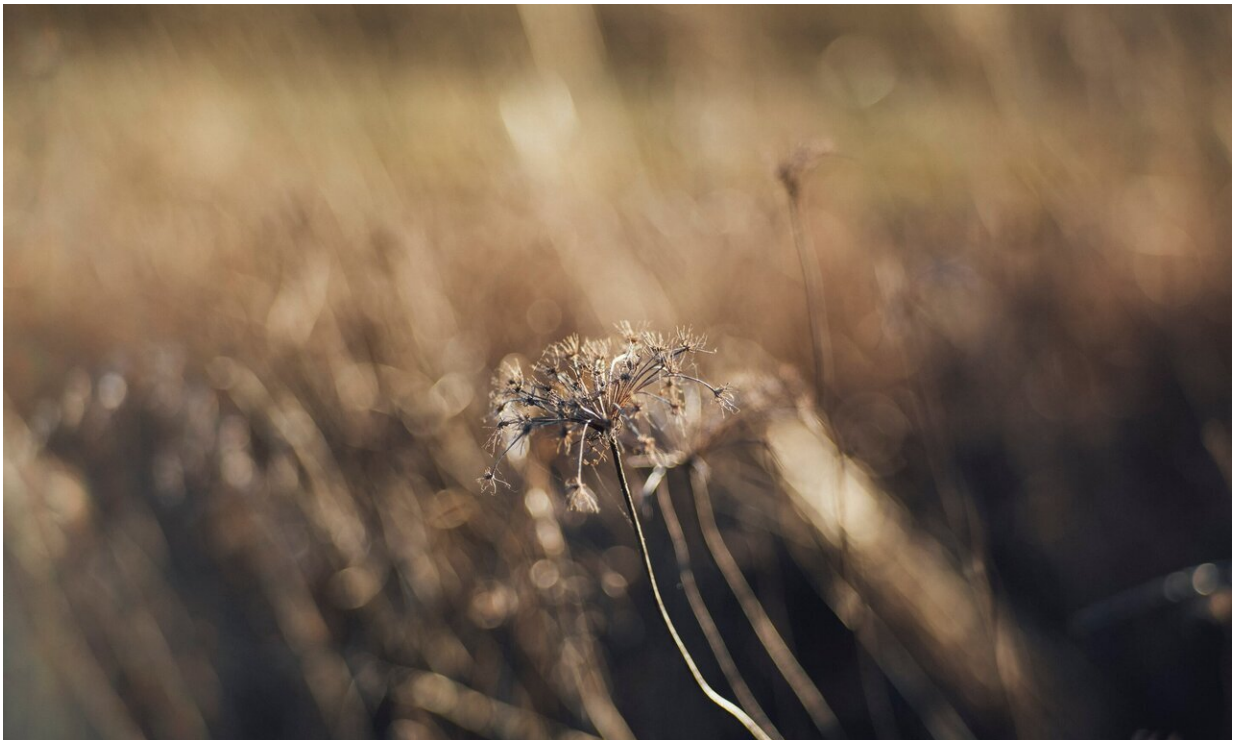


Current food production systems could mean far-reaching habitat loss

December 21 2020



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The global food system could drive rapid and widespread biodiversity loss if not changed, new research has found.

Findings published in *Nature Sustainability* shows that the global [food](#) system will need to be transformed to prevent [habitat loss](#) across the

world. It shows that what we eat and how it is produced will need to change rapidly and dramatically to prevent widespread and severe [biodiversity](#) losses.

The international research team was led by the University of Leeds and the University of Oxford.

Dr. David Williams, from Leeds' School of Earth and Environment, and the Sustainability Research Institute, is a lead author of the paper.

He said: "We estimated how [agricultural expansion](#) to feed an increasingly wealthy global population is likely to affect about 20,000 [species](#) of mammals, birds, and amphibians.

"Our research suggests that without big changes to food systems, millions of square kilometers of natural habitats could be lost by 2050.

"Nearly 1,300 species are likely to lose at least a quarter of their remaining habitat, and hundreds could lose at least half. This makes them far more likely to go extinct.

"Ultimately, we need to change what we eat and how it is produced if we're going to save wildlife on a global scale. We need to alter both our diets and food production methods."

The study estimated how food systems would affect biodiversity at a finer spatial scale than previous research (2.25 km²), making the results more relevant to conservation action by highlighting exactly which species and landscapes are likely to be threatened.

It did so by linking projections of how much agricultural land each country will need with a new model that estimates where agricultural expansion and abandonment are most likely to occur.

By looking at whether individual animal species can survive in farmland or not, the researchers could then estimate changes in habitat, finding that losses were particularly severe in sub-Saharan Africa and in parts of Central and South America.

Many of the species that are likely to be most affected are not listed as threatened with extinction, and so are unlikely to be currently targeted by conservationists.

Dr. Michael Clark, from Oxford Martin School and Nuffield Department of Population Health, University of Oxford, is also a lead author on the paper.

He said: "As international biodiversity targets are set to be updated in 2021, these results highlight the importance of proactive efforts to safeguard biodiversity by reducing demand for agricultural land.

"Discussions on slowing and reversing biodiversity often focus on conventional conservation actions, such as establishing new protected areas or species-specific legislation for threatened species. These are absolutely needed, and have been effective at conserving biodiversity.

"However, our research emphasizes the importance of also reducing the ultimate stresses to biodiversity—such as agricultural expansion.

"The good news is that if we make ambitious changes to the food system, then we can prevent almost all these habitat losses."

The study examined the potential impact of making these ambitious changes, modeling whether transitions to healthy diets, reductions in food loss and waste, increases in [crop yields](#), and international land-use planning could reduce future biodiversity losses.

This approach enables policy makers and conservationist to identify which changes are likely to have the largest benefit in their country or region.

For example, raising agricultural yields would likely bring huge benefits to biodiversity in Sub-Saharan Africa, but do very little in North America where yields are already high.

In contrast, shifting to healthier diets would have big benefits in North America, but is less likely to have a large benefit in regions where meat consumption is low and food insecurity is high.

Dr. Clark added: "Importantly, we need to do all of these things. No one approach is sufficient on its own.

"But, with global coordination and rapid action, it should be possible to provide healthy diets for the global population in 2050 without major [habitat](#) losses."

More information: Proactive conservation to prevent habitat losses to agricultural expansion, *Nature Sustainability* (2020). [DOI: 10.1038/s41893-020-00656-5](#) , www.nature.com/articles/s41893-020-00656-5

Provided by University of Leeds

Citation: Current food production systems could mean far-reaching habitat loss (2020, December 21) retrieved 27 April 2024 from <https://phys.org/news/2020-12-current-food-production-far-reaching-habitat.html>

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