



Pikas in Peril

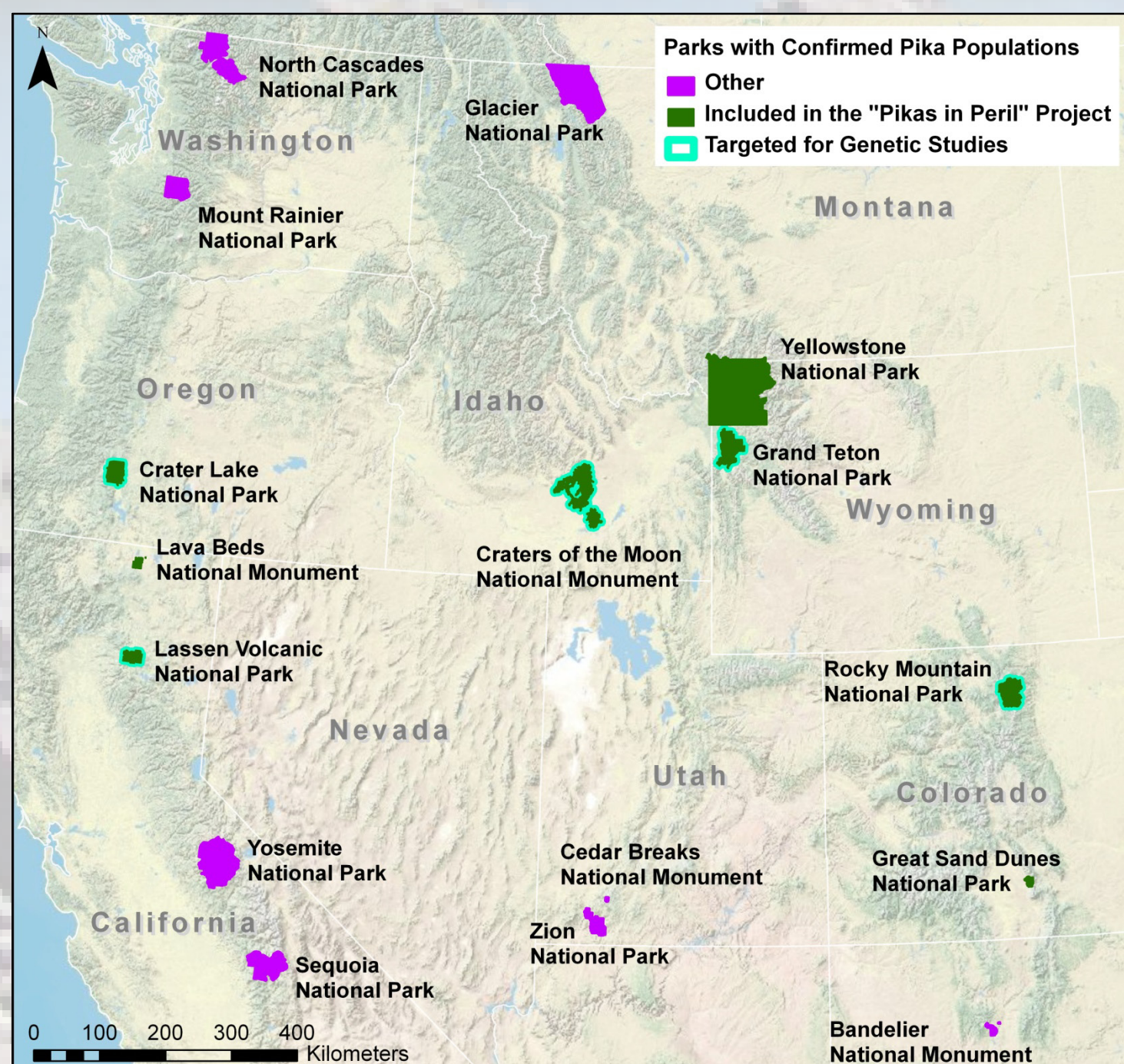
Fostering communication for a climate sentinel species

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Project Overview

“Pikas in Peril” is a 3-year project funded by the National Park Service Climate Change Response Program that is studying pika populations across western U.S. parks to assess their vulnerability to climate change. A large team of academic researchers and National Park Service staff are involved in this project, and are working in 8 National Park Service Units across 5 states. These parks include:



National Park Service Units with confirmed pika populations.

