrape Quality Alliance. From this pool, the project will form a Core Team of growers, scientists, and partners to provide expertise and experience. Subtasks towards this first step are outlined below:

- 2.1 Outreach to growers, extension services, and appropriate associations
- 2.2 Draft charge for Core Team, including overall mission, goals, roles and responsibilities
- 2.3 Convene initial meeting for Core Team to finalize charge and agree on implementation and outreach plan

### **Task 3: Research and Evaluate Successful Approaches and Lessons-Learned**

In order to build on progress already made in other wine-grower areas in California towards promoting sustainable water management practices, this task is aimed at researching approaches and lessons-learned to determine which elements are transferable to the Foothill Region. In particular, the Positive Points System implemented by the Central Coast Vineyard Team will be evaluated in detail.<sup>1</sup> The first step in this task will be to characterize the Sierra Foothill Region to ensure that any proposed methods or practices fit local conditions. Proposed subtasks include:

- 3.1 With the Core Team, articulate the physical and biological setting that characterizes the foothill Region, including rainfall and runoff patterns, soils, temperature, dominate pests and predators, etc.
- 3.2 Research specific soil, water and plant issues as they relate to on-vineyard sustainable water management
- 3.3 Identify growers, groups, and agencies known for their innovative and effective programs and actions aimed at sustainable water management in the context of grape-growing
- 3.4 Research these approaches and make site visits as appropriate
- 3.5 Determine which of these sustainable water management practices if applied to Sierra foothill grape growing would result in direct or indirect benefits for water quality and quantity for the Bay-Delta region

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<sup>1</sup> The Positive Points System (PPS) was developed for application on vineyards in the Central Coast of California. The PPS uses a “whole farm” approach to evaluate vineyard management. This project will be evaluating the PPS system and other such approaches to determine their applicability for application in the Sierra foothills.

- 3.6 Prepare report that outlines these successes and their applicability to the foothill grape growers

#### **Task 4: Conduct Feasibility Study: Conceptualizing the Flow Paths**

This task is aimed at integrating the experiences and lessons-learned in other grape-growing areas of California into a Sierra foothill-appropriate feasibility study. This feasibility study will be conducted in the context of two vineyards where the return water flow path is on the land surface such as through natural creeks or drainages. The first step in this feasibility study is to articulate a conceptual model of the flow paths at the vineyard-level. The conceptual model will include estimates of inflow, outflow, storage, precipitation, evaporation, evapotranspiration, etc. This type of approach allows for an understanding of how water moves through the vineyards and can be a critical tool to identify and formulate management actions aimed at conserving water and promoting improved water quality. The conceptualization and possible quantification of these flow paths can then become the basis for the estimated water savings and the verification of these savings during project implementation. For this task, we propose the following subtasks:

- 4.1 Identify two foothill vineyards with return water flow paths on the land surface
- 4.2 Draft a Memorandum of Understanding with each wine-grower that describes joint goals and roles and responsibilities of all parties and partners
- 4.3 Develop flow path conceptual models for the two study-vineyards which includes links to adjacent creek and river systems that drain into the CALFED Bay-Delta System

#### **Task 5: Conduct Feasibility Study: Grower Assessment of Improved Practices**

This task will involve a grower-assessment of existing practices and identification of areas for improvement. This grower assessment will help determine the current water delivery systems, pesticide and fertilization schedules and quantities. Improvement associated with grape growing, processing, and land management practices will be explored, including irrigation methods, return systems, and irrigation scheduling. These improvements will be suited to the site conditions, including the soil and topography, and will be screened to ensure that they do not cause detrimental downstream impacts.

- 5.1 Work with wine-growers on the two study vineyard to assess existing practices
- 5.2 Determine areas for potential water use improvements

#### **Task 6: Conduct Feasibility Study: Quantify Potential Targeted Benefits**

The intent of this task is to take the proposed improvements developed in Task 5 and begin to translate them into potential public benefits in terms of water use reductions, and water quality benefits. These improvements might include reducing losses that currently return to the system as groundwater recharge. In addition, this task will determine the costs associated with these water use improvements. The second step associated with this task will be to determine if there is a link between these changes in management and flow paths and CALFED Target Benefits and Quantifiable Objectives, such as making conserved water available for targeted instream flows during dry periods, increasing water quality to reduce total maximum daily loads, reducing temperatures to enhance and maintain aquatic species populations, or reduce sediments to enhance and maintain beneficial uses of water.

- 6.1 Quantify potential water use reduction benefits, water quality benefits, and costs for water use improvements
- 6.2 Quantify links between changes in water use management practices at the vineyard-level with public benefits including efforts to reduce total maximum daily loads

### **Task 7: Develop Low Cost Monitoring and Verification Protocols**

The focus of this task is to develop monitoring and verification protocols to assist vineyard owners in tracking the volume of water conserved and increases in water quality. This effort will build on the on-farm systems improvements and verification information developed by the CALFED Agricultural Water Use Efficiency Program. In addition, this task will involve installing measurement devices at on-vineyard plots that are currently not metered. The intent is to establish this monitoring in advance of a second phase pilot project. All of the accessible water bodies that flow near the pilot vineyards will be sampled on a monthly basis over a one-year period, with extra sampling periods during storm events, to determine water quality conditions. The most likely water quality measures that will be monitored include: nitrates, sulfates, phosphates, pH, and dissolved oxygen, as well as commonly used pesticides and herbicides. These water quality data will be analyzed with respect to meteorological data such as precipitation records, hydrographs and soil characteristics, as well as application rates and times to look at delivery mechanisms from vineyards to streams. The following subtasks will result in the implementation of this important part of the project:

- 7.1 Review existing low cost monitoring and verification protocols
- 7.2 Based on the needs of the vineyards, develop monitoring plan that meets these needs
- 7.3 Install measurement devices
- 7.4 Sample adjacent water bodies and collect additional meteorological data
- 7.5 Create baseline dataset and quantify potential benefits

