

## **POSITION ANNOUNCEMENT:**

### **FUTURE PARK LEADERS of EMERGING CHANGE**

The National Park Service (NPS) is pleased to support the *Future Park Leaders of Emerging Change* (FPL) internship program as a pathway for exemplary students in higher education (advanced undergraduate students and graduate students) to apply their skills and ideas to park-based challenges and solutions. The program offers 12-week paid internships which allow students to gain valuable work experience, explore career options, and develop leadership skills through mentorship and guidance while helping to advance NPS efforts on emerging management issues. Successful students may be eligible for non-competitive hire into federal positions for which they qualify following completion of all academic requirements.

---

### **FIRE AND ICE: ICE FEATURES INVENTORY AND MONITORING IN VOLCANIC CAVES**

Lava Beds National Monument  
Tulelake, CA

#### **PROJECT SUMMARY**

Caring for ice in a land of fire... Here is your chance to create an Ice Features Inventory and Monitoring program needed for evaluating changes in ice in the volcanic caves of Lava Beds National Monument.

#### **INTERNSHIP PROJECT BACKGROUND**

Lava Beds National Monument (LBE), working with the Klamath Inventory and Monitoring Network, is currently monitoring five of its thirty-five ice caves. It is apparent that climate change is impacting the ice floor levels within these caves. In order to fully understand how the ice is changing and what factors facilitate the change, an Ice Features Inventory and Monitoring program is needed to evaluate the fluctuations in all ice caves at LBE.

#### **INTERNSHIP PROJECT DESCRIPTION**

The Intern will lead development of the Ice Features Inventory and Monitoring program. The gathered data will be used to provide science-informed management of these caves, and be used to extrapolate potential impacts to surface resources. The data will provide a baseline point for future research specific to the Monument's resource management team, as well as for researchers outside of the National Park Service.

#### **Internship Tasks**

- Visit and evaluate 35 ice caves at Lava Beds National Monument, for the purpose of understanding the ice resources in order to develop a Monument wide Ice Inventory and Monitoring program.

- Develop Inventory of ice features (floors, walls, and ceilings). Form will need to differentiate between potential seasonal transient features and long-term features.
- Establish permanent monitoring stations for instrumentation and photo-monitoring.
- Review and expand current monitoring protocols so as to capture as much data as possible with easily repeatable measurement techniques.
- Develop digital data capture form using ArcGIS 123 or Collector.
- Using ArcGIS, create map layers to tell the story of ice resources and documented changes. Working with Wildlife and Biologist Staff, the intern may wish to note potential impacts in wildlife usage of caves and presence of specific vegetation associated with presence of ice and seasonal melt water.
- Develop and give a season ending project accomplishments presentation to park staff.
- Optional, if time allows: Develop and give an interpretive campfire presentation to Monument visitors.

## QUALIFICATIONS

We are looking for an undergrad or graduate student with an interest in cave resource management, natural resource protection, climate change, and policy and planning. Must have ability to work in unusual environments (see “Work Environment”, below), be adaptable to changing situations, and be creative and curious. Knowledge and skills must be reflected in coursework and in experiences (paid, volunteer, or recreational). Basic caving experience is desirable, but not mandatory (must be documented with caving resume and references).

- Coursework or experience in natural resource or cave management, wildlife biology, plant ecology, geology, and/or environmental sciences
- Experience in field work; the scientific process; data collection, processing, and analysis
- ArcGIS – some knowledge
- Ability to hike up to 5 miles with no trails in undeveloped, small spaces for 4-6 hours a day (see “Work Environment”)
- MS Office skills – Word, Excel, PowerPoint
- Driver’s license required.

## LEADERSHIP DEVELOPMENT

Communicating science is an important aspect of our work. The intern will lead staff meetings for development of ice inventory and monitoring tools, as well as lead trips to the caves for planning purposes and to accomplish the necessary fieldwork. Under the supervision of the Physical Scientist, the intern will learn about cave resources, resource protection, and integration with other resources for an overall picture of resource management and protection. We work closely with other Natural and Cultural Resources staff. This will provide the intern with opportunities to learn how cave resources management overlaps with other resources management activities and goals. The intern may also be working with skilled park volunteers, gaining experience in managing volunteers. In addition, the intern

will have the option to work with the interpretive staff to learn about communicating science and research to the public.

## **DATES OF POSITION**

Approximate dates of internship: 03/16/2020 – 09/04/2020

Are dates Flexible (state Yes or No): YES

If flexible, what is your time frame for project completion: 08/14/2020 – 09/04/2020

If possible we would like the intern to be present for one or more days to assist with ice monitoring field work during the last week of March. This will give the intern an understanding of what the current ice monitoring process is like. However, we understand that this may not fit into a university schedule or travel availability. We will be flexible dependent on the intern's resource knowledge, experiences and skill set in order to accommodate a student's schedule. We will provide any necessary training at the start of the summer internship if the intern is unable to participate during the field work in March.

## **COMPENSATION**

This initiative supports one student at \$16/hour for 12 weeks, or 480 hours.

## **HOUSING & TRAVEL**

The FPL program provides a travel stipend to all interns to supplement the cost of student travel to the park site.

Intern will live at Lava Beds National Monument in shared housing: a multi-bedroom house or shared one bedroom apartment. It is less than a five minute walk to the office.

Tulelake, CA is a rural, gateway community for Lava Beds National Monument. It is located approximately 28 miles (a 40 minute drive) from the Monument's Visitor Center. Tulelake's population is close to 1,000. Businesses and eateries are predominately of the mom & pop variety. Merrill, OR is another rural, gateway community with a population of approximately 9,100 people. It is 26 miles (36 minutes) from the LBE Visitor Center. Klamath Falls is the largest town near Lava Beds, approximately a 48 miles (60 minute) drive. It has the typical chain stores and restaurants, as well as many unique eateries and stores.

## **WORK ENVIRONMENT**

Lava Beds National Monument is a volcanic, high desert landscape. Park elevations range from 4,000 to 5,700 feet. Summer daytime highs average 75° to 80°F; lows average 50°F. Occasional thunderstorms occur in summer. Cold weather is possible any time of year, and snow has been recorded in all months. Winter daytime highs average 40°F; lows average 20°F. Morning fog is frequent from autumn through

spring. Tule Lake National Wildlife Refuge lies immediately to the north of the Monument. The rest of LABE is surrounded by the Modoc National Forest.

More than 50% of the intern's time will be spent caving and hiking across rugged lava beds in undeveloped wild lands and wilderness to the caves. The majority of the caves to be visited are undeveloped and require traversing passages of varying sizes (walking, bouldering, crawling, squeezing, climbing). Will need to be able to work flexible hours to account for cave distances and activities to be achieved.

The office is a shared environment, including shared desk and computer. We anticipate the use of tablets while in the field will reduce the amount of time needed to be sitting at a desk.

### **CONTACT INFORMATION**

Park Service Supervisor:

Name: Patricia Seiser, PhD

Email, Phone: [patricia\\_seiser@nps.gov](mailto:patricia_seiser@nps.gov) office: 530-667-8150