Kids for Our Creeks

Project Information

1. **Proposal Title:**

   Kids for Our Creeks

2. **Proposal applicants:**

   Vieva Swearingen, Cottonwood Creek Watershed Group
   Dennis Mitchell, Evergreen Middle School

3. **Corresponding Contact Person:**

   Vieva Swearingen
   Cottonwood Creek Watershed Group
   P O Box 1198 Cottonwood, CA 96022-1198
   530 347-6637
   ccwg@sgasta.com

4. **Project Keywords:**

   Environmental Education
   Monitoring
   Water Quality Assessment & Monitoring

5. **Type of project:**

   Education

6. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   No

7. **Topic Area**:

   Environmental Education

8. **Type of applicant:**

   Private non-profit

9. **Location - GIS coordinates:**

   Latitude: 40.2309

   Longitude: -122.1647

   Datum:

Describe project location using information such as water bodies, river miles, road intersections, landmarks, and size in acres.

Cottonwood Creek (18020102)is located is the county line for Shasta and Tehama counties. It is 940 sq miles/605,000 acres in size with the North Fork, Middle Fork, Beegum and South Fork being the main tributaries. Located 15 miles north of Red Bluff and 15 miles south of Redding, the mainstem is crossed with both the Interstate 5 highway bridge, the county road bridge (owned jointly by Tehama and Shasta counties) at the town of Cottonwood and the railroad tracks.

10. **Location - Ecozone:**

    5.1 Upper Cottonwood Creek, 5.2 Lower Cottonwood Creek

11. **Location - County:**

    Shasta, Tehama

12. **Location - City:**

    Does your project fall within a city jurisdiction?

    No

13. **Location - Tribal Lands:**

    Does your project fall on or adjacent to tribal lands?

    No

14. **Location - Congressional District:**

    2 and 3

15. **Location:**

    California State Senate District Number: 4

    California Assembly District Number: 2

16. **How many years of funding are you requesting?**

    3

17. **Requested Funds:**
    a) Are your overhead rates different depending on whether funds are state or federal?

       No

       If no, list single overhead rate and total requested funds:

       Single Overhead Rate: 10

       Total Requested Funds: 164,579

b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

Evergreen Middle School $15,000 (in kind)

California Dept of Fish & Game $5770.00 (in kind)

c) Do you have potential cost share partners?

Yes

If yes, list partners and amount contributed by each:

Adopt A Watershed 20,000

d) Are you specifically seeking non-federal cost share funds through this solicitation?

No

If the total non-federal cost share funds requested above does not match the total state funds requested in 17a, please explain the difference:

18. **Is this proposal for next-phase funding of an ongoing project funded by CALFED?**

No

Have you previously received funding from CALFED for other projects not listed above?

Yes

If yes, identify project number(s), title(s) and CALFED program.

98-E05 Cottonwood Creek Watershed Group formation ation ERP

2000-E03 Cottonwood Creek Assessment ERP

19. **Is this proposal for next-phase funding of an ongoing project funded by CVPIA?**

    No

    Have you previously received funding from CVPIA for other projects not listed above?

    No

20. **Is this proposal for next-phase funding of an ongoing project funded by an entity other than CALFED or CVPIA?**

    No

    Please list suggested reviewers for your proposal. (optional)

21. **Comments:**

    After the body of this document was uploaded to you on a pdf system elsewhere, I realized the budget was incorrect. I will edit the budget summary, howver, I am unable to access the body of the grant to make that correction. The budget in the document is off in the fringe portion of the Watershed Education Coordinator. The actual budget summry is correct. Thank you

Environmental Compliance Checklist

Kids for Our Creeks

1. **CEQA or NEPA Compliance**
   a) Will this project require compliance with CEQA?

      Yes
   b) Will this project require compliance with NEPA?

      Yes
   c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.

2. **If the project will require CEQA and/or NEPA compliance, identify the lead agency(ies).** *If not applicable, put "None".*

   CEQA Lead Agency: CA Department of Fish and Game
   NEPA Lead Agency (or co-lead:) US Fish and Wildlife Service
   NEPA Co-Lead Agency (if applicable):

3. **Please check which type of CEQA/NEPA documentation is anticipated.**

   CEQA
   X Categorical Exemption
   - Negative Declaration or Mitigated Negative Declaration
   - EIR
   - none

   NEPA
   X Categorical Exclusion
   - Environmental Assessment/FONSI
   - EIS
   - none

   If you anticipate relying on either the Categorical Exemption or Categorical Exclusion for this project, please specifically identify the exemption and/or exclusion that you believe covers this project.

   NEPA: Categorical Exclusion-516 DM 2 Appendix 1, CE #1.6 non-destructive data collection, inventory(including field, aerial, and satellite surveying and mapping), study, research and monitoring activities. CEQA: Categorical exemption, taken from Article 19 #15306 Information collection: Class 6 consists of basic data collection, research, experminental management, and resource evaluation activies which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as a part of a study leading to an action which a public agency has not yet approved, adopted or funded.

4. **CEQA/NEPA Process**
   a) Is the CEQA/NEPA process complete?

No

If the CEQA/NEPA process is not complete, please describe the dates for completing draft and/or final CEQA/NEPA documents.

Categorical exemption and categorical exclusion will be completed or within 3 months of completion of recipient agreement (for CALFED). This is anticipated to be sometime during the fall of 2002.

b) If the CEQA/NEPA document has been completed, please list document name(s):

5. **Environmental Permitting and Approvals** (*If a permit is not required, leave both Required? and Obtained? check boxes blank.*)

LOCAL PERMITS AND APPROVALS

Conditional use permit

Variance

Subdivision Map Act

Grading Permit

General Plan Amendment

Specific Plan Approval

Rezone

Williamson Act Contract Cancellation

Other

STATE PERMITS AND APPROVALS

Scientific Collecting Permit Required

CESA Compliance: 2081

CESA Compliance: NCCP

1601/03

CWA 401 certification

Coastal Development Permit

Reclamation Board Approval

Notification of DPC or BCDC

Other

FEDERAL PERMITS AND APPROVALS

ESA Compliance Section 7 Consultation

ESA Compliance Section 10 Permit

Rivers and Harbors Act

CWA 404

Other

PERMISSION TO ACCESS PROPERTY

Permission to access city, county or other local agency land. Agency Name:	
Permission to access state land. Agency Name: CDFG	Required
Permission to access federal land. Agency Name: USFS/BLM	Required
Permission to access private land. Landowner Name: to be determined	Required

6. **Comments.**

2. Federal and/or state agency leads may be determined by where funding is coming from (thereby creating a federal and/or state nexus). Both agencies listed (USFWS and CDFG) are assumed, at this point, to be the most logical choice of lead agencies either because of potentially who will be the funding source, or because of what may be the most significant issue to be addressed in the NEPA/CEQA process (potential impacts to habitats and/or species). In addition, both of these agencies (local offices) have also been most active in the watershed when it pertains to environmental education and providing assistance to Cottonwood Creek Watershed Group in this arena. 5. USFS, BLM, and CDFG land may or may not be accessed as part of this project.

Land Use Checklist

Kids for Our Creeks

1. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   No

2. **Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?**

   Yes

3. **Do the actions in the proposal involve physical changes in the land use?**

   No

   If you answered no to #3, explain what type of actions are involved in the proposal (i.e., research only, planning only).

   Proposal is an environmental education grant. Students will be gathering field data but will not be causing physical changes to the landscape. Students will also be involved in service learning projects which could involve habitat restoration but within areas that are already considered natural areas (e.g., streamside, within existing forest areas, etc.). Verification in answering in this manner was provided by Dan Ray (CALFED) on September 26, 2001.

4. **Comments.**

Conflict of Interest Checklist

Kids for Our Creeks

Please list below the full names and organizations of all individuals in the following categories:

- Applicants listed in the proposal who wrote the proposal, will be performing the tasks listed in the proposal or who will benefit financially if the proposal is funded.
- Subcontractors listed in the proposal who will perform some tasks listed in the proposal and will benefit financially if the proposal is funded.
- Individuals not listed in the proposal who helped with proposal development, for example by reviewing drafts, or by providing critical suggestions or ideas contained within the proposal.

The information provided on this form will be used to select appropriate and unbiased reviewers for your proposal.

Applicant(s):

Vieva Swearingen, Cottonwood Creek Watershed Group
Dennis Mitchell, Evergreen Middle School

Subcontractor(s):

Are specific subcontractors identified in this proposal? No

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

If yes, please list the name(s) and organization(s):

Vieva Swearingen CCWG

Dennis Mitchell Evergreen School

Tricia Bratcher CDFG

Comments:

Budget Summary

Kids for Our Creeks

Please provide a detailed budget for each year of requested funds, indicating on the form whether the indirect costs are based on the Federal overhead rate, State overhead rate, or are independent of fund source.

Independent of Fund Source

Year 1												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Watershed Education Coordinator	1075	10750	2150	245.			3440		16585.0	1659	18244.00
2	Service Learning Supervisor	180					900			900.0	90	990.00
3	Educationl Packets	224	2240	448				10800		13488.0	1349	14837.00
4	Provide Training	60	600	120						720.0	72	792.00
5	Field Study	138	1480	320						1800.0	180	1980.00
6	Restoration	208	2180	460						2640.0	264	2904.00
7	Develop linkages with other programs	40	400	80						480.0	48	528.00
8	Network with Professionals	35	450	114					3600	4164.0	416	4580.00
9	Project Management	594	11880	3801	169	500		6510.	2500	25360.0	2536	27896.00
		2554	29980.00	7493.00	414.00	500.00	900.00	20750.00	6100.00	66137.00	6614.00	72751.00

Year 2												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Watershed Ed. Coordinator	1070	10700	2140	245					13085.0	1309	14394.00
2	Service Learing Instructor	180					900			900.0	90	990.00
3	Educational Packets	100	1000	200						1200.0	120	1320.00
4	Provide training	60	600	120						720.0	72	792.00
5	Field study	138	1480	320						1800.0	180	1980.00
6	Restoration	208	2180	460						2640.0	264	2904.00
7	Develop linkage with other programs	40	400	80						480.0	48	528.00
8	Network with other Professionals	35	450	114						564.0	56	620.00
9	Project Management	594	11880	3802	169	500			2500	18851.0	1885	20736.00
		2425	28690.00	7236.00	414.00	500.00	900.00	0.00	2500.00	40240.00	4024.00	44264.00

Year 3												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Watershed Education Coordinator	1070	10700	2140	245					13085.0	1309	14394.00
2	Service Learning Instructor	180					900			900.0	90	990.00
3	Educational Packets	100	1000	200						1200.0	120	1320.00
4	Provide training	60	600	120						720.0	72	792.00
5	Field Study	138	1480	320						1800.0	180	1980.00
6	restoration	208	2180	460						2640.0	264	2904.00
7	Develop linkage with othe programs	40	400	80						480.0	48	528.00
8	Network with Professionals	35	450	114						564.0	56	620.00
9	Project Management	594	11880	3802	169	500			5500	21851.0	2185	24036.00
		2425	28690.00	7236.00	414.00	500.00	900.00	0.00	5500.00	43240.00	4324.00	47564.00

Grand Total=<u>164579.00</u>

Comments.

The body of this grant was submitted elsewhere as we did not have the software to upload. After is was sent to you, I found an error in the budget. Since I cannot access the body of the document, please note that this is budget summary is correct. The error lies in the benefit amount for the watershed education coorinator. Also in the body of the doucument, we made the effort to show the cost per student over the three years. Due to the error in the budget, this calculation is in error as well. Thank you for your patience.

Budget Justification

Kids for Our Creeks

Direct Labor Hours. Provide estimated hours proposed for each individual.

Mitchell -Service Learning Instructor 540 hours for project Swearingen- Project Management - 1560 hours for project Yingling- Watershed Ed. Coordinator 4992 hours for project

Salary. Provide estimated rate of compensation proposed for each individual.