### **Task 8: Assess Overall Feasibility**

The intent of this task is to evaluate the results of the feasibility study. This evaluation will include an analysis of all aspects of the project, including the review of best practices, the use of conceptualized flow paths, the grower assessment of improved practices, the quantification of benefits and the development of monitoring and verification protocols. Most importantly, this task will make an assessment of the potential for on-vineyard water management practices in relation to the benefits that could accrue to the CALFED Bay Delta system. These subtasks will be followed:

- 8.1 With the Core Team in a workshop setting, evaluate the steps taken in this study
- 8.2 Based on this evaluation, make additional recommendations for proposed water use management actions, and monitoring and verification protocols
- 8.3 Scale up potential benefits associated with changes with on-vineyard management actions to include multiple vineyards in the Sierra foothills
- 8.4 Evaluate the cost *vs* benefits to the CALFED system in terms of implementing these proposed actions

### **Task 9: Outreach and Dissemination of Results**

In order to ensure that the results of the project are disseminated to a larger grower audience in the foothill region, we will work with UC Extension Officers in the Foothills to produce material that can be disseminated as part of their outreach services. Project partners will also provide outreach material to County-level planners and to Water Districts in the foothills. To determine the number and location of operating viticulture practices in the Sierra Nevada foothills for outreach efforts, aerial photographs and county economic sector maps will be overlaid using GIS Arc Map tools. The maps will be cross referenced with consumer guides and web sites that advertise local vineyards, until a comprehensive and complete reference of all vineyards is compiled for the region. To further the work of the project, we will hold a Demonstration Day at one of the pilot vineyards, and work with the wine-growers to develop material that articulate the analytical and collaborative process used in this feasibility study. Towards this end, we propose these subtasks:

- 9.1 Work with Extension Officers to develop appropriate outreach material

- 9.2 Develop a comprehensive list of all vineyards in the region
- 9.3 Disseminate results of the feasibility study
- 9.4 Hold a Demonstration Day on participating vineyard

## Project Plan and Work Schedule

Task	Task Descriptions	Start Date	End Date	2006	2007	2008	Budget Total
				<b>Annual Budget &amp; Schedule</b>			
<b>Task 1</b>	<b>Ensure Smooth Project Management</b>			15,000	4,026	5,700	<b>24,726</b>
1.1	Finalize project plan and work schedule, monitoring and evaluation plan, and budget	12/1/05	4/30/06				
1.2	Develop subcontracts or agreements with partner organizations	12/15/05	12/15/06				
1.3	Prepare quarterly fiscal and programmatic reports	4/1, 7/1, 10/1, 1/1 '06-'08	4/15, 7/15, 10/15, 1/15 '06-'08				
1.4	Draft and finalize final report	4/1/08	5/1/08				
<b>Deliverables</b>	Project Plan, Work Schedule, and Planning Budget		4/30/06				
	Monitoring Assessment		4/30/06				
	Quarterly fiscal and programmatic reports		4/15, 7/15, 10/15, 1/15 '06-'08				
	Final Report		5/1/08				
<b>Task 2</b>	<b>Identify Core Team of Growers and Partners</b>			9,523	0	0	<b>9,523</b>
2.1	Outreach to growers, extension services, and appropriate associations	2/1/06	7/15/06				
2.2	Draft charge for Core Team, including overall mission, goals, roles and responsibilities	7/15/06	9/15/06				
2.3	Convene initial meeting for Core Team to final charge and agree on implementation	7/15/06	10/15/06				
<b>Deliverables</b>	Final charge for Core Team		9/15/06				
	Core Team meeting convened		10/15/06				

Task	Task Descriptions	Start Date	End Date	2006	2007	2008	Budget Total
				<b>Annual Budget &amp; Schedule</b>			
<b>Task 3</b>	<b>Research and Evaluate Successful Approaches and Lessons-Learned</b>			39,308	0	0	39,308
3.1	With the Core Team, articulate the physical and biological setting that characterizes the Foothill Region	8/15/06	10/15/06				
3.2	Research specific soil, water and plant issues as they relate to sustainable water management in the Sierra foothills	8/15/06	10/15/06				
3.3	Identify growers, groups, and agencies known for their innovative and effective programs and actions aimed at sustainable water management in the context of grape-growing	4/10/06	8/10/06				
3.4	Research these approaches and make site visits as appropriate	8/10/06	12/10/06				
3.5	Determine which of these sustainable water management practices if applied to Sierra foothill grape growing would result in direct or indirect benefits for water quality and quantity for the Bay-Delta region	8/10/06	12/10/06				
3.6	Prepare report that outlines these successes and their applicability to the foothill grape growers	12/10/06	3/10/07				
<b>Deliverables</b>	List of growers, groups, and agencies known for innovative sustainable water management		8/10/06				
	Draft report		2/10/07				
	Final report		3/10/07				

Task	Task Descriptions	Start Date	End Date	2006	2007	2008	Budget Total
				<b>Annual Budget &amp; Schedule</b>			
<b>Task 4</b>	<b>Conduct Feasibility Study: Water Balance and Flow Path Study</b>			1,000	17,206		<b>27,206</b>
4.1	Identify two foothill study vineyards	6/10/06	12/10/06				
4.2	Draft MOU with each study vineyard	12/10/06	2/10/07				
4.3	Develop flow path conceptual models	2/10/07	6/10/07				
<b>Deliverables</b>	MOU with two wine-growers		2/10/07				
	Flow path conceptual models for the two study-vineyards		2/10/07				
<b>Task 5</b>	<b>Conduct Feasibility Study: Grower Assessment of Improved Practices</b>				20,088		<b>20,088</b>
5.1	Work with wine-growers on the two study vineyard to assess existing practices	1/10/07	4/10/07				
5.2	Determine areas for potential water use improvements	4/10/07	6/10/07				
<b>Deliverables</b>	Memo assessing existing practices and determining areas for potential water use improvements.		7/10/07				

