Mail Tribune

July 15, 2011

Pikas in Peril

Crater Lake scientists are studying the effects of climate change on American pikas

By Daniel Newberry
Mail Tribune

American pikas are being studied at Crater Lake National Park and seven other high-altitude sites as part of a climate-change study.Photo by Philippe Henry / National Park Service

A small critter that looks like a hamster and is genetically related to a rabbit is at the center of a large climate-change study at Crater Lake and seven other national parks and national monuments.

The American pika (Ochotona princeps) has a high body temperature, so the animals are sensitive to increases in summer temperatures. In winter, they need a deep snowpack to insulate them from the cold. They live in high altitudes and make their nests in the crevices of rock-strewn talus slopes. Crater Lake is the perfect habitat.

If the world's temperature continues to rise, these high-elevation habitat "islands" will shrink, because the pika has nowhere to escape but up the slope to cooler climes. Many lower-elevation populations of pikas have gone extinct in the 20th century, according to research compiled by the National Park Service.

"The Park Service has had a climate-change initiative, a lot of research to detect those impacts in the parks," says Greg Holm, terrestrial ecologist for Crater Lake National Park. "So we chose pikas as a good indicator species."

Holm leads a team that is poised to begin its second year of monitoring populations of the American pika at the park. The study, Pikas in Peril, is underway at eight National Park Service units.

The first year results show that Crater Lake is a real hotbed of pikas.

"It turns out we (Crater Lake) have one of the higher prevalences of detecting them, compared with many of the other parks," Holm explains. "Sixty-four percent of the time you visit a plot, you're going to find pikas."

To understand why this number is significant, it's important to know that availability and use of habitat is the key concept of this study. So when you record the presence or absence of the pika at a series of specific sites over many years, you get an idea of the population trend. Instead of trying to estimate the

absolute number of pikas, you learn whether their numbers are increasing or decreasing.
Determining the presence of a pika takes detective work.

"We look for the pika themselves and listen for their scream and look for evidence," says Jeff Murphy, a biological technician who has been conducting survey work. "The main two forms of evidence are scat and hay piles."

Hay piles are one of the more unique and endearing traits of this cute, fluffy critter. The pika survives the long winter by stuffing piles of grass — its favorite food — in deep crevices in the talus slopes. During the summer, it gnaws the grass to a specific length and dries it on a rock in the sun.

"Our monitoring plots are 12-meter circles," Murphy explains. "That's the size of their active territory, perhaps double that for foraging."

If they venture further, pika are likely to become lunch for a coyote, weasel, owl or red-tailed hawk. They also don't want to leave their nest unguarded.

"If they go too far from the hay pile, another pika will steal their food," says Murphy. "They really are little thieves."

In addition to recording whether a site is occupied, DNA testing of fresh pika scat is performed to track the movement of individuals.

About the time the Park Service began its plan for pika research, the environmental group Center for Biological Diversity petitioned the federal government to list the pika as endangered under the Endangered Species Act.

"When they were proposed for listing, that kind of elevated everything," Holm recalls. "People said, 'If they are going to be listed, let's try to get ahead of the curve.' "

And though the U.S. Fish & Wildlife Service last year determined that the pika is not threatened or endangered, this long-term Park Service study will help scientists draw inferences about the likely impacts on other elevation-dependent species.

If the habitat use declines, park managers may attempt to minimize human-pika interactions by blocking access to known sites.

"A lot of the sites are accessible to visitors," Holm explains. "They are aggregated around roads and trails near talus slopes."

The official study will end in 2012 after three years of data collection. Long-term monitoring, however, is the ultimate goal. With federal budgets on the decline, the Park Service plans to engage citizen-scientists in this monitoring effort to reduce costs.

"We have 100 plots for long-term monitoring," says Holm. "This will be another project for our Science & Learning Center."

The citizen-science effort is also planned for the other Park Service locations in this study, including Lava Beds National Monument, Craters of the Moon National Monument, Lassen Volcanic National Park, Great Sand Dunes National Park, Grand Teton National Park, Rocky Mountain National Park and Yellowstone National Park.