Mitchell-10 day substitute teacher @ $90.per day = $900.00 balance of$50.00 per day @ 300 hours is in kind service. Swearingen -$20.00 per hour @ 1560 hours Yingling - $10.00 per hour @ 4992 hours

Benefits. Provide the overall benefit rate applicable to each category of employee proposed in the project.

Mitchell - benefits included in rate Swearingen benefits @ 32% Yingling - benefits @ 20%

Travel. Provide purpose and estimate costs for all non-local travel.

Due to the vast size of this watershed, it is 99 miles from the CCWG office around to all the schools and back to the office. This trip is expected to be taken once per month by the Project Manger and/or Watershed Education Coordinator. The reinburasble cost is .345 cents per mile.

Supplies & Expendables. Indicate separately the amounts proposed for office, laboratory, computing, and field supplies.

Field Supplies: Densiometer 3 @ 125.00 = $375.00 Waders 15 pairs @ 61.00 = $915.00 Hip Boots - 25 pairs @ 36.00 = $900.00 Rubber Boots 100 pairs @ $20.00 = $2,000.00 Hobo Temps - 8 @ 95.00 = $760.00 Soft ware for temps 8 @ 95.00 = $760.00 Hobo Temps cases 8 @ 20.00 = $160.00 Green Programs Water monitor kit 8 @ 159.95 = $1,279.60 Tree Study Field Kit 8 @ 200. = $1,600.00 Compass 30 @ 15.00 = $450.00 Plankton Net 2 @ 90.00 = $180.00 Clip Boards 30 @ 1.00 = $30.00 Measure tapes 3 @ 26.00 = $78.00 Clinometer 3 @ 106.00 = $318.00 dio tapes 3 @ 30.00 = $90.00 Computer 1 @ 2,810.00 = $2,810.00 Projector 1 @ 2,700.00 = $2,700.00 Power Point Software 1 @ 100 = $100.00 Computer case 1 @ 100.00 = $100.00 Digital Camera 1 @ 800.00 = $800.00 copy paper, tablets, pencils, printer ink = $1,500.00

Services or Consultants. Identify the specific tasks for which these services would be used. Estimate amount of time required and the hourly or daily rate.

none

Equipment. Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than $5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items.

This equipment will be made easily available to all schools including the charter schools and home school programm. Most of the items will be kept in storage at the CCWG office and checked out by the schools as needed. The computer system, projector and software will be kept at the CCWG office or Evergreen School, and made available for presentations, etc. The Hobo temp units will be kept in the creek at specfic sites, with data collected throughout the year.

Project Management. Describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, report preparation, giving presentatons, reponse to project specific questions and necessary costs directly associated with specific project oversight.

Project management includes attending field studies and restoration projects. Management of the grant, including report preparation, validation of costs and payment bills. Preparation for audits, presentations, attendance at training sessions, Adopt A Watershed conference.

Other Direct Costs. Provide any other direct costs not already covered.

Curriculum: A childs place in the Environment 8 @ $430.00 = $3,440. The balance of curriculm is in kind cost share.

Indirect Costs. Explain what is encompassed in the overhead rate (indirect costs). Overhead should include costs associated with general office requirements such as rent, phones, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific costs.

Rent, telephone, utilities, office equipment and furniture

Executive Summary

Kids for Our Creeks

The goal of this environmental education proposal is to establish partnerships with local K-8 schools and establish watershed educational programs through the use of an education coordinator. The intent of this project is to create a sense of stewardship between the K-8 schools and the Cottonwood Creek Watershed in which they reside. Cottonwood Creek drains an area of 940 sq miles on the west side of the Central Valley, approx. 15 miles each between the towns of Redding, to the north and Red Bluff to the south. Students from Evergreen Middle school (one school in the watershed)have participated in the service learning projects for several years, and since entering into a partnership with CCWG, see the value of sharing this program with students from other schools. The objective of this project is to provide this education (environmental ed curriculum, service learning opportunities, coordination)to the other seven K-8 schools in the watershed, as well as the students who are attending charter schools and those who are home schooled. Students who receive this curriculum in the classroom and field over a period of years will have an understanding of long term trends if given a basic foundation in science and natural resource concepts. The uncertainly, or challenge,is getting total participation, long term commitment from the other schools and an increased awareness on the part of the students. This project will focus on the goals of the overall CALFED program and the Strategic Plan Goals of the Ecosystem Restoration Program solicitation. The project will also focus on increasing public awareness of the vision for the Cottonwood Creek Watershed Ecological Zone as outlined in the CALFED Bay-Delta Program ERP, Vol II Page 195. CALFED goals: The project: Addresses societal issues: A goal of the program is to change societal approach to natural resource conservation; Environmental education: The project will increase public awareness, knowledge, and appreciation of natural resources and ecosystem restoration activities, foster active participation in conservation through service learning, restoration and monitoring programs, and encourage wise use. Multi-regional priority #3, Education programs: The project will develop a comprehensive program associated with conservation, restoration, monitoring, curriculum development and hands-on involvement; CVPIA/AFRP Goals: The program will in part address the goal of collecting data to facilitate restoration. While not directly stated, CVPIA programs encourage the active pursuit of knowledge and education, which are also the goals of this project.

Proposal

Cottonwood Creek Watershed Group

Kids for Our Creeks

Vieva Swearingen, Cottonwood Creek Watershed Group
Dennis Mitchell, Evergreen Middle School

2002 CALFED ERP Proposal
Project Name: Kids for Our Creek
Project Type: Environmental Education

A. PROJECT DESCRIPTION: PROJECT GOALS AND SCOPE OF WORK

1. Statement of Problem:

Cottonwood Creek is located in northern California and is a westside tributary to the upper Sacramento River. It lies within Shasta and Tehama counties; Cottonwood, the main town in the watershed, lies along Interstate 5 halfway between the cities of Red Bluff and Redding. Approximately one third of the watershed is comprised of public lands, predominantly U.S. Forest Service land but also including lands managed by U.S. Bureau of Land Management. Forest Service lands also include the Yolla Bolly Wilderness Area, which lies within both Shasta-Trinity and Mendocino National Forests, and the Chancelulla Wilderness (Shasta Trinity National Forests). The balance of acreage within the watershed is predominantly comprised of private land, including timberland, small rural subdivisions and agriculture; both irrigated and grazing range land. A wide variety of habitats occurs within the watershed, including mixed conifer forest, chaparral, blue oak woodlands, valley grassland, and riparian forest, to name several.

Cottonwood Creek and the main tributaries, which flow over 100 miles through the watershed, provide important spawning and nursery areas for listed species including, Spring-run chinook salmon (*Oncorhynchus tshawytscha*, federal and state listing as Threatened); Central Valley steelhead (*Oncorhynchus mykiss*, federally listed as Threatened), as well as fall and late fall run chinook salmon (*Oncorhynchus tshawytscha*). It also contains several other federally listed species (either known to occur, or, at minimum, has habitat for the species), including northern spotted owl (*Strix occidentalis caurina*, Federally threatened), California red-legged frog (*Rana aurora draytonii*, Federally Threatened), Valley elderberry longhorn beetle *(Desmocarpus californicus dimorphus*, Federally Threatened), and bald eagle (*Haliaeetus leucocephalus*, Federally Threatened). Cottonwood Creek is the primary source of spawning gravel for the Sacramento River, providing almost 85% of the gravel introduced between Redding and Red Bluff.

On April 20, 2000 the Cottonwood Creek Watershed Group (CCWG) established a formal partnership with the Evergreen Union School District. The partnership created an educational outreach for students in grades K-8 and helped establish two service learning programs that combined watershed education with real life projects. Currently the partnership has resulted in the CCWG providing some funds to help provide the Evergreen Middle School with a service learning supervisor. Evergreen eighth grade students that have participated in the service learning projects have attended many of the watershed's stakeholder meetings, hosted luncheons for tours of the watershed area, conducted experiments in raising plants for restoration projects, and created a Demonstration Forest on the campus. In an effort to assist stakeholders in the watershed the students assisted in implementing a control burn on the area surrounding the campus to control the non-native and invasive plants, including star thistle (*Centaurea solstitialus*). The students planned and conducted the eradication of the noxious & non-native Klamath Weed (*Hypericum perforatum*; also known as St. John's Wort) on the land surrounding their campus. Results of these and similar projects will be shared with the stakeholders in the Cottonwood Creek Watershed during this school year and students are available to assist stakeholders that wish to use similar methods within the

watershed area. The students are also creating a web page for the CCWG that will be fully operational during the 2001-2002 school year.

During the 2000-2001 school year the partnership between CCWG and Evergreen Middle School attempted to involve the other K-8 schools in the watershed area in a watershed awareness poster contest. Minimal response from other schools on this activity indicated a need for better planning for their involvement in the watershed.

Our assumptions about nature are based on what we see around us but what we often see, especially from the cities that have dominated our culture for thousands of years, are the influences of our presence on the world. This can create false yet deeply rooted assumptions about nature. Because of these inaccurate assumptions, our actions often produce results we do not intend (Krafel 1999). The majority of the watershed is composed of small rural community centers, unincorporated communities and individuals (average parcel size is over 5 acres)(CH2MHill 2001). Despite the predominantly rural living environment of the watershed inhabitants, there still appears to be a general lack of respect from some adults and youth, resulting in the deterioration of the watershed. For example, the local use of four-wheel drive vehicles, motorcycles, and ATV's in the streambed has caused erosion in many parts of the creek. The dumping of garbage in the streambed and in isolated areas has become an increasing problem. The planting and/or uncontrolled spread of exotic plants, including the increasing encroachment of non-native and plants and noxious weeds, are adding to the degradation of suitable wildlife habitat, as well as affecting rangelands. The increasing fuel load adds to the mounting threat of fire every year, which endangers people's livelihoods and/or homes. All of these issues and concerns again point to a need for better education and active participation by all age groups in conserving, enhancing and protecting the many attributes of the watershed, not only for the betterment of natural resources but also for their living environment.

The Cottonwood Creek Watershed Group currently provides adult education outreach through monthly stakeholder meetings at Evergreen Middle School, as well as providing a quarterly newsletter to all residents in the watershed and other interested parties. The newsletter contains information on activities of CCWG, as well as on issues potentially affecting land management and other items of potential interest to landowners. However, as stated earlier, only one of the five K-8 schools in the watershed, Evergreen Union School (Elementary and Middle), appears to offer any noticeable, structured environmental education program.

Goals, Objectives, and Hypotheses

For the ease of evaluation of this proposal, Expected Outcomes as they relate to goals, objectives and hypotheses are included in this section. Outcomes regarding potential reports, presentations, etc. are included in (7) Expected Products/Outcomes of this proposal (as per proposal outline found on page 62 of the PSP).

The following are descriptions of terms as they have been interpreted by the developers of this proposal. The purpose of these descriptions is to assist the developers and readers in obtaining a common understanding of the intent and purpose of this document:
Goal: **A general vision of an expected overall achievement.**
Approach: A procedure by which a goal is to be attained.
Outcome: A vision of a specific accomplishment that is to be attained within a selected goal.

Objective: **A procedure by which an outcome is to be attained.**

Goals of the Kids For Our Creek Program:

* To create and/or increase watershed awareness and stewardship in all K-8th schools within the Cottonwood Creek watershed.

* To develop a sustainable program that is integrated throughout the curriculum, and that meets or exceeds state standards.

* To continue the successful efforts of the core teachers and watershed education coordinator (at Evergreen Middle School), expand the coordinators' functions to other school districts.

* To provide additional training in Project Learning Tree, Project WET, A Child's Place in the Environment, Wild Things '99 - Watershed: Rivers Run Through Them! and Adopt-A-Watershed.

* To provide an opportunity for local educators to interact with the core group of individuals to work together and to coordinate educational activities throughout the Watershed.

