

**ACS Student Development and Engagement Proposal  
Restoration Teaching Garden  
Trinity University and Mark Twain Middle School  
San Antonio, Texas**

**Contact :**

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**I. Introduction - Project Goals and Objectives**

Intense human land and resource use has resulted in major changes to virtually every ecosystem on the planet. In the United States, loss of intact ecosystems has driven research into their restoration to pre-European settlement conditions. Concomitant with this movement to restore habitats is an increased awareness of native species and the roles and interconnectedness of these species. It is now clear that this awareness is the key to the conservation and preservation of our native ecosystems.

We request funds from the ACS SDE Alliance to support a student intern who will facilitate a restoration teaching garden that was funded by ACS CCP in August 2006. The primary goal of the project is to establish a teaching restoration garden at Mark Twain Middle School (MTMS) in San Antonio, Texas to enhance the science curriculum of this underprivileged, Latino-serving institution and increase student awareness of the natural history of the place in which they live and the intersection of Nature and Culture. Our garden provides students a forum for education in biology, ecology, ecosystem and environmental science as well as issues of conservation biology, restoration ecology, farming and horticultural practices. To establish and maintain the garden we forged a long-term campus-community partnership that brought together the expertise of faculty at Trinity University and teachers at MTMS. The teaching garden 1). facilitates community outreach for Trinity University faculty and students, 2). facilitates a long-term partnership between the a low-income, minority-dominated middle school and Trinity University's Biology Department, and 3). enhances community understanding of the natural world and how to act as responsible environmental citizens.

*As mentioned in the ACS SDE call for proposals, student interns can help facilitate and enhance these types of community outreach endeavors. In addition, community outreach projects provide university students valuable service-learning experiences. We specifically request funding to support the student intern to help establish and maintain our garden for one calendar year beginning January 2007.*

**II. Project Description**

*Mark Twain Middle School*

MTMS is part of the San Antonio Independent School District and services grades six through eight. The school has approximately 670 students and 41 teachers with a student to teacher ratio of 16.3. The school consists of 624 Hispanic students, or 93.13% of the student body. As a reflection of the socio-economic status of the students, more than half are eligible for the free lunch program (373/670).

MTMS is a very high profile school. It is located on a major thoroughfare (Figure 1, San Pedro Ave.) and has recently undergone a major renovation costing \$18 million, which was paid for through a local school bond. Renovation of the school was done to preserve the original brick building and to add to it state-of-the-art classrooms, a new cafeteria, orchestra building, two gyms, state-of-the-art library and courtyard. The renovation sends a clear message to the students that education is a priority for adults in this part of San Antonio, and they respond.

### *Student Intern and Responsibilities*

We will seek a Trinity University student intern either from the Biology or Education Department who is interested in Environmental issues and education. The student chosen to act as an intern for this project will be required to assist in establishment, maintenance and monitoring of the garden. From January through February 2007, the student will be asked to establish a maintenance and monitoring schedule for the garden and monitor the plantings in each section through data collection and photographs. During this time they will also develop a rapport with the teaching staff, begin developing curricula with the teachers and design and establish interpretive signage for the garden. For the months of March through May 2007, the student will be asked to help maintain and direct maintenance of the garden, continue regular monitoring and curricular development. Garden maintenance will involve directing students and teachers in structural maintenance tasks, such as repositioning cinder blocks and establishing interpretive signage, as well as periodic weeding and irrigating. The student intern will also be asked to maintain a log of the work done to facilitate the development of future grant proposals to continue to fund the garden. The responsibilities of the intern will resume in September 2007 and will continue through December of that year for a total of nine months.

### *Budget*

item	cost
Trinity University student stipend*	<b>\$1,170</b>

#### ***Justification:***

\* - 9 months x 4 weeks per month x 5 hours per week x \$6.50/hour = \$1170

### **III. Evaluation and Dissemination**

At the close of the school year a meeting will be held including all MTMS teachers involved in the project, student leaders from MTMS and Trinity faculty and students involved with the garden to discuss the success of the project. The ACS funded intern will organize and lead this meeting. Assessment will be made of the following factors: 1. species chosen for the garden, 2. the theoretical focus of the garden and its use in the curriculum, 3. how the garden facilitated learning, 4. the use of the garden by courses outside the sciences, 5. future plans for contraction, expansion and/or reestablishment of the garden, 6. consideration of a produce garden, 7. reception of the garden by the community, 8. issues of vandalism or protection, and 9. sources of and proposals for future funding. Since this will be our first year is difficult to say if we will be able to provide a model for other schools in the area or other ACS schools; however, this is certainly our goal. The lessons learned from this first year of the garden will be documented and provided to ACS.

**III. Institutional Approval** – Letter of support from Trinity University

**IV. Personal Statement** – See attached curriculum vitae for PI, Kelly Lyons

#### *Research Priorities of the Principle Investigator at Trinity University*

Kelly Lyons is a faculty member in the Biology Department at Trinity University. Her research is focused at the intersection of the loss of biodiversity and invasive, pest species in natural ecosystems. Specifically, she investigates the role of plant community biodiversity in the maintenance of ecosystem functioning and the biotic and abiotic factors that determine establishment and spread of invasive plant species. She is currently researching the potential for species native to the Texas Hill Country to suppress invasive, pest species. The overall goal of this research is to provide guidance on management of Texas Hill Country grasslands to increase biodiversity and control invasive species. The teaching garden at MTMS will be used to complement this research agenda by providing information on the phenologies and growth forms of a large suite of native species. Information will also be collected on the abilities of the native species to suppress the invasive, pest species already present on the site.