



Indicate the type of applicant (check only one box):

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|--|---|
| <input type="checkbox"/> State agency                    | <input type="checkbox"/> Federal agency           |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit               |
| <input type="checkbox"/> Local government/district       | <input checked="" type="checkbox"/> Private party |
| <input type="checkbox"/> University                      | <input type="checkbox"/> Other: _____             |

Indicate the type of project (check only one box):

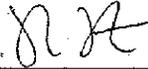
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| <input type="checkbox"/> Planning   | <input type="checkbox"/> Implementation       |
| <input type="checkbox"/> Monitoring | <input checked="" type="checkbox"/> Education |
| <input type="checkbox"/> Research   |   |

By signing below, the applicant declares the following:

- 1.) The truthfulness of all representations in their proposal;
- 2.) The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- 3.) The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

John Zentner

Printed name of applicant



Signature of applicant

**Expanding Community-based Restoration and Stewardship  
in Four Watersheds**

Contact:

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Primary Participants and collaborators, type of organization and tax status:

1. Zentner and Zentner (lead) For-profit, California-registered corporation, type "C"  
tax identification number: 94-3023982
2. The Restoration Trust Non-profit, California corporation (tax and corporation status  
pending)

A full list of other participants is included in this proposal.

## Executive Summary

This proposal, submitted by Zentner and Zentner in conjunction with the Restoration Trust, funds four restoration, education and stewardship projects. Each project is designed to meet the following objectives.

1. Integrate students and community members into local restoration and stewardship work through education, restoration, monitoring, and maintenance projects.
2. Address important restoration ecology and horticultural issues using focused restoration projects with appropriate monitoring.
3. Provide the initial step in long-term stewardship of local resources.

The projects to be supported with this grant include: (1) riparian habitat restoration, education and stewardship on Adobe Creek, in the City of Petaluma; (2) marsh and native grassland restoration, education and stewardship at the St. Francis Preserve in the City of Sonoma; (3) riparian and marsh habitat restoration, education and stewardship on Green Valley Creek in the City of Fairfield; and (4) riparian habitat restoration, education, and stewardship on Cache Creek in Yolo County.

Each project is divisible into three phases: (1) education and training in local ecology and watershed issues; (2) restoration; and (3) post-planting monitoring, including publication of results. Each project is designed as an educational experiment to define horticultural and ecologic requirements of target plant species and are age-appropriate yet address major questions in restoration ecology. All work will be carried out by students and community members at each site with assistance from Zentner and Zentner, Trust staff and others.

The riparian restoration work includes the planting of cuttings of five species of native trees at each of the three riparian sites (Adobe, Green Valley and Cache Creeks) at varying elevations above and distances from each Creek and at varying exposure ratios by local students (high school and older). Soil texture and type, vegetation, and elevation will be determined and a shallow observation well installed. Following planting, water levels in the wells will be measured by students every other week and, in late May, each cutting will be assessed for height and number of stem shoots and number and height of root shoots. Results will be tabulated and displayed using the 1-acre GIS Program which allows a detailed comparison of results for multiple factors. The results, in the form of student-generated papers, will be published after the first year and at five and ten years.

The marsh restoration work (to be completed at the St. Francis Preserve and Green Valley Creek) includes removal of non-native species and the propagation and planting of native graminoids by local students (high school and younger). This work includes the collection of seed and root material from and propagation of three native grasses and a *Carex*, its growth to three different container sizes, the removal of non-native species from plots at each site, and the planting of plots with controls. Students will sample soil texture and type and vegetation before and after weed removal. Results will be tabulated and displayed using the 1-acre GIS program and published after the first year and at five years.

The riparian restoration work addresses several ecological objectives:

1. Horticultural aspects of willow woodland restoration.
2. Water and soil relations of willow woodland restoration
3. Horticultural and ecological aspects of increasing diversity of low terrace woodland plantings.
4. Growth form of common low terrace woodland species.

The marsh and related grassland restoration benefits several ecological objectives.

1. Horticultural requirements of important native herb-layer species
2. Planting responses of the graminoids
3. Ecological aspects of native marsh and related upland species

The projects will also have a number of broader benefits

1. Restoration education.
2. Land stewardship

We are seeking \$169,000 from CalFed for this work. Supporting funds and services up to \$130,000 will be secured in support of this work through a combination of in-kind services and discounts on provided goods and services. All projects would begin August 1, 1999, and conclude the initial stewardship phase on June 1, 2000. This work is the initial stage of a long-term educational and stewardship program which includes the development of a community-based information system for each site, based on the 1-acre GIS program developed by Dave Self, a Trust Board member. All restoration sites are available for restoration and each project has received significant community support.

Zentner and Zentner is a for-profit, California corporation which specializes in wetland and habitat restoration. The Trust is a non-profit corporation (non-profit status is pending) that carries out community-based restoration, education and stewardship programs. The Trust was formed to support these objectives through hands-on experience in small-scale restoration work, using public sites but which have not been specifically adopted by a public group and which are open to risk through adverse activities. Education, restoration and stewardship activities at these sites forms a cadre of community members concerned with the site and its future.

The Trust has completed at least one similar project each year over the past three years but funding limitations have greatly reduced our ability to expand this program. Our experience has shown that restoration sites are readily available and that local community groups are tremendously supportive of restoration and stewardship. These groups are hampered by a lack of funds and expertise in restoration and stewardship. This proposal addresses these concern for the Bay-Delta region in conformance with CalFed objectives for habitat restoration, local watershed stewardship, and environmental education.

The work consists of four wetland and watershed restoration, education, and stewardship projects. From west to east, the project sites are: approximately 800 feet along Adobe Creek in Petaluma, Sonoma County; the 5-acre St. Francis Preserve in Sonoma, Sonoma County; about 800 feet along Green Valley Creek in Fairfield, Solano County; and about 1200 feet along Cache Creek near Capay in Yolo County (see attached maps). The Adobe Creek, Green Valley Creek and Cache Creek projects are organized around riparian restoration; the Green Valley Creek and St. Francis projects are organized around marsh and related grassland restoration. Each project type is described in more detail below using the outline provided in the PSP.

