

# A changing climate for protected areas

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On April 6, the Intergovernmental Panel on Climate Change (IPCC) will release a report entitled *Climate Change 2007: Impacts, Adaptation, and Vulnerability* that focuses on how climate change is affecting the planet.

One finding is an accelerated rate of species extinctions, with estimates of up to 1 million species at risk in coming decades. However, new research shows that protected areas can be an effective tool for preventing such extinctions.

The study by a team of international scientists published March 30 in the journal *Frontiers in Environment and Ecology* (FREE) concludes that protected areas are necessary for preventing the loss of species due to climate change – provided that shifts in species' ranges are factored into early analysis of whether to expand current protected areas or create new ones. It is the first research on the relevancy of protected areas – a mainstay of conservation efforts – in adapting to climate change.

“Extinctions due to climate change are not inevitable – this research shows that new protected areas can greatly reduce the risk faced by species that help sustain us,” said Lee Hannah, a Conservation International (CI) climate scientist and the study's lead author. “Areas set aside for nature are an important tool to combat climate change extinctions, and one that is well-tested and can be deployed immediately.”

The study by scientists from the United States, South Africa, United Kingdom, Spain and Mexico found that existing protected areas cover

the ranges of many species as climate changes, but additional area is required to cover all species. Creating new protected areas based on climate change would cover the ranges of most species.

As the climate changes, species adapt by moving beyond their traditional ranges, potentially traveling out of current protected areas such as national parks. The study found that existing protected areas remain effective in the early stages of climate change, while adding new protected areas or expanding current ones would maintain species protection in future decades and centuries. It also shows that anticipating the need for new protected areas and getting them created in the short term will be less expensive than waiting until the impacts of climate change become more significant.

The new study measures the continued effectiveness of protected areas as the global climate changes, unlike previous studies that modeled species range shifts without considering new protected areas or focused on existing impacts of climate change without considering the long-term future.

“Existing conservation plans have assumed that species distributions change relatively slowly, unless they are directly affected by human activities,” said Miguel Araújo, a co-author of the study. “However, our study shows that these strategies must anticipate the impacts of climate change if extinctions are to be reduced.”

The study’s authors also warned that protected areas would fail in the long run unless climate change is stopped.

“Stopping climate change and dealing with the impacts that are now inevitable must go hand-in-hand,” Hannah said. “No conservation strategy can cope with the levels of change that will be experienced if we continue at the current pace of climate change.”

Three regions used as models for the study were Mexico (birds and mammals), and Western Europe and the Cape Floristic Region of Africa (plants). Species distribution models were used for a total of 1,695 species in the three regions. Because the three highly varied regions represent many of the world's ecosystems, it is likely that new protected areas must be created in most parts of the world.

Source: Conservation International

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