* To encourage schools to become involved in data collection, thereby expanding the degree of knowledge about the watershed, as well as participating in planning and implementing restoration activities.

* To create a better-educated populace that understands and is actively interested in working to protect, restore and enhance ecosystems within the Cottonwood Creek watershed. Knowledge and participation will empower children and their parents, thereby making the watershed a better place for all of us.

Implementation of this grant will also assist CCWG in fulfilling its mission statement: "The Cottonwood Creek Watershed Group will work to preserve the environment, private property and water rights and economic resources of Cottonwood Creek Watershed through responsible stewardship, liaison, cooperation and education."

Outcomes and Objectives:

(Outcomes and Objectives are used by educators in developing educational curriculum. This section is organized from an educator's perspective).

1. **Outcome:** This project will create a core group of teachers knowledgeable about natural resource issues of the Cottonwood Creek Watershed, with a specific focus on watershed education and restoration.

Objectives:

Training needs: Evergreen Middle School will host Project Learning Tree training for teachers; the watershed education coordinator and service learning supervisor will facilitate other training in programs such as Project WET, etc. The CCWG watershed coordinator will facilitate training regarding field data techniques. Names of the staff who have undergone training will be distributed

as resource persons for other teachers with questions about creek related research and classroom activities.

The watershed education coordinator will work throughout each school year to ensure that teachers who are participating in the program are developing their projects in their respective districts.

The core group of teachers will meet regularly with the three coordinators to discuss program development, training needs, progress to date, and assess the degree to which goals are being met.

2. Outcome: Develop restoration projects and field study opportunities for students throughout the watershed.

Objectives:

Classroom lecture and presentation from various agencies, organizations and educational institutes will be offered on pertinent subject matters. All activities will be based on the appropriate curriculum from the Project books selected: Project Learning Tree, Project WET, etc.

This program will include field trips to various locations along the Cottonwood Creek to learn about data collection techniques and implement field data collection, in addition to reinforcing lectures and presentations. It also will include travel to various sites in the watershed to participate in implementing restoration projects. All activities performed will relate to appropriate curricula based on the training each school has completed.

Students will research information about the watershed and projects being implemented in the watershed, to be used in articles in the CCWG watershed newsletter.

CCWG coordinator will facilitate project and field study projects with technical experts (e.g., agency representatives, scientists, biologists, foresters, etc.).

Restoration projects will be developed via ongoing efforts of CCWG and/or will be developed specifically for students by the coordinators and core teachers.

3. Outcome: There will be an increase of awareness, knowledge and appreciation of natural resources and ecosystem restoration.

Objectives:

Parents will be voluntarily involved and encouraged to participate.

Classroom lecture and presentation from various agencies, organizations and educational institutes will be offered on pertinent subject matters. Field study will take place in the watershed for the purpose of first-hand observation and will reinforce lectures and presentations. All activities will be based on the appropriate curriculum from the Project books selected: Project Learning Tree (PLT), Project WET, etc.

Participation in field data collection will be encouraged.

Students will learn about the history of the watershed, the positive and negative effects of human use on the watershed, and how they may assist in restoring and/or maintaining various attributes in

the watershed. Students will be kept regularly informed about the activities of CCWG, as well encouraged to participate.

Pre and post evaluations of student knowledge will be regular components.

4. Outcome: To help establish service learning programs in all the K-8th schools within the Watershed, thereby fostering active participation in conservation programs and encouraging wise use of natural resources.

Objectives:

Parents will be voluntarily involved and encouraged to participate.

Hands-on activities will take place and be appropriately designed for each grade level.

Participation in field data collection and restoration projects (service learning) will be encouraged.

Students will learn about the history of the watershed, the positive and negative effects of human use on the watershed, and how they may assist in restoring and/or maintaining various attributes in the watershed. Students will be kept regularly informed about the activities of CCWG, as well encouraged to participate.

The degree to which students are involved will be assessed in an ongoing manner.

The service learning supervisor will establish a core group of individuals to assist in implementing service learning activities appropriate to each grade level.

5. Outcome: To expand the coordinators' functions to the other schools in the watershed.

Objectives:

The watershed education coordinator, CCWG coordinator, and service learning supervisor will work towards creating a web of educators among local schools that will assist in successfully sustaining the program.

The watershed education coordinator will gather sources of environmental education curriculum, which will then be arranged appropriately for each grade level and made available to each teacher in the watershed.

There will be regular, active communication between the coordinators and each educational site.

The following objectives apply to all of the outcomes:

(1) Project staff will administer evaluation surveys twice a year to program participants and stakeholder attendees to evaluate the content and quality of the program and the projects being conducted within the watershed. This will facilitate any adjustments deemed necessary in lectures, field trips and/or scheduling, and foster an environment supporting continual improvement of the program and projects.

(2) All activities and restoration projects will be recorded for the use of the watershed group in an attempt to monitor and create a better creek and watershed for everyone.

Hypotheses:

Students who receive environmental education curriculum in the classroom and field over a period of years will develop an understanding of long term trends in the watershed, if given a basic foundation in science and natural resource concepts.

Students exposed to a variety of learning styles and learning environments related to natural resources will more likely have better retention of the material and a greater feeling of stewardship toward the watershed than students who learn in a traditional classroom setting.

2. Justification (including conceptual model, likelihood of success and sustainability):

Education is the key to raising the level of awareness of these important resource issues and the stressors on the ecosystem. Similarly, there is a degree to which teaching in schools carries with it moral imperatives (Fullan 1993). Goodlad (1990, and Goodland, Soder and Sirotnik, 1990) singles out four moral imperatives:

1. Facilitating critical enculturation
2. Providing access to knowledge
3. Building an effective teacher-student connection
4. Practicing good stewardship

Schools are major players in developing educated persons who acquire an understanding of truth, beauty, and justice against which to judge their own and society's virtues and imperfections..this is a moral responsibility (Goodlad 1990).

Several years ago, representatives of the state education agencies that comprise the State Education and Environment Roundtable (representatives of education agencies from 12 states, including California) became interested in the potential of environment-based education programs to improve student learning, change long standing pedagogical paradigms, and influence the way young people learn to live successfully in the world that surrounds them. Due to the lack of research in this area, Roundtable members designed a study to identify some of the most innovative and successful programs, describe their effectiveness, and analyze their commonalities and differences. They also sought to identify the factors that contributed to the success of these programs and any challenges they encountered during implementation. The report of the study, Closing the Achievement Gap (Lieberman and Hoody, 1998), focused on a specific area of environmental education: Using the Environment as an Integrating Context for Learning (EIC).

Evidence gathered from the 40 study schools indicated that students learn more effectively within an environment-based context than within a traditional educational framework. This evidence came from site visits, interviews, survey results, and gains on both standardized test scores and GPAs. The observed benefits of EIC-based programs were both broad-ranging and encouraging. They included:

* Better performance on standardized measures of academic achievement in reading, writing, math, science, and social studies;

* Reduced discipline and classroom management problems;
* Increased engagement and enthusiasm for learning; and
* Greater pride and ownership in accomplishments.

In addition to the benefits of incorporating environmental education into a schools' curriculum, as identified above, using a watershed approach in environmental education within schools is an excellent medium for teaching students (Misch, Price and Schmidt, 1996). It integrates and analyzes information from a variety of sources and across the entire spectrum of school disciplines, from science to language arts to history to art.

When combining multiple years of an environmental education curriculum with existing curriculum, adding strong parental involvement and interest, and participation by CCWG staff and natural resource agency representatives, the knowledge and appreciation of natural resources and the ecosystem will be increased. There will also be an increased willingness to participate in stewardship activities, and/or individuals will be much more apt to wisely use natural resources.

The draft Cottonwood Creek Watershed Assessment (CH2MHill, 2001) documented several data gaps within the context of water quality (temperature, flow) and fisheries (lack of comprehensive data collection in the watershed. One of the approaches of this environmental education program would be for schools to become involved in data collection on the mainstem Cottonwood Creek, its main tributaries, and in upland habitats. Sampling sites could be identified with the assistance of the Cottonwood Creek Watershed Group Technical Advisory Committee (TAC); TAC members would also assist in training teachers and students on data collection techniques. This data, collected over the years, could be invaluable in identifying trends over time and would become part of the collective pool of information on the watershed.

Education and learning are integral parts of adaptive management and are found throughout every step of the adaptive management process. As students become more actively involved and become better informed via education and participation, they will adapt their thinking, impressions, and opinions about their living environment and preservation of natural resources. Ultimately, it will give them lifelong habits in terms of implementing conservation concepts into relevant aspects of their daily lives.

As the program expands, there may be heightened interest within one aspect or another of the curriculum on the part of the students (e.g., a school in the upper elevations may want to pursue studying upper watershed stream systems which is a local concern to them, as opposed to a more broad exposure to the entire curriculum). If applicable, adaptive management can be used to facilitate any adjustments deemed necessary in lectures, field trips and/or scheduling, and foster an environment supporting continual improvement of the program. As we learn more about the watershed through the completion of the watershed assessment and the subsequent watershed management program, we may learn more about what to focus our efforts on in terms of data collection on priority issues within the watershed. The schools could provide invaluable assistance in participating in the entire process.

In one aspect, the project would be deemed successful in that it would provide all teachers with a package of appropriate environmental educational material for each grade level, as well as provide local access to equipment and training. It would alleviate the potential workload teachers often face in developing their units because all of the information from the various programs (Project Wild,

Project Wet, etc.) would be consolidated/integrated for them by the educational coordinator, and it would be designed in a way to learn more about the watershed. Additional success would come from teachers attending the training opportunities, as well as incorporation of the environmental educational program (packet) into their existing curriculum. CCWG would provide a local service in that it would be available to all teachers and students as a resource to supplies (boots, testing kits, etc.), technical assistance from agencies representatives, and coordination. A final measure of success would be the degree to which students could apply their academic learning to service in the community, as well as a change in attitudes about natural resources and conservation of their watershed.

Sustainability is evident in the following ways:

* Agencies have been involved in these watersheds for decades and will continue to be so; many of the agencies have some level of providing a service in the form of environmental education.

* An integrated environmental education packet will be developed and provided to all teachers, all grades, to be used at any time.

* Public schools are an integral part of our educational system and are not expected to disappear; they are therefore an excellent forum for teaching children about natural resources and conservation. This program would also be available for "alternative" means of education other than public schools (charter schools, home schooling programs, etc.).

* CCWG has now been in existence for over three years and is continuing to grow. It recognizes the importance of environmental education to watershed inhabitants and has made it one of its top priorities.

3. Approach (including appropriate curriculum for target audience)

As stated earlier (in Statement of Problem) CCWG established a formal partnership with the Evergreen Union School District in April, 2000. The partnership created an educational outreach for students in grades K-8 and helped establish two service learning programs that combined watershed education with real life projects. This partnership has been very rewarding on the part of CCWG staff, students, teachers, parents, and agency personnel who have participated so far. The environmental education program at Evergreen began in the 1993-1994 school year and has been steadily growing since then. The plan is to now expand environmental education opportunities into the rest of the watershed.

Watersheds provide an excellent medium for teaching students who to integrate and analyze information from a variety of sources and across an entire spectrum of school disciplines, from science to language arts to history to art (Cole-Misch, Price and Schmidt, 1996). For example:

* The watershed's geological history and hydrological processes teach elements of earth science through formative history.

* Analysis of the chemical and biological parameters of a river and floodplain teaches physical and biological sciences. The gathering of quantitative, empirical data involves students in descriptive and predictive science.

* Land and water use within a watershed demonstrates the relationships and interactions between humans and the natural environment, as well as the role of the social sciences in watershed management.

