Shade will be a precious resource to lizards in a warming world

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Climate change might send lizards, such as this, scrambling for shade. Credit: Jennifer Sunday, UBC

Climate change may even test lizards' famous ability to tolerate and escape the heat—making habitat protection increasingly vital—according to a new study by UBC and international biodiversity experts.

The study, published today in the *Proceedings of the National Academy of Sciences*, looks at the heat and cold tolerance of 296 species of reptiles, insects and amphibians, known as ectotherms. The researchers discovered that regardless of latitude or elevation, cold-blooded animals across the world have similar heat tolerance limits. However, species in the tropics rely more on behaviour to survive, burrowing or finding shade to shield themselves from the sun.

"By comparing temperature tolerance limits to estimated body temperatures of animals exposed to the sun, we've found that species at low latitudes rely on shade and habitat," says UBC climate-change ecologist Jennifer Sunday, lead author on the paper. "Very few species have any extra heat tolerance."

As the world warms, most ectotherms will rely increasingly on behavioral thermoregulation, making it vital to protect migration corridors and habitats that provide shade, especially in the tropics.

"We know that a lot of organisms could exist if they spent many hours in a burrow, but we also know that they can't spend all their time hiding from the sun," says Sunday. "We will have to determine their limitations."

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Sunday recommends future research focus on the availability of shade habitat and the energetic consequences of the behavioral changes that climate change may cause in the species.

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More information: "Thermal safety margins and the necessity of thermoregulatory behavior across latitude and elevation," by Jennifer M. Sunday et al. www.pnas.org/cgi/doi/10.1073/pnas.1316145111

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https://phys.org/news/2014-03-precious-resource-lizards-world.html