

Species 'pushed out of the tropics' by climate change

August 24 2020



The painted stork (*Mycteria leucocephala*) is a large wader in the stork family, found in the wetlands of the plains of tropical Asia. Credit: Saketh Upadhya

The world's tropical regions are home to the widest range of plants and animals, but research from The University of Queensland reveals that

climate change is pushing species away, and fast.

UQ ARC Future Fellow Dr. Tatsuya Amano led an international team that reviewed more than 1.3 million records of waterbird species, and found temperature increase is drastically affecting species abundance in the tropics.

Dr. Amano said the findings showed climate change continued to post a serious threat to biodiversity.

"There's an urgent need to understand how species respond to changing climates on a global scale," Dr. Amano said.

"Earlier global reviews have rarely included species and studies in the tropics—being largely conducted in Europe, North America, Australia and the Arctic.

"As a result, although [tropical species](#) have long been predicted to be more vulnerable to increasing temperature, there was little empirical evidence on how climate change really affects species abundance in the tropics."

The team reviewed records collected by volunteer counters from the International Waterbird Census and Christmas Bird Count since 1990 and found that 69 percent of the tropical species show, on average, [negative responses](#) to [temperature increases](#).



The lesser flamingo (*Phoeniconaias minor*) is a species of flamingo occurring in sub-Saharan Africa, with another population in India. Credit: Sergey Dereliev

"The global dataset of waterbird abundance is the fruit of invaluable, long-term survey efforts in over 100 countries and covers regions for which there is little information on climate change impacts," Dr. Amano said.

"Waterbirds can be observed relatively easily, offering an early proxy for climate change impacts on other species.

"They help us assess the status of biodiversity in wetland ecosystems, which has been lost at higher rates than other ecosystems."

Dr. Amano said he hoped this evidence would help strengthen the case for real action on a warming climate.

"Large species shifts and loss can have serious consequences not only for biodiversity, but also for human well-being," he said.

"Our findings are a step forward, but it would be great to see this area receive more research attention, especially in the tropics.

"Further studies could provide crucial evidence for a more effective allocation of limited resources for the conservation of species and ecosystems most threatened by [climate change](#), and for assessing how these changes in biodiversity may affect [human societies](#)."

The research has been published in *Nature Climate Change*.

More information: Responses of global waterbird populations to climate change vary with latitude, *Nature Climate Change* (2020). [DOI: 10.1038/s41558-020-0872-3](https://doi.org/10.1038/s41558-020-0872-3) , www.nature.com/articles/s41558-020-0872-3

Provided by University of Queensland

Citation: Species 'pushed out of the tropics' by climate change (2020, August 24) retrieved 10 May 2024 from <https://phys.org/news/2020-08-species-tropics-climate.html>

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