By using the watershed concept as an organizing unit that transcends political and physical boundaries (such as cities, counties and states as well as socio-economic and racial boundaries), schools with diverse backgrounds can be linked together. Because Cottonwood Creek originates in a nearly unpopulated, mountainous, high elevation area with associated habitat types (e.g. mixed conifer) and descends into a mixture of natural, agricultural, and suburban/urban areas of different habitat types (e.g., chaparral, oak woodland, grassland), diverse student populations can learn about one another and work together to resolve issues of mutual concern, as well as learn about the immediate area in which they live. Using watersheds as a theme, teachers, students, and parents can branch out to study forests, agriculture, health, economics, wildlife, history, and other topics.

There are three "coordinators" associated with this project:

Watershed educational coordinator: The overall approach of Kids for our Creek is to hire a watershed educational coordinator that will build the capacity of the Cottonwood Creek Watershed to facilitate and manage all K-8 schools in the development of an educational partnership. The individual will oversee and assist with the training of the K-8th teachers in all the schools within the Cottonwood Creek Watershed, as well as develop an environmental education curriculum appropriate for each grade level.

Service learning supervisor: The service learning supervisor will work directly with the students in the two established Evergreen Middle School service-learning programs and assist the new partnership schools in the development and implementation of the watershed curriculum.

While some of the work responsibilities of the two positions will overlap and complement each other, the basic difference is thus: The watershed education coordinator (to be hired) will oversee the **curriculum** coordination and projects the students are doing associated with curriculum; the service learning supervisor (a Science teacher at Evergreen Middle School) will oversee/direct the **community** projects (community is defined as both the school community and the general community surrounding a school) that the students are doing.

CCWG watershed coordinator: The role of the CCWG watershed coordinator in this project is to assist in successfully implementing many of the tasks associated with the project, particularly those involving watershed-level coordination; working with adjacent watersheds and communities; interacting with federal, state and local agency representatives; managing the budget and reporting requirements; and assisting in arranging training needs.

Kids For Our Creek has plans for a carefully structured program to address the four components of comprehensive watershed education. They include: 1) the introduction of grade-level appropriate, standards based science concepts; 2) long-term field study; 3) restoration activities; and 4) community service action. Providing training in appropriate curriculum and field study protocols is

also a component of the proposal, as well as enhancing linkages with other watershed education efforts, both within the watershed (e.g., adult education via efforts of CCWG) and in the region. Planned participation in the Adopt-A-Watershed Leadership Institute (a group will attend from the watershed) will also provide opportunities for local leaders to meet, work together and further coordinated educational activities throughout the region.

The specific activities and elements to be funded by this grant would be to supplement the personnel services and operating expenses of the existing environmental education program currently underway at Evergreen Union School (elementary and middle); a larger activity would be to expand environmental educational opportunities into the rest of the watershed via CCWG, the watershed education coordinator, and the service learning supervisor. There are seven public schools within the Cottonwood Creek watershed, as well as currently one charter school (SEE MAP in ATTACHMENTS). There are also a number of children who are home schooled. Data on the public school population is in the Attachments section at the back of the document

The specific project tasks are to:
1) Continue and expand the efforts of the watershed education coordinator
2) Continue and expand the efforts of the Service learning supervisor
3) Develop and provide a complete set of appropriate material (an education packet) to each teacher in the watershed; a packet will be developed for each grade level. All of the environmental education programs mentioned above will be integrated into this packet.
4) Provide training and/or coordinate training opportunities in Project Learning Tree, Project Wet, A Child's Place in the Environment; Wild Things '99 (Watershed: Rivers Run Through Them!), and Adopt-A-Watershed.
5) Participate in field study opportunities (teachers, students and parents), as well as provide training in field inventory techniques; equipment will be purchased to support this effort.
6) Participate in restoration activities, as well as other service learning projects (teachers, students, and parents);
7) Develop and/or enhance linkages with other programs in the upper Sacramento Valley, including programs in Cow Creek, Battle Creek, Sacramento River Discovery Center, Turtle Bay, and other groups involved in the Adopt-A-Watershed program.
8) Develop and/or enhance a local network of resource professionals who are willing and able to participate in providing their expertise as a tool for teachers and coordinators to use.
9) Project management (by CCWG watershed coordinator).

The watershed education coordinator will continue to monitor and supervise the two service learning programs at Evergreen Middle School. These two programs could serve as examples for the implementation of service learning programs and the use of watershed curriculum for the other schools in the watershed. During the first part of the project the watershed education coordinator will organize the curriculum by grade level and will pull together the most appropriate, relevant material from the following programs: Project Learning Tree, Project WET, A Child's Place in the Environment, Wild Things '99 (Watershed: Rivers Run Through Them!), and Adopt-A-Watershed.

During the second part of the project (occurring, to a degree, simultaneously with the first part), the watershed education coordinator, the CCWG watershed coordinator and the service learning supervisor will conduct and/or arrange for curriculum and service learning training for K-8 teachers in all the schools in the watershed. By training key teachers from the K-8 schools in the use of these environmental curriculums, each will have a common set of academic lessons that will help

their students develop watershed awareness. This will help build and strengthen the watershed partnerships by providing a common educational thread. Research has shown that if teachers are involved in training opportunities, such as those mentioned above, they will use them in their classrooms for many years. Evergreen Middle School will host Project Learning Tree Training for the teachers and help schedule other training's like Project WET, etc. A team of up to five people (to be selected from teachers, agency representatives, educational staff such as principals, coordinators) will be selected and will attend the Adopt-A-Watershed Leadership Institute in either the summer of 2002 or 2003, as well as the following spring of either year. Adopt-A-Watershed has agreed to send the team virtually cost-free (excluding travel cost and a registration fee) to the two Institute training events that are available.

Project Learning Tree is a national environmental curriculum and has been correlated to the California State Science, Language Arts and Social Studies standards. The curriculum A Child's Place in the Environment comes directly from the California State Department of Education and assigns specific curriculum in grades K-6. The curriculum Wild Things '99 - Watershed: Rivers Run Through Them! was developed by the U.S. Fish and Wildlife Service and has been used nationally. Project WET is a relatively new environmental curriculum that is gaining national attention with teachers throughout the United States. Adopt-A-Watershed is a K-12 school-based program that uses a local watershed scale; the watershed is seen as a living laboratory in which students engage in hands-on activities, making science applicable and relevant to their lives. Learning is reinforced through community service. More detailed information on these programs is provided as attachments at the back of this document.

Restoration projects, field studies and coordination with other education projects will occur throughout the program. As teachers complete various training opportunities, names will be distributed as resource persons for other teachers with questions about creek-related research and classroom activities. The program will also establish a core group of individuals who will review the curriculum and develop a strategy to provide training and materials to a broader group of K-12 educators.

Equipment will be purchased and be made easily available to all schools, including charter schools and home school programs. The equipment will be used to (1) teach children about the various techniques used to gather natural resource data; and (2) gather data in a consistent manner over a period of time, as inventory becomes a standard part of the curriculum with classrooms that are actively participating. The equipment proposed to be purchased includes: water temperature units (hobo temp units) that are kept permanently in the creek and collect data throughout the year (data is downloaded at a set time); water quality testing and sampling units; tree study kits; rubber boots; software and associated computer components required to analyze the data; densiometers (to measure canopy closure); clinometers (to measure slope); and small miscellaneous items such as measuring tapes and clipboards. Equipment will be maintained primarily at CCWG but could also be kept at schools with teachers that develop an active environmental education program within their classroom.

Classroom lecture and presentation from various agencies, organizations and educational institutes will be offered on pertinent subject matters. This program will include field trips to various locations in the Cottonwood Creek watershed but may also include trips to Sacramento River Discovery Center or Turtle Bay Museum (in Redding) to complement study opportunities. It will include traveling to various sites in the watershed to participate in implementing restoration projects

and gather inventory data. Field study could also take place at several points along the creek for first-hand observation and reinforcement of lectures and presentations. All activities performed will relate to appropriate curricula based on the training each school (or classroom) has completed. In addition, all activities will be based on the appropriate curriculum from the Project books selected: Project Learning Tree (PLT), Project WET, etc.

An additional service learning project that will continue to be developed (Evergreen Middle School has been working on the project) is to create a web site and/or attach information on the efforts of CCWG to some other, local web site that addresses the efforts of local watershed groups. Currently, CCWG does not have a web site. This web site would also contain information on the service learning and educational efforts of the teachers and students of the watershed.

Over the last few years the CCWG watershed coordinator has developed a strong network of working relationships with agencies and resource professionals that will assist in the development of this program, including California Department of Fish and Game, U.S. Fish and Wildlife Service, the California Department of Water Resources, the Regional Water Quality Control Board, and California Department of Forestry and Fire Protection. CCWG has also actively solicited input and participation on the part of its stakeholders (landowners) in all watershed activities, including environmental education. The Evergreen Middle School 8th grade science teacher, Dennis Mitchell, has been actively involved with environmental education for a number of years and has many contacts in the local scholastic and environmental education community.

4. Feasibility:

During the 2000-2001 school year the Evergreen Middle School was awarded a National Service Learning Presidential Leadership Award due in part to their work related to the Cottonwood Creek watershed. As a recipient of this award the school is responsible for helping other schools develop service learning program, and they are committed to helping the other K-8 schools to do this. As stated earlier, the partnership between CCWG and Evergreen Middle School has already been in place since early 2000 and has been successful. The school also has had this program in place since the 1993-1994 school year; it has grown steadily and has also been the recipient of various forms of recognition, including the award mentioned above. Its main organizer (Mr. Mitchell–see Qualifications Section) has been involved with environmental education for a large number of years and has extensive training in the subject matter. Therefore, experienced personnel and educators that are linked with the Watershed will manage the project.

Implementation of this grant will be well coordinated. The watershed education coordinator will work closely with the CCWG Coordinator, the 8th Grade science teacher (Mr. Mitchell) at Evergreen Middle School and the staff to organize community events, field trips, data collection activities and restoration activities on parcels of land in the Cottonwood Creek Watershed. As educational staff from other schools become involved, they will become part of a coordinated network of participants in the implementation of the grant.

Linkages with other local programs already mentioned will allow the program to develop in Shasta and Tehama Counties consistent with State standards. There are also developing environmental education programs (e.g. Clear Creek, Cow Creek, Battle Creek, and groups that have undergone Adopt-A-Watershed Leadership Institute training) in adjacent watersheds to tie in with and develop a network of training opportunities, exchange of information, and a coordinated approach to

watershed-level education, as well as educational centers (Sacramento River Discovery Center in Red Bluff, Carter House Science Museum in Redding, and Turtle Bay Educational Center in Redding).

There is often the question regarding the degree to which schools in the watershed may be able to participate. For example, people may become trained and then leave their position for other job opportunities; there may be lack of interest in terms of environmental education, etc. Teachers often are not able to implement environmental education curriculum due to either lack of time or money. However, there are built-in facets of this program that will offset some of these potential impacts, including: The availability of environmental education curriculum for each grade level; easier access to resource professionals as speakers or as educators in field data collection techniques; localized, free, easy access to training for teachers in the watershed; the reduction in workload for teachers in having to develop their own curriculum in this arena; access to equipment teachers might not be able to otherwise purchase; a curriculum which is tiered toward the watershed and its attributes; assistance in implementing environmental education curriculum; and an overall network of support for implementing this type of curriculum.

The following environmental compliance is to be completed (it has not been completed to date): NEPA compliance will be in the form of a categorical exclusion. The following exclusion was selected to comply with NEPA and was taken from the U.S. Department of Interior: 516 DM 2 Appendix 1, CE #1.6 (non-destructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research, and monitoring activities. CEQA compliance will also be in the form of a categorical exemption: Categorical exemption, taken from Article 19, #15306-- Information collection: Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded.

