

BRUSH MANAGEMENT & ECOSYSTEM SERVICES: a quantification of trade-offs on Western rangelands

Seeking undergraduate | students

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 2018 semester, with potential for work to extend through Spring 2019. This is a great opportunity to be a part of interdisciplinary research. Prior relevant experience is not required. We will provide training and transportation to the field site, as well as a wage of **\$11.75/hour**. Hired technicians will have the opportunity to assist with 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 for carbon and nitrogen analysis.
- Data and sample collection to characterize small mammal and arthropod communities.
- Processing of field samples in a laboratory environment.
- GIS-based work to facilitate planning and computer modeling efforts.

Depending upon course and work schedules, field dates may be arranged for weekends and/or weekdays.

Research | Description

Woody plant encroachment is a global phenomenon that poses problems for the sustainability of rangeland ecosystems and livestock production as an important economic activity on rangelands. Land managers use brush management (BM) to reduce woody vegetation cover in order to improve forage for livestock and reduce erosion potential. However, this is a relatively narrow focus, and BM also affects a variety of other ecosystem services (ES). The long-term impacts on these services at watershed-scales are poorly understood. By taking 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 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

Information | for requesting an interview

If you are interested in this opportunity, please contact **Dr. Adam Naito** (anaito@email.arizona.edu) by **5:00 PM on Thursday, August 23, 2018**, to schedule a 20-minute informal interview during the first week of classes. Please send the following documentation and information when requesting an interview (please note the two categories):

Required:

- A current resume (DOCX or PDF).
- A copy of your Fall 2018 class and work schedule.
- A listing of your available times between Mon Aug 20 and Fri Aug 24, 2018 to participate in an interview.

Optional, but strongly recommended and helpful:

- A one-page cover letter (DOCX or PDF)
- List of 1-3 professional references, if available. List may be included in the resume.

Dr. Naito will reply to your request with a date and time for your interview based upon the times you provided. Final selection and hiring of technicians is expected by the end of August, with the first field dates scheduled for the end of the first full week of September.

BRUSH MANAGEMENT & ECOSYSTEM SERVICES:
 a quantification of trade-offs on Western rangelands

Opportunities for | Students

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

Arizona Game and Fish Department | National Park Service | National Ecological Observatory Network (NEON) | Rocky Mountain Biological Laboratory (RMBL)

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

Students have also been recognized for a number of awards, including:

Outstanding Senior Awards | Outstanding Research Awards | Student Leadership



BRUSH MANAGEMENT & ECOSYSTEM SERVICES:
a quantification of trade-offs on Western rangelands

The | Study Site



Photo courtesy of M Heitlinger