Task	Task Descriptions	Start Date	End Date	2006	2007	2008	Budget Total
				Annual Budget & Schedule			
<b>Task 6</b>	<b>Conduct Feasibility Study: Quantify Potential Targeted Benefits</b>				12,512		12,512
6.1	Quantify potential water use reduction benefits, water quality benefits, and costs for water use improvements	7/10/07	10/10/07				
6.2	Quantify links between changes in water use management practices at the vineyard-level with public benefits including efforts to reduce total maximum daily loads	8/10/07	10/10/07				
<b>Deliverables</b>	Memo describing potential changes in water use for each vineyard		10/10/07				
	Memo describing link to public benefits		12/10/07				
<b>Task 7</b>	<b>Develop Low Cost Monitoring and Verification Protocols</b>			16,000	5,000	7,198	35,638
7.1	Review existing low cost monitoring and verification protocols	1/10/06	6/10/06				
7.2	Based on the needs of the vineyards, develop monitoring plan	12/10/06	4/10/07				
7.3	Install measurement devices where needed	4/10/07	8/10/07				
7.4	Sample adjacent water bodies and collect additional meteorological data	5/10/06	12/10/07				
7.5	Create baseline dataset and quantify potential benefits	5/10/06	12/10/07				
<b>Deliverables</b>	Monitoring plan for two study-vineyards		4/10/07				
	Photo documentation of installed measurement devices		8/10/07				
	Baseline dataset and quantification of potential benefits		12/10/07				

Task	Task Descriptions	Start Date	End Date	2006	2007	2008	Budget Total
				Annual Budget & Schedule			
<b>Task 8</b>	<b>Assess Overall Feasibility</b>					14,520	<b>21,588</b>
8.1	With the Core Team in a workshop setting, evaluate the steps taken in this study	1/10/08	2/10/08				
8.2	Make additional recommendations for proposed water use management actions, and monitoring and verification protocols	1/10/08	3/10/08				
8.3	Scale up potential benefits associated with changes with on-vineyard management actions to include multiple vineyards in the Sierra foothills	1/10/08	3/10/08				
8.4	Evaluate the cost vs. benefits to implement proposed actions	1/10/08	3/10/08				
<b>Deliverables</b>	Evaluation of costs vs. benefits to the CALFED system		3/10/08				
<b>Task 9</b>	<b>Outreach and Dissemination of Results</b>			500	8,248	8,500	<b>17,248</b>
9.1	Work with Extension Officers to develop appropriate outreach material	8/10/07	12/10/07				
9.2	Develop a comprehensive list of all vineyards in the region	12/1/05	3/10/06				
9.3	Disseminate results of the feasibility sites	1/10/08	5/1/08				
9.4	Hold Demonstration Days on participating vineyards	9/10/07	5/1/08				
<b>Deliverables</b>	Outreach material produced		12/10/07				
	List of vineyards in foothill region		3/10/06				
	Dissemination of feasibility studies		5/1/08				
	Photo documentation of Demonstration Days hosted at participating vineyards		5/1/08				
	<b>Total</b>						<b>207,836</b>
	<b>Contingency 5%</b>						<b>10,392</b>
	<b>Total Request</b>						<b>218,228</b>

## **Environmental Documentation**

The proposed feasibility study is not considered a “project” as defined by CEQA, California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15378. This project is a feasibility study with no on-the-ground action with the exception of monitoring, and thus it will not have a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

## **III. State of Work: Monitoring and Assessment**

As this is a feasibility study, we have not identified Level 3: System-wide indicators that would track broad, often complex, responses of groups of projects. Instead, we have designed a monitoring and assessment plan that meets the scale and scope of the project.

To mark progress and assess project management benchmarks, we have developed Level 1 administrative indicators. Monitoring progress of the project against project benchmarks will be done using the Project Plan and Work Schedule presented above. This plan and schedule provide deliverables and due dates associated with project tasks. In Task 1, we will finalize this plan and schedule to ensure that it captures progress being made towards the overall project goal and objectives.

In addition, in a workshop setting the Core Team will evaluate the steps taken in this study, including an analysis of all aspects of the project from the review of best practices, the use of conceptualized flow paths, the grower assessment of improved practices, the quantification of benefits and the development of monitoring and verification protocols (Task 8). This Core Team assessment will provide important feedback.

In order to provide the groundwork for using Level 2 performance measures that track quantifiable accomplishments directly related to program actions, Task 4 will determine conceptual flow paths for the two study-vineyards. The conceptualization and possible quantification of these flow paths will become the basis for the estimated water savings and the verification of these savings during future pilot project implementation, if deemed feasible as a result of the study.

Further, in Task 7, we will develop monitoring and verification protocols to assist vineyard owners in estimating the volume of water conserved and increases in water quality. This effort will build on the on-farm systems improvements and verification information developed by the CALFED Agricultural Water Use Efficiency Program. This task will involve installing measurement devices at on-vineyard plots that are currently not metered. The intent is to establish this monitoring in advance of pilot project implementation. In addition, all of the accessible water bodies that flow near the pilot vineyards will be sampled on a monthly basis over a one-year period, with extra sampling periods during storm events, to determine water quality conditions. These water quality data will be analyzed with respect to meteorological data such as precipitation records, hydrographs and soil characteristics, as well as application rates and times to look at delivery mechanisms from vineyards to streams.

### **Anticipated Challenges**

The most complicated aspect of the project and a potential challenge will be to develop a monitoring program capable of detecting impact of management practices above the natural variability found in the system. One approach to overcome this issue would be to choose pilot vineyards in close proximity to rivers and creeks that already have a significant database in terms of precipitation and streamflow, and perhaps water chemistry. Working in such a relatively data-rich system would allow us to more readily detect impact due to changes in management practices over the so-called “noise” in the system. This feasibility study will also set up baseline data collection so that if and when a pilot project phase is implemented, there will be a robust baseline dataset against which the impact of management actions can be measured.

### **Dissemination of Information**

As this project is designed as feasibility study, the results are meant to be disseminated beyond the immediate collaborating vineyard managers and owners who are part of the pilot project. Steps to disseminate these results, including Demonstration Days are outlined in Task 9 above. In addition, project proponents will disseminate results at appropriate workshops and conferences, and to foothill County planners, and Water Districts. All data and study results will be made available to DWR and other interest stakeholders upon request and through established links on the NHI website.

