

Fighting deforestation alone fails tropical biodiversity

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Credit: Lancaster University

International efforts to conserve tropical forest species will fail unless they control logging, wildfires and fragmentation in the remaining forests, according to ground-breaking new research published in the world's leading scientific journal *Nature*.

The Lancaster University-led study, 'Anthropogenic disturbance in tropical forests can double [biodiversity loss](#) from deforestation', measured the overall impact of forest disturbance – which includes logging, wildfires, and forest fragmentation – on 1,538 tree species, 460 bird species and 156 dung-beetle species in the state of Pará in the Brazilian Amazon – an area six times that of the UK.

For the first time, the researchers from 18 international research institutions were able to compare the loss of species caused by human disturbances with those that result from habitat loss due to deforestation.

In a result that challenges current deforestation-focused conservation approaches, the scientists demonstrate that the unaccounted for effects of forest disturbances may drive as much biodiversity loss as deforestation itself.

Lead author, Professor Jos Barlow of Lancaster University, said: "We provide compelling evidence that rainforest conservation initiatives must address forest disturbance as well as deforestation. Without urgent action, the expansion of logging operations and the spread of wildfires fuelled by human-induced climate change mean that tropical forests are likely to become increasingly degraded, conserving only a fraction of the breath-taking diversity they once harboured."

Taken together, the combined effect of all human disturbances on biodiversity in Pará is equivalent to an additional loss of up to 139,000 km² of pristine forest – an area the size of Florida and as much as all deforestation recorded in the same region since monitoring began in 1988.

Lead project analyst, Dr Gareth Lennox of Lancaster University, pointed out: "Tropical forests are one of Earth's most precious biological treasures. By focusing on the extent of forests that remain and ignoring their health, current national and international conservation strategies are inadvertently placing that treasure in jeopardy."

Rare species are the most affected

The scientists also found that the species under the greatest threat of extinction suffered most from human disturbances.

Dr. Alexander Lees, lead ornithologist from Cornell University, said: "The state of Pará is home to over 10% of Earth's bird species, many of which are unique to the region. Our results show that it is these endemic [species](#) that are suffering most from the effects of human disturbances, because they cannot survive in disturbed forests."

Going beyond tackling deforestation

While reducing deforestation is rightly the cornerstone of most conservation strategies in tropical nations, the condition of the remaining forest is rarely measured, let alone controlled by policy initiatives.

"Immediate action is required to combat forest disturbance in tropical nations," said Silvio Ferraz from the University of São Paulo. "This is particularly important in Brazil, which holds up to 40% of the world's remaining [tropical forests](#)". Although Amazonian landowners are required to maintain up to 80% of their primary forest cover, the new research shows that landscapes that meet this target may have already lost half of their potential conservation value.

"These results should serve as a wake-up call to the global community," said Dr Toby Gardner from the Stockholm Environment Institute, another co-lead of the study. "Brazil demonstrated unprecedented leadership in curbing [deforestation](#) in the last decade. The same level of leadership is now needed to protect the health of the forests that remain in Brazil and across the tropics. Otherwise, decades of conservation effort will have been in vain."

Unfortunately, Brazil's unique biodiversity is once more imperiled by continued attempts to undermine its environmental legislation. Dr Joice Ferreira, from the Brazilian Agricultural Research Institute in the Amazon, and a co-lead of the study, highlights an alarming example. "Our senate is proposing a new law that would allow producers to use

tree plantations, such as eucalyptus monocultures, to meet their legal requirements for forest cover. Proposals such as these, that fail to consider forest condition, would further accelerate the loss of tropical biodiversity."

More information: Jos Barlow et al. Anthropogenic disturbance in tropical forests can double biodiversity loss from deforestation, *Nature* (2016). [DOI: 10.1038/nature18326](https://doi.org/10.1038/nature18326)

Provided by Lancaster University

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