

F26.25 Short-Term Effects of Fire on Biocrust Soil Communities and Restoration in the Sonoran Desert Overview

The student will help with data collection, laboratory analysis, and statistical analysis of samples related to a recent wildfire in Southern Arizona. The Wood Fire, which ignited in September, 2024, burned five pre-existing biological soil crust ("biocrust") restoration plots that we installed a year previously (December 2023), and we want to know what effect the addition of fire may have had on our treatments. These plots are intended to boost biocrust recovery in burned areas of the Sonoran Desert, while also studying how effective biocrusts may be at suppressing annual exotic grass growth. Though the 2024 fire damaged the surrounding desert, our biocrust plots survived the burn, giving us a unique opportunity to test the effects of fire on the soil communities we hope to restore.

What the student will DO and LEARN

The student will: 1) process soil samples in the lab, particularly to extract chlorophyll-a; 2) have the opportunity to attend field sampling trips to collect more data, if needed; 3) assist in writing up their results for publication (co-authorship is a possibility, if the student wants it) and 4) present their data as a poster at a conference, if desired.

The student will learn: 1) any necessary lab protocols and techniques; 2) and necessary field sampling techniques; 3) how to use R for basic graphical and statistical analyses; and 4) how to write and present their findings for scholarly audiences.

Additional benefits

The student will have the opportunity to attend our weekly lab meetings, receive mentorship on career and graduate school pathways, and to learn about other projects related to soil ecology and restoration, generally. This is a great way for students to determine what fields they might be interested in, what field and lab work are like, and what goes into taking a project from conception to publication.

Additional qualifications

No prior lab or field experience is required, though a background in basic lab safety is a good idea.

Mainly we require a willingness to work diligently, to be well organized, and to communicate well with a large research group.

Time commitment

6 hrs/week for 30 weeks