

Despite high hopes, carbon absorbed by Amazon forest recovery is dwarfed by deforestation emissions

September 28 2020



Secondary forest in the Amazon Credit: Marizilda Cruppe/RAS

Regrowing forests are absorbing just a small proportion of the carbon dioxide released from widespread deforestation in the Amazon, according to new evidence.

Secondary forests—areas of new forest growing on land that has previously been deforested—form a key part of policies aiming to tackle net [carbon](#) emissions and mitigate [climate](#) change.

In 2017 there were nearly 130,000 square kilometres of secondary forest in the Brazilian Amazon—roughly equivalent to the size of England.

Despite their scale and importance for climate targets, our understanding of their contribution to the tropical carbon balance is incomplete. It was not clear to what extent carbon emissions from [deforestation](#) have been offset by secondary forest growth, or how this has varied over time.

A new study by an international team of researchers from the UK and Brazil, published by *Global Change Biology*, used open source MapBiomas data to map the age, extent and carbon stock of [secondary forests](#) across the Brazilian Amazon between 1986 and 2017.

After calculating how much carbon had been lost through deforestation, the scientists discovered that, in more than 30 years, the regrowth of secondary forests in the Brazilian Amazon has offset less than 10 percent of emissions from the loss of old-growth forests.

Charlotte Smith, a Ph.D. researcher at Lancaster University and lead author of the study, said: "Secondary forests have an incredible potential to store large quantities of carbon. However, it takes a long time for them to build this carbon stock, so without a drastic decline in the rate of deforestation their environmental benefits will continue to be undermined."

Despite a fifth of deforested land now being covered in secondary forest, the researchers found that most secondary forests are relatively young—more than 85 percent are younger than 20 years old and almost half (42 percent) are less than five years old.

This is because secondary forests are also subject to deforestation. Areas of land have been repeatedly deforested—thus limiting secondary forests' effectiveness as a carbon store. "Of all the secondary forest mapped over the 32-year period, 60 percent had been deforested again by 2017," said Charlotte.

The researchers then looked at other factors known to affect secondary forest growth and carbon up-take, such as climate, landscape and proximity to old-growth forests, which can act as a source of seeds.

They found that the majority of secondary forests are situated far from primary forests, in the drier parts of the Amazon. These factors suggest they will be relatively poor for taking-up carbon.

The findings highlight that halting deforestation, particularly of old-growth forest, is essential and that secondary [forest](#) growth alone is not sufficient to control carbon emissions in the Amazon.

Co-author, Professor Jos Barlow, said: "Although secondary forests could be an important part of the solution to climate change, it is also important not to overstate their relevance. Deforestation rates in the Brazilian Amazon surpassed 10,000 km² last year, and will almost certainly surpass that in 2020."

The researchers hope that these results will help inform policies and management proposals that can mitigate climate change more effectively. "We show that preventing further deforestation remains the most urgent priority to mitigate [climate change](#)," said Charlotte.

More information: Charlotte C. Smith et al, Secondary forests offset less than 10% of deforestation-mediated carbon emissions in the Brazilian Amazon, *Global Change Biology* (2020). [DOI: 10.1111/gcb.15352](#)

Provided by Lancaster University

Citation: Despite high hopes, carbon absorbed by Amazon forest recovery is dwarfed by deforestation emissions (2020, September 28) retrieved 5 May 2024 from <https://phys.org/news/2020-09-high-carbon-absorbed-amazon-forest.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.