## **IV. Qualifications of the Applicants and Cooperators**

Founded in 1989, the **Natural Heritage Institute** (NHI) is a nonprofit law and consulting firm dedicated to improving the laws and institutions that manage natural resources. NHI's practice encompasses advocacy in judicial and administrative forums, negotiations and environmental policy development in the areas of hydropower reform, biological diversity, forestry, land use and water resources. NHI emphasizes projects that can be widely replicated, and that advance conservation in the context of social and economic progress.

Over the past years, NHI has embarked on many collaborative efforts, involving stakeholders in the development of best sustainable practices on local to transboundary scales. NHI brings demonstrated expertise in using technical and scientific tools to help guide and support stakeholder groups to define best sustainable practices in each unique context. This approach not only gains successful buy-in but also ensures stakeholder investment in upholding those best practices and gives them the knowledge to adapt the management in the future.

NHI opened an office in the Sierra in 2002 to help address emerging and urgent issues associated with the rivers and waters in the headwaters of the Bay-Delta system. During the last several years, the NHI Sierra Office has launched several important projects including one that focuses on assessing and restoring Deer Creek, a tributary to the Yuba River, and another with the University of California at Davis, the US Forest Service, and the Department of Fish and Game that is aimed at developing a shared database that can be used to determine the health of mountain meadow habitats in the Sierra. In addition, NHI is working on developing early strategies for restoring the Yuba and Bear Rivers as part of upcoming FERC re-licensing. This proposed project was conceived to help address the critical issues associated with vineyard management in the Sierra and its potential impact on the resource base. In the next year, the NHI Sierra Office intends to undertake a strategic

planning exercise that will outline a 3-year strategy for this office, including targeted areas of focus, innovative and effective approaches, funding and personnel needs.

NHI will be the lead fiscal and implementing agency for this project and will be responsible for payments, reporting and accounting.

**Elizabeth Soderstrom, Ph.D.** is a resource scientist at NHI who focuses on water resources. Dr. Soderstrom has extensive experience in water resources management in the international and domestic arenas. Dr. Soderstrom serves as project manager for several projects at NHI, including: a three-year project focused on developing a joint data base and hydrological model for the Okavango River Basin in southern Africa entitled: *Sharing Water: Towards a Transboundary Consensus on the Management of the Okavango River Basin*; a two-year, project entitled: *Small is Beautiful: Scaling Adaptive Management to Fit a Range of Riverine Systems*; a three-year project entitled: *Feasibility Study to Increase Habitat for Splittail and Salmon in the Yolo Bypass*; and a two-year project entitled: *Overcoming the Legacy of the Gold Mine Era: Restoration of Deer Creek*. Also, she is an active member of the California Bay-Delta Science Consortium, the Guadalupe River Adaptive Management Team; and the Trinity River Adaptive Management Team, and facilitates the CALFED Independent Science Board. From 1996-2000, she served as the lead position in water resources management at USAID's Regional Center for Southern Africa. She has received a Switzer Environmental Fellowship and a Science, Engineering and Diplomacy Fellowship for the American Association for the Advancement of Science. She received her M.S. in Biological Sciences from Stanford University in 1986 and her Ph.D. in Wildlands Resource Science from UC Berkeley in 1996.

Elizabeth Soderstrom will be the overall manager, providing overall guidance for the direction of the project.

**Carrie Inman-Monohan, PhD** is a hydrologist with a focus on the nexus between agricultural practices and river health. Dr. Inman-Monohan's dissertation research focused on riparian buffer function with respect to nitrogen retention and temperature along lowland agricultural streams in Skagit County, Washington. Dr. Inman-Monohan has also worked as a Research Assistant at the Northwest Fisheries Science Center, and at the University of Oregon Department of Ecology and Evolution. She received an NMFS Graduate Research Grant for Water Quality in Agricultural Areas and produced a white paper on the Needs in Agricultural Streams in the Pacific Northwest Pertaining to Freshwater Habitat for Salmonids. She also conducted an independent study on fish biodiversity in the flood plain habitat of the Okavango Delta, Botswana, Africa. Dr. Inman-Monohan received her PhD in Forest Engineering and Hydrology from the University of Washington Center for Water and Watershed Studies.

Carrie Inman-Monohan will work with Dr. Soderstrom to identify appropriate study vineyards and will work directly with the managers and owners of the vineyards to develop conceptual flow paths, assess existing management practices, and develop monitoring and verification protocols.

**Brian Joyce, M.S.** is a Project Hydrologist with a special interest in improving water supply and quality in irrigated systems. Recent work sought to identify management practices to reduce non-point source pesticide runoff from agricultural fields. This effort included designing field experiments and developing models to simulate the chemical runoff responses of conventional and alternative farming practices. He has worked extensively with the water resource systems simulation model of the California water system used by government agencies for statewide integrated water

planning. Mr. Joyce used this model to investigate groundwater banking and conjunctive use potential, and to identify promising operational flexibility to enhance river flows for fish and riparian habitat restoration. He has assisted in the development of databases and analytical tools used to support the USAID-funded Sharing Water project in the Okavango/Kavango river basin. Mr. Joyce received his M.S. in hydrologic sciences from the University of California, Davis, where he is currently drafting his Ph.D. dissertation. He served as a Peace Corps volunteer in Senegal. Mr. Joyce is fluent in French.

Brian Joyce will provide GIS assistance to the project. He will also build on his previous work with developing models to simulate the chemical runoff responses of conventional and alternative farming practices to bring insight to the sustainable practices for viticulture in the foothills.

**Julie S. Leimbach**, B.A. is Project Assistant to at the Sierra Office of the Natural Heritage Institute. At NHI, Julie coordinates project reporting, logistics and running of workshops. She holds a B.A. in International Relations from Tufts University. After spending a year in Cape Town, investigating the South African Truth and Reconciliation Commission. Julie has also worked for the International Consortium of Investigative Journalists at the Center for Public Integrity and managed a river rafting outfit.

Julie Leimbach will provide administrative and financial management support to the project. She will also coordinate the workshop and demonstration days.

