



GEOSCIENTISTS-IN-THE-PARKS Internship Program

2019 – PROJECT DESCRIPTION

NPS UNIT: CANYONLANDS NATIONAL PARK & CAPITOL REEF NATIONAL PARK	PD #: 2019023
<p>Position Title: Geomorphology Assistant Position Type: Guest Scientist Primary natural resource discipline: Geologic resources Project keywords: Soils, Pedology, Ecohydrology, Geomorphology Location: Moab and Torrey, Utah</p>	
PROJECT DESCRIPTION AND WORK PRODUCTS	
<p>Position Description: Climate models project increasing aridity with megadrought conditions in the Southwest during the latter half of the 21st century. In this region, the decade 2001-2010 was the warmest of all decades during the period 1901-2010 – suggesting that a transition to warmer, drier conditions already may be underway. In dryland ecosystems, plant responses to precipitation are mediated by soil properties that determine spatial and temporal patterns of soil-water availability. Although this principle is well recognized on the basis of extensive research, site-specific information about relationships between climate, soils and vegetation dynamics (especially in the context of climate change) is lacking for Colorado Plateau drylands. To support climate-change adaptation and associated conservation actions, Canyonlands and Capitol Reef national parks are embarking on research to develop a decision support framework and analytical tools to better understand soil influences on ecosystem vulnerability to climate change. The framework and tools will facilitate site-specific, science-based decision making pertinent to ecosystem restoration and other management actions in the context of climate change.</p> <p>The incumbent GIP will work closely with NPS and USGS staff to complete field data collection aspects of this project, specifically field soil profile descriptions, documenting site contextual information (e.g. landform, geology, parent material), and collection of soil samples. Field description will include describing soil morphology (e.g. soil texture, rock fragment, horizonation, structure, color, pH, effervescence, etc.) following the USDA-NRCS Field Book for Describing and Sampling Soils. Samples will be collected from each soil horizon for basic laboratory analysis (texture, pH, electrical conductivity), and possible further analysis as appropriate. Soil profiles will be classified to USDA soil taxonomic classes and correlated with local soil survey components. Training and supervision of soil description and sampling work will be overseen by NPS and USGS staff with the expectation that the participant will become proficient in these methods to independently perform these tasks at a professional level.</p> <p>There is a strong potential that Colorado Plateau national park ecosystems will experience irreversible state-changes in the near future as a result of climate change. Given nonlinear dynamics, the water-limited nature of dryland systems, and forecasts of increasing aridity, park- and region-specific research is required to understand how climate drivers will affect ecosystems. Canyonlands (CANY) and Capitol Reef (CARE) face significant challenges in restoring and protecting the integrity of dryland ecosystems in the context of climate change. Understanding how broad-scale climate drivers will impact ecosystems at local scales is of paramount importance for designing effective management strategies to mitigate and minimize undesired ecosystem changes, including land degradation. We anticipate that the data-driven soil-ecohydrologic framework produced by this effort will become an indispensable tool for informing management decision making relative to Colorado</p>	

Plateau drylands, especially in the restoration of currently degraded sites and prevention of transitions to future degraded states. The work of the GIP will contribute to overall project goals by participating in field data collection aspects of the project.

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).

The applicant should be able to:

- Use a GPS to record location information and to navigate.
- Collect accurate data in difficult outdoor situations (see additional information on work environment).
- Perform computer data entry, editing and retrieval tasks to process and verify scientific data.
- Follow standard protocols to collect scientific data
- Use a database management program, such as MS Access, for scientific data storage and retrieval.
- Fill out data sheets legibly and show an understanding of the importance of maintaining high standards in the collection of scientific data.
- Camp for up to 8 days at a time in undeveloped areas (i.e., no showers or running water).
- Hike off trail in uneven or steep terrain (>10 miles per day) carrying a heavy (50 lb) backpack.
- Dig physically challenging soil description holes (50x50x50cm) and operate a soil hand auger in remote and rugged settings.

Work Products: Soil pedon descriptions and data entered into database.

QUALIFICATIONS

Education:


- Applicant needs to have obtained a B.S. in Soil Science or related field
- Applicant needs to have minimum course work of:
 - Intro to soils,
 - Soil genesis and classification, pedology, or similar
 - Additional preferred coursework or related experience
 - Soil judging or related experience describing, sampling and classifying soils in the field
 - Sedimentology or similar geology coursework

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

Applicant must have a valid driver's license and a good driving record. The GIP will be commuting from CANY headquarters in Moab, Utah, and to field sites in CANY and CARE, and to travel between Moab and CARE in Torrey, Utah. Government vehicles will be available for field work and commuting from Moab to CARE.