5. Performance Measures (Pre- and post-project evaluation components)

Appropriate performance measure for education projects include what products are to be delivered (e.g. Curriculum); pre and during project evaluations; and a final evaluation. Expected products are found below in **7) Expected Products and Outcomes.**

A combination of pre-project, mid-project, and post-project assessments will be used to determine the effectiveness of the project. Mid-project assessments will be completed at the end of each school year. Components of these three types of assessments will include the following:

* The number of schools participating in a partnership with the Cottonwood Creek Watershed.
* The number of schools in the watershed aware of the mission and goals developed by the CCWG Board of Directors
* The number of students involved in environmental education, with a particular emphasis on watershed education
* The amount of time the teachers spend on environmental education each year
* The number of students involved in field studies, as well as service learning projects related to the Cottonwood Creek watershed (e.g., poster contests, natural resources data collection on restoration projects, actual participation on restoration projects, etc.)

Project staff will administer evaluation surveys prior to the mid-school year (February) and the end of each school year to program participants and stakeholder attendees to evaluate the content and quality of the program and the projects being conducted within the watershed. This will facilitate any adjustments deemed necessary in lectures, field trips and/or scheduling, and foster an environment supporting continual improvement of the program and projects.

The education coordinator will work throughout the school year to ensure that each teacher who is participating in the program is developing their projects in their respective districts. After completion of the program, names of the staff will be distributed as resource persons for other teachers with questions about creek related research and classroom activities.

6. Data Handling and Storage

Field data storage: Certified raw data and reports generated under this project that involve field data collection (e.g., water quality monitoring) will be maintained by CCWG. This information will be provided to the stakeholders and board members in the watershed group, appropriate agencies, and be available publically/locally using database standards consistent with CALFED standards. Data will be maintained on an Access database, or one that will meet the needs of the group and appropriate agencies, and it will be exported from the participating schools and/or watershed education coordinator to CCWG for storage. A backup will be made of the database on removable media on a regular basis and will be stored either by CCWG at their office. Original field data sheets will be sent to CCWG on a regular basis. Videos, displays, and exhibits produced by the students will be maintained at the CCWG office in Cottonwood.

No personal student information will be released to the public. Training summaries, data generated from evaluations and assessments (e.g. pre and post project) will be maintained by the watershed education coordinator. Any quarterly, annual and/or final reports will be maintained by CCWG.

7. Expected Products/Outcomes (The degree of replicability and dissemination of the program or project will also be discussed in this section)

The expected outcome of this project is a better educated populace in the watershed that understands what we can all do to contribute towards watershed and ecosystem protection, restoration, and enhancement. All activities and restoration projects will be recorded for the use of the watershed group in an attempt to monitor and create a better creek and watershed for everyone.

All information can be presented and discussed at the Watershed Stakeholders meetings. Materials relating to the watershed will be available upon request for schools and organizations interested in doing restoration projects and furthering the goals of environmental education for the watershed. Videos, displays, and exhibits produced will be invaluable resources that could be presented at the Watershed Stakeholders meetings, presented at teacher trainings, which would allow alternative opportunities for evaluation.

Students will research information about the watershed and projects going on for the watershed in the watershed newsletter. Videos, displays, and exhibits produced will be invaluable resources that could be presented at the Watershed Stakeholders meetings, presented at teacher trainings, which would allow alternative opportunities for evaluation.

The CCWG maintains an active outreach program to educate and inform the public and promote broad community participation. Monthly stakeholder meetings have been attended by hundreds of individuals, and 2,400 people receive notices of these meetings. The CCWG TAG includes 17 members who are associated with 10 local land use planning and local, state, and federal resource agencies. Information from the monitoring program will be distributed to a diverse set of stakeholder and agency representatives, and will integrate its monitoring strategies with those of the U.S. Forest Service, National Marine Fisheries Service, California Department of Fish and Game, U.S. Fish and Wildlife Service, and other agencies.

The specific deliverables will also include 1) annual reports from the watershed coordinator, watershed education coordinator, and service learning supervisor; 2) CCWG classroom equipment kits checkout records; 3) training summaries and certificates; 4) photo monitoring of field study and restoration activities; 5) environmental education curriculum packets for each grade; 6) record of volunteer time spent on the part of parents, agency representatives, and other volunteers; 7) quarterly, annual and final report(s) to CALFED from CCWG watershed coordinator.

8. Work Schedules

The project has been ongoing at Evergreen Middle School but is planned to expand to other schools starting in Fall 2002. It will continue via this grant until 2004. Coordinators (salary of watershed education coordinator and partial salary of CCWG coordinator; service learning supervisor is funded via cost share) would be funded for the 2002-2004 school years.

The watershed education coordinator will work throughout the project to develop the program. The schedule of the CCWG watershed coordinator is year-round. The service learning supervisor will work primarily during the school year but will stay involved in the summer months (summer break). Restoration projects, field studies and potential coordination with other projects (e.g. in other watersheds or educational centers) will occur throughout the project. Field training will start in Fall 2002 but will be ongoing and as need.

All training on curriculum tools (e.g. Project Learning Tree, Project WET, etc.) will be scheduled at least once or twice a year and/or depending upon group interest. A team of up to five people (to be selected from teachers, agency representatives, educational staff such as principals, coordinators) will be selected and will attend the Adopt-A-Watershed Leadership Institute in either the summer of 2002 or 2003, as well as the following spring of either year. Adopt-A-Watershed has agreed to send the team virtually cost-free (excluding travel cost and a registration fee) to the two Institute trainings that are available. This constitutes a $20,000.00 cost share. As appropriate and as time/space permits, training opportunities will be made available to other watersheds and teachers in the surrounding communities.

B. APPLICABILITY TO CALFED ERP AND SCIENCE PROGRAM GOALS AND IMPLEMENTATION PLAN AND CVPIA PRIORITIES

1. ERP, Science Program and CVPIA Priorities

This project will focus on the goals of the overall CALFED program and the Strategic Plan Goals of the Ecosystem Restoration Program solicitation. The project will also focus on increasing public

awareness of the vision for the Cottonwood Creek Watershed Ecological Zone as outlined in the CALFED Bay-Delta Program ERP, Vol II Page 195.

The project also addresses the following goals and/or priorities of the CALFED program (from the Draft Stage 1 Draft Implementation Plan):

Page 15, Address societal issues related to restoration: "Ecosystem restoration takes place within the context of the society it serves" (a goal of Kids For Our Creek is to change societal approach to natural resource conservation).

Page 38, Environmental education (the project will increase public awareness, knowledge, and appreciation of natural resources and ecosystem restoration activities, foster active participation in conservation through service learning, participate in restoration and monitoring programs, and encourage wise use. The program will also use existing educational resources and be coordinated closely with CCWG, as well as potentially involve children from all of the public and other schools in the watershed).

Page 44, Multi-regional priority #3, Education programs (the project will develop a comprehensive program associated with conservation, restoration, monitoring, curriculum development and hands-on involvement via service learning and field data collection. Collaborative efforts with adjacent watersheds and groups are a big component of the program to facilitate sharing of information. Local web site development and contributions to the CCWG newsletter are also components of the program).

CVPIA/AFRP Goals

Kids For Our Creek will in part address the following goals and objective of CVPIA/AFRP (pages from the Draft Stage 1 Implementation Plan)
Page 17, "Collect fish population, health, and habitat data to facilitate evaluation of restoration actions" (the project will provide service learning projects, as well as have a field data collection component). While not directly stated, CVPIA programs encourage the active pursuit of knowledge and education, which are also the goals of Kids For Our Creek.

2. Relationship to Other Ecosystem Restoration Projects

A component of the project is to participate in ecosystem restoration projects within the watershed, as well as pre-project data collection. The watershed is still in the midst of completing its watershed assessment, which would be followed by a watershed management plan. At that time, watershed-wide identification and prioritization of restoration projects will occur. However, there are ongoing efforts to implement riparian planting on CDFG lands within the watershed; projects on Forest Service land, and upcoming projects involving fuels management that can provide excellent opportunities for students to become involved. Participation in such activities as Earth Day and Arbor Day also provide students an opportunity to participate in service learning projects. Students can also at this time become involved in activities associated with the Sacramento River Discovery Center in Red Bluff, as well as Carter House Science Museum and Turtle Bay Museum in Redding.

3. Requests for Next-Phase Funding

This project is not a request for next-phase funding.

4. Previous Recipients of CALFED Program or CVPIA Funding

CCWG has not received a CALFED grant before for environmental education, but it has received two other CALFED grants: Number 98-E05, Titled "Cottonwood Creek Watershed Group Formation", from the CALFED ERP Program; and (2) Number 2000-E03, Titled "CCWG Watershed Assessment", from the CALFED ERP Program.

5. System-wide Ecosystem Benefits

The potential for long-term involvement on the part of teachers and students is very likely to occur. Once training and inclusion of the curriculum occurs, teachers are apt to utilize the curriculum for many years. This will lead to a better educated public, which is apt to be more sensitive to the needs of the ecosystem and work to protect and enhance it. The service learning component of the program will also result in system-wide benefits. Data collection over a period of years would be a valuable set of information, and participation in service learning projects will also have a positive effect on the ecosystem, when looked at from a cumulative perspective.

6. Additional Information for Proposals Containing Land Acquisition

This proposal does not include a provision for land acquisition.

C. Qualifications

Dennis Mitchell, Service Learning Supervisor: Mr. Mitchell is also the overall Project Director and is an 8th Grade Science & Technology teacher, and Mentor Teacher in the Evergreen Union School District. He has been a teacher in the Evergreen Union School District for 23 years. Mr. Mitchell has been a staff developer for many different science projects in California and currently serves as the 4-8 environmental education trainer for the Forestry Institute for Teachers at Camp Latieze in Shasta County and The UC Berkeley Forestry Camp in Plumas County. He is a Project Learning Tree Facilitator and served on the national committee that recently rewrote and updated the PLT curriculum manual. Mr. Mitchell has organized and directed several summer teacher institutes for the Evergreen School District. Mr. Mitchell was awarded the California and National Environmental Teacher of the Year from PLT and the American Forest Council in 1999. He was awarded California Conservation Teacher of the year for 2001 and as Director of Service Learning Projects in the Evergreen School District, went to Washington D.C. to receive Evergreen School's National Presidential Service Learning Leadership Award in June of this year.

Annabell Yingling, Watershed Education Coordinator: Ms.Yingling was a student in the Evergreen School District and was involved in Dennis Mitchell's first educational watershed projects as an 8th grade student. She later joined AmeriCorps and served as an environmental educational consultant for Mr. Mitchell for 2½ years. As such she directly worked with the students in Mr. Mitchell's 8th Grade Environmental Teaching Academy and 8th Grade Environmental Committee. Ms. Yingling is a Project Learning Tree Facilitator and has been trained in the use of Project WET and helped members of the 8th Grade Environmental Teaching Academy implement A Child's Place in the Environment Curriculum.

Vieva Swearingen, CCWG Watershed Coordinator: Ms. Swearingen has been directly associated with the Cottonwood Creek Watershed Group since its inception in April 1998 and was one of the original members of the CCWG Steering Committee. In September 2000, CCWG officially became a 501-C-3 non-profit organization and has been the watershed's steward since that time. The group consists of landowners and business owners coordinating with other groups, the local community, and agencies. The CCWG mailing list includes 2,400 addresses. Hundreds of people have attended monthly stakeholder CCWG meetings, and 20 to 40 people regularly attend. The 7-member Board of Directors meets monthly. The Technical Advisory Committee (TAC) includes 17 individuals from 10 local, state, and federal agencies and private industry. Ms. Swearingen is the responsible fiscal agent who operates the CCWG and coordinates all CCWG activities. After formation, Ms. Swearingen developed and submitted the successful CALFED grant proposal for the Cottonwood Creek Watershed Assessment. She is the responsible fiscal agent who is administering the CALFED grant for this project, which is now well underway and proceeding within budget and on schedule.

D. Cost (Including Cost/benefit comments (Is the budget reasonable and adequate for the work proposed?))

1. Cost Sharing

An active effort was made to also find and establish cost share partners, and partners include Evergreen Middle School, the Adopt-A-Watershed Program, and California Department of Fish and Game, Redding; Cost share comprises 23% of the total budget ($46,730.00). CCWG has also applied for another cost share opportunity for this program (River Network—Watershed Assistance Grant {WAG}) and expects to receive final notice on whether or not it was approved in November 2001.