### **External Cooperation**

The project intends to hire **Maggie Winslow, Ph.D.** who is a private consultant to assist with the cost benefit analysis. Dr. Winslow is an economist who has worked on natural resource management issues from an economic perspective for a number of environmental organizations, including Redefining Progress, the Pacific Institute, and Environmental Defense. Dr. Winslow's work ranges from evaluating the impacts of energy policy on various social groups to calculating air pollution embedded in Californian electrical use. In addition, Dr. Winslow is a regular lecturer in Natural Resource Economics at U.C. Berkeley and Managerial Economics at the Presidio World College. She has a M.S. in Environmental Policy and Economics from the University Of Michigan, and a Ph.D. from the Energy and Resources Group at U.C. Berkeley.

In addition, the project will coordinate with the University of California Cooperative Extension, the Natural Resources Conservation Service, the Regional Water Quality Control Board, the Nevada County Winegrape Growers, and the Amador Winegrape Quality Alliance. From this pool, the project will form a Core Team of growers, scientists, and partners to provide expertise and experience.

### **Disadvantaged Community**

This feasibility study will take place within the CALFED Bay-Delta Program watershed, namely adjacent to tributaries that drain into the Sacramento and San Joaquin Rivers. The project will aim to work with wineries that are located in disadvantaged communities. There are several Counties and many communities within the Sierra foothills that meet the criteria (annual median household income less than \$38,000).

## **V. Outreach, Community Involvement, and Acceptance**

This feasibility study is designed so that it is a collaborative and transparent process from the outset with built-in stakeholder participation. Measures have been designed to ensure transferable benefits beyond the study area. The following proposed actions demonstrate this commitment to:

- ❖ Use of Core Team of growers and partners to advise and help implement the project (Task 2)
- ❖ Develop MOUs with vineyard-owners to implement the feasibility study (Task 4)
- ❖ Use a grower-assessment approach in project implementation (Task 5)
- ❖ Use of Core Team to assess project progress and results (Task 8)
- ❖ Ensure broad dissemination of results (Task 9)

## **VI. Benefits and Costs**

The intent of this study is to determine the feasibility of changing water use management practices on vineyards in the Sierra Nevada foothills so that these growing agricultural lands achieve direct or indirect in-stream flow and timing, water quantity, and water quality benefits to the Bay-Delta System. The results of this study will be important in determining where and how to provide incentives to this growing agricultural sector. As part of this study, the potential benefits to be gained will be compared with the anticipated costs.

**PROJECT IMPLEMENTATION COSTS TABLE**

**APPLICANT:** Natural Heritage Institute

**Project Title:** Harvesting Lessons: Promoting Water Management Practices for Public Benefit

**Table C-1: Project Costs (Budget)**

	Category	Project Costs \$	Contingency 5%	Project Cost + Contingency \$	Applicant Share \$	State Share \$	Life of investment (Years)	Capital Recovery Factor (Table C-4)	Annualized costs \$
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)
	Administration (for initiation of project)								
	Salaries, wages	78,000	3,900	81,900	0				
	Fringe benefits	48,360	2,418	50,778	0				
	Supplies	2,750	365	3115	0				
	Equipment	21,500	1,075	22,575	0				
	Consulting Services	4,000	137	4,137	0				
	Travel	13,000	650	13,650	0				
	Other								
(a)	Total Administration Costs <sup>1</sup>	167,610	8,380	175,990	0				
(b)	Planning/Design/Engineering								
(c)	Equipment Purchases/Rentals/Rebates/Vouchers								
(d)	Materials/Installation/Implementation								
(e)	Implementation Verification								
(f)	Project Legal/License Fees								
(g)	Monitoring and Assessment****	*inc. in Labor							
(h)	Report Preparation****	*inc. in Labor							
(i)	Structures								
(j)	Land Purchase/Easement								
(k)	Environmental Compliance/Mitigation/Enhancement								
(l)	Construction								
(m)	Other (Indirect Overhead)	40,266	2,011	42,238	0				
(n)	TOTAL (=a+...+m)	207,836	10,392	218,228	0		NA	NA	
(o)	Cost Share Percentage	NA	NA	NA	(row n, column V/IV) x 100	(100 - row o, column V)	NA	NA	NA

<sup>1</sup> (Excludes administration O & M costs)

\*\*\*\* Funds for Monitoring and Evaluation in addition to Report Preparation are included in Labor. Please see the Project Plan for further detail.

## Table C-1 Justifications

### Applicant Cost Share

NHI has submitted a similar proposal to the Columbia Foundation for \$89,000, which, if awarded, could be applied to the funds requested from the Department of Water Resources in this proposal.

### Labor and Benefits

#### **NHI Accounting Structure and Direct and Indirect Cost Rates**

NHI utilizes the OMB Circulars A-110 and A-122 to determine its accounting procedures. The organization's Fringe Benefits and Indirect Costs accounting structure is below.

NHI currently treats all costs as direct costs except general administration and general expenses as per the Direct Allocation Method in OMB Circular A-122 Section C(4). These costs are defrayed by assessing salaries on each project as the means of most accurately prorating those costs in a professional services environment as noted in the Direct Allocation Method in OMB Circular A-122 Section C(4). NHI incurs direct overhead expenses at a rate equal to 62% of project salaries. These costs, outlined in NHI's Division 2, include items such as rent, computer equipment and supplies.

NHI also incurs indirect costs at a rate of 24% on all non-federal projects. These are costs that cannot be allocated to a single final cost objective according to OMB Circular A-122. This rate includes administrative salaries, employee health insurance, professional services such as audits and Board of Trustee expenses. These costs are outlined in NHI's Division 1 structure.