### 1. Riparian restoration

The riparian restoration work includes the planting of native trees at varying elevations relative to groundwater by students (high school and older) under the supervision of local community participants, Zentner and Zentner staff and the Trust and attendant education and stewardship activities. This work will include the planting of 288 cuttings of three species of willow (*Salix lasiolepis*, *S. lasiandra*, and *S. goodingii*), white alder (*Alnus rhombifolia*), and Fremont cottonwood (*Populus fremontii*) at each of the three sites at varying elevations above and distances from each Creek. After an initial introduction to site and watershed ecology in September, students will identify 12 study plots in October and measure elevations and soils of the plots. In November, the cuttings will be harvested and planted in clusters of 24 trees at each plot. Cuttings will be approximately 3 feet long and between 1/4" and 3/4" in width. Cuttings will be placed in same species and mixed species plots with approximately equal numbers of cuttings from each species overall. Cuttings will be pushed into the ground for either 1/3, 1/2, or 2/3 of their length and marked accordingly. The boundaries of all sample plots will be marked in the field with short, 1" PVC sections driven into the corners of the plot with a short section of re-bar within the PVC to facilitate relocation with a metal detector. Following planting, a shallow observation well (SOW; perforated, 4" PVC pipe with covers) will be installed using an augered hole, 4" in diameter, dug by the students or with a one-person gas-powered auger (all gas-powered equipment will be operated by trained personnel using appropriate safety equipment) and initial water levels measured. As with the PVC plot markers, SOWs will be left only 3" above ground and a short section of rebar attached to the outside of the well. Vegetation by species using Braun-Blanquet cover classes will also be defined at this time. A sign identifying the planting purposes will be supplied for each site. All data will be entered into the 1-acre GIS Program which allows a detailed comparison of results for multiple factors (see Attachment A for information on the 1-acre GIS Program) and shared between the three riparian sites.

Following planting, water levels in the wells will be measured by students every other week. In May, each cutting will be assessed for survival and height and number of stem and root shoots. Vegetation cover by species at each plot will also be sampled. The results, in the form of student-generated papers, will be published after the first year and at five and ten years. Although this grant requests funding for only one year, surveys of tree growth will be continued for ten years after planting and the results published at the fifth and tenth years.

All tasks are inseparable from the grant request and completed with students unless so noted.

**Phase 1: Introduction to local riparian ecology August through October**

1. Curriculum preparation and definition of site conditions with teachers and others
2. Three, 2-hour sessions with students reviewing local riparian and watershed ecology.
3. Two, 2-hour sessions at the site defining the sample plots, soils, and plot elevations.
4. Preparation of the 1-acre GIS Program data base.
5. Project management: complete contract work, set-up files and programs.

**Phase 2: Planting and winter monitoring November through March**

1. Planting preview with teachers and others
2. Planting sessions with students: prepare cuttings, plant, and install SOWs.
3. Photograph plots and place signage; demobilize planting.
4. Bi-weekly (every two weeks) monitoring of water levels in the SOWs with students.
5. Project management: locate cuttings, coordinate with teachers, transport, insurance, etc.

**Phase 3: Spring Monitoring April through July**

1. Bi-weekly (every two weeks) monitoring of water levels in the SOWs with students.
2. Assessment with students of plant stem and root shoot numbers and length and vegetation.
3. Completion of data input into GIS.
4. Completion of monitoring report (deliverable to CalFed).
5. Project management: coordinate with teachers, supervise report.

**2. Marsh restoration**

The marsh restoration work includes the clearing of non-native species and the propagation and planting of native forbs and graminoids by local students (high school and younger) at the St. Francis and Green Valley sites. This work includes the collection of seed and root material from four native graminoids (*Danthonia californica*, *Pleuropogon californicus*, *Leymus triticoides*, and *Carex barbarae*) in May and June by Zentner and Zentner and Trust staff. This material will be propagated to three different sizes (plug, rose-pot and tree-band). Twenty-six, 10'x10' plots will be defined at each site by the students in late October and soils and vegetation of the plots identified. Weed removal will occur in November using a broad-spectrum herbicide (for uplands; only licensed chemical applicators shall apply any herbicides) or by hand (for wetlands). Planting of twenty-four plots will occur in December, 1999 (two cleared plots will remain as controls). Plants will be placed on 1 ft. centers in the plots, requiring 100 plants for each plot and a total of 2400 plants for each of the two sites. The *Danthonia* and *Pleuropogon* will be planted at the St. Francis Preserve and the *Leymus* and *Carex* planted at the Green Valley Creek site. Each plot will be mapped and the species and sizes planted entered into the 1-acre GIS program for the site. The boundaries of all sample plots will be marked in the field, the vegetation cover defined and photographed and a sign provided for the site identifying the purposes of the planting program.

In February, half (12) of all plots (including one of the controls) will be weeded. Four plots will be hand weeded, four will be mowed, and 4 will be sprayed using a broad-leaf specific herbicide. In late April, each plot will be assessed for cover by species. Results will be tabulated and displayed using the 1-acre GIS program and shared between the two marsh restoration groups. The results, in the form of student-generated papers, will be published after the first year and at five years. Although this grant requests funding for only one year, surveys of plant growth and weed control will be continued for five years after planting and the results published as noted above at the fifth year.

All tasks below are inseparable from the grant request and completed with students unless so noted.

**Phase 1: Introduction to marsh ecology June through October**

1. Zentner and Zentner and Trust staff collect seed and plant material in June.
2. Propagation of plant material at the Los Robles Native Plants nursery.
3. Curriculum preparation and definition of site conditions with teachers and others.
4. Two, 2-hour sessions with students reviewing local ecology.
5. One, 2-hour session at the site defining the sample plots, soils and vegetation.
6. Preparation of the 1-acre GIS Program data base.
7. Weed removal from sample plots.
8. Project management: complete contract work, set-up files and programs

**Phase 2: Planting and Maintenance November through March**

1. Planting review with teachers and others.
2. Planting sessions with students.
3. Weed plots in February
4. Project management: manage plants, coordinate with teachers, transport, insurance, etc.

**Phase 3: Post-planting Stewardship and Monitoring April through July**

1. Survey vegetation.
2. Complete data input into GIS.
3. Completion of monitoring report (deliverable to CalFed).
4. Project management: coordinate with teachers, supervise report.

