POSITION ANNOUNCEMENT:

FUTURE PARK LEADERS of EMERGING CHANGE

The National Park Service (NPS) is pleased to support the *Future Park Leaders of Emerging Change* (FPL) program as a pathway for exemplary students in higher education (advanced undergraduate students and graduate students) to apply their skills and ideas to park-based challenges and solutions. The Initiative offers 12-week paid internships which allow students to gain valuable work experience, explore career options, and develop leadership skills through mentorship and guidance while helping to advance NPS efforts on emerging management issues. Successful students may be eligible for non-competitive hire into federal positions for which they qualify following completion of all academic requirements.

Addressing Vulnerability of Sensitive Cultural Resource Zones

Organ Pipe Cactus National Monument
Ajo, Arizona

INTERNSHIP PROJECT BACKGROUND

Organ Pipe Cactus National Monument (ORPI) contains an archaeological record of over 8,000 years of human habitation in the heart of the Sonoran desert. The archaeological record at ORPI has not been fully assessed, and only approximately seven percent of the Monument has been surveyed for cultural resources. Archaeological sites at ORPI are preserved in a fragile desert landscape. Monument staff are concerned that environmental changes posed by climate change could expose archaeological sites to rapid erosion processes that would adversely impact site integrity at an accelerated rate.

In the Southwest US, climate change is manifested in higher temperatures, decreased precipitation, shifting precipitation patterns, and more severe flash flooding events resulting in varied changes to the landscape. Within the past eight years, ORPI experienced two record-setting rainfall and flooding events, which destroyed an historic well site and rerouted hydrologic channels. The continued increase in the severity and frequency of monsoon and hurricane-related flooding events will adversely impact known and as-of-yet undocumented sites in the vicinity of usually dry washes, resulting in an overall loss of archaeological data for the region.

INTERNSHIP PROJECT DESCRIPTION

The Resources Division at Organ Pipe Cactus National Monument has maintained an Ecological Monitoring Program (EMP) to measure environmental changes within the Monument over time. The EMP has monitored the hydrology, climate, fauna, and flora of the desert environment at ORPI consistently since 1993. The intern will utilize several climatic datasets from the EMP as well as projected future climate data, to develop predictive precipitation and hydrological flow models in GIS, and will identify the cultural resource areas within ORPI requiring inventory and assessment work based on their increased risk to erosion. Tasks will include: exploring existing data from the ORPI EMP and

cultural resource GIS to identify relevant data, utilizing available predictive climate data (from sources such as those identified here: https://www.data.gov/climate/portals/), and synthesizing data in a GIS environment to model current and future hydrological conditions in the Monument.

The project will involve working with NPS cultural and natural resources staff, and potentially other academic researchers. The intern will develop two main products, a final report and GIS database, including models that will be utilized by Resource Management Division staff to manage cultural resources, and to create future project proposals that will address the major problems identified by the research. The intern may also present the results of their work to professional, archaeological audiences and the public as appropriate. The intern's work will also be relevant to surrounding lands managed by the U.S. Fish and Wildlife Service and Bureau of Land Management and other desert southwest NPS units.

QUALIFICATIONS

1. Demonstrated educational/professional background in history and/or archaeology, with preference towards the American Southwest and Sonoran Desert
2. Experience with Geographic Information Systems, including using modeling capabilities, as demonstrated through prior work and/or education experience
3. Additional coursework in hydrology, geology, and/or climatology
4. Knowledge of or a demonstrated proficiency in GPS units for field mapping purposes
5. Applicants must possess a valid state driver's license, personal transportation, and be willing to share housing with other seasonal park staff and volunteers
6. Ability to carry out independent research
7. Familiarity with Access databases and excel spreadsheets
8. Ability to organize a scientific survey report including tables, charts, and common language narrative

LEADERSHIP DEVELOPMENT

1. Mentoring: The ORPI cultural resources manager will supervise the intern to provide project management guidance, encourage critical thinking, and professional development opportunities of interest to the intern.
2. Real-World Problem Solving: The intern will play a major role in developing approaches for mitigating site erosion impacts that will be incorporated into future project planning.
3. Task and Project Management: The intern and their supervisor will develop clearly defined project goals and deliverables. The intern will be encouraged to work independently and be responsible for developing methods and timelines for completing their goals. In addition, the intern will work with the ORPI archaeology field technician, and must balance their project work responsibilities with fieldwork needs.
4. Stakeholder Engagement: The intern will present results of project to public and professionals as appropriate.

DATES OF POSITION

The preferred starting date is May 15, 2016, however dates of the position are flexible, depending upon availability. Ideally the intern will work 480 hours between May 15 and August 15. We would prefer a May start, because local temperatures will be cooler and dryer in May and June. July and August bring more extreme temperatures and monsoon storms. Heat and thunderstorms limit fieldwork, but storms regularly cause power outages that interfere with office work as well.

COMPENSATION

This initiative supports one student at $16/hour for 12 weeks, or 480 hours.

HOUSING

Organ Pipe Cactus National Monument is located in a remote part of the Sonoran Desert. Monument headquarters, including park housing, is located thirty-four miles from Ajo, Arizona and five miles from the international boundary with Mexico. However, the local towns and communities provide multiple amenities that allow individuals to easily adjust to living in the desert. The intern will live in shared, furnished monument housing. Housing includes an individual bedroom, with shared full bath and kitchen. Kitchen is stocked with cookware, dinnerware, and utensils. Housing has wireless internet access. Cell phone coverage is limited. Amenities within the park include a community building that houses a gym. The larger communities of Phoenix and Tucson are 2 and 2.5 hours away, respectively.

WORK ENVIRONMENT

The work will be primarily performed in an office setting, but the intern will operate in the field for some tasks. Daytime temperatures can reach over 110° F in the summer, with little shade cover available. Fieldwork may take place in steep, rugged terrain. During the summer monsoon season flooding may inundate roads and cause power outages. Fieldwork will be planned and undertaken with safety measures to mitigate environmental hazards, such as heat, terrain, and storm exposure. The Monument is located on the international border with Mexico; outdoor activities will be performed with border safety as a primary concern and ample safety training and supervision will be provided. The Monument has a mandatory safety policy that the intern will follow when engaging in fieldwork, and no fieldwork will be undertaken alone.

CONTACT INFORMATION

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