### **Division structure**

- ❖ **Division 1;** General administrative charges not directly in support of projects.
  - Funded through a charge of 24% on all Division 4 expenses including the 62% charge that funds Division 2.
  - The following expenses are normally charged to Division 1;
    - Non-project administrative salaries (generally coded to project 1000)
    - Salary related costs for administrative staff
      - Payroll Taxes; Employer share of Medicare and ESDI
      - Worker's Compensation Insurance
      - Employee Health Insurance; includes in lieu payments
      - Other Employee Benefits; includes transit voucher discounts
    - Development activity (generally coded to project 2000)
    - Business services
    - Professional services including legal services and auditing
    - Memberships and dues not directly related to project activity
    - Non-project photocopying and payments to photocopier suppliers
    - Non-project postage and delivery services
    - Basic telephone service and telephone equipment and repair
    - Non-project fax
    - Travel for non-project specific activities
    - Non- project meetings including staff meetings
    - Office supplies except for direct project purchases
    - Documents and Publications
      - Non-project specific printing and off-site photocopying

- NHI Brochures
  - Lexis/Nexis legal searches
  - Office equipment maintenance other than computer equipment
  - Non-project consultants and advisors
  - Non-project temporary personnel services
  - Employee training and skills development
  - Employee recruiting expenses
  - Bank service charges
  - Moving expenses
  - Non-project miscellaneous expenses
  - Sacramento expenses not allocated to projects
  - Board of Trustees expenses
- ❖ **Division 2; General operating charges in direct support of projects**
- Funded through a charge of 62% on direct project salaries accounted in Division 4 by project code
  - The following expenses are normally charged to Division 2;
    - Rent
    - Building services and repairs
    - Small equipment purchases except for computer equipment
    - Membership and dues for associations directly related to project activity (bar dues and human rights advocacy organizations for example)
    - Insurance coverage
    - Photocopying
      - Use of NHI copier and payments for service, supplies, and service contracts
      - Postage, express package delivery, and courier service
    - Travel, project related but not project specific
    - Telephone
      - Long distance for projects
      - Voice mail
      - Cellular phones used by project staff
    - Fax charges
    - Supplies purchased for non-specific project use
    - Computer equipment, supplies, software and operations
      - Computers, printers, monitors, and peripheral equipment
      - Supplies and software not project specific
      - Maintenance and repair
      - Computer upgrades
      - Internet service
      - Internet related telephone charges
      - Web hosting
    - Documents and publications
      - Typesetting, printing and binding by others
      - Outside photocopying
      - Purchase of books, reports, maps, etc. for project use
    - Lexis/Nexis use; online legal data searches for projects
    - Equipment repair and maintenance
    - Business Taxes
    - Depreciation Expense

### **Equipment**

This project will purchase monitoring equipment including measurement devices for on-vineyard plots as detailed in Task 7. The cost of this equipment is estimated to be \$10,000. In addition, Task 7 will require water quality lab analysis in the range of \$6,000. The project will also purchase one laptop and one travel printer for the project team for field visits and monitoring; this is listed in Task 3 at \$5,000. Task 4 includes \$300 for graphics software for development of conceptual models and Task 6 includes \$200 for a handheld data logger.

### **Supplies**

Supplies include postage, telephone, fax, color printing, binding, and paper supplies for dissemination of outreach and reporting over the life of the project. These costs are spread over appropriate tasks for the life of the project.

### **Travel**

Travel costs are calculated to include the project team's field site visits and travel to meetings. Travel from Nevada City throughout the project area will be done by car, which will be reimbursed based on State reimbursement rates of .34/mile. The distance from Nevada City to the project area's most outlying regions is approximately 500 miles RT. We have calculated that the NHI project team will take approximately 32 trips to wineries over the life of the project; based on an average of 250 miles per trip, we have included \$2,720.

The Core Team of growers and project partners will include approximately 12 people, who will travel to an initial meeting for Task 2 and continue to meet in Sacramento and at target wineries in the foothills for consultation. In addition, Task 8 will require this Core Team to meet in a workshop setting to review the project's pilot projects and travel to Demonstration Days at target wineries. We have calculated their trips over the life of the project to cover 12,000 miles for a total of \$4,080.

Therefore the overall total for reimbursable miles is \$6,800.

Some of this travel and the Core Team Meetings will take the whole day and require meals. Therefore, we have calculated 30 lunches at \$10/lunch and 11 dinners at \$18/dinner as per State Travel Rates. This results in \$498 for travel meals.

Lastly, travel costs include the costs for putting on a small workshop as outlined in Task 8. This will entail 20 people lodging at an estimated \$85/night for \$1,700, in addition to \$4,000 for venue rental and other workshop costs.

Consequently, the total for travel based on reimbursable miles, travel meals, and the workshop comes to \$12,998 over two and a half years.

## ATTACHMENT 1: Resume of Project Manager

### **Elizabeth A. Soderstrom, Ph.D.**

Natural Heritage Institute  
409 Spring Street  
Nevada City, CA 95959  
Tel: 530 478 5694  
Email: esoderstrom@n-h-i.org

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#### **EDUCATION**

**University of California**, Berkeley, California  
Ph.D. Wildlands Resource Science (1996)

**Stanford University**, Stanford, California  
M.S. in Biological Sciences (1986)  
B.S. in Biological Sciences (1985)  
B.A. in English Literature (1985)

**Harvard University**, Cambridge, MA  
Visiting Graduate Student (1983, 1985)

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#### **PROFESSIONAL EXPERIENCE**

##### **Senior Staff Scientist, Natural Heritage Institute Nevada City, California**

Senior staff position in water resources management with a focus on applying improved adaptive management approaches to aquatic restoration and river basin management, both nationally and internationally. Also, active member of the California Bay-Delta Science Consortium, the Guadalupe River Adaptive Management Team; and the Trinity River Adaptive Management Team. (September 2000 until present). Project manager for several currently funded projects, including:

- ❖ *Sharing Water: Towards a Transboundary Consensus on the Management of the Okavango River Basin* – a three-year USAID-funded project focused on developing a joint data base and river basin planning model for the Okavango River Basin in southern Africa
- ❖ *The Future of Fishing in the Okavango River: Factoring Inland Fisheries into River Basin Planning* – a one-year project funded by the International Water Management Institute to factor inland fisheries into transboundary river basin discussions;
- ❖ *Scaling Adaptive Management to Fit a Range of Riverine Systems* - a three-year project funded by the CALFED Watershed Program focusing on applying adaptive management to smaller scale river restoration projects;
- ❖ *Feasibility Study to Increase Habitat for Splittail and Salmon in the Yolo Bypass* – a two-year project funded by the US Army Corps of Engineers to assess the feasibility of increasing habitat for splittail and salmon within the floodplain of the Sacramento River;
- ❖ *Overcoming the Legacy of the Gold Mine Era: Restoration of Deer Creek* – a two year project with a focus on identifying and designing restoration of Deer Creek, California;
- ❖ *Conservation and Management of Sierra Mountain Meadows* – a two-year, USEPA funded project, aimed at assessing and developing a management plan for meadow wetland systems in the Sierra Nevada; and

- ❖ *Facilitation of the CALFED Independent Science Board* – a consultancy that involves assisting in the facilitation of the CALFED ISB, including developing agendas, facilitating the meetings and subcommittee meetings, and undertaking targeted research projects for the ISB.

