



SCIENTISTS IN PARKS  
Fellows  
2021 Project Descriptions



<b>NPS UNIT: DINOSAUR NATIONAL MONUMENT</b>	<b>PD #: 2021301</b>
<p><b>Project Title:</b> Organize, collect, and communicate geospatial data on priority wildlife and plant species in Dinosaur National Monument</p> <p><b>Primary natural resource discipline:</b> Biological Sciences</p> <p><b>Project keywords:</b> GIS, Survey 123, ArcGIS Online, ArcStoryMap, data management, invasive species, wildlife, threatened and endangered species</p> <p><b>Location:</b> Dinosaur, Colorado</p>	
<b>COVID-19 NOTICE</b>	
<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>	
<b>PROJECT DESCRIPTION AND WORK PRODUCTS</b>	
<p><b>Position Description:</b> Dinosaur National Monument (DINO) is a spectacular 211,000-acre medium-sized park with mega-park values. The rugged landscape provides diverse habitats that support a surprisingly diverse assemblage of plants and animals and critical habitat for federally listed species. Yet it is the Green and Yampa Rivers with their 92 miles of deep, multi-colored canyons, entrenched meanders, sheer sandstone walls, and amazing whitewater that dominate the landscape. Importantly, the Yampa is the only remaining large tributary in the Colorado River system that retains its free-flowing character. Over 90% of DINO is recommended wilderness. Documenting and monitoring the health and function of these rivers is of utmost importance for both DINO and many regional interests. Several projects focusing on species of interest that inhabit these river canyons (Rocky Mountain bighorn sheep, leafy spurge, and Ute Ladies’-tress orchid) are in progress and have generated a lot of data in the last 4 years. However, this data collection pulse has surpassed the ability of limited staff to organize and communicate findings within NPS and external partners in a timely manner. The internship will be a mix of office work (data organization, input, analysis, and communication) and field work (two river-based surveys for both invasive and federally-listed plant species) focused on processing a backlog of existing data and preparing DINO natural resource staff for data collection on several long-term projects.</p> <p>Specifically, the intern will be responsible for organizing and entering several years of existing data on Rocky Mountain bighorn sheep into ArcMap, performing basic analyses, and preparing that data for inclusion in a larger meta-analysis of DINO’s bighorn sheep population status. Data includes direct observations submitted by the public and DINO staff, as well as fecal pellet sample locations collected as part of an intensive 3-year herd population assessment along the Green and Yampa River corridors. The intern will also help map and treat leafy spurge infestations and document the presence of associated biological control agents along the Yampa River using Survey 123. The information collected will be developed into a Story Map to communicate the monument’s challenges and successes with managing this high priority invasive species that is one of the greatest threats to riparian habitat throughout the Yampa River watershed. Finally, the intern will integrate past survey protocols and current data standards to develop a new survey using Survey 123 to collect population information on the Ute Ladies’ Tress orchid, DINO’s only federally listed plant species, along the Green River. The survey will be used as part of an interagency rare plant mapping project, proposed to begin in 2021. The intern will prepare results for submission to USFWS to fulfill required monitoring of federally listed species.</p>	

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. Many recent advances in technology, including enhanced/upgraded web-based mapping and data collection tools which allow for seamless sharing of information with our NPS partners and the public, are making it easier and more efficient to meet our NPS mission. While the monument collects and retains extensive GIS and spatial data, the organization, management, modernization, and communication of these data are lacking due to limited staffing. The intern's organization of data and creation of improved data collection workflows will facilitate DINO's ability to efficiently and effectively use that information to guide upcoming and highly visible, complex planning efforts (such as for domestic livestock grazing and recreational river use) that results in improve outcomes for species of elevated management concern. Story Maps created about DINO's efforts to document species occurrence and improve riparian habitat will enhance DINO's ability to tell the story of these species to partners and outreach to the public in ways DINO is currently unable to employ.

This position is offered through the National Park Service's Scientists in Parks Program in partnership with Ecological Society of America.

**Work Products:** At the completion of this internship, the intern will have (listed by project):

Rocky Mountain Bighorn sheep: organized and input existing bighorn sheep observational and pellet data in ArcGIS Online (AGOL) and performed basic analysis on that data once entered.

Leafy Spurge: assisted natural resource specialist in completing an updated inventory of leafy spurge/biological control presence along the Yampa River using Survey 123, shared DINO leafy spurge data with watershed partners, and created an ArcGIS StoryMap using legacy and current leafy spurge infestation data.

Ute Ladies'-tress orchid: created a new survey in Survey 123 to collect population data on Ute Ladies'- tress orchid along the Green River (upstream and within DINO) and assisted agency resource managers with the 2021 survey.

#### **NATURAL & PHYSICAL WORK ENVIRONMENT**

Dinosaur National Monument is a spectacular 211,000-acre medium-sized park with mega-park values. Dinosaur has the most complete geologic record of any national park area and an internationally renowned display of Jurassic era dinosaur bones. The rugged landscape provides diverse habitats that support a surprisingly diverse assemblage of plants and animals and critical habitat for endangered species. The whitewater rafting and magnificent scenery found in the canyons of the Green and Yampa rivers provide premier Western boating experiences. The Yampa is the only remaining large tributary in the Colorado River system that retains its free flowing character. Dinosaur is over 90% recommended wilderness. The area receives an average of 8-10 inches of precipitation annually. Temperatures range from -20 degrees to 105 degrees. The nearby communities of Rangely, CO and Vernal, UT offer all amenities (hospital, schools, grocery, etc.). Both towns are within commuting distance (20 miles) of headquarters located in Dinosaur, CO and the Quarry visitor center located in Jensen, UT. Please visit our website at [www.nps.gov/dino](http://www.nps.gov/dino) for more information.

The work is split between the field (30%) and office (70%). Office is located at DINO headquarters in Dinosaur, CO. Field work for this position will include 2-3 multi-day river trips on the Yampa and Green Rivers in a backcountry setting. Hazards include extreme weather conditions (hot and cold), uneven terrain, biting insects, domestic livestock, wild animals, poison ivy, and class III-IV whitewater.

#### **QUALIFICATIONS**

Strong organizational skills; thorough work products; in depth knowledge of and experience using ArcGIS/ArcGIS Online and Survey 123; upper level undergraduate or graduate student with at least 9-12 credit hours of GIS; field study design and field data collection experience; experience working individually/leading projects

The applicant must be a U.S. citizen or U.S. National 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 required for this position.

**HOUSING**

Housing will be provided at no cost to the participant. The intern will have a private room in a shared bunkhouse on the Dinosaur, CO side of the monument. The intern will be able to walk to the office (10 minute walk), but will need a car to get to town. The bunkhouse has a full kitchen (cookware is provided) and is furnished with beds, couches, tables, TV, wifi, and washer/dryer. Bedding and towels can be provided upon request, but the intern will need to bring all personal items including toiletries, laundry detergent, pillows. There is no public transportation in the area or to the monument from the nearest towns.

**INTERNSHIP START/END DATES**

**Start Date:** 6/13/2021

Eleven weeks of the internship will be in the park. A mandatory Professional Development Workshop will be held in Washington, D.C. from August 1 – 5, 2021.