

Annual SLTER Supplement Request (\$15,000):

Enclosed are the rationale and budget (\$15,000) request for supplemental funding under the Schoolyard LTER development program. We will involve 7 schools (one K-6, one 6-12, one middle school and 4 High Schools) from school districts in the northern Front Range and eastern plains of Colorado and northwestern Arizona. The following schools and science teachers have expressed an interest in the program:

<i>School</i>	<i>Science Teacher</i>
Akron High School, Akron, CO	Ms. Deanna Schrock
Frontier Academy, Greeley, CO	Dr. Sean Madden
Rough Rock Community School, Rough Rock, AZ	Mr. William Rosenberg
John Evans Middle School, Greeley, CO	Mr. Jason McLaughlin
Union Colony Prep School, Greeley CO	Ms. Cathy Hoyt
Rocky Mountain High School, Ft. Collins, CO	Mr. Dave Swartz
S. Christa McAuliff Elementary School, Greeley, CO	Ms. Rebecca Ramirez

Plan of Operation

We will build on the existing program. Funds will be provided to schools for schoolyard plot and program development. K-12 science and mathematics teachers from the schools will meet with LTER scientists to visit the SGS LTER site and the demonstration plots at UNC. We will hold a workshop to discuss potential experiment designs, data collection, protocol on maintaining databases, and means by which the projects can be integrated into curricula.

Site Visit and Workshop: LTER scientists will host a site visit at the Shortgrass Steppe LTER and the UNC Campus Ecology demonstration plots. The objectives of the visits are to familiarize the teachers with the LTER site and experiments, and provide an example of how a field experiment can be scaled-down to a schoolyard setting. The agenda for the workshop will include deciding on the type(s) of experiments to be conducted at the school, guidelines for supplies and equipment, the variables to be sampled, protocols for data collection, guidelines for webpages (format, databases, etc...), and plans to disseminate the materials developed by the group (e.g., data, curricula, lab modules).

Teacher Professional Development: SGS scientists, graduate students, and K-12 teachers who participated in the schoolyard activities will work to develop SGS-related courses in ecology for in-service teacher development and for the newly created MA in Natural Sciences for teachers jointly offered by UNC and CSU. The courses will be blended by design to include an on-line component coupled with weekend and summer field and laboratory experiences.

SLTER Additional Supplement-Expanded Schoolyard Request (\$15,000)

The SGS-LTER requests an additional \$15,000 to expand its efforts in the development of the Poudre Learning Center (PLC). Funds are requested for summer funding for an LTER graduate student, support for 1 K-12 teacher and 2 high school seniors, the establishment of a riparian recovery zone and native prairie on the property, and for the purchase of a weather station, and cabinets to store plants and insect collected from the site and from the SGS-LTER site.

Background and Mission of the Poudre Learning Center (PLC)

The PLC occupies a 65-acre site located along the Cache La Poudre River in Weld County, CO. The PLC is a cooperative (501(c)(3)) effort supported by the Johnstown-Milliken, Eaton, Windsor, and Greeley-Evans District 6 school district, the University of Northern Colorado, Weld County, the City of Greeley, the Town of Windsor, and a number of other private and public organizations.

The Educational mission of the PLC is to be a keystone for the learning opportunities along the Poudre River and prairie, to showcase the importance of riparian areas to prairie vegetation and fauna, to provide outdoor classrooms, and to establish demonstration habitats and gardens of vegetation native to the area.



The SGS-LTER has provided funding through its annual SLTER supplements for research at the PLC. However, in the past year, the plans of the PLC have expanded to include an on-site facility that will serve as an educational outreach and visitor center. The facility includes a classroom, research laboratory and common area for meetings.

Specific Requests

Weather Station: A weather station will be purchased and set up at the site. The station will be of the same configuration as those purchased through the NSF GK-12 project and the SGS-LTER sites established at our existing schools. The data will be collected real-time and made available to the K-12 community via the internet.

Riparian Restoration Area: The PLC is located on an abandoned gravel mine site. The Learning Lake is a man-made lake designed for the needs of the mining operations. The lake's construction diverted

the natural flow of waters creating new wetland. This has resulted in a mix of the natural river riparian areas, a man-made lake, and a diverted wetland area. We propose to establish long-term monitoring plots for vegetation in each of these areas for education purposes. Data collection would include characterization of soils, vegetation, and invertebrates. Plot construction would include signage, walkways, and a permanent transect for sampling.

Prairie Restoration Project: The poudre trail on the PLC traversed native shortgrass prairie prior to the mining operations. We propose to reseed a 5-acre area with native vegetation and tend to the site by removal of weedy invasive species. Plots would then be established on the site to study the effects of different treatments on prairie growth and development. Treatments would mimic those at the SGS-LTER site, including precipitation (rain-out shelter), nitrogen addition and carbon additions (sucrose or cornstarch). As with the Riparian area, data collection would include characterization of soils, vegetation, and invertebrates. Plot construction would include signage, walkways, and a permanent transect for sampling.

Collection Materials: We will purchase insect nets, soil coring tools, plant presses, and other devices to collect specimens at the PLC. Additionally, we will purchase herbarium and insect cabinets to store collected specimens. All collection materials will be stored or housed at the PLC facility to be used for its educational purposes.

Personnel: An SGS-LTER graduate student, 1 teachers and 2 high school students will be employed to assist in the design, development and establishment of the riparian and prairie study plots.

Timeline:

May-August 2005: Work with the PLC to design the riparian and prairie plots.

August 2005: Purchase and set up weather station.

August 2005-June 2006: Purchase cabinets and collection supplies.

January 2006: Workshop at UNC to discuss educational opportunities of plots with district personnel.