Temperature changes challenge Tahoe’s wildlife

By Jim Sloan

The pika is a small, furry mammal that lives in the harshest of places – in mountainous rocky areas where the snow is deep, the air is cold, and conditions are unforgiving.

The small-eared member of the rabbit family doesn’t even hibernate, choosing instead to burrow into hay piles it builds beneath the deep snow and using its high metabolism and thick fur to survive.

But now the American pika is disappearing from vast stretches of the backcountry because of a new enemy: climate change.

A 6-inch mammal that can survive for months beneath massive snowpacks is disappearing in the face of increasingly hot summertime temperatures.

In a study published earlier this year in the journal PLOS One, researchers found that the pika has vanished from the rugged backcountry around Mount Pluto bounded by Lake Tahoe, Highway 89, and Highway 267.

It is the largest area of pika extinction reported in the modern era. Researchers said the extent of the die-off echoed “large-scale range collapses” that occurred after the last Ice Age.

From 2011 to 2016, lead researcher Joseph Stewart, a conservation biologist at UC Santa Cruz, scoured that triangle of land looking for pikas. He found plenty of old pika scat and used carbon dating to show how long the animal had occupied the area, but all signs of living pikas had disappeared.

“We knew that historically they occupied habitat all through that area,” Stewart said. “But the living animals were no longer there.”

Stewart says the pikas died out first in the lower elevations and then in the higher reaches of the 165-square-kilometer area because of increasingly hot summer temperatures. Pikas are sensitive to the heat; they can only survive for an hour in temperatures that are above 75 degrees. When the daytime temperatures are too high, pikas can’t get out and forage or die trying.

Although some pikas survive in other parts of the Sierra, Stewart predicts that their numbers will decline by 97 percent by 2050. Other studies have shown that the pika has disappeared from the Black Rock Range in Nevada and from Zion National Park.

And the American pika is not the only victim of climate change. Stewart noted that Belding’s ground squirrel and the alpine chipmunk are also suffering in the heat. The pika has disappeared from 15 percent of its historical habitat, but the Belding’s ground squirrel – which lives above 6,500 feet elevation between Lake Tahoe and Kings Canyon – is gone from 42 percent of its historic stomping grounds.

More troubling, Stewart says, is that many more species may be disappearing but wildlife managers are having trouble documenting the decline due to a lack of funds for monitoring.

“For these species that are vulnerable, we need baseline data on where they are now,” he said. “It’s totally feasible to develop that knowledge. We just need to put money toward the effort.”

The news of Stewart’s findings about the pika triggered a wave of media reports. *Discover* magazine, the *New York Times*, and many local and regional newspapers reported his findings. Stewart was surprised – this was his third paper on the topic

– but hopes the public interest will convince people to help reverse global warming.

“It’s one thing to hear about polar bears suffering because of climate change, but when you hear about an animal that is much closer to you and that you have seen on hikes or trips into the mountains, it tends to resonate more,” he said.

Stewart notes other studies that show climate-related local extinctions have already occurred in hundreds of species around the world. A recent study that surveyed 976 species from tropical to marine habitats found that nearly half have suffered local extinctions.

Stewart says one hope for slowing the loss of species is to use targeted gene flow, in which animals from warm-adapted populations of a species are translocated to populations that don’t yet possess these genetic adaptations to withstand warmer climate conditions.

“But a far simpler and more economical solution than trying to save each species individually is to rein in and reverse climate change,” he said.

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