## **Ecological/Biological Benefits**

The riparian restoration work addresses several ecological objectives consistent with our overall objectives:

### **1. *Horticultural aspects of willow woodland restoration.***

Planting of willow cuttings has been a major aspect of riparian woodland restoration throughout the western U.S. However, little analytical work has been completed on the appropriate depth of these plantings relative to the degree of exposure and many projects have been completed in which cuttings were placed at varying depths with varying portions exposed with little assessment of post-planting results, even where significant failures were evident. This aspect of the project will result in more definitive understanding of appropriate planting techniques for willow cuttings.

### **2. *Water and soil relations of willow woodland restoration.***

It is widely known within the horticultural and restoration fields that willows should be as near perennial water as practicable yet the allowable outer edge of this distance is not well-defined. Additionally, little work (and none in the region) has been done of comparisons of plantings on different soil types; willows are still being planted in inappropriate soils (claypans, for example) with concomitant levels of failure. This aspect of the project will allow comparison among soil types (by using three different sites) and elevation relative to groundwater (each site will plant at three different elevations relative to groundwater).

### **3. *Horticultural and ecological aspects of increasing diversity of woodland plantings.***

Alders and cottonwoods are rarely planted from cuttings in central California due to the poor survival rate, yet these two species are important in low terrace woodland diversity. Cuttings are a relatively cheap method of planting (no irrigation is used and plant materials are inexpensive and on-site); if these species can survive under certain conditions when planted as cuttings, the results will be of benefit to restoration practitioners. The inclusion of alders and cottonwoods in this work, using the same techniques as noted above, will also provide results on the horticultural and ecologic aspects of these species.

### **4. *Growth form of common low terrace woodland species.***

The growth form of these species is important as the density of tree has a considerable affect on flooding elevations through increases or reductions in the "N" value of the vegetation. This is also a little studied aspect of restoration work and has resulted in widespread bias against willow plantings by flood control agencies. This work will be carried out in conjunction with the local flood control districts which have agreed to review the results with the students with regards to flood results.

The marsh and related grassland restoration benefits several ecological objectives.

1. *Horticultural requirements of important native herb-layer species.*

The four graminoids studied in this project are all poorly available from seed. The oat and semaphore grasses for example are not available commercially and little is known of their propagation. However, these two species are the pre-Columbian dominants of a large portion of northern California. Creeping wild rye and Santa Barbara sedge are somewhat better understood but these two species were probably dominant over almost all of the Central Valley riparian zone and the lack of better horticultural practices is problematic in restoration.

2. *Planting responses of the graminoids*

Native grass planting tends to be most successful using rooted material. However, the size of the rooted material is subject to great debate and significant differences exist in cost. Plug plantings for example can be completed commercially for \$6,000 per acre (1 ft centers) while the use of tree bands at the same spacing will cost up to \$40,000 per acre, although a significantly larger plant is provided. This work will test the success of three different sizes of plant material and cover after planting.

3. *Ecological aspects of native marsh and related upland species plantings*

Weed control in native marsh and grass plantings is a significant, problematic issue. The use of rooted material, as opposed to seed, reduces the concern slightly but non-native species are still highly competitive with the native target species. This work will test control, weeded, and unweeded plots, including post-planting weeding and no post-planting weeding.

The projects will also have a number of broader benefits

1. *Education.*

Restoration education is in its infancy. Work that Zentner and Zentner and the Trust have completed to date at several sites has shown that teachers and students are eager to be involved in applied ecology but simply need good work at reasonable sites. These projects have been designed for the appropriate age levels based on our past experience and are designed to test relatively simple but important hypotheses that are easily understood by the respective age levels. The work has also been designed to fit in with teachers and students schedules.

## 2. *Durability*

Each project provides for relatively simple restoration work which, despite the likelihood of even a significant percentage of failure, will still provide important cover of low terrace woodland and native forb species. The educational and stewardship components will, in our experience, enhance the public involvement in the sites, thus providing for better appreciation and durability of projects.

### **Linkages, System-wide benefits, and non-ecosystem objectives**

Each of the project sites is part of a larger restoration program already underway. Adobe Creek has been the subject of a significant amount of restoration work in the past. The reach to be planted for this project was recently regraded as part of the City of Petaluma's Adobe Creek restoration work. The St. Francis Preserve includes almost 5 acres dedicated by various developers to the City of Sonoma and wetland and upland restoration efforts.

Green Valley Creek has been the subject of a larger restoration project by the City of Fairfield, which restored both the Creek and an adjacent flood bypass terrace for approximately 1.8 miles. Cache Creek has also been the subject of extensive restoration and this site has been the subject of extensive community review and assessment.

The restoration program will involve participants in vegetation inventory, restoration and stewardship of demonstration sites in these watersheds within the CalFed area of concern and through these efforts will help build an information base and the knowledge and skills necessary to organize and sustain long-term stewardship. The completed restoration projects in these areas were typically done as mitigation with little community involvement. Although these projects appear successful at meeting agency-imposed performance standards, community members now perceive the sites as potential educational opportunities and seek to improve the relationship of the community to the natural resource.

Projects funded by the grant will:

- 1) restore, and improve management of, wetland, riparian, and associated upland habitats (SPER Table 5; ERPP v. 1, pp. 153, 170-1, & 379-383; and ERPP v. 2, pp. 147, 149, 332, 333, 353;
- 2) restore and improve management of habitats which support at-risk and similar species (ERPP, v. 1., pp. 279-282, 286-7, 311-2, 328-330, 331-4, 334-336, 362-4, 365-367); and
- 3) control, and address critical uncertainties re: ecology and control of non-native plants (SPER pp. 36-7, 44; ERPP v. 1, pp. 153, 170-1, 379-383, 286-7, 470-480; ERPP v. 2, pp. 152, 334, 353, 355).

Many projects will also address Ecosystem Restoration Goals 1-6 (SPER p. 27) directly or indirectly by restoring native plant diversity; restoring rare plant or animal habitat; restoring watershed cover, thus water quality and sediment regimes; and restoring shaded aquatic habitat

### Technical Feasibility and Timing

The Trust has completed a number of similar projects at other sites. Generally, the best projects are those which are limited in scope yet provide important and observable lessons in applied ecology, coupled with an exposure to watershed-level processes and the potential for communication across watersheds and over time. Teachers can, therefore, take advantage of known sites and continue to re-use these sites with their classes. The timing of the work has been defined to fit within one school year.

No permits for this work are required. No CEQA compliance is required; this work is categorically exempt from CEQA.

