MOSAICS IN SCIENCE DIVERSITY
Internship Program

2020 PROJECT DESCRIPTION

NPS UNIT: MONOCACY NATIONAL BATTLEFIELD	PD #: 2020515

Position Title: Hydrology Assistant
Position Type: MIS Intern
Primary natural resource discipline: Water resources
Project keywords: hydrology, stream restoration, stream monitoring, stream habitat, and stream stressors
Park or Program Website: www.nps.gov/mono
Location: Frederick, Maryland

MOSAICS IN SCIENCE INTERN OVERVIEW

The Mosaics in Science Diversity Internship Program is focused on persons who are under-represented in STEM fields. Students and recent graduates who are African American, Latino/Hispanic, Asian, Pacific Islander, and Native American are encouraged to apply for these internships. In order to be eligible for a MIS intern position, applicants 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.

A Mosaics Intern within the Mosaics in Science Diversity Internship Program is an entry level natural resource science internship that focuses on career exploration and building fundamental natural resource science skills. Each Mosaics Intern will receive a weekly stipend of $400, park-provided housing or a housing allowance and paid travel expenses. Interns who successfully complete 640 hours of work in one or more eligible internships and are under the age of 30 will be eligible for the Public Lands Corps Non-Competitive Hiring Authority for two years following the completion of the internship. Successful completion of a Mosaics in Science internship does not guarantee that the participant will be hired in to a federal position.

PROJECT DESCRIPTION AND WORK PRODUCTS

Position Description: Monocacy National Battlefield preserves 1,647 acres of forested areas, agricultural fields, meadows, and waterways that make up its six historic farmsteads. The park lies three miles south of the city of Frederick – the second largest city in Maryland – and has approximately two miles of the Monocacy River running through it. The park is home to fifty-two historic structures, several archeological sites, over five-hundred species of vascular plants, one-hundred species of birds, and almost eighty species of mammals, reptiles, amphibians, and fish.

In 2010, a survey was conducted on a 700-foot reach of Harding's Run, an intermittent stream in the park, to aid in monitoring stream morphology and to potentially document erosion and sedimentation impacts. The intern will be assigned a stream reach within the park to assess its physical habitat characteristics and stressors. Assessments will use the Rosgen Stream Classification system.

The two stream reaches to be assessed are:

- 700 ft Harding's Run - This reach was last assessed in 2014. New data needs to be collected to help monitor for change.
- Harding's Run at West Lewis - This reach will be newly created during summer 2020. This stream reach is being created to track changes to the stream further upstream from the existing reach.

The intern will be responsible for:

- Revisiting and organizing the data for the Harding's Run stream reach.
- Performing field investigations to become familiar with hydrological characteristics of the park.
- Installing missing bank pins at Harding's Run and new pins at Harding's Run West Lewis.
- Creating new stream sketches to note changes from previous assessments.
- Conducting cross-section and longitudinal profile surveys of the stream reach.
- Taking various measurements and collecting data for discharge, stream habitat, pebble counts, etc.
- Performing mathematical computations involving the use of algebra and geometry. Using a calculator, mathematical tables, and graphs in making calculations.
- Using spreadsheets to plot survey and substrate data.
- Determining Rosgen stream type and writing a final report about the current habitat conditions and stressors of the stream.
- Collecting ArcGIS data on stream features.
- Assisting with planning for modifying potential new trail bridges and stream crossings.
- Participating in check-in meetings with supervisor.
- Assisting park natural resource staff with natural resource related projects as needed.

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The hydrology intern's management and collection of stream data will help the park to learn more about its resources and how to better manage and preserve them for this and future generations. With increased local development, and the resulting increase in stormwater runoff, these surveys will help document any potential changes to stream morphology and condition. Data created will also be used to create educational materials for the public, and management documents.

This position is offered through the National Park Service's Mosaics in Science Diversity Internship Program in partnership with Environment for the Americas.

Work Products: At the completion of this internship, interns will have organized and created an abundant amount of stream data including stream sketches, Microsoft Excel spreadsheets, ArcGIS maps, AutoCAD drawings, pictures and more. Each intern will also write a final report about the current conditions and stressors of their assigned stream reach. These reports will be used to communicate stream conditions to park partners and local/state government. The data collected and its analysis will be referenced in project proposals for future stream restoration projects.

QUALIFICATIONS

The interns should have bachelor's degree in hydrology or other closely related field. Some experience working or recreating outdoors is required. Interns should be proficient in MS Office software, have technical writing experience, and excellent written/oral communication skills. Interns must have the ability to work in a team environment. Experience with ArcGIS and AutoCAD, and completion of Rosgen training is preferred.

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 driver license and a good driving record. Intern will be driving a park vehicle when traveling throughout the park and for regional meeting attendance. **A personal vehicle is RECOMMENDED but not required for this position.** The intern does not need a vehicle for work purposes, but a vehicle is recommended for recreating in and around the park and having access to town needs (groceries, etc.).
HOUSING
Park housing is available and will be provided at no cost to the participant. The intern will have a private room in a three bedroom co-ed house with shared sitting area and kitchen. Kitchen is supplied with dishes/pans. Interns will need to bring all personal items including toiletries, laundry detergent, pillows, and linens. Housing has cable and wifi.
INTERNSHIP START/END DATES
Start Date: 5/18/2020 **End Date**: 7/31/2020 Eleven weeks of the internship will be in the park. A mandatory Career Workshop will be held in Washington, D.C. from August 2 – 6, 2020. **Are these dates flexible?** Yes
STIPEND PAYMENT
$4800, all travel and housing costs will be covered
PHYSICAL/NATURAL & WORK ENVIRONMENT
Natural Environment: Monocacy National Battlefield is a 1,647 acre park located in Frederick, Maryland, approximately 40 miles North of Washington, DC. The park is composed of farmland, forest, and grasslands, and is adjacent to the city of Frederick. Summers in Maryland are hot and humid, winters are very cold. **Physical Work Environment:** Work will be heavily field based. Office work be required for data organization and analysis, and writing the final report. Interns may be spending considerable time standing and must be comfortable traversing and working within a stream. Interns may be subject to full sun, high heat, biting and stinging insects, and the potential for dehydration. Hiking and carrying of tools and supplies (up to 50 pounds) will be required.