Anticipated volunteer time on the part of parents and other agency representatives was not included in the cost share equation due to difficulties in assessing the level of success of the program, but it is anticipated to be significant.

2. Budget

The budget is competitive with other environmental education programs of its size and potential for accomplishments. The program will be implemented in four school districts, eight public schools, in addition to being available to all charter schools and home school students within the watershed. Over 2,900 students will benefit from this program. Since this is a three-year request, the cost per year to CALFED is approximately $51,565.00. The cost per student is estimated to be $17.78 per year (using a figure of 2,900 students).

Equipment to be purchased will, for the most part, last beyond the three-year budget window. Some items may be damaged or lost, but overall, many of the equipment items are anticipated to provide several years of use (e.g. computer, boots, densiometers, clinometers, measuring tapes, etc.). Other educational materials that are developed as a result of the project (e.g., curriculum packages for each grade) will also be utilizable beyond the three-year grant cycle and are anticipated to be easily updated as new information for each program becomes available.

Table 1: Budget for Kids For Our Creek, CALFED Proposal 2002

Detailed Budget	Total	In-Kind	CALFED					
Personnel Services				hours	weeks	years	full time	6240
				40	52	3		
Project Management (Swearingen) @ 30% time							30%=1872 hrs	

Salary (1872 hours x$20.)	37,440		37,440	
Fringe (32% of salary)	11,981		11,981	
Watershed Education Coordinator(Yingling) @80% time				
Salary (4992 hours @ $10.)	49,920		49,920	80%=4992 hrs
Fringe (20% of salary)	998		998	
Service Learning Instructor (Mitchell) @ 11.25 time	17,700	15,000	2,700	11.25%=540 hrs
California Department of Fish & Game	5,770	5,770	0	
Total Personnel	**123,809**	**20,770**	**103,039**	
Operating Expense				
Supplies	1,500	0	1,500	
Audit/Insurance	7,500	0	7,500	
Workshop and meeting expense	3,200	3,200	0	
Report prep. and mailing	3,000	0	3,000	
Vehicle (100 miles mo. x.345x36months)	1,242	0	1,242	
Total Operating Expense	**16,442**	**3,200**	**13,242**	
Project Equipment				
Field Equipment	10,800	0	10,800	
Curriculum (Project Learning Tree – 64 @ $20.00)	1,280	1280	0	
" (Rivers Run Through It! – 8 @ $25.00)	200	200	0	
" (Project WET – 64 @ $20.00)	1,280	1280	0	
" (A Childs Place in the Environment – 8 @ 434.00)	3,440	0	3,440	
Adopt-A-Watershed Program	23,600	20,000	3,600	
Computer/PowerPoint/case/camera	6510	0	6,510	
Total Project Equipment	**47,110**	**22,760**	**24,350**	
Total Direct Costs	**187,361**	**46,730**	**140,631**	
Overhead @ 10%	14,063		14,063	
TOTAL BUDGET ($)	**201,424**	**46,730**	**154,694**	

E. Local Involvement

The Cottonwood Creek Watershed Group (CCWG) is a group of landowners, with some families having lived in the watershed since the late 1800s. These landowners are integrating with more recently arrived residents, business owners and other private parties to improve watershed conditions and habitat.

The applicant will review the work products and consult with other groups and agencies, such as; Battle Creek, Mill Creek, Deer Creek Watershed Conservancies, State and County Farm Bureaus, the Anderson-Cottonwood Irrigation District, Sierra Pacific Industries, CDF&G, USF&W and other Resource Agencies to support the efforts of this project.

The Group has had the following Participants and collaborators (some of which have representatives on the Technical Review Committee, or TAC):

Landowners	US Corps of Engineers
Shasta County Farm Bureau	US Fish and Wildlife Service (TAC)

Tehama County Farm Bureau
Anderson-Cottonwood Irrigation District (TAC)
Sierra Pacific Industries (TAC)
Homeowners associations
Regional Water Quality Control Board (TAC)
US Forest Service (TAC)
CA Dept. of Forestry and Fire Protection (TAC)
Water companies
Fishing guides
Private timber companies
CA Department of Fish and Game (TAC)
Tehama County Resource Cons. District
Western Shasta Resource Conservation District
National Resource Conservation Service
CH2MHill
UC Davis Extension (TAC)
CA Department of Water Resources (TAC)
Gravel extractors
Other interested parties

F. Compliance with Standard Terms and Conditions

CCWG will comply with all standard terms and conditions presented in Appendix D and Appendix E of the ERP 2002 Proposal Solicitation Package.

G. Literature Cited.

CH2MHILL. 2001. Draft Cottonwood Creek Watershed Assessment. CH2MHILL, Redding, CA. Unk. pp.

Cole-Misch, S., L. Price, and D. Schmidt. 1996. Sourcebook for watershed education. Global Rivers Environmental Education Network (GREEN), Ann Arbor, MI. 202 pp.

Consulting Engineers and Land Surveyors of California (CELSOC). 2000. California Environmental Quality Act, CEQA guidelines. CELSOC, publ. 225 pp.

Fullan, M. 1993. Change forces: Probing the depths of educational reform. The Farmer Press, Levittown, PA. 162 pp.

Goodlad, J. 1990. Studying the education of educators: From conceptions to findings. Phi Delta Kappan, 71:9. Pp. 698-701.

Goodlad, J., Soder, R., and K.A. Sirotnik, Eds. 1990. The moral dimensions of teaching. Jossey-Bass publ. San Francisco, CA. Unk. Pp.

Krafel, P. 1999. Seeing nature: Deliberate encounters with the visible world. Chelsea Green Publishing Company, White River Junction, VT. 193 pp.

Lieberman, G.A., and L.L. Hoody. 1998. Closing the achievement gap: Using the environment as an integrating context for learning. Science Wizards, publ. 106 pp., plus Executive Summary.

KIDS FOR OUR CREEK PROPOSAL
LIST OF ATTACHMENTS

Attachment 1--Table A: Public Schools within Cottonwood Creek watershed, Kids for Our Creek CALFED Proposal, 2002

School Name	District	Grades	No. of Students	Location in Watershed (town, where on creek)
Evergreen Middle	Evergreen Union	5-8	415	Cottonwood; near South Fork Cottonwood Creek- mainstem Cottonwood Creek confluence
Evergreen Elementary	Evergreen Union	K-4	437	Cottonwood; near South Fork Cottonwood Creek- mainstem Cottonwood Creek confluence
West Cottonwood	Cottonwood Union	6-8	586	Cottonwood; mainstem Cottonwood Creek
East Cottonwood	Cottonwood Union	K-5	622	Cottonwood; mainsteam Cottonwood Creek
Platina	Igo, Ono, Platina Union	K-8	12	Platina; Middle Fork Cottonwood Creek
Happy Valley	Happy Valley Union	K-8	680	Happy Valley; near North Fork Cottonwood Creek
Igo/Ono	Igo, Ono, Platina Union	K-8	110	Igo/Ono; near upper North Fork Cottonwood Creek

Total Number of Students: 2,862 (School year 2000-2001 numbers)

Redding
Igo
Ono
Olinda
Anderson
Cottonwood
Platina
Beegum
Bowman
Red Bluff
Platina Rd
N.F. Cottonwood Creek
Shasta County
Tehama County
Cottonwood Creek
Sacramento River
N.F. Beegum Crk
M.F. Beegum Crk
Beegum Creek
S.F. Beegum Creek
STATE HWY 36
Bowman Rd
INTERSTATE 5
S.F. Cottonwood Creek

Stream Channel

Cottonwood Creek Watershed Boundary

N

0 2 4 Miles

STREAM GEOMETRY

Cottonwood Creek Watershed Group
Cottonwood Creek Watershed Assessment

CH2MHILL

CH2M Hill RDD ArcView Project File \\Thor\Cart1\rddgis\cottonwoodcr\cottonwood_creek_wab.apr 11:24 a.m. 08-13-2001

Attachment 3
THE ADOPT-A-WATERSHED PROGRAM

What is Adopt-A-Watershed?

Adopt-A-Watershed is a K-12 school-community learning experience. Adopt-A-Watershed uses a local watershed as a living laboratory in which students engage in hands-on activities, making science applicable and relevant to their lives. It weaves education with the community developing collaborative partnerships and reinforcing learning through community service.

Goals of Adopt-A-Watershed

The goals of Adopt-A-Watershed are to enhance K-12 science education and encourage watershed stewardship through the Adopt-A-Watershed strategy.

The Adopt-A-Watershed Strategy

* Engaging students at each grade level in five important elements:
    1) Applying science concepts directly to a local watershed.
    2) Monitoring local watersheds through field studies.
    3) Restoring watersheds through community needs based projects.
    4) Educating through community action projects.
    5) Reflecting upon concepts learned and contributions made to the community.
* Encompassing all natural resources including: plants, wildlife, fisheries, ecosystems, soils, geology, vegetation management, and cultures.
* Spiraling through K-12 grade levels with an articulated curriculum that provide students progressive exposure to watershed ecology and science concepts.
* Becoming part of the core science curriculum.
* Linking communities with schools building partnerships with government agencies, public/private groups, and individuals.
* Using a model of service learning.
* Inspiring mentors and role models to serve younger students.

Mission Statement

Adopt-A-Watershed works to inspire students from kindergarten through twelfth grade with a sense of place in nature and in their community, awareness that they can make a difference, and lifelong quest for knowledge about the environment. We do this by providing schools with an integrated, sequential, K-12 science curriculum focused on the local environment and emphasizing service in partnership with the community.

What is the Adopt-A-Watershed Leadership Institute?

The goal of Adopt-A-Watershed's National Leadership Institute is to provide professional development to equip a leadership team with the information, skills, and shared vision to develop and establish high quality, self-sustaining Adopt-A-Watershed programs in schools within their designated watershed. Adopt-A-Watershed programs improve student achievement and develop watershed stewardship. Leadership Institute participants, in turn, lead, train and support other educators and community partners in replicating the program throughout their region.

The Leadership Institute offers a powerful series of professional development activities. The eight-day Summer Institute provides intensive leadership training in integration of educational standards, curriculum application to local environments, and service-learning concepts. Throughout the year, Leadership Teams are charged with hosting on-site professional development workshops that provide in-service teachers with comprehensive training in using the local environment as a focus for standards-based education. The four-day Spring Retreat provides in-depth training in technology, fundraising, partnership development, program sharing, as well as evaluation.

Teams are encouraged to participate for three consecutive years. In succeeding years participants will have the opportunity to receive in-depth training in the following: conducting field studies and data collection through GLOBE, integrating language arts and fine arts into watershed education with River of Words, using the schoolyard as an outdoor classroom and study site with National Wildlife Federation's School Yard Habitats program, and teaching methods based on the Environment as an Integrating Context for Learning (EIC) model. Participants will have the opportunity to experience these excellent programs and become facilitators for some. Teams participating for a third year are asked to be leaders of the Institute so that they can be trained to facilitate Leadership Institutes themselves.

Who is invited to participate?

Adopt-A-Watershed has found that teams consisting of natural resource agency personnel and community watershed groups as coordinators in partnership with schools are particularly powerful in implementing and sustaining Adopt-A-Watershed programs. In addition to the community coordinator, two teachers from a school or district and, if possible, a professor and/or dean from a local college or university representing a pre-service education program from the watershed comprise the initial Leadership Team. The key criteria for participation in the Leadership Institute are the schools' and community's commitment to implementing the program, the strength and skills of the leadership team and their network, and the willingness to work with Adopt-A-Watershed to raise funds for participation at the Leadership Institute and the team's local program needs.

