

Central Arizona Phoenix 2000 Schoolyard LTER Supplement

update on previous support: Environmental education and outreach activities are woven throughout the CAP LTER project. We reach out to the K-12 community in a program called Ecology Explorers that aims to:

- develop and implement a schoolyard ecology program where students collect data similar to CAP LTER data, enter results into our database, share data with other schools, and develop hypotheses and experiments to explain their findings;
- improve science literacy by exposing students and teachers to real research conducted by University-level scientists;
- enhance teachers' capabilities to design lessons and activities that use scientific inquiry and encourage interest in science;
- provide access to and promote the use of CAP LTER-generated materials and information;
- and encourage collaboration between CAP LTER researchers and the K-12 community

From an initial collaboration sparked with 12 schools in 1998, the CAP LTER Ecology Explorers program has expanded to include 29 schools and 41 teachers drawn from elementary, middle, and high schools. Two previous Schoolyard LTER Supplements have supported popular summer workshops and internships that engage numerous teachers in our schoolyard sampling protocols for the vegetation survey, ground arthropod investigation, bird survey, plant/insect interaction study, and the canal sampling study. In the summer of 1999, 19 teachers from 10 school districts collaborated with 18 CAP LTER faculty members, graduate students, and technicians. The internships, lasting from one week to one month depending on the project, allowed the teachers to participate in a research project and learn how to collect and analyze data. The teachers also met with Monica Elser and Susan Williams, our two Education Liaisons who coordinated the internships, to develop lesson plans and curriculum and to share their experiences with other teachers. A two-day workshop given before the internships offered a brief overview of CAP LTER, a hands-on inquiry-based lesson, and an introduction to data analysis and the Ecology Explorers Web site. A database has been constructed for teachers and students to enter collected data on the Web (<http://caplter.asu.edu/explorers>) and to download that data for further interpretation, comparison, and analysis.

Interaction between the teachers and CAP LTER has been maintained through follow-up information-sharing sessions, the "Ecology Explorers" Web site and Listserv, the CAP LTER annual poster symposium, and ASU's SEE ASU day for schoolgroups to interact with university scientists. Through teacher evaluations and discussions, teachers have reported that they have gained a better understanding of ecological research, that their students' enthusiasm for the project exceeded expectations, that students felt projects were important because of the ASU connection and were willing to put in extra effort to carry out the projects, that more parents were involved than anticipated, and that workshops/internships were valuable and enhanced the teacher's ability to teach science.

current request: This year, we request support through the LTER Schoolyard Supplement for: 1) a series of four technical workshops (10 participating teachers in each) during the school year; 2) two (December and May) information-sharing gatherings for internship participants; 3) one intensive laboratory research experience for a teacher; and 4) classroom equipment and materials for teachers and students associated with CAP LTER protocols, and materials for the creation of posters for scientific presentations as part of the annual CAP LTER poster symposium and SEE ASU activities. The technical workshops are designed to supplement and support the training received through the summer research internship activities and will be offered for mapping, data analysis, poster preparation, and the collection and preservation of plant and insect specimens. We have developed a model for the technical workshops through collaboration with the Southwest Center for Education and the Natural Environment (SCENE) in a mapping exercise for teachers involved in SCENE native habitat projects. SCENE and CAP LTER personnel led teachers through a series of activities that taught grade-appropriate mapping skills in a schoolyard context. The information-sharing meetings continue our year-round follow-up efforts with teachers who have gone through our summer internship programs and support the implementation and expansion of Ecology Explorers programs in their schools. We have added a

lab/research experience that will provide intensive interaction with an ASU research project, allowing the teacher to do a piece of research related to his/her particular interest and ability. Materials and supplies to support Ecology Explorer activities are a much-needed and much-appreciated enhancement for teachers.

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