- Crater Lake National Park, OR
- Craters of the Moon National Monument and Preserve, ID
- Grand Teton National Park, WY
- Great Sand Dunes National Park and Preserve, CO
- Lassen Volcanic National Park, CA
- Lava Beds National Monument, CA
- Rocky Mountain National Park, CO
- Yellowstone National Park, WY, MT, ID

Justification

The American pika (*Ochotona princeps*) is considered an indicator species for detecting ecological effects of climate change. Results from recent studies suggest that in some areas pikas are being lost from lower elevations in response to increased warming, and thus, their suitable habitat is being reduced. Additionally, recent habitat and extinction models predict that pikas may disappear from up to 80% of their current range by the turn of the century. Pikas were recently considered for listing under the Endangered Species Act and it was determined that listing was not warranted. However, in the listing decision, the U.S. Fish and Wildlife Service recognized climate change as a potential threat to the pikas long-term survival.

Objectives

- Document pika occurrence patterns and predict pika distribution across the eight park units.

To achieve this: Scientists are conducting pika occupancy surveys across a range of latitudes, longitudes, elevations, and substrate types, including talus slopes and lava beds. An occupancy survey involves a search for evidence of pika presence at a site, such as observing pikas, hearing calls and finding fresh food caches or fresh fecal pellets. With these data, scientists will develop park-specific and regional maps that will show the locations where pikas are likely to occur.



Above: Hay pile in a crevice on a lava field.
Left: Fresh pika scat on lava rock.

Objectives (cont.)

- Measure gene flow and model connectivity of pika populations within five park units representing major genetic subdivisions and habitat types.

To achieve this: Scientists will use fecal pellets collected during occupancy surveys to run genetic variation analyses. With this information scientists will determine how genetically different pikas are within and between habitat patches in each of the five parks.



Scientist collecting fresh fecal pellets (ideally no more than a few weeks old) for DNA genetic analyses.

- Project climate change effects on the future distribution, connectivity and vulnerability of pika populations in each park unit.

To achieve this: Scientists will use results from the two previous objectives along with data from current climate change models to assess the vulnerability of pikas.



American pika (*Ochotona princeps*).

Methods

Scientists collect data following procedures from a peer-reviewed approved pika monitoring protocol developed by the National Park Service in 2010*.

Prior to collecting data in the field, scientists:

- Map potential pika habitat in all park units.
- Identify random sampling locations (within accessible areas) where the data will be collected.

Once in the field, research technicians conduct occupancy surveys in each of the random sampling locations from July to October. Pikas are active during this time collecting hay in preparation for winter and defending their territory.

- Each technician locates a sampling point and searches for pikas or pika sign in a 12 m. radius plot for 20 minutes.