### **Water Resources Advisor, USAID**

#### **Gaborone, Botswana**

Lead position in water resources management at the U.S. Agency for International Development (USAID) Regional Center for Southern Africa. Designed and managed water related activities in training, NGO capacity building, legal analysis, watershed management, and policy implementation. Represented U.S. government position and interests to national and regional level government agencies, to other donors, and at international meetings. Served as Steering Committee Member for: 1) the Okavango Delta Ramsar Planning Process, 2) Southern Africa Water Round Table Strategy Implementation, and 3) the Global Water Partnership's Southern Africa Visioning Process. Worked with Transboundary Team to develop strategic framework and indicators for evaluating progress (September 1998 – April 2000).

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## **GRADUATE AND POST-GRADUATE EXPERIENCE**

### **American Association for the Advancement of Science**

#### **Overseas Science, Engineering and Diplomacy Fellow**

#### **Gaborone, Botswana**

Post-doctoral position at the USAID Regional Center for Southern Africa (RCSA) researching issues and potential role for the RCSA in the areas of transboundary river basin management, migratory wildlife, and transboundary parks and protected areas. Conducted research site visits to 12 southern African countries, analyzed results of interviews, literature review, and presented briefing interim reports and final strategy document to the RCSA. Also, participated as active member of the RCSA management team implementing activities related to community-based natural resource management, and addressing issues associated with CITES (September 1996 - August 1998).

### **American Association for the Advancement of Science**

#### **Science, Engineering and Diplomacy Fellow**

#### **Washington, D.C.**

Post-doctoral position in the Center for Environment at USAID providing technical assistance and project management for international environmental policy activities and freshwater and coastal resource projects, including: the International Coral Reef Initiative; ENCORE, a Community Marine Reserve project in the Eastern Caribbean; Coastal and Resources Management Project in Indonesia and the Philippines; and the Environmental Policy and Management Project in Southeast Asia. Served on US Delegation for the Ramsar Convention on Wetlands of International Importance, Brisbane, Australia, and attended the COP for the Convention on Biodiversity, Jakarta, Indonesia (September 1994 - August 1996).

### **Water Management Analyst**

#### **Montana, Colorado, New Mexico**

Conducted study of water management on state trust lands in the western states for dissertation research. Developed interdisciplinary models of sustainable water management to protect and

promote water quality and quantity over time and tested applicability in institutional setting (January 1992 - June 1994).

### **Hydrologist**

#### **US Forest Service, Alaska**

Conducted research to determine the impact of timber harvesting on salmon habitat and stream morphology in clearcut and old-growth watersheds in Southeast Alaska with the US Forest Service (Summers 1989, 1990).

### **Graduate Student Instructor**

#### **U.C. Berkeley/Stanford**

Organized and lead discussion sections on conservation biology, environmental management and policy at Berkeley and Stanford (1986, 1991-1993). Designed and taught an interdisciplinary summer course entitled Race, Poverty and Environmental Science to distinguished minority high school students (June-August 1993). Designed and taught a month long course on conservation biology to Indonesian educators and foresters at the Gunung Palung Nature Reserve, West Kalimantan, (June 1987).

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## **FELLOWSHIPS**

### **GRANTS, AWARDS**

- ❖ Switzer Environmental Leadership Award (2000-2003) three-year support to apply improved develop adaptive management strategies to aquatic restoration activities.
- ❖ Certificate of Appreciation from USAID's Regional Center for Southern Africa for recognition of outstanding contribution in the development of the natural resource management program (July 1998)
- ❖ Switzer Foundation Environmental Fellowship (1993-94) one year graduate support
- ❖ Edward A. Colman Fellowship (1992-93) one year graduate support, U.C. Berkeley
- ❖ Regent's Fellowship (1991-92) one year graduate support, U.C. Berkeley
- ❖ Mentorship Fellowship (1990-91) one year graduate support, U.C. Berkeley
- ❖ Herbert C. Sampert Memorial Award (1990) support for research in southeast Alaska
- ❖ Stanford University Dean's Office Award (1986) support for OTS field course in Costa Rica
- ❖ Committee on Population Studies at Stanford University; Explorer's Club of New York;
- ❖ Sigma Xi, Grant-in-Aid of- Research; Conservation, Food and Health Foundation (1986) all contributed funding for research in Borneo Indonesia.

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## **REPORTS AND PUBLICATIONS**

Soderstrom, E.A., K. Elkins, and R. Walkling. 2002. Delivering on the Promise: Scaling Adaptive Management to Fit a Range of Riverine Systems. Presented at for the Fourth International Ecohydraulics Symposium, 3-8<sup>th</sup> March 2002, Cape Town, South Africa.

Soderstrom, E.A. 2000. Water and Security: An Analysis for Southern Africa. Reported prepared for USAID in response to the Department of State and Central Intelligence Agency's workshop in September 1999: Transboundary Water Issues and Conflict: Problems, Prospects, and Policy, 65 pgs.

