SUMMIT COUNTY CITIZEN VOICE

Biodiversity: Frogs, toads and salamanders vanishing fast

New study tracks alarming rate of population decline, spurs call for immediate conservation action

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FRISCO — The sudden decline of boreal toad populations in Colorado during the past couple of decades took state researchers by surprise, but it turns out that it's just the tip of the iceberg.

Globally, the loss of amphibian specieshas sent shock waves rippling through aquatic ecosystems and there's no sign the decline is slowing down, according to U.S. Geological Survey scientists, who recently set out to measure amphibian losses in the United States.

They found that even species of amphibians presumed to be relatively stable and widespread are declining. And these declines are occurring in amphibian populations everywhere, from the swamps in Louisiana and Florida to the high mountains of the Sierras and the Rockies and extending even into protected areas.

At the current rate of decline, amphibians could disappear from half their existing habitats in the next 20 years. In all, scientists analyzed nine years of data from 34 sites spanning 48 species. The analysis did not evaluate causes of declines.

"This is the culmination of an incredible sampling effort and cutting-edge analysis pioneered by the USGS, but it is very bad news for amphibians," said Brian Gratwicke, amphibian conservation biologist with the Smithsonian Conservation Biology Institute. "Now, more than ever, we need to confront amphibian declines in the U.S. and take actions to conserve our incredible frog and salamander biodiversity."

"This new study confirms that our country's amphibians are facing an extinction crisis that demands aggressive action to tackle threats like habitat destruction and climate change," said Collette Adkins Giese, a Center for Biological Diversity biologist and attorney focusing on protection of amphibians and reptiles. "Scientists have known for a long time that frogs, toads and salamanders are in big trouble, but the declines this study documents are surprising and disturbing."

"Amphibians have been a constant presence in our planet's ponds, streams, lakes and rivers for 350 million years or so, surviving countless changes that caused many other groups of animals to go extinct," said USGS director Suzette Kimball. "This is why the findings of this study are so noteworthy. They demonstrate that the pressures amphibians now face exceed the ability of many of these survivors to cope."

Some amphibians have succumbed to a widespread fungus, and continued habitat loss is another big factor in the decline. But in other cases, the cause is not completely clear, which is all the more worrisome to biologists. Since most amphibians have skin that easily absorbs whatever is in the environment around them, they are considered indicators of

ecosystem health. Their decline may be a sign of sick ecosystems, perhaps with trace amounts of unknown pollutants.

In Colorado, boreal toads have been emblematic of amphibian decline. Ponds that were once filled with the croaking toads have fallen silent, but some populations have held on in the face of the deadly chytrid fungus, said Colorado Parks and Wildlife biologist Harry Crockett.

"On the whole, we're finding it hasn't ravaged through the whole state like we thought it might 10 years, but there have been severe impacts on localized populations," Crockett said.

The more threatened species, considered "Red-Listed" in an assessment by the global organization International Union for Conservation of Nature, disappeared from their studied habitats at a rate of 11.6 percent each year. If the rate observed is representative and remains unchanged, these Red-Listed species would disappear from half of the habitats they currently occupy in about six years.

"Even though these declines seem small on the surface, they are not," said USGS ecologist Michael Adams, the lead author of the study. "Small numbers build up to dramatic declines with time. We knew there was a big problem with amphibians, but these numbers are both surprising and of significant concern."

For nine years, researchers looked at the rate of change in the number of ponds, lakes and other habitat features that amphibians occupied. In lay terms, this means that scientists documented how fast clusters of amphibians are disappearing across the landscape.

The research was done under the auspices of the USGS Amphibian Research and Monitoring Initiative, which studies amphibian trends and causes of decline. This unique program, known as ARMI, conducts research to address local information needs in a way that can be compared across studies to provide analyses of regional and national trends.

The study offered other surprising insights. For example, declines occurred even in lands managed for conservation of natural resources, such as national parks and national wildlife refuges.

"The declines of amphibians in these protected areas are particularly worrisome because they suggest that some stressors – such as diseases, contaminants and drought – transcend landscapes," Adams said. "The fact that amphibian declines are occurring in our most protected areas adds weight to the hypothesis that this is a global phenomenon with implications for managers of all kinds of landscapes, even protected ones."

Amphibians seem to be experiencing the worst declines documented among vertebrates, but all major groups of animals associated with freshwater are having problems, according to Adams. While habitat loss is a factor in some areas, other research suggests that things like disease, invasive species, contaminants and perhaps other unknown factors are related to declines in protected areas.

"This study," said Adams, "gives us a point of reference that will enable us to track what's happening in a way that wasn't possible before."

"Threats like habitat loss, disease and climate change are pushing many frogs, toads and salamanders to the brink of extinction. That's why we're working hard to get the rarest amphibians protected under the Endangered Species Act," said Adkins Giese. "The Endangered Species Act has a track record of saving 99 percent of animals under its care. It's the best tool we have to help reverse this accelerating loss of amphibians."

The CBD is working to gain Endangered Species Act protection for dozens of imperiled amphibians in the U.S. In 2011 the conservation group filed the largest-ever Endangered Species Act petition focused solely on protecting U.S. amphibians and reptiles. Also in 2011 the Center and its allies filed a petition to protect the boreal toad, one of the species analyzed in this week's study. In response to that petition, the U.S. Fish and Wildlife Service initiated a full status review for boreal toads in the southern Rocky Mountains, Utah, southern Idaho and northeastern Nevada.