

Biologists find the Arizona black rattlesnake on 'extinction trajectory'

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Michael Douglas (left) and Marlis Douglas hold a rattlesnake skin in their lab at the University of Arkansas.

A combination of drought and fire has put the Arizona black rattlesnake on an "extinction trajectory," according to University of Arkansas researchers.

The research team, led by U of A biologists Marlis Douglas and Michael Douglas, published its findings in the journal *Royal Society Open Science*.

The researchers recommend that the rattlesnake be designated as "threatened" under the federal Endangered Species Act. This would allow the U.S. Fish and Wildlife Service to develop regulatory protections adjusted to the needs of the species.

The Arizona black rattlesnake is found at higher elevations in Arizona and western New Mexico. The researchers collected DNA from 118 specimens of the rattlesnake and analyzed its genetic structure. They found both a shrinking population and a reduction in its movement across an already limited range.

"Wildfire, which is occurring more frequently due to drought in western North America, has greatly reduced the forest habitat within which this snake lives," said Michael Douglas, professor of biological sciences and Twenty-First Century Chair in Global Change Biology.

The forested area of the Colorado Plateau has shrunk by 27 percent in the last 13 years. The researchers recommend that the plateau should be promoted as an example of ecosystem vulnerability.

"The [rattlesnake](#) is an apex predator so if it isn't doing well it is often an indication that other levels of the ecosystem are not doing well either," said Marlis Douglas, associate professor of [biological sciences](#) and Bruker Chair of Life Sciences.

More information: M. R. Douglas et al. Anthropogenic impacts drive niche and conservation metrics of a cryptic rattlesnake on the Colorado Plateau of western North America, *Royal Society Open Science* (2016). [DOI: 10.1098/rsos.160047](#)

Provided by University of Arkansas

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