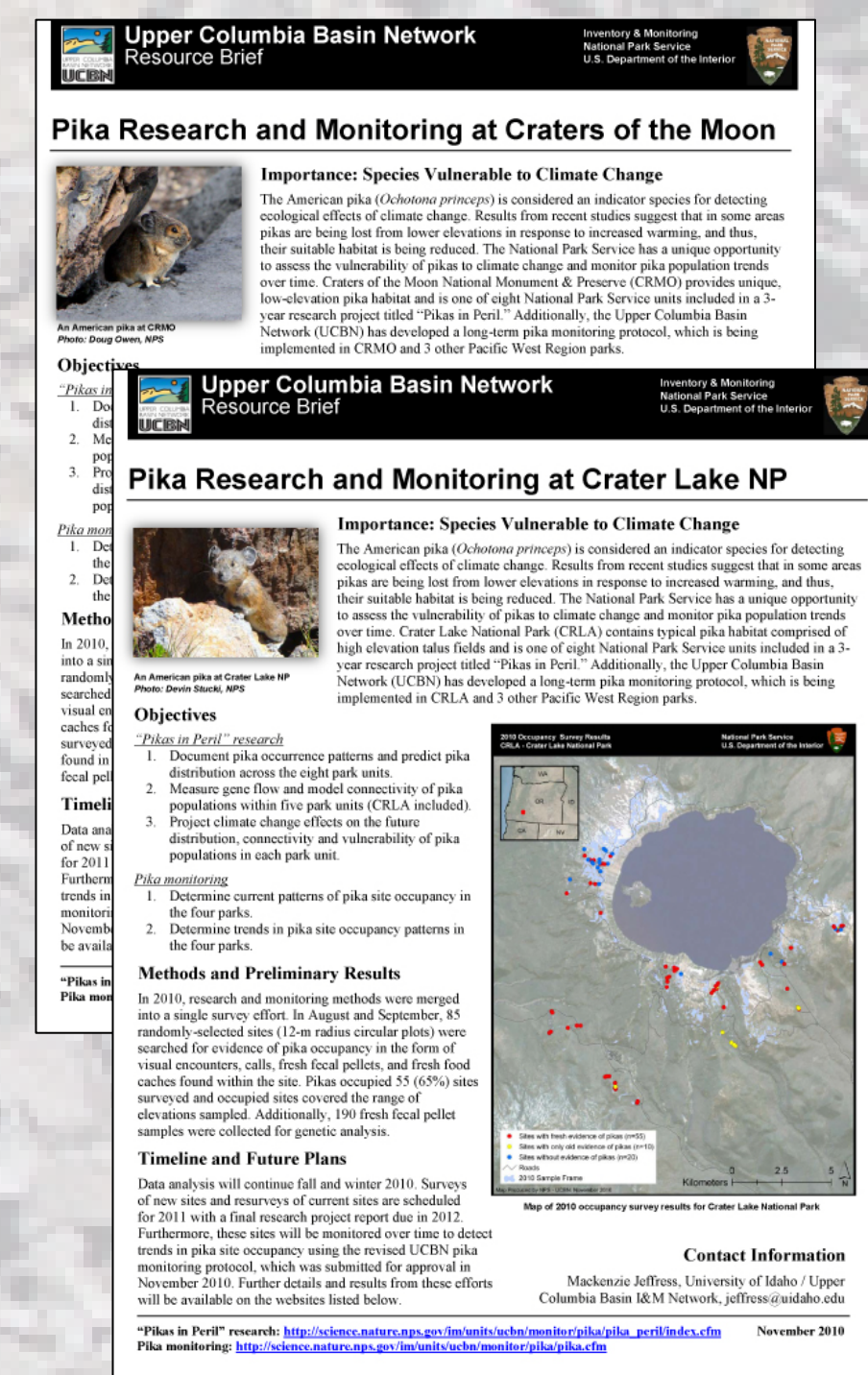
Left: Diagram of a 12 m. radius plot, which represents an average pika territory size.
Above: A technician searching for pika sign in a boulder field.

- Research technicians record pika observations and site habitat variables (e.g., % vegetation cover), and also collect fresh scat for genetic samples.
- This procedure is done for every sampling location. The goal is to conduct 80-100 surveys/park/year.