### Monitoring and Data Collection

#### Riparian Restoration

Hypothesis	Parameters	Evaluation
Willow cutting success varies with the exposure to depth ratio of the cutting	Cutting exposure and depth will be controlled for the project and each cutting appropriately marked and its location mapped	Cutting mortality and stem and root shoot number and length will be evaluated in spring.
Willow cutting success varies with depth to groundwater	Depth to groundwater at each sample plot will be measured every other week	Cutting mortality and stem and root shoot number and length will be evaluated in spring.
Willow cutting success varies with soil.	Soil type will be defined at each sample plot; planting will occur at three sites with differing soils	Cutting mortality and stem and root shoot number and length will be evaluated in spring.
Alder and cottonwood cutting success varies with the above factors	Factors noted above are the parameters.	Cutting mortality and stem and root shoot number and length will be evaluated in spring.
Growth form of native trees varies by species.	Stem and root shoot number and length corresponds to density of tree and resulting "N" value	Cutting mortality and stem and root shoot number and length will be evaluated in spring.

**Marsh and related upland restoration**

Hypothesis	Parameters	Evaluation
Important graminoids not available commercially	Germination rates in standard nursery conditions	Survival and growth of seedlings by fall
Graminoid cover varies by size of planting	Three sizes of container planted material	Cover by species evaluated in spring
Graminoid growth varies by extent of weed control	Weed control completed with differing methods and with non-weeded control plots	Cover by species evaluated in spring

A report for each project site will be generated in July of 2000 with a draft report reviewed with the students and teachers in June, 2000 prior to graduation. The 1-acre GIS program data base will be updated at the same time. Both the monitoring reports and 1-acre GIS will be publicly available over a web site being developed by the Trust.

## **Local Involvement**

The hallmark of this project is involvement by local communities. In each case, the Trust has been approached by local entities seeking to complete educational projects at general sites in the region. With the assistance of Trust staff, public and available sites were identified and projects defined. The following entities have been involved or contacted with regards to restoration at each designated site (see confirmation letters in Attachment B).

### **Adobe Creek**

Petaluma Schools District Adopt-A-Watershed Program

City of Petaluma

Casa Grande High School

### **St. Francis Preserve**

Sonoma Ecology Center

City of Sonoma

### **Green Valley Creek**

Solano Valley Junior College

Fairfield Unified School District

City of Fairfield

### **Cache Creek**

Cache Creek Watershed Group

Yolo County

No opposition is known to any of these projects. The projects have been supported at the local government level to educate neighbors and others with regards to the value of the resources at these sites; accordingly, the projects also act to reduce opposition, where it exists, to wetlands and riparian resources.

**Costs (Budget)**

The projects are described by phases which roughly correspond to quarters (hence no separate quarterly budget is provided). Billings would occur at the conclusion of Phase 1 in November, covering the period from August 1 through October 30, at the conclusion of Phase 2 in April, covering the period from November 1 through March 30, and at the conclusion of Phase 3 in August, covering the period from April 1 through July 30. Total proposed costs are \$168,800.

**Riparian restoration (totalled for all three sites)**

Task	Direct Labor Hours	Direct Salary and Benefits	Materials	Overhead Costs	Total Costs
<b>Phase 1 (total)</b>	<b>360</b>	<b>\$12,600</b>	<b>\$7,600</b>	<b>\$2,520</b>	<b>\$22,720</b>
Preparation work	90	\$3,150	\$2,900	\$630	
Ecological Educ.	120	\$4,200	\$2,600	\$840	
Site work	68	\$2,380	\$1,800	\$476	
1-acre GIS	42	\$1,470	\$300	\$294	
Project Mgmt	40	\$1,400	-0-	\$280	
<b>Phase 2 (total)</b>	<b>560</b>	<b>\$19,600</b>	<b>\$14,600</b>	<b>\$3,920</b>	<b>\$38,120</b>
Planting review	80	\$2,800	\$1,900	\$560	
Planting sessions	220	\$7,700	\$7,800	\$1,540	
Demobilize	90	\$3,150	\$3,800	\$630	
Bi-weekly monitor	130	\$4,550	\$1,100	\$910	
Project management	40	\$1,400	-0-	\$280	
<b>Phase 3</b>	<b>522</b>	<b>\$18,270</b>	<b>\$8,700</b>	<b>\$3,650</b>	<b>\$30,620</b>
Bi-weekly monitor	90	\$3,150	\$1,000	\$630	
Plant assessment	120	\$4,200	\$1,200	\$840	
Data input to GIS	120	\$4,200	\$1,800	\$840	
Complete report	112	\$3,920	\$4,200	\$784	
Project management	80	\$2,800	\$500	\$560	
<b>Total</b>	<b>1,442</b>	<b>\$50,470</b>	<b>\$30,900</b>	<b>\$10,090</b>	<b>\$92,460</b>

**Marsh restoration (totalled for all three sites)**

Task	Direct Labor Hours	Direct Salary and Benefits	Materials	Overhead Costs	Total Costs
<b>Phase 1 (total)</b>	<b>440</b>	<b>\$15,400</b>	<b>\$5,500</b>	<b>\$3,080</b>	<b>\$23,980</b>
Plant collection	25	\$875	\$850	\$175	
Propagation	45	\$1575	\$1,800	\$315	
Preparation	80	\$2800	\$900	\$560	
Site review	80	\$2800	\$450	\$560	
Site sampling--	120	\$4200	\$850	\$840	
GIS preparation	20	\$700	\$450	\$140	
Weed removal	40	\$1400	\$200	\$280	
Project mgm't	30	\$1050	-0-	\$210	
<b>Phase 2</b>	<b>420</b>	<b>\$14,700</b>	<b>\$16,400</b>	<b>\$2,940</b>	<b>\$34,040</b>
Planting review	90	\$3150	\$1,200	\$630	
Planting	210	\$7350	\$12,800	\$1470	
Weed removal	80	\$2800	\$1,800	\$560	
Project mgm't	40	\$1400	\$600	\$280	
<b>Phase 3</b>	<b>280</b>	<b>\$9,800</b>	<b>\$6,560</b>	<b>\$1,960</b>	<b>\$18,320</b>
Survey veg	90	\$3150	\$1,100	\$630	
Complete GIS	80	\$2800	\$1,200	\$560	
Monitor report	60	\$2100	\$3,600	\$420	
Project mgm't	50	\$1750	\$660	\$350	
<b>Total</b>	<b>1,140</b>	<b>\$39,900</b>	<b>\$28,460</b>	<b>\$7,980</b>	<b>\$76,340</b>

### Cost Sharing

We anticipate almost \$130,000 in cost sharing from our partners and other participants in the following amounts.

