




GEOSCIENTISTS-IN-THE-PARKS 2018 – PROJECT DESCRIPTION

NPS UNIT: BUFFALO NATIONAL RIVER	PD #: 2018011
<p>Position Title: Karst Hydrology Intern Position Type: GIP Intern Primary natural resource discipline: Water resources Location: Harrison, Arkansas</p>	
PROJECT DESCRIPTION AND WORK PRODUCTS	
<p>Position Description: Buffalo National River is searching for a well-rounded individual who is interested in being part of an interdisciplinary team of natural resource scientists working to solve real-world water quality issues in a complex and interconnected karst geology environment. The primary duties of the Karst Hydrology Assistant will be working alongside natural resource staff to conduct routine water quality monitoring and special investigations within the Buffalo River Watershed to contribute to one of the National Park Service’s oldest and most continuously running water quality databases for a national river. Data collected, in part, by the intern will be used in park management decisions and by the Arkansas Department of Environmental Quality to better inform state water quality standards and § 303d impaired waterbody listings pursuant to the Clean Water Act. The intern will routinely calibrate multi-parameter sondes which measure pH, dissolved oxygen, temperature, and conductivity. The GIP will learn to analyze water samples for fecal coliform, Escherichia coli, and turbidity using standardized protocols and specialized equipment in the park’s EPA-certified laboratory under the supervision of the Lab Operator. Routine water quality monitoring for nutrients, fecal coliform, E. coli, and turbidity will be conducted at 9 sites along the 152-mile long Buffalo River, 20 tributary sites, and 3 springs. Other water quality monitoring opportunities will include collecting emerging contaminant water samples in collaboration with the Environmental Protection Agency, monitoring, recording, and collecting samples from reported algal blooms, and monitoring E. coli and turbidity levels as part of a special investigation researching the potential environmental impacts of a large-scale confined animal feeding operation located in close proximity to the park.</p> <p>The intern will be integral to the park’s continuous dissolved oxygen monitoring program by assisting the park’s Hydrologic Technician with calibrating, deploying, and analyzing data from Onset HOB0® Dissolved Oxygen Data Loggers placed in tributaries of the Buffalo River. S/he will become familiar with the National Atmospheric Deposition Program (NADP) and be trained as a site back-up operator for the park’s NADP weather station. There may also be opportunities for the intern to gain specialized research experience in groundwater mapping through dye tracing studies that are planned within the park.</p> <p>Secondary duties may include working with the park’s interpretive staff to develop educational material about karst hydrology and to develop and present interpretive programs throughout the park, helping to develop and prepare for S.T.E.M. learning events at the park’s two research learning centers, and working with the Project CAVES program. S/he will have ample opportunities to meet and collaborate with staff from the Arkansas Department of Environmental Quality, Arkansas Game and Fish Commission, U.S. Geological Survey, other</p>	

federal and state agencies, private consulting companies, the Cave Research Foundation and other Non-Governmental Organizations (NGOs).

This position is offered through the National Park Service's Geoscientists-in-the-Parks (GIP) Internship Program in partnership with Stewards Individual Placement Program (Stewards) and The Geological Society of America (GSA). Upon successful completion of the GIP internship, the participant is eligible for an AmeriCorps Education Award.

Work Products: Deliverables expected from the Karst Hydrology Assistant will include:

- Complete and accurate field data sheets and record keeping
- Digital water quality records documented in park's water quality database
- Final presentation to park staff summarizing internship accomplishments and potential data results

Other potential deliverables may include:

- Karst hydrology educational material (to be developed in coordination with the park's interpretive staff)
- Karst hydrology interpretive program and corresponding material (e.g. slideshow presentation and props)

QUALIFICATIONS

The best qualified applicants will have or be pursuing an undergraduate or graduate degree in the natural sciences, such as hydrology, geology, biology, environmental science, or ecology. Field and laboratory experience, as well as data management and entry skills, are desirable, particularly related to aquatic sampling. Skills working with Microsoft Access® and Excel® as well as ArcGIS® are highly desirable. The ability to work as part of a team is a must. The individual selected for this position should possess the physical ability to hike in relatively steep terrain over long distances, travel through caves which require crawling through constricted wet passages, orienteer with a topographic map and compass, and operate GPS systems. Strong oral and written communication skills are also desired.

The selected applicant should be able to work well independently on the surface and in an office setting, but be flexible enough to work well as part of a team.

GIP participants are considered AmeriCorps members: AmeriCorps limits the number of terms an individual can serve to 4 terms. If an applicant has previously completed 4 GIP or other AmeriCorps positions, he/she will not be eligible to apply for an additional GIP position.

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

VEHICLE/DRIVER'S LICENSE REQUIREMENTS

A valid driver's license and personal vehicle are required for this position. The intern will be staying in park housing located within park boundaries and will need a vehicle to commute to and from park headquarters daily during the work week. S/he may also be required to drive a government vehicle to and from field sites.