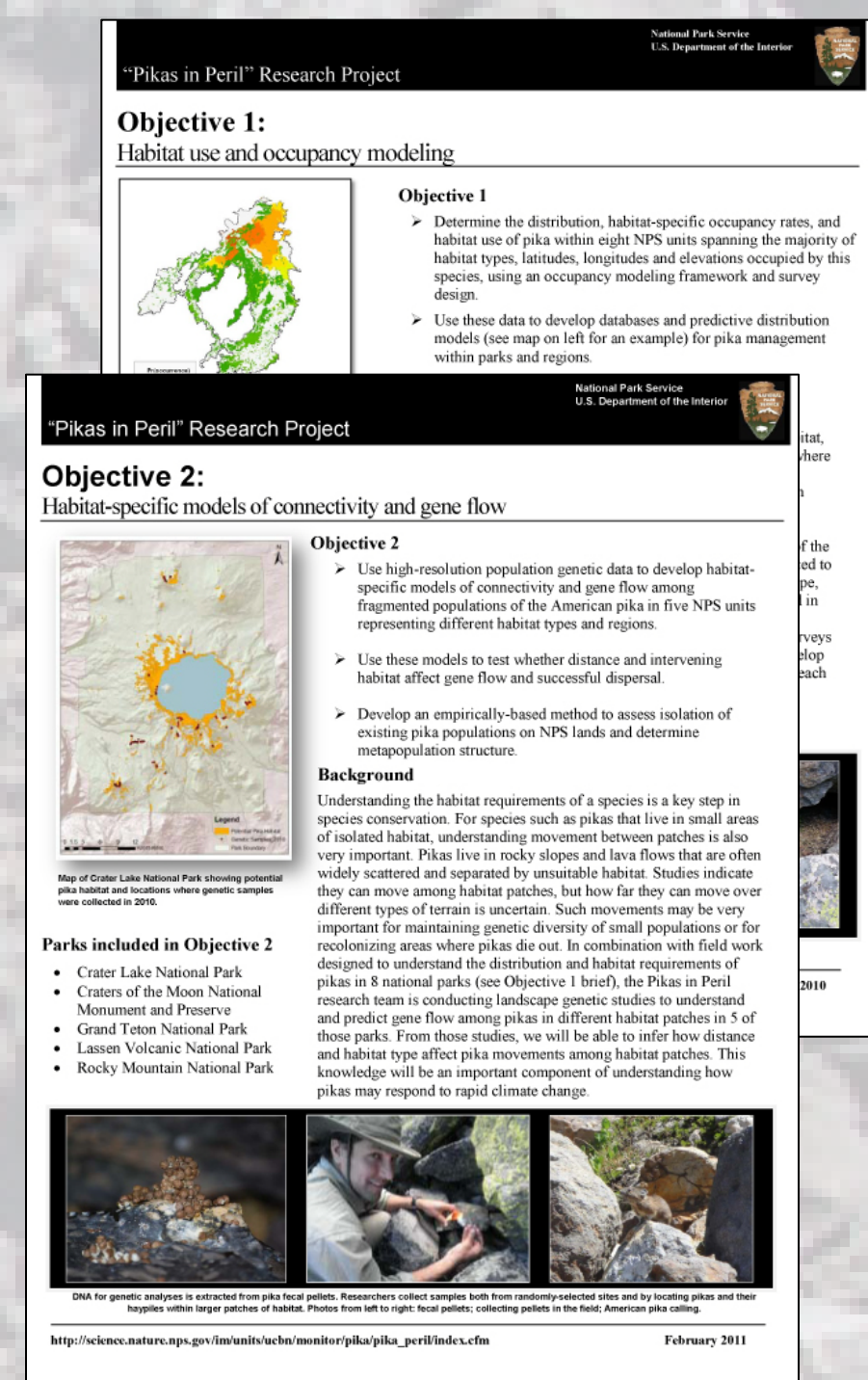
Interpretive Component

Scientists alongside interpretive staff from the eight participating parks are working together to develop informational material to communicate this project’s findings.

