



MOSAICS IN SCIENCE

Diversity Internship Program

2021 Project Descriptions

NPS UNIT: ROCKY MOUNTAIN NATIONAL PARK		PD #: 2021500
Project Title: Monitoring Visitor Use Impacts on Natural Resources through Community Science Position Type: Mosaics DHA Primary natural resource discipline: Social Sciences Project keywords: Visitor Use; Social Trail; Impacts; Resource Mapping; Resource Damage; Community Science; Education; Scientific reading, writing and editing Location: Estes Park, Colorado		
COVID-19 NOTICE		
As the COVID-19 pandemic continues to change and evolve, project timelines and structure remain flexible and it may be necessary to postpone start dates, begin work remotely, or reformulate the project's description. Should any development in the COVID-19 outbreak impair a project's timeline or results, the SIP Team will work with the park and project mentors to assess the situation and determine the best course of action at that time.		
PROJECT DESCRIPTION AND WORK PRODUCTS		

Position Description: This position will serve as the field lead for Rocky Mountain National Park (RMNP)'s Community Lead Impact Monitoring (CLIM) Program - a new community science program that contributes to RMNP's visitor use management strategy by monitoring visitor impacts to natural resources. The CLIM Program was developed and piloted in 2020 through the NPS Future Park Leaders of Emerging Change Internship Program. The pilot year proved highly successful in identifying visitor-related impacts in the Loch Vale Watershed and laid the foundation for visitor use management in this area.

In Summer 2021, the CLIM Program will focus on a new, high-use visitor area – Bear Lake Corridor. The Bear Lake trail system offers the highest concentrations of front and backcountry trails in the park making it one of the most frequented visitor destinations in RMNP and an ideal study location.

The SIP intern will carry out research methods of an established visitor use and impacts monitoring protocol and will expand this protocol by developing new indicators of visitor use. Visitor use impacts will be quantified via field mapping sessions and analysis will be performed using the existing protocol and by other methods developed by the SIP intern. Data will be used to inform managers about the area's visitor use capacity, ecological impacts, and aesthetic and safety effects on park resources and visitor experience.

The SIP intern will also build on the pilot project by organizing volunteer-based community science campaigns to document and map visitor use impacts in the Bear Lake Corridor. They will serve as the field lead for the community scientist participants and be trained to lead the installation and calibration of trail counter units. The intern will develop leadership skills by coordinating backcountry and field training for volunteers, and coordinate field teams to map social trails and help deploy and calibrate trail counters. The intern will lead and schedule the trail counter deployments and schedule the removal and data download of trail counters at the end of the season.

Specific Duties Include:

- Collaborate with RMNP staff about existing data and findings.
- Participate in RMNP backcountry training (safety).
- Receive trail counter training, develop a plan to deploy 5-10 trail counters to understand visitor use levels and patterns in the Bear Lake Corridor and analyze trail counter data.
- Use established protocol to measure visitor congestion, map social trailing and soil loss from erosion/trampling using GPS enabled tablets and GIS technology; bolster said protocol by developing new visitor use indicators.
- Calculate social trailing density and estimated soil erosion loss or compaction from spatial data collected.
- Develop and test various resource condition classes to understand level of impacts.
- Design and lead volunteer-based community science campaigns to collect data and produce maps of visitor use impacts; recruit, train, and lead volunteers in the field.
- Contribute trail count data to collaborative research effort within the Research Learning Center.
- Make management recommendations based on project results.

Rocky Mountain National Park experienced a 44% increase in visitation from 2012 to 2019, exceeding 4.6 million visits annually and earning the title as the third most visited National Park. Park

NATURAL & PHYSICAL WORK ENVIRONMENT

Rocky Mountain National Park embraces 415 square miles of pristine, uninhabited mountains in north-central Colorado and, as such, is one of the most spectacular, yet easily accessible high mountain areas. The park encompasses glacier-sculptured valleys, rugged gorges, alpine lakes, and vast areas of alpine tundra. Summer weather is generally sunny with frequent afternoon lightening showers. Recreational activities in the park include scenic drives, 355 miles of hiking trails, horseback riding, climbing, fishing, and wildlife watching.

The gateway community of Estes Park is located at 7,500 feet and located ~5 miles from park headquarters. The town has several grocery stores, a library, restaurants, a hospital, and several clinics, doctor and dentist offices. Recreational and educational opportunities in town include educational classes through the library and adult education learning program, a running club, walking trails and bike paths, and trivia – events and activities that many park staff attend as groups. The Denver metropolitan area is a 2-hour drive and provides a spectrum of amenities and an international airport.

Work will involve both office and field work. Field work includes hiking on and off trail in steep, mountainous terrain up to 12,000 feet elevation with possible exposure to inclement weather (hot or cold temperatures, wind, rain, snow, and lightning). The SIP intern could encounter wildlife such as elk, moose, and black bear. Office space will be provided and will include a varied desk platform allowing for sitting and standing, computer, phone line, and close access to a shared printer.

QUALIFICATIONS

The most qualified applicants will have, or be pursuing, a degree in social sciences, human dimensions, recreation management and/or natural resource management. Applicants should have experience collecting data in the field using GPS units, mapping and analyzing spatial data using ArcCollector and ArcGIS, and have the ability to write a scientific report including basic data display and analysis. Additionally, applicants should: 1) have and demonstrate the ability to carry out research independently; 2) have good communication and basic leadership skills to organize and implement volunteer community scientist campaigns; 3) possess backcountry and off-trail hiking experience (preferably in mountainous terrain) and; 4) be attentive to safety while working in the field.

The most qualified applicant will possess:

- Coursework in ecology, GIS, recreation management, natural resources, and human dimensions
- Experience collecting data using GPS and mapping/analyzing spatial data in ArcGIS
- Ability to write a scientific report including basic data display and analysis
- Good communication/leadership skills to organize and implement volunteer community scientist campaigns
- Backcountry/off-trail hiking skills and experience in mountainous terrain with adverse weather conditions
- A valid driver's license

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 drivers license and a good driving record.

A personal vehicle is RECOMMENDED but not required for this position.

HOUSING

Park housing is available and will be provided at no cost to the participant. Housing will be provided at McGraw Ranch (a former cattle and guest ranch) that is located ten miles from Park Headquarters, and about six miles to downtown Estes Park, Colorado. The access is a dirt road that terminates at the ranch. The Cow Creek Trailhead commences at the ranch. The main ranch house has offices, a shared fully equipped kitchen and dining area, laundry and conference room. Interns will have individual sleeping space with a shared bathroom within a cabin and access to internet and a phone line in the main ranch house (no cell service).

INTERNSHIP START/END DATES

Start Date: 5/17/2021

End Date: 7/30/2021

Eleven weeks of the internship will be in the park. A mandatory Career and Leadership Workshop will be held in Washington, D.C. from August 1 – 5, 2020.

PLEASE DIRECT ANY QUESTIONS TO ENVIRONMENT FOR THE AMERICAS

Email: mosaics@environmentamericas.org