Zentner and Zentner	donated and shared infrastructure	\$34,000
Los Robles Native Plants	discounted plant costs	\$32,800
Petaluma Schools District	discounted labor	\$12,300
Casa Grande High School	donated labor	\$8,800
Sonoma Ecology Center	discounted labor	\$8,400
Solano Valley College	donated labor	\$9,400
Fairfield School District	donated labor	\$9,400
Cache Creek Watershed Group	donated labor	\$14,600
Total		\$129,700

Total shared costs are pending and subject to final agreements; no additional requirements are anticipated.

### **Applicant Qualifications**

Zentner and Zentner is a professional consulting firm that specializes in wetlands, special status species, habitat analyses, and the design, construction and monitoring of native habitats. We are a California Corporation with offices in Emeryville and Sacramento, including eleven full-time employees. Since the firm's inception in 1986, Zentner and Zentner has successfully completed over 300 wetland restoration and related projects in California, Oregon and Nevada.

The Restoration Trust was formed to complete community restoration projects, including educational and scientific pursuits in support of this goal. Board members include a variety of individual concerned with community and restoration. The Trust was formed in recognition of the tremendous demand for community-based restoration, the need for guidance and assistance to the community in completing restoration work and the necessity of providing the research, monitoring and communication necessary to promote these goals.

The Trust completes the following types of projects.

***Planning:** Completing restoration plans for community restoration projects.*

Design work will be completed by the community group in collaboration with a professional designer from the Trust or in conjunction with a local school design program. The Trust's *Workbook for Community Restoration Planning*, a hands-on guide to restoration planning and ecology, is an important adjunct to this process. It includes collaborative planning with a wide variety of agencies and other parties, are involved in habitat restoration and technical support from Trust staff.

***Construction:** Building and restoring habitats in the community.*

The Trust focuses on projects that can be built with labor from the community, including planting, irrigation, and construction of accessways. The Trust's *Workbook on Community Restoration Construction* provides important guidance.

***Maintenance and Management:** providing for long-term success.*

The Trust believe that most if not all maintenance and monitoring issues can be addressed by the community. The Trust provides two workbooks; *Maintenance of restored habitats* and *Monitoring restoration projects*, which provide useful guidance on most issues encountered after construction is completed.

The Trust is currently awaiting notification as to its status as a non-profit.

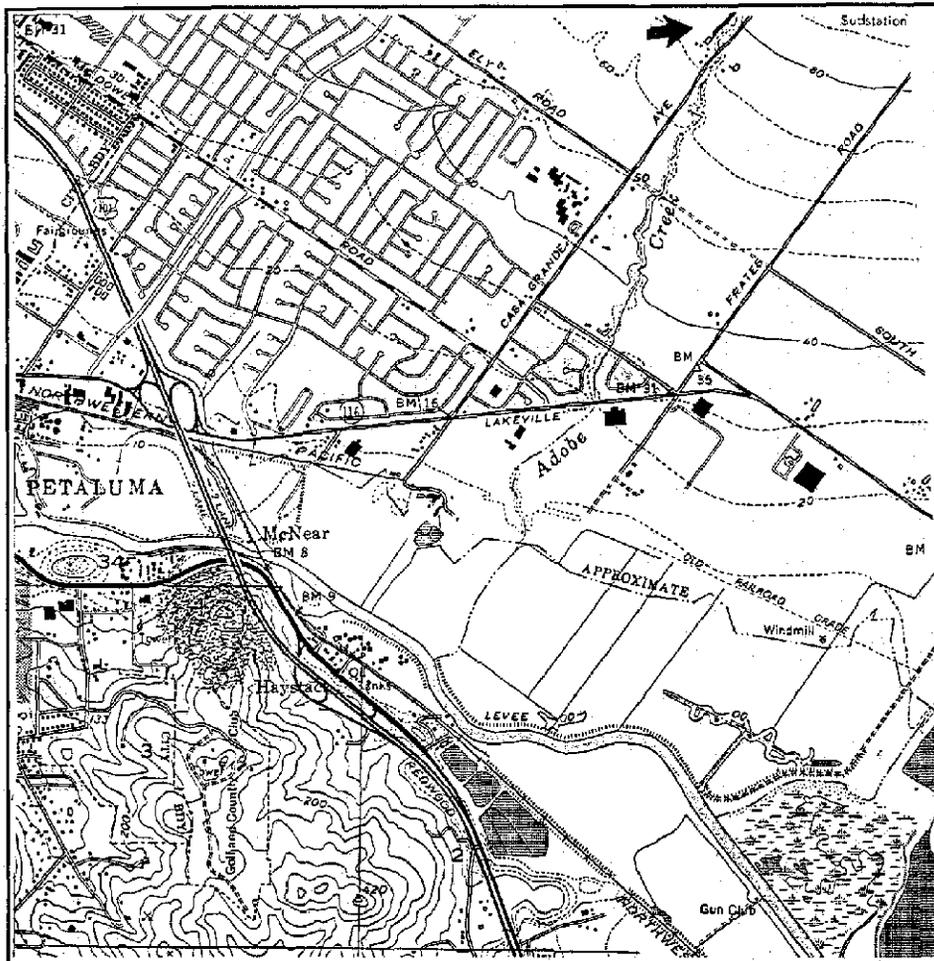
## **Personnel**

John Zentner, Zentner and Zentner and The Restoration Trust, will manage the project. He has more than twenty years of experience in the field of habitat planning and restoration. Public recognition of his projects includes design awards for the Laguna Creek (City of Sacramento) project and Environmental Protection Agency recognition of the Green Valley Creek project in Fairfield (Solano County) as a model project. Major watershed and environmental restoration projects include: Laguna Creek (City of Sacramento); Green Valley and Hennessey Creeks (City of Fairfield), Lower Laguna Creek (Sacramento County), Thompson and Adobe Creeks (Petaluma), San Ramon Creek (Contra Costa County) and Salado Creek (Stanislaus County).