The teachers should be from different grade levels, whenever possible, such as a primary and intermediate teacher, or an intermediate and high school teacher. The critical role of a coordinator is to work as part of the team to provide ongoing support to teachers and help link schools with the community. They identify and plan service-learning projects, contact appropriate professionals to enhance the curriculum units, and assist on field trips. Perhaps more importantly, the local coordinator aims to build lasting systems that place local citizens in leadership roles. For example,

advisory committees made up of students, teachers, volunteers, and community organizations work together to identify purposeful service projects, seek out new partnerships, and develop a plan to sustain the program in the future. Coordinators often come from a natural resource agency, a public utility, county schools, or the school district itself.

The higher education representative should be willing and have the support to develop an Adopt-A-Watershed component in their pre-service education program so that teachers entering the work force are trained to use the Adopt-A-Watershed strategy.

What do participants receive?

* Assistance with program design and development;
* Assistance with developing a clear vision and achievable goals and objectives;
* Experience in the Adopt-A-Watershed curriculum and strategy along with associated programs of excellence;
* Experience in planning and applying service-learning projects;
* Participation in using the environment as a focus for integrated standards-based education;
* Training in applying curriculum to the local environment through field experiences;
* Experience in applying telecommunications and technology to the Adopt-A-Watershed strategy;
* Training to become a certified Adopt-A-Watershed coordinator, workshop facilitator and/or presenter;
* A $200 stipend for each participant to purchase instructional materials including Adopt-A-Watershed curriculum materials;
* Facilitator, coordinator, and technology manuals;
* Food and lodging at the eight-day Summer Leadership Workshop and four-day Spring Follow-up Retreat;
* Reading material on education and the environment.

What do participating communities receive?

* A comprehensive program plan addressing educational needs of the local community and engaging students in watershed stewardship activities;

* Four on-site, follow-up professional development or consultation days provided by Adopt-A-Watershed for up to 30 teachers and/or community partners each day. Each team chooses what options will best serve the needs for building a successful program in their community;
* Training in the use of the technology and telecommunications component of the program;
* Program coordination from a local community coordinator;
* Follow-up support for teachers through peer coaching and program coordination;
* Participation in the Summer Leadership Workshop and Spring Retreat;
* Consultation time for program improvement based on identified program needs.

What are the site and participants' responsibilities?

* Identify leaders as described above, work as a team to solidify relationships and begin the process of team building, strategic planning, identifying potential projects, and fund raising for local program;
* Work with Adopt-A-Watershed to seek funding for program participation;

Implement Adopt-A-Watershed in local schools and community;

* Participate in peer coaching on Adopt-A-Watershed with at least two other teachers at the school site;
* Develop program management;
* Develop a team program implementation plan;
* Keep an Adopt-A-Watershed implementation portfolio;
* Participate in program evaluation;
* Provide travel expenses to the Summer Leadership Institute and Spring Follow-up Retreat;
* School district must agree to provide two release/substitute days for teacher team members to attend Spring Follow-up Retreat (this retreat will be on two weekdays and two weekend days) and three days for implementation and peer coaching at the school site.

Attachment 4
"A CHILD'S PLACE IN THE ENVIRONMENT" PROGRAM

A Child's Place in the Environment (ACPE) is an award-winning series of environmental education curriculum guides that provides elementary school teachers with an easy to follow interdisciplinary program. This program is aligned conceptually with the California Department of Education's science, English _language arts, and history _social science frameworks and content standards for science and English _language arts. Literature is integrated into the lessons. The hands-on lessons guide students from awareness and understanding to responsible action projects that enhance the environment.

A Child's Place in the Environment was made possible through grants from the California Department of Education Environmental Education Grant Program awarded to Lake County Office of Education and Konocti Unified School District. The principal writer of the curriculum was Olga Clymire, Environmental Education Consultant for Lake County Office of Education.

Schools and school districts in California may purchase *ACPE* units using up to 30% of their textbook allocations. All six grade-level units of *ACPE* have been judged as meeting the California Department of Education's requirements for legal compliance. Therefore all of these *ACPE* units are eligible to be purchased with Instructional Materials Funds monies.

The purpose of the curriculum guide *A Child's Place in the Environment* is to provide elementary school teachers with an example of an interdisciplinary, thematic, environmental education program. The grade-level specific units are conceptually correlated to the *Science Framework for California Public Schools* and fit into the Local Options column in the "Content Matrix" table included in Chapter 7, "Implementing a Strong Science Program." Topics, strands, and goals recommended in the *History _Social Science Framework*, components from the *English _Language Arts Framework,* and a variety of literature are integrated into each unit. Other frameworks are addressed where appropriate.

Lessons in all six units have been correlated to the new science content standards and to the *English _Language Arts Content Standards for California Public Schools*.

Goal

The goal of *A Child's Place in the Environment* is to encourage students to become environmentally literate and active. These students would value their environment, respect all life forms, understand the basic ecological principles, which support our planet, and live an ecologically responsible life-style.

Themes

Each grade-level unit is designed around four major themes:

_ Valuing the environment --providing opportunities for students to develop a feeling of appreciation and respect for the environment

_ Systems and interactions --enabling students to acquire an understanding of the ecological concepts as they practice thinking and problem-solving processes

_ Patterns of change --challenging students to recognize the ways their environment changes

_ Conservation --encouraging students to act responsibly toward the environment through school

and community enhancement projects and personal action

Topics

The six grade-level units of *A Child's Place in the Environment* are:

Grade 1: *Respecting Living Things*

Grade 2: *Protecting Soil*

Grade 3: *Preserving and Restoring Ecosystems* Grade 4: *Caring for Aquatic Systems*

Grade 5: *Conserving Natural Resources*

Grade 6: *Achieving a Sustainable Community*

Curricular Components

Each unit consists of approximately 20 sequential lessons that provide experiences for a variety of student learning styles and incorporate cooperative learning groups. A story line, guiding students through environmental awareness, understanding, thinking and problem-solving processes, and action projects link the lessons in each unit.

Student Outcomes

Students become dynamically involved in specific environmental science activities suited to their developmental levels. Their enhanced literacy provides them with a deeper understanding of basic ecological principles and with valuable insights into living ecologically responsible life-styles that reflect respect for all life forms.

Descriptions of Units

Unit 1: Respecting Living Things

This interdisciplinary and thematic environmental education curriculum guide helps kindergarten and first-grade teachers to encourage students to become environmentally literate and to participate in projects that enhance their environment. Through 19 well-structured lessons using the constructivist process, students learn to respect living things by caring for them and their surroundings. Literature is integrated into the curriculum and Beatrix Potter and Henry Bergh are the featured heroes. The lessons support the following subconcepts:

- Living things share our environment.
- Living things have needs.
- Living things are interdependent.
- People can choose to care about and protect living things.

Unit 2: Protecting Soil

This interdisciplinary and thematic environmental education curriculum guide helps second- and third-grade teachers to encourage students to become environmentally literate and to participate in projects that enhance their environment. Through 20 well-structured lessons using the constructivist process, students learn about the importance of conserving soil. Literature is integrated into the curriculum and George Washington Carver is the featured hero. The lessons support the following subconcepts:

- Soil is made up of living and nonliving things.
- Soil supports life, and life enriches soil.
- People depend on soil.
- People can choose to enrich and conserve soil.

Unit 3: Preserving and Restoring Ecosystems

Through 20 interdisciplinary and thematic lessons using the constructivist process, third- and fourth-grade teachers help their students to learn the importance of restoring and preserving ecosystems. Literature is integrated into the curriculum and Rachel Carson is the featured hero. At the end of the unit, students participate in projects that enhance their environment. The lessons support the following subconcepts:

- In an ecosystem living things depend on each other and on nonliving things.
- Living things have adapted to their habitats.
- Ecosystems change because of natural causes and human alterations.
- People can choose to respect living things and help to restore or preserve ecosystems.

Unit 4: Caring for Aquatic Systems

Through 20 interdisciplinary and thematic lessons using the constructivist process, fourth- and fifth-grade teachers help their students to learn the importance of balancing the use of water to meet the needs of all living things. Literature is integrated into the curriculum and Marjory Stoneman Douglas and John Muir are the featured heroes. Students participate in projects that enhance their environment. The lessons support the following subconcepts:

- Water cycles through living and nonliving things.
- Water is essential to all living things.
- The ways people acquire and use water affect living things.
- People can choose to conserve water, maintain or improve its quality, and protect specific bodies of water.

Unit 5: Conserving Natural Resources

Through 20 interdisciplinary and thematic lessons using the constructivist process, fifth- and sixth-grade teachers help their students to learn the importance of conserving natural resources. Literature is integrated into the curriculum and Henry David Thoreau and Jane Goodall are the featured heroes. At the end of the unit, students participate in projects that enhance their

environment. The lessons support the following subconcepts:

- Living things depend on natural resources ---air, water, soil, sunlight, minerals, plants, and animals.
- The homes of wild animals and human beings are made from natural resources.
- People use and affect natural resources.
- People can choose to conserve and protect natural resources.

Unit 6: Achieving a Sustainable Community

Through 20 interdisciplinary and thematic lessons using the constructivist process, sixth-grade teachers help their students learn the importance of participating in stewardship practices that reflect caring, understanding, and respect for the natural and human-built environments. Literature is integrated into the curriculum and Chico Mendes is the featured hero. The lessons support the following subconcepts:

- Healthy ecosystems are biologically diverse, have complex interrelationships, and are sustainable.
- Some components, relationships, and energy sources in human communities are similar to those that exist in ecosystems.
- Human communities affect the quality of natural and built environments.
- People can choose to participate in responsible actions to promote sustainable human communities and enhance or protect the quality of the environment.

Attachment 5
PROJECT LEARNING TREE PROGRAM

Project Learning Tree (PLT) is an award-winning, interdisciplinary environmental education program for educators working with students in PreK through grade 12. PLT helps students gain awareness and knowledge of the natural and built environment, their place within it, as well as their responsibility for it.

Project Learning Tree is people. It is a network of 3,000 grassroots volunteers and over 100 state coordinators that work in conjunction with teachers, schools, state agencies, foresters, businesses and civic organizations, museums, nature centers, and youth groups to provide workshops and in-service programs. PLT is administered nationally by the American Forest Foundation with the Council for Environmental Education.

It is one of the most widely used environmental education programs in the United States and abroad. Over 500,000 educators have been trained to use PLT materials, and more than 25 million students have been reached in the United States, the Trust Territories, Canada, Chile, Sweden, Finland, Japan, Philippines, Brazil and Mexico.

It 's mission is to increase students' understanding of our environment; stimulate students' critical and creative thinking; develop students' ability to make informed decisions on environmental issues; and instill in students the commitment to take responsible action on behalf of the environment.

PROJECT LEARNING TREE (PLT) CURRICULUM – AN OVERVIEW

PLT offers exciting and challenging interdisciplinary, action-oriented activities that focus on the total environment–land, air and water. PLT's lessons are designed to develop critical thinking skills and teach students "how" to think about complex environmental issues, not "what" to think.

PLT's activities attempt to guide the learner through a process that begins with awareness, moves them towards knowledge, enables them to challenge preconceived ideas, and motivates them to seek constructive avenues for environmental action.

All PLT activities center around five major themes from the PLT **Conceptual Framework**. These themes are integrated into both the PreK-8 curriculum and the secondary curriculum.

- Activities within the Diversity theme illustrate a wide array of habitats, societies, technologies, and cultures.
- The theme Interrelationships includes activities that highlight ecological, technological, and social-cultural systems as interactive and interdependent.
- The theme Systems, encompasses activities that show the connection between environmental, technological, and social systems.
- Structure and Scale activities demonstrate how technologies, societal institutions, and components of natural and human-built environments vary.
- The theme, Patterns of Change, explores the change of structures and systems over time.

The PreK-12 Curriculum is:

_ Based on the real needs of educators.

_ Developed, reviewed, and tested by more than 400 educators and resource professionals.

_ Formally evaluated by the North American Association for Environmental Education's Commission on Environmental Education Research.

