



MOSAICS IN SCIENCE

Diversity Internship Program

2021 Project Descriptions

NPS UNIT: SAGUARO NATIONAL PARK	PD #: 2021521
<p>Project Title: Monitoring cactus flowering phenology in Saguaro National Park Position Type: Mosaics PLC Primary natural resource discipline: Biological Sciences Project keywords: Cacti, saguaros, night-blooming cereus, desert plants, social media Location: Tucson, Arizona</p>	
COVID-19 NOTICE	
<p>As the COVID-19 pandemic continues to change and evolve, project timelines and structure remain flexible and it may be necessary to postpone start dates, begin work remotely, or reformulate the project's description. Should any development in the COVID-19 outbreak impair a project's timeline or results, the SIP Team will work with the park and project mentors to assess the situation and determine the best course of action at that time.</p>	
PROJECT DESCRIPTION AND WORK PRODUCTS	

Position Description: The Mosaics SIP intern will be part of team helping Saguaro National Park learn about climate change and the seasonal development of cactus buds, flowers, and fruits. He/she/they will focus on our signature species, the saguaro, as well as the spectacular night-blooming cereus. They will search for cacti, photograph buds and flowers using a giant “selfie stick”, and collect other data on habitat and environmental conditions. The field work will tie in with an established monitoring program to look at the effects of climate change on cacti (see our website at <https://www.nps.gov/sagu/getinvolved/saguaro-flower-power-project.htm>), while allowing the intern the chance to pursue new ideas.

Due to concerns that saguaros may be blooming earlier in the season due to increasing temperatures, the park has been monitoring their flowers for several years. We are learning that flowering is highly dependent on temperature and rainfall and that the location of flowers on the saguaro’s crown changes throughout the season, probably in response to rising temperatures from April through July. .

Night-blooming cereus is a unique cactus with a large underground tuber and spectacular white flowers that bloom at night in late June or early July, often in synchronicity. Our park and other local groups celebrate these bloom nights with “Queen of the Night” public events. An inventory of this species in 2020 revealed that they are much more abundant in the park than originally believed. In 2021 our team will build on this inventory data to create a long-term monitoring program to learn how this plant responds to changing climate variables such as temperature and rain.

The intern will also have opportunities to learn other natural resource skill such as wildlife monitoring, and the option to spend one week assisting in wildlife camera projects in the park’s high elevation back-country at Manning Camp.

At Saguaro National Park, our mission is to preserve, protect, and interpret the Sonoran Desert’s many biotic communities, archaeological sites and other cultural features, and scientific, scenic, and wilderness values while at the same time providing opportunities for visitors to understand and enjoy these amazing resources. Since it was established in 1933 people have come from all over the world to admire, photograph, and study the saguaro and other visually stunning plants such as barrel cacti, cholla cacti, and the night-blooming cereus.

The park continues to be a leader in promoting long-term monitoring and research on desert plants and in sharing the results of these studies with our visitors, both in-person and on-line. This project is part of a series of studies done in collaboration with University of Arizona and other scientists to answer basic questions that visitors often ask our park rangers, such as how the timing of flowers is changing with climate change; how fast saguaros grow and how long they live; their relationship with “nurse trees” and other desert plants; and how other rare cacti are faring as temperatures continue to rise in the desert Southwest.

This project will fill in a major gap in the park’s knowledge base and provide us with the necessary tools and information to preserve, protect, and interpret the incredible diversity of our beautiful desert plant community. The intern’s work will not only directly inform future monitoring and management actions, but will also generate content to better engage park visitors with these interesting and unique plants.

This position is offered through the National Park Service's Mosaics in Science Internship Program in

NATURAL & PHYSICAL WORK ENVIRONMENT

Natural Environment: The park is adjacent to Tucson, a city of nearly one million people. There is no public transportation to the park unfortunately, but the park is only a few miles from major population centers. Tucson is very hot in the summer, with daily averages near 100 degrees F.

Physical Work Environment: It is anticipated that the majority of the work will be in the field, with approximately 25% in the office. Note that this work has some physical demands because the intern will need to hike a few miles on most days and the weather in the summer in Tucson is HOT. In the field, there are spiny plants and dangerous animals such as rattlesnakes. We will provide extensive safety training before we start fieldwork and safety is the highest priority. However, it's important that applicants realize that they must have the capacity to work outside in the summer in Tucson.

QUALIFICATIONS

The ideal candidate will have an interest in desert plants and experience outdoors in the desert environment. They will be a great team player and a good communicator with a willingness to learn new skills. A major in ecology or natural resources would be ideal, but is not required. Experience collecting accurate data and photography or social media experience is a plus.

The candidate must be comfortable hiking loop transects of 1-5 miles while carrying adequate water and gear for the day. The work is physical in that it involves hiking off and on trail several miles per day under hot conditions, in sometimes rugged terrain.

Applicant must have a valid driver license and a good driving record. A valid driver license is necessary as trailheads to the high country are not located at the park headquarters where housing is available so the intern will be driving a park vehicle.

The applicant must be a U.S. citizen or U.S. permanent legal resident ("green-card-holder") between the ages of 18 and 30 years old, inclusive, or veterans up to age 35. Prior to starting this position, a government security background clearance will be required.

VEHICLE AND DRIVER LICENSE REQUIREMENTS

Applicant must have a valid drivers license and a good driving record.

A personal vehicle is RECOMMENDED but not required for this position.

HOUSING

Park housing is NOT available. The intern will be responsible for finding housing in the nearby area. The park will work with the internship organization to include a \$1,500 stipend for housing in Tucson. If the intern is not local, there is ample housing in Tucson that is relatively inexpensive in the summer because of the nearby University of Arizona.

INTERNSHIP START/END DATES

Start Date: 5/17/2021

End Date: 7/30/2021

Eleven weeks of the internship will be in the park. A mandatory Career and Leadership Workshop will be held in Washington, D.C. from August 1 – 5, 2020.

PLEASE DIRECT ANY QUESTIONS TO ENVIRONMENT FOR THE AMERICAS

Email: mosaics@environmentamericas.org