Take care when measuring biodiversity or risk misguiding policy, experts warn

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Greater care needs to be taken when measuring the success of public spending on biodiversity to avoid 'misguiding policy and spending," leading researchers have warned.

The researchers were moved to respond to analysis that introduces new data on biodiversity spending on a country-by-country basis, and which analyzes cross-country trends and correlations.

Their response, published in the journal *Nature Ecology and Evolution*, throws doubt on some surprise findings that 'run contrary to the scientific consensus on the global state of biodiversity."

The researchers stress how important it is to make sure analysis of public policy on biodiversity is 'robust and defensible," given its potential to influence the future direction of policy—and with it the use of public funds.

The original analysis looks at what humans are 'putting in' to biodiversity through spending as a proportion of national public budgets, before comparing it to what is 'coming out' in terms of greater biodiversity—using a measure of biodiversity calculated as the ratio of threatened species to total species.

Using this measure, it was found that the total number of threatened species and the total number of species were on the rise but that the total number of species was growing at a faster rate—something the researchers say is at odds with the consensus of the scientific community.

Professor Ben Groom, Dragon Chair in Biodiversity Economics at the University of Exeter Business School, says this raises questions about the suitability of the ratio, pointing out that other ways of measuring biodiversity take into account how unspoilt the natural environment is in the first place, as well as the likelihood of ecosystem collapse.

He adds that as the nature of biodiversity varies wildly between countries it is difficult to find indicators of it that are suitable to make

comparisons across countries and over time.

The analysis goes on to indicate that spending more on biodiversity is associated with a decrease in the ratio of threatened to total species, something Professor Groom finds reassuring.

However, he warns that correlation should not be mistaken for cause, saying that "with the current state of the data, we should also be cautious of statements about the influence of population growth and institutions on biodiversity which, if spurious, could misguide policy and spending away from truly effective measures."

Professor Groom, who co-authored the article with Professor Diana Weinhold from LSE, said that taken as a whole the analysis "highlights the promise of research into the human-moderated mechanisms that affect biodiversity, but also the substantial difficulties such research faces."

Professor Groom added: "These are extremely early days, and there are many opportunities for future research in identifying and documenting relevant human actions and policies, measuring the salient aspects of biodiversity at similar scales, and identifying creative research designs that exploit artificial or natural experiments to better establish the chain of causality.

"But at a time when public funds are scarce and the benefits of restoration and conservation may not be felt directly or may be delayed, it is important that the analysis of the effectiveness of public policies is robust and defensible."

"New Data on Biodiversity Spending" is published in *Nature Ecology and Evolution*.

More information: Ben Groom et al. New data on public biodiversity spending, *Nature Ecology & Evolution* (2021). DOI: 10.1038/s41559-021-01410-6

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