Ecological Restoration in a Changing World
Award 2013-38422-20953
for $245,000 from NIFA to
California State University San Bernardino
in collaboration with
The San Bernardino National Forest, the Rancho Santa Ana Botanic Garden,
Victor Valley College, San Bernardino Valley College, Chaffey College,
and nearby elementary schools

Helping meet NIFA/USDA’s priority need of dealing with Climate Change

Goals:
1) to increase the ability of undergraduate students, especially Hispanic students, to appreciate and solve problems related to climate change and ecological restoration,
2) to increase these students’ abilities to communicate with the public and with younger students,
3) to increase the ability of K-5 teachers in districts with large Hispanic populations near national forest land to convey information relevant to natural resource management and climate change, and
4) by doing so, to increase knowledge and interest in natural resources in K-5 students near the national forest lands.

Activities:
To accomplish the project’s objectives, we will design online learning modules for both undergraduate students and K-5 teachers, design and conduct summer workshops for K-5 teachers, and offer paid summer internships to students from several local HSIs that incorporate preliminary online learning, ten weeks of paid internship at either the Rancho Santa Ana Botanic Garden or the San Bernardino National Forest (including one week in the K-5 teacher training workshop), and follow-up interactions with K-5 classes. To maintain momentum in stimulating interest in restoration-related internships among Hispanic students at CSUSB, a few students will be hired to assist with restoration research on campus that was initiated under our previous USDA grant.

Beneficiaries and Impact:
This grant will directly support 20 college students in paid internships and restoration research, and will train 20 K-5 teachers in plant biology, with an emphasis on plant ecology, restoration and climate change. Through these teachers, a generation of K-5 students in districts with large Hispanic populations should receive training, swelling the pipeline of students with the interest and abilities to deal with the challenges of managing natural systems under climate change.

Evaluation:
The effectiveness of the internships and new course modules in (1) training undergraduate students in restoration ecology and effects of climate change, (2) increasing interest in the field, and (3) increasing their facility in communication will be assessed with pre/post surveys that incorporate reflective questions and assessments of content knowledge. Questionnaires administered to mentors in internship host organizations (i.e., the Forest Service and the Botanic Garden) will yield information on the value from a field-based perspective. Lastly, the number of interns from underrepresented groups that subsequently enter USDA-related jobs or higher degree programs will be tracked and compared to data from previous projects. The effect of the program (including the availability of on-campus research experience) in stimulating interest in USDA-relevant careers among biology majors at CSUSB will be assessed with career interest surveys delivered in core biology courses. Surveys from a previous grant will provide baseline data for assessing the effectiveness of this program. The effectiveness of teacher training workshops and online teaching modules in increasing content knowledge of K-5 teachers will be assessed with pre/post tests. Their effectiveness in increasing the comfort level of K-5 teachers with science will be assessed with pre/post surveys and with data on the degree to which teachers subsequently adopt relevant exercises in their classes. Their effect on K-5 students from underrepresented groups will be assessed with pre/post surveys that assess breadth of career interests, particularly knowledge of USDA careers.