

One-fifth of fossil-fuel emissions absorbed by threatened forests

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An international team of scientists have discovered that rainforest trees are getting bigger. They are storing more carbon from the atmosphere in their trunks, which has significantly reduced the rate of climate change.

Globally, tropical trees in undisturbed forest are absorbing nearly a fifth of the CO_2 released by burning fossil fuels. The researchers show that remaining tropical forests remove a massive 4.8 billion tonnes of CO_2 emissions from the atmosphere each year. This includes a previously unknown carbon sink in Africa, mopping up 1.2 billion tonnes of CO_2 each year

Published today in *Nature*, the 40 year study of African tropical forestsone third of the world's total tropical forest-shows that for at least the last few decades each hectare of intact African forest has trapped an extra 0.6 tonnes of carbon per year.

The scientists then analysed the new African data together with South American and Asian findings to assess the total sink in tropical forests. Analysis of these 250,000 tree records reveals that, on average, remaining undisturbed forests are trapping carbon, showing that they are a globally significant carbon sink.

"We are receiving a free subsidy from nature," says Dr Simon Lewis, a Royal Society research fellow at the University of Leeds, and the lead author of the paper. "Tropical forest trees are absorbing about 18% of the CO_2 added to the atmosphere each year from burning fossil fuels,



substantially buffering the rate of climate change."

The reason why the trees are getting bigger and mopping up carbon is unclear. A leading suspect is the extra CO_2 in the atmosphere itself, which may be acting like a fertiliser. However, Dr Lewis warns, "Whatever the cause, we cannot rely on this sink forever. Even if we preserve all remaining tropical forest, these trees will not continue getting bigger indefinitely."

The Intergovernmental Panel on Climate Change reports that globally human activity emits 32 billion tonnes of CO_2 each year, but only 15 billion tonnes actually stays in the atmosphere adding to climate change. The new research shows exactly where some of the 'missing' 17 billion tonnes per year is going.

"It's well known that about half of the 'missing' carbon is being dissolved in to the oceans, and that the other half is going somewhere on land in vegetation and soils, but we were not sure precisely where. According to our study about half the total carbon 'land sink' is in tropical forest trees," explains Dr Lewis.

The study is released at a time when protecting tropical forests is gaining widespread support, and is likely to be a key theme of the upcoming negotiations to limit carbon emissions in Copenhagen later this year.

Co-author on the study, Dr Lee White, Gabon's Chief Climate Change Scientist said, "To get an idea of the value of the sink, the removal of nearly 5 billion tonnes of carbon dioxide from the atmosphere by intact tropical forests, based on realistic prices for a tonne of carbon, should be valued at around £13 billion per year. This is a compelling argument for conserving tropical forests."

"Predominantly rich polluting countries should be transferring



substantial resources to countries with tropical forests to reduce deforestation rates and promote alternative development pathways," says Dr Lewis.

There are also broader implications for rainforest biodiversity, as the ecology of tropical forests changes. Further study is needed on how the interactions of the millions of species that live in the tropics are being affected by the increasing size of rainforest trees.

Source: University of Leeds

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