

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) internship 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 program 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.

DEVELOP SPECIES-SPECIFIC MANAGEMENT STRATEGIES FOR ENDANGERED PLANTS IN LIGHT OF CHANGING CLIMATES, HYDROLOGIC CONDITIONS, AND URBAN DEVELOPMENT

C&O Canal National Historical Park
Hagerstown, Maryland

PROJECT SUMMARY

Identify effective management techniques to protect and conserve endangered plant species in one of the most biodiverse areas of the national park system. Collaborate with agency and non-profit partners to support populations under threat from changes in climate, hydrology, and surrounding development.

INTERNSHIP PROJECT BACKGROUND

Plant biodiversity in the C&O Canal NHP is one of the most significant characteristics of the park and includes the hyper-diverse Potomac Gorge. This particular area, in part due to occasional hydrologic scouring and recurrent flooding, boasts some of the most diverse plant communities in the entire country. Including the Potomac Gorge, the park contains over ten globally rare plant communities, including sensitive and dynamic habitats scoured by the Potomac River as well as Appalachian shale barrens. Current research shows that invertebrate communities in these habitats will become structurally distinct with near-term changing climates. Past surveys in the park have documented over 1600 populations or sub-populations of state- and federally-listed plant species, including 186 Threatened and Endangered species, several of which have extremely restricted global distributions. The sensitive, diverse plant communities in this region are at risk of being lost due to changes in climatic conditions such as fluctuations in annual temperatures, increased flooding frequency and intensity, intensity of rain events, and increased erosion. Additionally, many are threatened by increasing recreational activity in areas of the park adjacent to growing urbanization.

INTERNSHIP PROJECT DESCRIPTION

This project will focus on the development of species-specific management strategies for the park's highest priority species of concern. This will involve working with park staff, MD DNR and NPS Region 1 botanists, and non-profit partners to understand how individual species respond to environmental drivers, determine how changing climate and hydrologic scouring/flooding will affect their distributions, and identify species-specific management strategies for conservation. It is currently unknown how species may respond to various management actions, including prescribed fire, *ex situ* propagation, *in situ* protection, or other measures. The incumbent will work with trained botanists, threatened species biologists, and research horticulturalists to identify feasibility of various management strategies for the long-term conservation of the species and populations. Through a better understanding of how species will respond to changing climates, hydrologic conditions, and various proposed management strategies, this project will help guide park management to select and prioritize appropriate actions to protect high priority species.

Through this project, the intern will become familiar with extant park data on threatened and endangered plant species and populations through both field work and data review, and use regional climate models to understand impending changes to both local climate and hydrology. The intern will conduct background literature review regarding species' response to management actions including propagation techniques, susceptibility to changes in hydrologic conditions, and temperature and climate thresholds for sustainable population growth. He/She will work with horticulturalists, botanists, and fire ecologists regarding feasibility of management techniques, including *ex situ* propagation, *in situ* protection or augmentation, and prescribed fire and use knowledge gained to develop a priority management action list that focuses on attainable management strategies and conservation goals. Final products of this internship will include 1) a presentation of results to park management, regional and DNR botanists, and conservation partners that details measures to be undertaken by the park, 2) species-specific management recommendations for priority endangered plant species, with a focus on attainable actions for conservation goals, and 3) a brief final report including recommendations and descriptions of species-specific responses to conservation measures and drivers of environmental change.

QUALIFICATIONS

A highly qualified applicant will possess the following qualifications.

- Majoring in ecology, biology, or botany, with strong interest in plant ecology
- Strong research skills with ability to digest and synthesize information quickly
- Ability to work both independently and as a small, interdisciplinary team

- Strong oral and written communication skills
- Valid driver's license and ability to drive in rural and urban environments
- Experience with plants of the mid-Atlantic/Northeast US

LEADERSHIP DEVELOPMENT

Mentorship would focus on providing skills and experiences that target their interest and professional development goals within the scope of the project. Other professional development opportunities include improving leadership, creative thinking, meeting/discussion facilitation, and problem-solving skills. The intern will be afforded opportunities to present research to NPS and DNR staff and technical experts and would support efforts to present findings more broadly and local conferences. The intern will interact broadly with park staff and will be involved in higher-level management discussions on resource protection. The incumbent will have the opportunity to work with professionals from varying agencies, organizations, and with varying expertise, including horticulture, field botany, data analysis, and spatial data processing. The mentor is trained in wildlife ecology and entomology and a field botanist will be on staff during the intern's tenure.

DATES OF POSITION

Approximate dates of internship: 06/01/2020 – 08/21/2020

Are dates Flexible: Yes

If flexible, what is your time frame for project completion: 04/01/2020 – 10/31/2020

COMPENSATION

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

HOUSING & TRAVEL

The FPL provides a travel stipend to all interns to supplement the cost of student travel to the park site.

Housing will be provided in the form of a 5-bedroom house, shared with other interns and/or seasonal employees. Incumbent will be required to bring linens and towels; however, furniture, pots, pans, etc. are provided. A personal vehicle is required to drive to the park headquarters, approximately 18 miles from the housing, as well as local amenities. Housing and duty station are within 2 hours of urban

centers of Washington DC and Baltimore, MD. Numerous opportunities for camping, hiking, boating, and fishing are available.

WORK ENVIRONMENT

This project will involve both field and office work, and can include local travel to state agency offices and partner facilities. The park will provide work space, computer access, and access to available literature and data at the headquarters in Hagerstown, MD. The incumbent must maintain a valid driver's license in order to access field sites. Field work may involve steep hills, wetland areas, exposed bedrock, and/or unstable terrain, requiring appropriate footwear. The park runs nearly 185 miles along the Potomac River. Much of the park preserves floodplain forest and wetlands, while the geological diversity of being low along the Potomac river and climbing up into the mountains create unique natural habitats such as bedrock terraces, river scourbars, and shale barrens.

CONTACT INFORMATION

Park Service Supervisor:

Andrew Landsman, Ph.D.

Andrew_Landsman@nps.gov, 301-739-6072