

If climate negotiators fail to slow warming, animal extinctions will accelerate -- studies

Manon Verchot, Environment & Energy Publishing, 5-1-15

Animals that live in small geographic ranges are most at risk of extinction in the face of climate change, according to two independent studies published today.

Looking at the fossil record over the last 23 million years, researchers from the Smithsonian Tropical Research Institute; the University of California, Berkeley; and other international institutions found that the past can provide hints about which animal species are most at risk of extinction.

"We believe the past can inform the way we plan our conservation efforts," said Seth Finnegan, an assistant professor of integrative biology at UC Berkeley, in a press release. "Climate change and human activities are impacting groups of animals that have a long history, and studying that history can help us condition our expectations for how they might respond today."

Finnegan and his team found that, based on the fossil record, aquatic mammals like whales, dolphins and seals, and other marine animals like sharks and corals have a much higher natural risk of going extinct than mussels and clams. Because natural extinction risks are already high for many sea creatures, factors like climate change are likely to exacerbate the risk.

The researchers also mapped regions of the world where levels of natural extinction rates are high. The tropical West Atlantic and tropical West Pacific are particularly vulnerable to future extinctions -- a vulnerability that will be exacerbated by climate change and habitat destruction from human activity. These regions are expected to experience faster rates of global warming than other parts of the world.

Worldwide, a total of 7.9 percent of species are at risk of extinction from climate-related factors, according to a separate study conducted by Mark Urban, from the University of Connecticut.

The percentage risk is affected by levels of warming, he found. If the world does not warm beyond the international target of 2 degrees Celsius above preindustrial levels, 5.2 percent of species will be at risk of extinction. But if the world continues to increase greenhouse gas emissions and keeps on a business-as-usual trajectory, as many as 1 in 6 animals could go extinct.

South America and Australia face biggest losses

Amphibians and reptiles face greater extinction risks than other taxonomic groups.

Urban's findings were based on a review of 131 published predictions of the effects climate change has on animal extinctions. His analysis suggests that the risk of extinction accelerates the hotter the world becomes. The cascading effects could have dire consequences for people.

"Biodiversity is the foundation for much of our economy, food security and health," said Urban, adding that if 1 out of every 6 animals goes extinct, the chance that extinctions will have profound effects on ecosystems humans depend on is high.

Like the findings from the study of the fossil record, Urban found that tropical regions of the world have higher extinction risk rates than other parts of the world. The highest risks of extinction were in South

America, Australia and New Zealand, which Urban says could be related to the geographic range of species in these parts of the world.

In South America, for example, many species live in the high mountains. Rising temperatures could make high mountain habitats unsuitable for these creatures, with no alternative ranges opening up for them to survive. Similar challenges could threaten species in Australia and New Zealand, where there are smaller landmasses suitable for animals and habitat shifts are limited, added Urban.

North America and Europe face lower levels of extinction risk than other parts of the world.

However, the study did not account for the number of species that will be adversely affected by climate change. Just because species are not necessarily expected to become extinct doesn't mean they won't suffer from habitat loss and other similar challenges, said Urban.

"We urgently need to adopt strategies that limit further climate change if we are to avoid an acceleration of global extinctions," he wrote in his study.