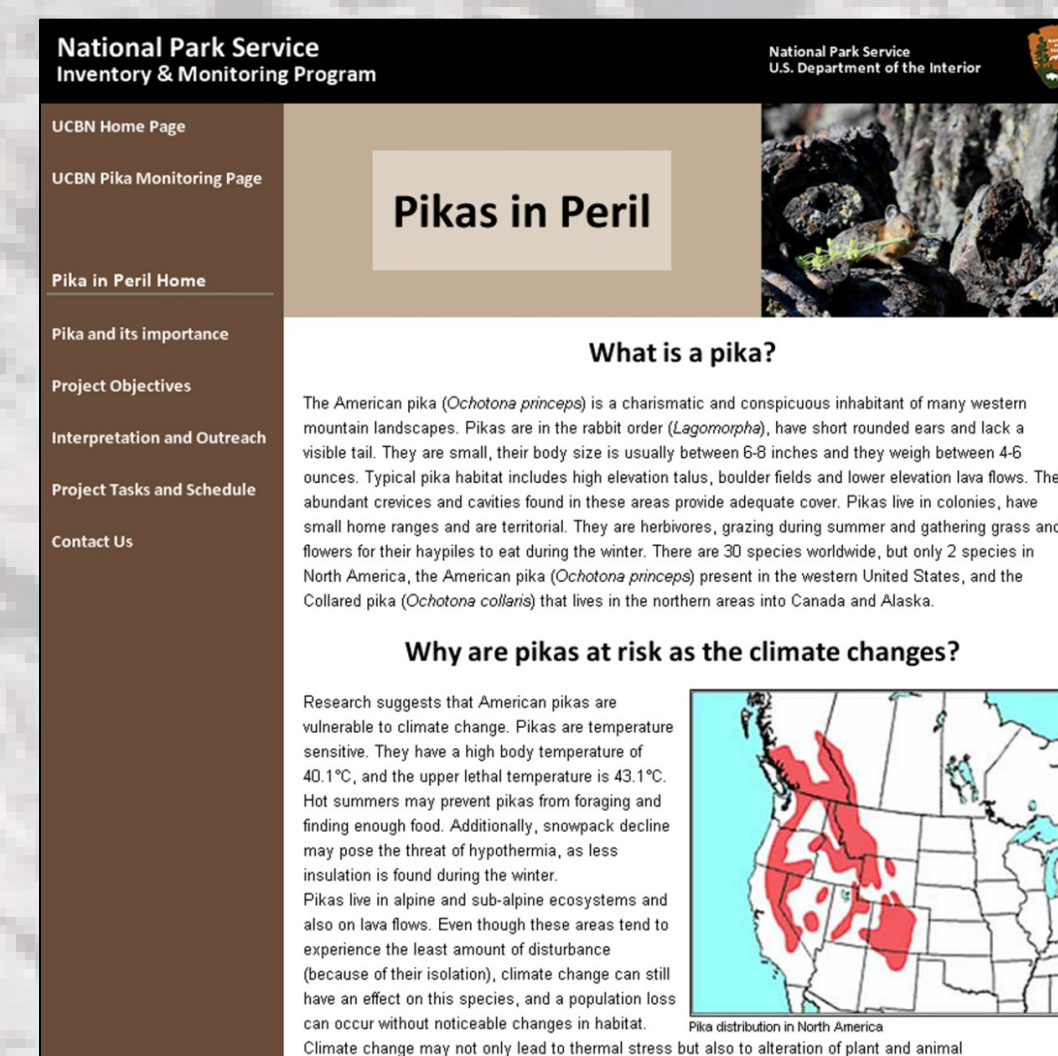
An interpretive representative from each park has been identified and they serve on a committee to review interpretive deliverables. In addition, they participate in regular conference calls to help keep parks informed on the progress of this research. This multi-disciplinary group has developed a variety of products such as handouts, resource briefs, a website, a video, and a presentation that park rangers can use, in order to reach target audiences.



Examples Park-specific resource briefs



Project's objectives resource briefs



Example webpage from the “Pikas-in-Peril” website

All these communication products are intended to broader communicate the efforts and results of the “Pikas-in-Peril” project. Additionally, these strategies aim to assist park interpretive rangers in the development of interpretive programs at each of the participating National Park Service Units. Communicating the results of this research significantly enhances park efforts to create a connection with the public about climate change and its effects on natural resources.

For more information and to access all communication products, please visit the “Pikas-in-Peril” website:

http://science.nature.nps.gov/im/units/ucbn/monitor/pika/pika_peril

*Jeffress, M. R., J. Apel, L. K. Garrett, G. Holm, D. Larson, N. Nordensten, and T. J. Rodhouse. 2011. Monitoring the American pika (*Ochotona princeps*) in the Pacific West Region - Crater Lake National Park, Craters of the Moon National Monument and Preserve, Lassen Volcanic National Park, and Lava Beds National Monument: Narrative Version 1.0. Natural Resource Report NPS/UCBN/NRR—2011/336. National Park Service, Fort Collins, Colorado.