If the GIP is required to drive a park vehicle for their position, a driving records search will be performed and the GIP's ability to drive a park vehicle will be contingent upon the results. Examples that will preclude a GIP from driving a park vehicle include DUIs, multiple moving vehicle violations, suspended or revoked license, or three or more accidents (regardless of fault) in the last 3 years.

HOUSING

Park housing is provided at no cost to the participant. Specifically, the housing will be located near Jasper, AR. The intern will share a furnished single-family home with seasonal park staff members, but will have access to his/her own private lockable bedroom. The kitchen, bathroom, and living room will be shared between house occupants. The intern will need to bring kitchen, bathroom, and bed linens. Some dishes and utensils will be

available, but the intern may wish to bring additional kitchen items. The park headquarters is approximately a 30 minute drive from the park housing.

INTERNSHIP START/END DATES

Start Date: 5/20/2018
End Date: 8/10/2018
Number of weeks: 12
Flexibility of dates: Yes

STIPEND PAYMENT

\$3,600 for 12 weeks

HOUSING PAYMENT

TRAVEL ALLOWANCE

\$250

PHYSICAL/NATURAL & WORK ENVIRONMENT

Physical/Natural Environment: Buffalo National River was established by Congress in 1972 (Public Law 92-237) as the country’s first national river. Although approximately 135 miles of the free-flowing river are included within the boundaries of the national river, only 11% of the overall watershed is under direct NPS management. Originating in the Boston Mountains of the Ozark Plateau, the river generally flows in an easterly direction to its confluence with the White River. Flanking the river are multi-colored bluffs of eroded sandstone, limestone and dolomite that tower in some places to heights over 400 feet. The karst geology of the region is reflected in a landscape marked by numerous caves, cliffs, sinkholes, waterfalls, springs, and rock formations.

A wide variety of plant and animal species are supported by the diversity of habitats found along the river, influenced by varied elevations, soil types, moisture levels and exposure. Hunting and fishing are allowed in the national river under state and NPS regulations. A diverse range of cultural resources and historic sites are protected within the national river, including prehistoric village and shelter sites, historic farmsteads, mining sites, and Civilian Conservation Corps structures.

The park’s 94,293 acres (a total of 95,730 acres are legislated) are divided into three management districts. Park headquarters are located in Harrison (Boone County), Arkansas. In recent years, park visitation has exceeded 1,500,000 visitors a year. In addition to visitor water-based activities with multiple launch points along the river, the park offers more than 100 miles of hiking trails and designated trails for horseback riding. The Buffalo National River Wilderness consists of 36,000 acres in three units (Upper Buffalo, Ponca, and Lower Buffalo). Because there are few roads which parallel the river and few accessible overlooks, river and trail trips are among the best ways to experience the park. Access to Buffalo National River can be found at various points throughout the length of the river.

Summer weather conditions are generally warm and humid, with occasional pop-up thunderstorms.

Work Environment: The intern’s main duty location will be at Buffalo National River Headquarters in Harrison, AR. S/he will be provided a desk and computer in the shared natural resource office space. S/he should be prepared to work outdoors (i.e. wear proper warm weather clothing and bring water) in summer weather, which is generally warm and humid. Footwear appropriate for hiking should be worn while in the field. The intern may wish to wear clothing that will dry quickly, as s/he will likely get wet while collecting water samples. The individual selected for this position should possess the physical ability to hike in relatively steep terrain over long distances. The intern should be prepared to encounter ticks and biting insects. The individual is likely to encounter venomous snakes, wasps, and poison ivy during the internship.

MENTORING AND LEARNING GOALS

Mentoring: After initially arriving at Buffalo National River, the intern will be orientated to the National Park Service, Buffalo National River, park staff, and the park’s resources and challenges. Throughout the internship, s/he will work closely with and be mentored and trained by the park’s Ecologist/Lab Operator and Hydrologic Technician, among other natural resource staff. S/he will have opportunities to interact with park seasonal and permanent staff during work hours and more casually outside of work hours during regularly organized informal events (e.g. cookouts). S/he will also have ample opportunity for professional development with staff from the Arkansas Department of Environmental Quality, Arkansas Game and Fish Commission, U.S. Geological Survey, other federal and state agencies, the Cave Research Foundation, and other NGOs.

Learning Goals: The Karst Hydrology Assistant will be exposed to a range of real-world natural resource challenges faced by natural resource managers and learn how scientists collect, process, and interpret natural resource data, particularly related to water resources, to inform better park management practices and policies. The intern will gain hands-on technical experience by collecting, processing, and analyzing environmental data and working in an EPA-certified laboratory. S/he will learn about federal and state employment opportunities and the many career options available in the federal government and will be mentored by seasoned and developing park staff members who come from a myriad of backgrounds with diverse experiences. S/he will be encouraged to pursue professional development opportunities and given opportunities to shadow park staff from other divisions. Skills that may be improved or gained include analytical and technical skills, critical thinking skills, interpersonal skills, interpretive material and programming development skills, and public speaking skills.

SUPERVISORS

Primary Supervisor: Shawn Hodges	Secondary Supervisor: Chuck Bitting
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