_ Classroom proven.

PLT provides ready-made lessons and activities that can be incorporated into busy classrooms, nature centers, museums, and scout troops. The activities require minimal preparation and little, if any, equipment.

Project Learning Tree PreK - 8 Environmental Education Activity Guide

PLT's PreK - 8 Environmental Education Activity Guide contains 96 hands-on, interdisciplinary activities that cover a vast array of topics such as water and air quality, ecology, forests, wildlife, urban environments, trees and plants, recycling, biodiversity, and land use. The activity guide is separated into five major themes. Each theme covers the areas of Environment, Resource Management and Technology, and Society Culture.

The **Activity Guide** is designed to meet the common components of national education reform by using the constructivist approach to learning, whole language teaching, cooperative learning, problem solving, and authentic assessments.

In many states, the PreK-8 Guide and Secondary modules have been correlated to state learning standards. At the national level, the curriculum has been correlated to the National Science and Social Studies Standards.

The **PLT Guide** is designed for easy application. Activities can be implemented with minimal pre-planning or assembling of hard-to-find materials. The activities take advantage of indoor and outdoor settings and materials accessible to virtually any classroom -- city, suburban, or rural.

Project Learning Tree prides itself in the fact that the program is not just learning, it is doing! All PLT activities found within the PreK-12 curriculum guide the learner from awareness and knowledge to action. Students attempt personal or group action projects based on the knowledge they have gained from the activities. PLT's programs stress student involvement in community action and service learning. Profiled below are PLT's programs that highlight students, educators, and community groups in action.

GreenWorks! is PLT's community action and service learning program which encourages students to build local partnerships to develop and implement an environmental action project such as graffiti paint-overs, tree plantings, stream clean-ups, and recycling projects. See featured GreenWorks! classes and projects and learn how you can start your own GreenWorks! project.

PLT in the City is PLT's community-based program that trains educators and community leaders to use PLT materials in an urban context. PLT in the City strengthens the reach of environmental education to traditionally underserved audiences. View highlights of current PLT in the City initiatives and learn how your city can get involved.

Outstanding Educators. The people that put PLT into action are the dedicated teachers and educators that actively implement PLT in classrooms, nature centers, and with youth groups and community organizations. With the commitment of these educators, students are gaining the confidence and commitment they need to take responsible action on behalf of the environment.

Attachment 6

THE PROJECT WET PROGRAM

What is Project WET?

Project WET (Water Education for Teachers) is an international water science and education program for educators of students in grades K-12 that is sponsored by contributions from diverse public and private organizations and state sponsors. The goal of Project WET is to facilitate and promote the awareness, appreciation, knowledge and stewardship of water resources through the development and dissemination of classroom-ready teaching aids and the establishment of state and internationally sponsored Project WET programs.

The program is grounded in the following beliefs:

_ Water is important for all water users (e.g. energy producers, farmers and ranchers, fish and wildlife, manufacturers, recreationists, rural and urban dwellers).

_ Wise water management is crucial for providing tomorrow's children social and economic stability in a healthy environment.

_ Awareness of, and respect for water resources, can encourage a personal, lifelong commitment of responsibility and positive community participation.

The Goal of Project WET

The goal of Project WET is to facilitate and promote awareness, appreciation, knowledge, and stewardship of water resources through the development and dissemination of classroom-ready teaching aids and through the establishment of state and internationally sponsored Project WET programs. Project WET believes:

_ Water moves through living and nonliving systems and binds them together in a complex web of life.

_ Water of sufficient quality and quantity is important for all water users (energy producers, farmers and ranchers, fish and wildlife, manufacturers, recreationists, rural and urban dwellers).

_ Sustainable water management is crucial for providing tomorrows children with social and economic stability in a healthy environment.

_ Awareness of and respect for water resources can encourage a personal, lifelong commitment of responsibility and positive community participation.

In support of the stated goal, Project WET is guided by the following objectives:

_ Research: To stay abreast of emerging state and national water education trends and standards, and to stay in touch with the educational needs of citizens.

- Publications: To produce and publish creative and informative materials to meet the needs identified through research.

Instruction and Training: To provide leadership training and instruction to ensure that materials and services are fully utilized, and to foster grass-roots participants in their capacities to educate others.

- Networking and Partnerships (WETnet): To form partnerships with organizations to enhance awareness, distribution, and use of materials and services.
- Evaluation: To improve the program through an aggressive, ongoing, and multifaceted evaluation program.
- Recognition: To seek ways to acknowledge and recognize people and organizations for their contributions to water education.

History of Project WET

Project WET is a nonprofit water education program for educators and young people, grades K-12, located on the Montana State University campus in Bozeman, Montana. The original Project WET program was established in1984 by the North Dakota State Water Commission. In 1989, the director of Project WET was invited by Montana State University -- with funding from the U.S. Department of the Interior, Bureau of Reclamation -- to duplicate the original North Dakota program in Montana, Idaho, and later, Arizona.

The success of the pilot multi-state initiative led to a decision to develop a national Project WET program. In 1990, the Council for Environmental Education (CEE) (formerly the Western Regional Environmental Education Council [WREEC]) became an official cosponsor, in partnership with The Watercourse, of Project WET. CEE is a national leader in the field of environmental education, and its cosponsored programs -- Project WILD and Project LearningTree -- are among the most long-lived and successful national efforts in environmental education.

The Project WET network currently consists of 47 states, 3 U.S. Islands, and Canada. Guam has recently joined the WETnet, an international network of state program sponsors, coordinators, co-coordinators, facilitators, and educators. The intent of the Educator's Page is to link members of the network with each other and, through brief articles, inform them of innovative programs; newly released resources; and revisions, corrections, and extensions of activities from the Project WET Curriculum and Activity Guide.

The Curriculum

The Project WET Curriculum and Activity Guide is a collection of over 90 innovative, interdisciplinary activities that are hands-on, easy to use, and fun. Designed with a commitment to state, provincial and national education standards, Project WET activities cover diverse topics and disciplines. Developed, field-tested, and reviewed by over 600 educators and resource managers working with 34,000 students nationwide, Project WET Curriculum and Activity Guide activities promote critical thinking and problem-solving skills and help provide young people with the knowledge and experience they will need to make informed decisions regarding water resource management. The guide provides thorough and accurate background information, procedures that are easy to follow, materials that are readily available and teaching strategies that engage students and appeal to diverse learning styles.

Project WET and Curriculum Standards

As societies are further influenced by technological, social, political, and economic changes, the

need grows for responsible and effective science and environmental education programs. Goals 2000, a national strategy to build a nation of learners, defines the challenges and calls on everyone to work toward providing sound education for all children. In response to this call, local, state and national efforts are underway to develop standards, guidelines, and frameworks for realizing important educational goals. These standards set levels of conceptual understanding and skill attainment that all students are expected to meet.

At the national level, standards for specific content areas have been developed or are being developed, such as Benchmarks for Science Literacy from the American Association for the Advancement of Science, Project 2061,and Standards for School Mathematics from the National Council of Teachers of Mathematics.

In most states, curriculum frameworks exist or are being designed to incorporate national standards. These frameworks set goals and describe learning expectations, thereby helping local districts develop high-quality curricula that meet the needs of their students. Educators are encouraged to select and use teaching materials that will help students meet these goals.

Project WET used appropriate standards, such as the Benchmarks for Science Literacy, in developing activities. For example, the activity Molecules in Motion specifically addresses physical science benchmarks related to the structure of matter. Irrigation Interpretation addresses the benchmarks for the technological system of agriculture, specifically the relationship between irrigation and crop production. (See Using Project WET Activities to Meet Standards, below.)

Subsequently, as teachers develop and / or implement curricula designed for their classrooms, schools, and districts, they will find Project WET activities appropriate and effective in helping to meet goals and objectives.(See Using Project WET Activities to Supplement an Existing Curriculum on page 477.) Project WET encourages educators to select activities from the Project WET Curriculum and Activity Guide to meet national educational standards and local curricula expectations, in order to build a nation of learners.

State Project WET Program Coordinator

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Attachment 7

The "Wild Things '99 – Watersheds: Rivers Run Through Them!" Program

The Wild Things '99 program is a distance learning program for students in the 4th through 8th grade. The program emphasizes a different aspect of the environment each year; in 1999 the emphasis was on watersheds (hence the name "Watersheds: Rivers Run Through Them"). The program was implemented via distance learning, or an electronic field trip. Students and teachers were able to connect via satellite on a certain day to a U.S. Fish and Wildlife Service (USFWS) Refuge, where there was a group of teachers and (FWS) biologists were present. The following 90-minute program included a 60-minute instructional program with clearly defined learning objectives. It was followed by a 30-minute live call-in question and answer session. Students could interact via phone, email, and fax machine. For those who could not connect via satellite that day, a educator's guide and videotape were put together in a package that was available to teachers interested in the curriculum.

The Fish and Wildlife Service's Division of Refuges, Division of Fish and Wildlife Management Assistance, and the National Conservation Training Center, in cooperation with the Prince William Network developed this curriculum-centered electronic field trip to a National Wildlife Refuge. The program was developed by educators and biologists. The "electronic curriculum" makes use of inter-curricular instructional design.

Goal of the program: The FWS and Prince William Network's objective for the program was to "go the extra mile" to being students "live and on-site" to national refuges where they could meet and talk with wildlife experts. This made distance learning "come alive." Their goal was to explore the wonder of the natural world and bring that type of adventure into the classroom. By means of the live, interactive television broadcast (and subsequent guide and videotape), students could appreciate natural areas regardless of where they lived or went to school.

Monitoring the health of rivers and streams is important to the FWS. Poor water quality not only adversely impacts the plants and animals that live in or around these waters, but it also impacts our lives. The curriculum includes learning about the following:

- What a watershed is
- Why students should care about watershed
- How to measure the health of a watershed
- What the FWS is doing to improve the quality of watersheds, and
- What teachers and students can do to help

Opportunities for students to test their knowledge are presented in the program through an interactive game. Also included in the activity guide are suggested activities that teachers and students can complete to prepare for what is presented in the video. Some activities can be used in the weeks following program review to reinforce the concepts learned.

The program (contained within the videotape):
Welcome: Outlines what the FWS hopes students will know after participating in the broadcast.

Field Trip Know-How: Provides technical information and other valuable information to prepare teachers and students for the program.
Meet Your Guides: Provides biographical information on program hosts and experts.
Welcome to Boyer Chute National Wildlife Refuge: Introduces participants to the broadcast site.
Watershed Words Game: Outlines the rules of the broadcast's game.
The Field Trip: Identifies the learning objectives for the five parts of the program; provides background information, and learning activities (several are demonstrated) for each part.
Resources: Contacts for more information on watersheds.
Appendix: Provides mailing address, phone, and e-mail addresses for FWS regional offices.
Evaluations: Helps the FWS to improve their education programs, and helps educators assess student learning.

The Five Parts of the Program (identified in The Field Trip above):

Part 1: What is a Watershed?
Students will be able to:

- Define or explain the meaning of watershed
- Name one or more characteristics of a watershed
- Identify at least two major watersheds in the United States
- Identify their local watershed

Part 2: Why should I care about watersheds?
Students will be able to:

- Explain the importance of watersheds
- List two or more threats to watersheds

Part 3: How do we measure the health of a watershed?
Students will be able to:

- Explain the importance of water quality
- Describe one or more indicators of watershed health
- Demonstrate a stream monitoring technique

Part 4: How is the Fish and Wildlife Service helping watersheds?
Students will be able to:

- Explain why refuges are important to a healthy watershed
- Explain the function of fishery managers and hatcheries in watershed planning and restoration
- Describe one or more things that the Fish and Wildlife Service is doing to improve the health of a watershed

Part 5: What can you do to help watersheds?
Students will be able to:

- Identify a threat to their local watershed
- List one or more things they can do to learn more about watersheds
- Describe an activity they can do to improve water quality and habitat in their watershed