



SCIENTISTS IN PARKS

PROJECT DESCRIPTION SUMMER 2021

NPS UNIT: JEWEL CAVE NATIONAL MONUMENT	PD #: 2021143
<p>Project Title: Map and Correlate Surface and Sub-surface Geological Features at Jewel Cave, and Assist with Cave Management Activities</p> <p>Primary natural resource discipline: Physical Sciences</p> <p>Project keywords: cave, karst, geology, hydrology, GIS, field mapping</p> <p>Location: Custer, South Dakota</p>	
COVID-19 NOTICE	
<p>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.</p>	
PROJECT DESCRIPTION AND WORK PRODUCTS	
<p>Position Description: The intern will work primarily with the Resource Management division, with a focus in two areas: geological research (surface and subsurface) and cave management activities. Work assignments include: 1) Geology - The intern will assist with a project to correlate surface and subsurface geology. This includes field mapping on the surface, caving trips to inventory and map subsurface geologic features, documenting field observations in Adobe Illustrator and ArcGIS, adding vertical displacement data to GIS maps, creating geological cross sections that include cave and aquifer relationships, and coauthoring a paper for presentation at a GSA or similar conference; and 2) Cave Management - The intern will assist the Resource Management Staff with photomonitoring established photo-points along off-trail travel routes to document human impacts that have occurred over time; the intern will take in-cave photos, organize and compare them with previous photos, and write reports to summarize changes. He or she will also help mitigate human impacts along established tour routes, do routine microclimate monitoring, assist with data collection for an ongoing hydrology project, and assist in creating cave rescue pre-plans along the major in-cave travel routes.</p> <p>Jewel Cave's enabling legislation established the park for scientific interests and public enjoyment. The NPS emphasizes science-based management decisions, preserving the resource unimpaired for future generations, and ensuring the safety of staff and visitors. These values are realized, in part, by the following park priorities: The park's General Management Plan and Foundation Document both identify the correlation of surface and subsurface geology as a high priority need to help predict and protect cave passages that have not yet been discovered. (Volumetric airflow studies use the cave's barometric wind to predict that the 200 miles of known represent only 3% of the total volume.) The cave management activities help ensure protection from human impacts, and the cave rescue pre-planning is a proactive program to minimize the consequences of off-trail injuries. The intern's work directly contributes to meeting the park's primary needs for resource management and human safety.</p> <p>This position is offered through the National Park Service's Scientists in Parks (SIP) Program in partnership with Stewards Individual Placement Program (Stewards) and The Geological Society of America (GSA).</p>	

Work Products: The final products include: 1) a digital cave map, updated with geological features and annotation, 2) a geological map in GIS, updated with vertical displacement data, 3) a co-authored geological paper, and 4) a completed cave rescue pre-plan for at least one travel route.

QUALIFICATIONS

The candidate should 1) be a caver in good physical condition, with at least 100 hours caving experience, 2) have at least a BS in geology or geological engineering, 3) have completed at least 5 weeks of geological field camp, 4) have substantial experience with digital graphics programs such as Adobe Illustrator, and 5) have substantial experience with ArcGIS, including the ability to create and edit georeferenced polygons and polylines.

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.

If the SIP is required to drive a park vehicle for their position, Stewards will perform a driving records search, and the SIP’s ability to drive a park vehicle during work hours will be contingent upon the results. SIPs 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 SIP from driving a park vehicle include: SIP 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 SIP position. If the SIP is denied coverage by Stewards, they will not be permitted to drive during work hours.

HOUSING

Park housing is available and will be provided at no cost to the participant. Modern apartments, with 2-4 occupants, up to 2 occupants per bedroom/bathroom, common kitchen and living room, and free use of laundry facilities. No cost for utilities. Free shared WiFi. If Covid remains a concern, the park will assign only one person per bedroom/bathroom.

NATURAL AND PHYSICAL WORK ENVIRONMENT


The work will be approximately 50% indoors and 50% outdoors. The park provides a dedicated computer and office space in a building with central heating and air conditioning. The outdoor landscape is about a mile above sea level, is moderately rugged, and sometimes experiences unexpected thunderstorms. Summer daytime temperatures are typically in the 80s and 90s, but may exceed 100 degrees F. The cave environment is 49 degrees F, and does not require vertical caving techniques. The intern must be in excellent physical condition for caving, comfortable in a dry cave environment, and should also be comfortable caving for up to 10 hours at a time. Nearby Custer is a town of 1,800 with a grocery store, several convenience stores, restaurants, and basic amenities. It is 13 miles from the park. Rapid City is part of a small metropolitan area that has all facilities, including theaters many cultural and recreational opportunities. There is a nearby Regional Airport. Rapid City is 53 miles from the park. Black Hills National Forest, Custer State Park, and several NPS areas offer many recreational opportunities, all within 3 hours' driving time.

INTERNSHIP DATES

Start Date: 5/16/2021

Number of Weeks: 20 Weeks

Flexible Start Date: Yes

LIVING ALLOWANCE	
20 Weeks (\$400/week =\$8000)	
RELOCATION ALLOWANCE	
\$350	
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 SIP Program is supported through AmeriCorps by providing a Segal Education Award in addition to the SIP’s living stipend and relocation allowance.</p> <p>Upon successful completion of the SIP position, the SIPs (AmeriCorps members) are eligible for a \$1,638 - \$6,195 pre-tax education award 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 SIP or other AmeriCorps positions, they will not be eligible to apply for an additional SIP position.</p>	
SUPERVISORS/MENTORS	
<p>Primary: Mike Wiles Mike Wiles@nps.gov 605-673-8308</p>	<p>Secondary: Dan Austin Daniel_Austin@nps.gov 605-673-8318</p>