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Recent responses to climate change reveal the drivers of species extinction and survival.

Román-Palacios C, Wiens JJ

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Very Good

26 Feb 2020



Adam Siepielski

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What aspects of climate are consistently linked to species extinctions? Considerable work has uncovered in detail why some plant and animal populations have gone extinct and others are predicted to go extinct in response to changes in climate. However, a general understanding of these climate-drivers of extinction has yet to be developed. Here, Roman-Palacios and Wiens combined climate and population data on surveys of more than 500 plant and animal species to examine why a large fraction of them (44%) have already gone locally extinct, as well as predict extinctions in the future. Locations where extinction events have already occurred had rapid and large magnitude changes in temperature, whereas local extinctions were much less associated with changes in annual mean temperature. Climatic extremes may thus be a key factor underlying local extinctions. In combination with estimates of dispersal rates, their models predict that most species cannot disperse fast enough to avoid extinction. However, incorporating the potential for niche shifts drastically reduces predicted extinctions. Whether or not such niche shifts occur may thus be key for species survival in a climate becoming more prone to extreme changes.

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