Dave Self, Zentner and Zentner and The Restoration Trust, will manage data collection and the 1-Acre GIS Program. Dave has more than 20 years of experience in the field of restoration and habitat management, including the development of the 1-acre GIS Program. He is currently the President of SerCal.

Phyllis Faber, Restoration Trust, will manage report preparation and publication efforts. Phyllis has more than 30 years experience in restoration and habitat management. She currently manages publications for the California Native Plant Society.

Dr. Glen Holstein, Zentner and Zentner, will manage educational efforts. Glen has more than 30 years of experience in restoration and teaching and taught at UC Davis and Solano Junior College, one of the collaborators.

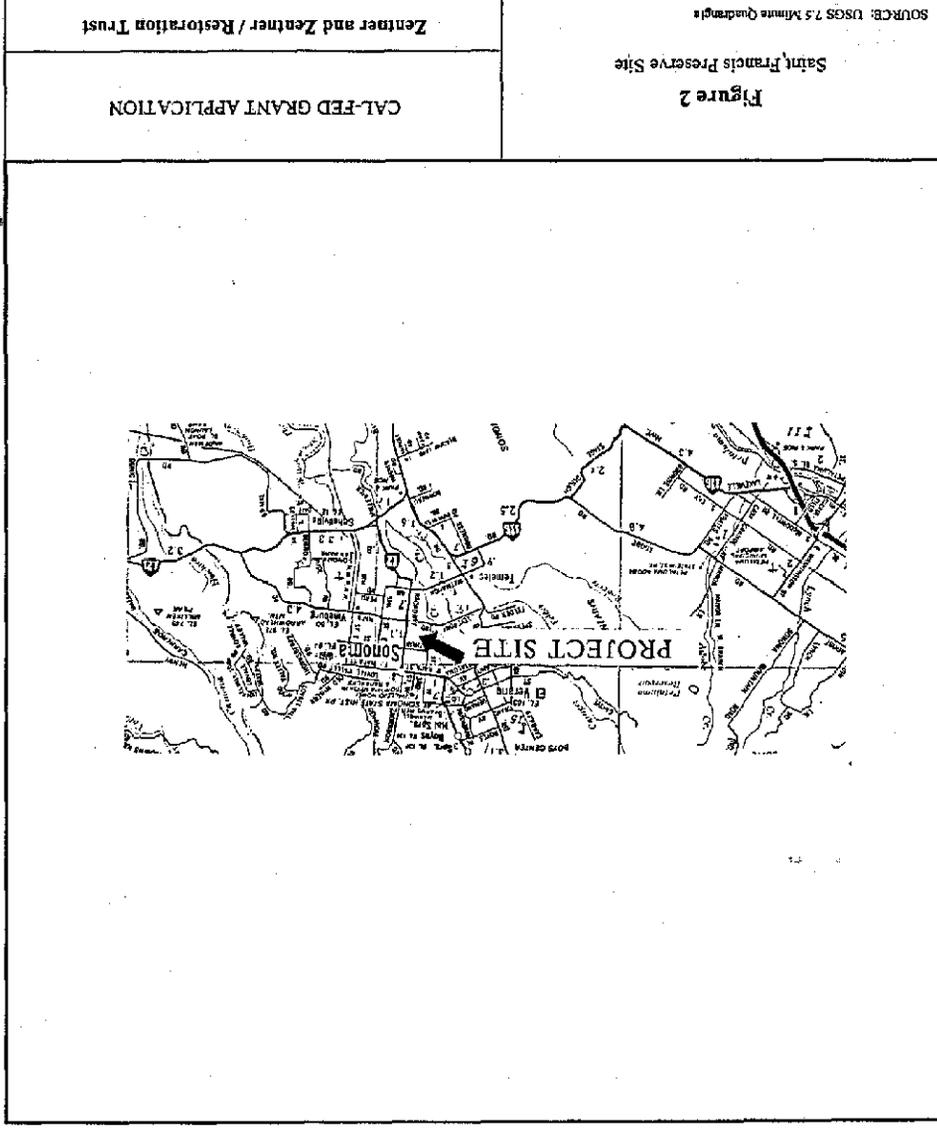


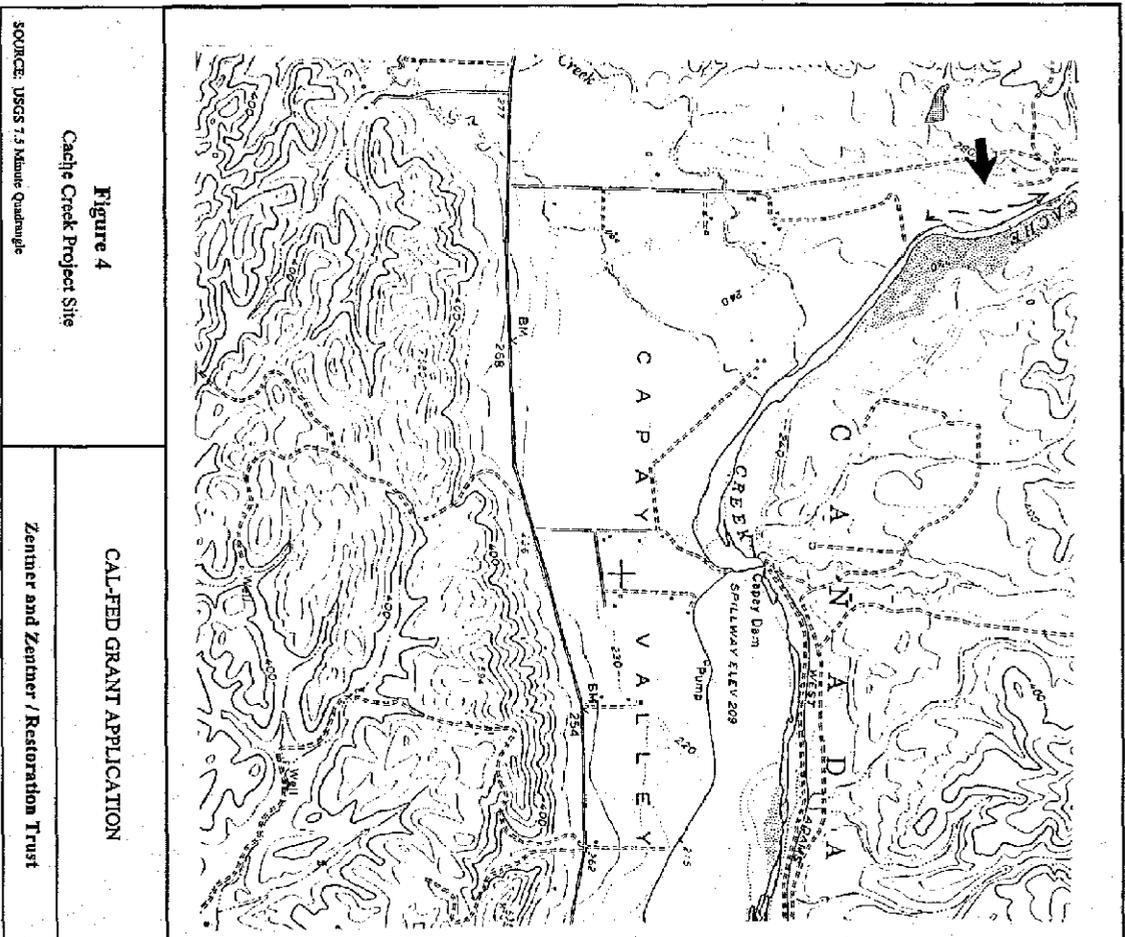
**Figure 1**  
 Adobe Creek Project Site

