

Higher levels of biodiversity appear to reduce extinction risk in birds

February 25 2022, by Nayiri Mullinix



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A new University of Michigan study has found that higher levels of biodiversity—the enormous variety of life on Earth and the species, traits and evolutionary history they represent—appear to reduce

extinction risk in birds.

Prior research has established that biodiversity is associated with predictable outcomes in the short term: diverse systems are less prone to invasion, have more stable productivity, and can be more disease resistant.

The new study, published online Feb. 24 in *Ecology Letters* and led by [evolutionary biologist](#) and ornithologist Brian Weeks of the U-M School for Environment and Sustainability, has revealed yet another positive outcome in potentially reduced [extinction](#) rates.

The study utilized a new dataset collected by researchers using natural history museum specimens that covers more than 99% of all [species](#) of birds in the world. While the practice of using natural history museum specimens is common, this is the first time that there has been a comprehensive dataset of the functional traits of all birds.

The researchers used the data to measure the diversity of birds around the world, including the species found in a community, their [evolutionary relationships](#) and their functional traits. They then used structural equation modeling to characterize the relationship between diversity and extinction risk.

According to the study, diversity is associated with lower levels of contemporary extinction risk in birds. The study attributes this to diverse communities providing a safe harbor for species that are at risk of extinction. Attributes of species (e.g., large body size, poor dispersal ability or small range size) can make them more likely to go extinct. However, it appears that the benefits afforded by living in a [diverse community](#) protect these extinction-prone species, allowing more of them to persist.

The findings reveal the importance of protecting diversity, according to the authors.

"While we know that biodiversity impacts the functioning of ecosystems in predictable ways, it is less clear how these biodiversity-ecosystem functioning relationships impact extinction [risk](#) across longer timescales," Weeks said. "Our findings suggest that the conservation of biodiversity is not only a goal of conservation but is also likely a necessary component to effective conservation interventions."

The researchers also concluded that the maintenance of biodiverse communities could be a more cost-effective approach to preventing extinction since single-species conservation interventions are expensive.

More information: Brian C. Weeks et al, Diversity and extinction risk are inversely related at a global scale, *Ecology Letters* (2022). [DOI: 10.1111/ele.13860](#)

Provided by University of Michigan

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