

# Biodiversity safeguards bird communities under changing climate, shows study

January 17 2023

---



The mourning dove is a habitat generalist. Credit: Aleksii Lehtikainen

Climate change has undisputable global effects on ecosystems and ecological community compositions, but why certain communities are better able to resist the effects of climate change than others remains unclear. In a recent scientific study covering nearly all North American

bird species, researchers studied community composition changes and community diversity over half a century. Consistently, bird communities with higher species richness and a larger variety of functional properties changed less radically in their community composition following climate change.

"For example, if a community contained birds of prey, insectivores, and seed-eaters rather than birds from just one feeding guild, it was better safeguarded against the negative impacts of climate change," says Ph.D. Emma-Liina Marjakangas, the leading researcher of the study from University of Helsinki.

Community-level diversity works as a buffer against negative [climate change](#) impacts, especially during winter, i.e., the season that has shown strongest climatic warming across the Northern Hemisphere. On the other hand, biodiversity played a smaller role during the breeding season. Indeed, earlier studies have shown that [bird communities](#) change faster during winter than summer, which explains this pattern.

"Habitat and available food determine a species' flexibility for changing its breeding and wintering areas. For example, grassland species have shifted their distributions northwards slower than forest passerines, such as the American robin, or habitat generalists, such as the mourning dove," explains Senior curator Aleksi Lehikoinen from the University of Helsinki.

Functionally diverse bird communities help maintain ecosystems via plant seed dispersal, pest insect control and even pollination of flowering plants. Climate change reshuffles the composition of these important bird [communities](#) and therefore threatens their ability to provide [ecosystem services](#).

"Our results strengthen the understanding that biodiversity safeguards

ecosystem functioning and that the biodiversity and climate crises need to be mitigated simultaneously to avoid multiplicative effects," Marjakangas say.

The study is based on a community science database from 1966 to 2016 covering all of North America, and it was published in the journal *Scientific Reports*.

**More information:** Emma-Liina Marjakangas et al, Effects of diversity on thermal niche variation in bird communities under climate change, *Scientific Reports* (2022). [DOI: 10.1038/s41598-022-26248-1](https://doi.org/10.1038/s41598-022-26248-1)

Provided by University of Helsinki

Citation: Biodiversity safeguards bird communities under changing climate, shows study (2023, January 17) retrieved 27 April 2024 from <https://phys.org/news/2023-01-biodiversity-safeguards-bird-communities-climate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.