SOURCE: USGS 7.5 Minute Quadrangle

CAL-FED GRANT APPLICATION

Zentner and Zentner / Restoration Trust



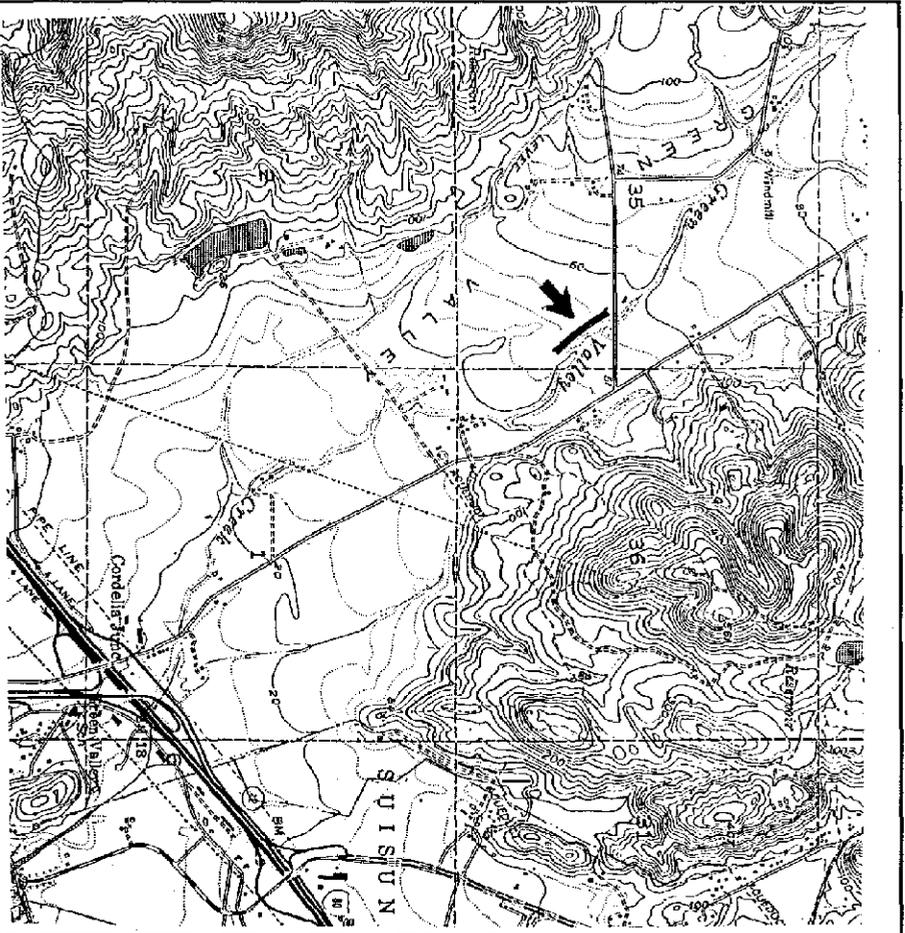


**Figure 4**  
Cache Creek Project Site

SOURCE: USGS 7.5 Minute Quadrangle

**CAL-FED GRANT APPLICATION**

Zentner and Zentner / Restoration Trust



**Figure 3**  
Green Valley Project Site

SOURCE: USGS 7.5 Minute Quadangle

CAL-FED GRANT APPLICATION

Zentner and Zentner / Restoration Trust

1-017109

1-017109



**Certificate of Special  
Congressional Recognition**

Presented to

***Restoration Trust***

***Outstanding Service In Restoration Of Native Habitats  
County Of Sonoma***

***February 23, 1999***

DATE

***Lynn Woolsey***  
MEMBER OF CONGRESS

1-017110

1-017110

## Attachment A

### THE 1-ACRE GIS PROGRAM

The program is built around standard database software and a spreadsheet-based proto-type mapping and analysis package (1-Acre GIS) that was developed, and is being refined, by SERCAL volunteers and others for free unrestricted transfer and use. The 1-Acre GIS and database package provides a framework for systematically gathering and coupling information on: 1) plant species (regional distribution, origins, ecology, horticulture, ethnobotany, phenology, life-form, etc); 2) spatial data on the composition of vegetation of a one-acre plot; and 3) photos of species in the plot.

Field sampling of a one-acre demonstration site requires 4-6 hours with a crew of 15-30 novices led by an experienced botanist and 1-3 assistants. The field procedure uses a series of parallel transects to record cover class, by species, for each of a grid of 225 line intercept samples. This rapid assessment system allows very rich data on the structure and composition of the vegetation to be gathered in less than a day.

The 1-Acre GIS package brings ecological, horticultural and cultural perspectives into focus on the site for analysis, education and planning, with a very short turn-around from field work if the restoration-oriented information on the plants is in place for the county. Our first relatively low-tech effort at this sort of turn-around, for example, required only about five hours of data entry, and then three hours to correct a few plant names and add a functional level of information for three non-native species that had not been included in the baseline information from a similar site roughly 20 miles away.