- Soderstrom, E.A., J.L. Sokolove, and S.K. Fairfax. 1999. "Federal Reserved Water Rights Applied to School Trust Lands?" In *Land and Water Review* (34)1: 1-37.
- Soderstrom, E.A. 1999. Towards Sustainable Water Resources Management in Southern Africa. Report prepared for USAID, 80 pgs.
- Soderstrom, E. A. 1996. Sustainability and Water Management: Case Studies on State Trust Lands in the Western United States, Ph.D. dissertation, University of California, Berkeley.
- Soderstrom, E. A. 1996. United States' National Wetlands Policy, Briefing paper for the Ramsar Convention, Brisbane, Australia, March 1996, 5 pgs.
- Soderstrom, E. A. 1995. Gender Issues and Coastal Zone Management, Report prepared for design of USAID/Indonesia's coastal program, 11 pgs.
- Soderstrom, E. A. 1995. Donor coordination for Environmental Activities in Indonesia, Report prepared for USAID/Indonesia Environmental Strategy, 49 p.
- Fairfax, S. K. and E. A. Soderstrom. 1994. Institutional Change in Water Management: Consequences of State Trust Land Claims and Participation, USGS Technical Report Number 14-08-0001, 76 pgs.
- Coddington, J. A. and E. A. Soderstrom. 1990. Mass aggregations in tropical harvestmen (Opiliones, Gagrellidae:Prionostemma spp.), *Revue Arachnologique* (13): 213-219.
- Soderstrom, E. A. 1988. Onset Harbor Study. Report prepared for the Town of Wareham, MA, 104 pgs.

# 2004 Water Use Efficiency Proposal Solicitation Package

## APPENDIX A: Project Information Form

Applying for:

Urban

Agricultural

1. (Section A) **Urban or Agricultural Water Use Efficiency Implementation Project**

(a) implementation of Urban Best Management Practice, # \_\_\_\_\_

(b) implementation of Agricultural Efficient Water Management Practice, # \_\_\_\_\_

(c) implementation of other projects to meet California Bay-Delta Program objectives, Targeted Benefit # or Quantifiable Objective #, if applicable \_\_\_\_\_

(d) Specify other: \_\_\_\_\_

2. (Section B) **Urban or Agricultural Research and Development; Feasibility Studies, Pilot, or Demonstration Projects; Training, Education or Public Information; Technical Assistance**

(e) research and development, feasibility studies, pilot, or demonstration projects

(f) training, education or public information programs with statewide application

(g) technical assistance

(h) other

3. Principal applicant (Organization or affiliation):

The Natural Heritage Institute

4. Project Title:

Sierra Foothill Vineyards: Promoting Water Management Practices for Public Benefits

5. Person authorized to sign and submit proposal and contract:

Name, title Greg Thomas

Mailing address 100 Pine Street, Suite 1550

San Francisco, CA 94104

Telephone 510-644-2900 ext: 101

Fax. 510-644-4428

E-mail gat@n-h-i.org

6. Contact person (if different):	Name, title.	Dr. Elizabeth Soderstrom
	Mailing address.	409 Spring St Nevada City, CA 95959
	Telephone	530-478-5694
	Fax.	530-478-5849
	E-mail	esoderstrom@n-h-i.org

7. Grant funds requested (dollar amount): **\$ 218,228**  
*(from Table C-1, column VI)*

8. Applicant funds pledged (dollar amount): \$ 0.00

9. Total project costs (dollar amount): \$218,228  
*(from Table C-1, column IV, row n )*

10. Percent of State share requested (%): 100%  
*(from Table C-1)*

11. Percent of local share as match (%): 0%  
*(from Table C-1)*

12. Is your project locally cost effective?  
*Locally cost effective means that the benefits to an entity (in dollar terms) of implementing a program exceed the costs of that program within the boundaries of that entity.*  
*(If yes, provide information that the project in addition to Bay-Delta benefit meets one of the following conditions: broad transferable benefits, overcome implementation barriers, or accelerate implementation.)*

(a) yes  
 (b) no

11. Is your project required by regulation, law or contract?  
 If no, your project is eligible.  (a) yes  
 (b) no

If yes, your project may be eligible only if there will be accelerated implementation to fulfill a future requirement and is not currently required.

*Provide a description of the regulation, law or contract and an explanation of why the project is not currently required.*

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12. Duration of project (month/year to month/year): 12/05 – 5/08
13. State Assembly District where the project is to be conducted: Districts 3, 4, 10, 25
14. State Senate District where the project is to be conducted: Districts 1, 4, 14
15. Congressional district(s) where the project is to be conducted: Districts 2, 3, 4, 19
16. County where the project is to be conducted: Nevada County, Yuba County, El Dorado County, Placer County, Amador County, Calaveras County, Tuolumne County, Mariposa County
17. Location of project (longitude and latitude) Sierra Foothill Region - no specific longitude and latitude.
18. How many service connections in your service area (urban)?
19. How many acre-feet of water per year does your agency serve? N/A

20. Type of applicant (select one):
- (a) City
  - (b) County
  - (c) City and County
  - (d) Joint Powers Authority

- (e) Public Water District
- (f) Tribe
- (g) Non Profit Organization
- (h) University, College
- (i) State Agency
- (j) Federal Agency
- (k) Other
  - (i) Investor-Owned Utility
  - (ii) Incorporated Mutual Water Co.
  - (iii) Specify \_\_\_\_\_

21. Is applicant a disadvantaged community? If 'yes' include annual median household income.

- (a) yes, \_\_\_\_\_ median household income
- (b) no

(Provide supporting documentation.)

This feasibility study will take place within the CALFED Bay-Delta Program watershed, namely adjacent to tributaries that drain into the Sacramento and San Joaquin Rivers. The project will aim to work with wineries that are located in disadvantaged communities. There are several Counties and many communities within the Sierra foothills that meet the criteria (annual median household income less than \$38,000).

# 2004 Water Use Efficiency Proposal Solicitation Package APPENDIX B: Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

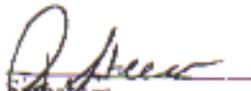
The individual signing the form has the legal authority to submit the proposal on behalf of the applicant;

There is no pending litigation that may impact the financial condition of the applicant or its ability to complete the proposed project;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant;

The applicant will comply with all terms and conditions identified in this PSP if selected for funding; and

The applicant has legal authority to enter into a contract with the State.

  
Signature

Jeffrey M. Steen, COO  
Name and title

1-10-05  
Date