The Archer Laboratory in the School of Natural Resources and the Environment seeks undergraduate students interested in field work on the Santa Rita Experimental Range (SRER) during the Fall 2019 semester, with potential for work to extend through the first half of Spring 2020. This is a great opportunity to be a part of interdisciplinary research. Prior experience is not required, though an interest or background in natural resources, ecology, environmental science, or field-based research is desirable.

Research Description

Woody plant encroachment is a global phenomenon that poses problems for the sustainability of grassland and savanna ecosystems and livestock production as an economic activity. Land managers use brush management (BM) to reduce woody vegetation cover in order to improve forage for livestock and reduce erosion potential. However, these efforts also impact a variety of other ecosystem services (ES), and their longer-term impacts on these services at watershed-scales are poorly understood. By adapting this new perspective, our work will better position us to evaluate the viability of BM as a rangeland management tool.

We are investigating the effects of BM on a suite of ES on four instrumented watersheds on a semi-desert grassland encroached by velvet mesquite on the SRER south of Tucson, Arizona. Field data combined with remotely sensed data from drones will be incorporated into simulation models to predict long-term ecosystem responses.

Read more about the project: https://cals.arizona.edu/research/archer/bmes
Requesting an interview

If you are interested in this opportunity, please contact project manager Dr. Adam Naito (anaito@email.arizona.edu) by noon on Wed, Aug 28, 2019, to schedule a 20-minute informal interview. Please send the following documentation and information when requesting an interview (please note both categories):

**Required:**
- A current resume (DOC or PDF)
- A copy of your Fall 2019 class and work schedule to determine your availability for field work (JPG, PDF, PNG, or XLSX)
- A listing of your available times during business hours between Mon Aug 26 and Thu Aug 29, 2019 to participate in an interview.

**Optional, but strongly recommended:**
- A one-page cover letter (DOC or PDF)
- A list of 1-3 professional references, if available. These may be included in your resume.

Dr. Naito will reply to your request with a date and time for your interview based upon the available times you provided. Final selection, notification, and hiring of technicians is expected by mid-September, with field work commencing shortly afterwards.

**Technician information**

We will provide training and transportation to the field site (about 40 miles south of Tucson), as well as a wage of $11.75/hour. Hired technicians will have the opportunity to collect data related to the following on an as-needed, as-available basis:

- Field measurements of vegetation to characterize diversity, biomass, and recovery/mortality.
- Sample collection of coarse woody debris, litter, and soil cores.
- Arthropod community characterization.
- GIS-based work to facilitate computer modelling efforts.

Depending upon course schedules, field dates may be arranged for weekdays and/or weekends. In addition, there will be opportunities to be involved with processing and analysis of field samples in a laboratory setting.
Opportunities for students

The experience that undergraduate students have gained while involved in this project have served them well academically and professionally. Students have been associated with, or gone on to work for or study at the following organizations or institutions during or after their employment:

- AZGFD
- BLM
- NEON
- NPS
- NASA Space Grant
- RMBL
- Tucson E3
- UA ENVS Internship Program
- UA Study Abroad
- UA WISE
- USDA-ARS
- USDA-NRCS
- USFS
- Western Ecosystems Technology

Colorado State University | University of Arizona | University of California | University of Colorado | University of Florida | University of Washington | Yale University

Students have also been recognized for a number of awards:

- Outstanding Research
- Outstanding Senior
- Outstanding Student Assistant
- Outstanding Student Leadership
The study site is located on the Santa Rita Experimental Range, one of the world’s oldest and continually operating rangeland research facilities. It is owned by the State of Arizona and managed by the University of Arizona. It is about 40 miles south of Tucson, and it takes approximately one hour to drive to the site. The site surrounds four instrumented watersheds maintained by the Agricultural Research Service of the US Department of Agriculture.