The proto-type system was then used to generate maps of cover, relative cover or number of species by: species; life-form; wetland indicator status; origins (native or not); various cultural categories (plants which can be gathered in a particular month for food, for basketry, ...); and so on. The system was also used to help identify ecological analogs and likely missing species. At the first site, the system has also been used to identify restoration needs and assign priorities; and to parse out activities by month, type, cultural interest, and restoration priority, thus facilitating planning of activities that combine cultural enrichment activities and restoration (a project which we are developing at a second site at the Effie Yeaw Nature Center on the American River near Sacramento).

A very important feature of the 1-Acre GIS package for cooperators is the underlying spreadsheet software (Excel) which is widely owned, is relatively low cost, works on almost any desktop or laptop system, and is relatively easy to learn. This contrast sharply with standard GIS software and hardware, which are very expensive and require considerable training to use effectively.

Attachment B

Notification Letters



ZENTNER  
ZENTNER



2627 J Street

April 14, 1999

Sacramento

Dr. Phil Northen  
Biology Department  
Sonoma State University  
1801 East Cotati Avenue  
Rohnert Park, CA 94928

California 95816

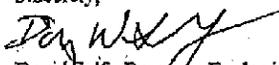
Dear Phil,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts at the St Francis site in Sonoma this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fon 916.442.1778

Tel 916.442.5620

Sincerely,



David Self - Resource Ecologist

Land Planning and Restoration



ZENTNER   
ZENTNER

2627 J Street

April 14, 1999

Sacramento

Vin Smith  
City of Petaluma  
11 English Street  
Petaluma, CA 94952

California 95816

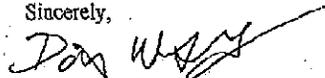
Dear Vin,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fax: 916.442.1778

Tel: 916.442.5630

Sincerely,



David Self - Resource Ecologist

*Land Planning and Restoration*



ZENTNER   
ZENTNER

2627 J Street

April 14, 1999

Erin Beavers  
Planning Department  
City of Fairfield  
1000 Webster Street  
Fairfield, CA 94533

Sacramento

California 95816

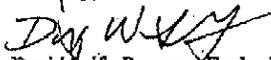
Dear Erin,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fax: 916.442.1778

Tel: 916.442.5620

Sincerely,

  
David Self - Resource Ecologist
*Land Planning and Restoration*



ZENTNER  
a u d ZENTNER



2627 J Street

April 14, 1999

M. Clyde Low  
Board Member, Green Valley Landowners Association  
subcommittee on Preservation of Green Valley Creek  
1435 Rockville Road  
Suisun, CA 94585-1332

Sacramento

California 95816

Dear Mr. Low,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fax: 916.442.1778

Tel: 916.442.5620

Sincerely,

David Self - Resource Ecologist

*Land Planning and Restoration*



ZENTNER   
ZENTNER

2627 J Street

April 14, 1999

Sacramento

Anthony Russo, Vice President  
Solano Concrete  
1601 Cement Hill Road  
Fairfield, CA 94533

California 95816

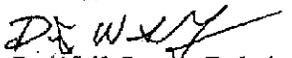
Dear Anthony,

Fax: 916.442.1778

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Tel: 916.442.5620

Sincerely,



David Self - Resource Ecologist

Land Planning and Restoration



ZENTNER  
and ZENTNER



2627 J Street

April 14, 1999

Sacramento

Sue McConnell  
California Regional Water Quality Control Board  
Central Valley Region  
3443 Routier Road, Suite A  
Sacramento, CA 95827-3303

California 95816

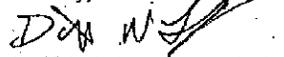
Dear Sue,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fax: 916.442.1778

Tel: 916.442.5620

Sincerely,



David Self - Resource Ecologist

Land Planning and Restoration



ZENTNER  
& ZENTNER



2627 J Street

April 14, 1999

Sacramento

Molly Mayo  
Concurrent Technologies Corporation  
999 18th Street, Suite 1615  
Denver, Colorado 80202

California 95816

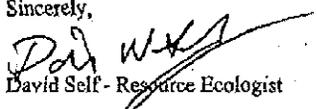
Dear Molly,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fax: 916.442.1778

Tel: 916.442.5620

Sincerely,



David Self - Resource Ecologist

Land Planning and Restoration



ZENTNER  
& ZENTNER

2627 J Street

April 14, 1999

David Morrison  
Yolo County Community Development Agency  
292 West Beamer Street  
Woodland, CA 95696

Sacramento

California 95816

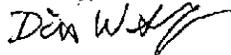
Dear David,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fax: 916-442-1778

Tel: 916-442-5620

Sincerely,



David Self - Resource Ecologist

Land Planning and Restoration



2627 J Street

April 14, 1999

Sacramento

Jan Lowry and Ann Brice  
 Cache Creek Conservancy  
 34490 County Road 25  
 Woodland, CA 95696

California 95816

Dear Jan and Ann,

Zentner & Zentner would like you to know the status of our efforts, on behalf of the Restoration Trust, to obtain grant funding from CalFed, a joint Federal and State Program focused on restoring the ecological health of the Bay-Delta and its watersheds. The grant funding would help the Trust to expand community based habitat restoration and stewardship training efforts in your community this fall through spring 2000. A brief summary of the proposal, which will be submitted on Friday, is attached. We should know if we're in the running by early summer, with final funding decisions expected in August. We'll let you know the status of the proposal, as review progresses, and will work with the Trust to keep you informed of planning for the fall programs. We look forward to working with you. If you have interests or questions, call me (530/676-1054) or John Zentner (510/596-2690). Thanks.

Fax: 916.442.1778

Tel: 916.442.5620

Sincerely,

David Self - Resource Ecologist

Land Planning and Restoration

Attachment C

Contract Requirements

## NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 18 (REV. 3-85) FMC

*Zentner and Zentner*

COMPANY NAME

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

## CERTIFICATION

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.*

*John Zentner**JLZ*

OFFICIAL'S NAME

DATE EXECUTED

*April 15, 1999*

EXECUTED IN THE COUNTY OF

 *Contra Costa*

PROSPECTIVE CONTRACTOR'S SIGNATURE

*pres. dent*

PROSPECTIVE CONTRACTOR'S TITLE

*J Zentner and Zentner*

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

**STANDARD CLAUSES -  
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER**

**NOTICE TO ALL BIDDERS:**

Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

Yes\*       No

\*Attach a copy of your certification approval letter.

*Pending, if needed*