If the GIP is required to drive a park vehicle for their position, Stewards will perform a driving records search, and the GIP's ability to drive a park vehicle during work hours will be contingent upon the results. GIPs will have to have had their license for 3 years or be over the age of 21 to be insured as drivers under Stewards insurance policy. Examples of things that will preclude a GIP from driving a park vehicle include: GIP under the age of 21 years old that has been licensed less than three years, DUIs, multiple moving vehicle violations, suspended or revoked license, or three or more accidents (regardless of fault) in the last 3 years. If the driver's search is favorable, Stewards will provide driver's liability insurance while the intern is driving a NPS vehicle for their GIP position. If the GIP is denied coverage by Stewards, they will not be permitted to drive during work hours.

HOUSING	
Park housing is NOT available and the intern will be responsible for finding housing in the nearby area. A higher living allowance is provided to cover housing costs.	
INTERNSHIP START/END DATES	
Start Date: 5/13/2019	
Number of weeks: 20 weeks (NO housing)	
Flexibility of dates: Yes	
LIVING ALLOWANCE	
20 weeks (\$525/week = \$10,500)	
TRAVEL ALLOWANCE	
\$250	
AMERICORPS PROGRAM	
	<p>AmeriCorps is a program that engages individuals in intensive community service work with the goal of “helping others and meeting critical needs in the community”. The GIP Program is supported through AmeriCorps by providing a Segal Education Award in addition to the GIP’s living stipend and travel/housing allowance.</p> <p>Upon successful completion of the GIP position, the GIPs (AmeriCorps members) are eligible for a \$1,612 - \$6,095 pre-tax education that can be used for paying back student loans or for continuing their education. The amount of the education award is based on the length of the position.</p> <p>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.</p>
PHYSICAL/NATURAL & WORK ENVIRONMENT	
<p>Physical/Natural Environment: Moab is a town of approximately 9,000 residents located beside the Colorado River in Southeast Utah. The climate is typical high desert, semi-arid, with temperature ranges from 0 in winter to 100+ in summer. All amenities are available, including doctors, dentists, hospital, schools (K-12), churches, and shopping. The area offers many outdoor activities, including superb hiking and camping, white water rafting, mountain biking, etc. For more information on Moab, see http://www.discovermoab.com . The cost of living is above average for the United States.</p> <p>Capitol Reef is located 11 miles east of Torrey, Utah. Major shopping is located in Richfield (75 miles distant). Medical clinic, dentist are available in Bicknell, 20 miles from park headquarters and staples in Loa, 30 miles from park headquarters. Park housing is located one block from the visitor center and includes 10 single-family houses, three dorm-style houses, and a four-unit apartment building. Park headquarters is situated at an elevation of 5500 feet with a climate typical of the Colorado Plateau high desert. Capitol Reef National Park which was established to protect the 100-mile long Waterpocket Fold, a monocline in the earth’s crust. The spectacular setting of Capitol Reef National Park has been formed over millions of years with water eroding and shaping the rock into myriad arches, natural bridges, monoliths, narrow canyons and towering cliffs. Preserved also are remnants of the Fremont Culture and the remains of a historic Mormon settlement known for the beauty and productivity of its historic orchards and fields. The park is open year-round with the majority of activities occurring during the busy season from March through October.</p> <p>Work Environment: This is a field position. Extensive, arduous backcountry travel and camping will be common under a wide range of climate conditions from possible rain and snow conditions to long hikes in temperatures exceeding 100F. Heavy lifting will be required for this position. Much hiking will occur off trail, in steep or difficult terrain. This position requires hiking and camping for an extended period of time (>10 miles per day) in a backcountry/wilderness environment carrying a heavy (50 lb) backpack. Applicants must be in good physical condition to perform required job duties. Applicants also need to be able to work safely in outdoor and</p>	

backcountry areas with minimal supervision. Data entry will require long periods in an office setting. Employees will be required to complete relevant safety training and follow safe working guidelines at all times. The applicant will work closely with other members of a field team to accomplish daily tasks, and will need to adapt to changing conditions or unexpected obstacles. The applicant will also need to demonstrate understanding, courtesy, tact, empathy, and concern in relating to colleagues in a work situation.

MENTORING AND LEARNING GOALS

Mentoring: In the field, the intern will be paired with a professional USGS soil scientist and will learn soil geomorphology and classification. The intern will also work with NPS park resource staff at multiple parks and Inventory and Monitoring staff to learn about each of these programs.

Learning Goals: The intern will gain hands on experience with on soil and ecological site classification, and will learn about ecohydrological concepts important to the Colorado Plateau.

SUPERVISORS

Primary Supervisor: Matthew Van Scoyoc	Secondary Supervisor: Sandra Borthwick
Title: Ecologist	Title: Biologist
Address: 2282 Resource Blvd. Moab, UT 84532	Address: HC70 Box 15 Torrey, UT 84775
Phone number: (435) 719-2135	Phone number: (435) 425-4142
Email address: matthew_vanscoyoc@nps.gov	Email address: sandy_borthwick@nps.gov
Park or Program Website: www.nps.gov/cany	Park or Program Website: www.nps.gov/care