UC SANTA BARBARA

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Declines in deforestation aren’t driven by corporate sustainability pledges

Tropical forests are essential for biodiversity, climate regulation and carbon storage. Yet they continue to disappear at an alarming rate.

Many companies have adopted zero-deforestation commitments to halt this trend. But it’s crucial to determine how effective these commitments are.

An international team of researchers, including UC Santa Barbara’s Robert Heilmayr and Jason Jon Benedict, compared deforestation trends in Indonesia's palm oil sector between supply chains with zero-deforestation commitments (ZDC) and those without them. They found that although deforestation declined in supply chains with ZDCs, the decline was no greater than in those without them, suggesting that these initiatives have had little additional effect.

“This implies that these companies aren't unique,” said Heilmayr, an associate professor at UCSB’s Bren School of Environmental Science & Management. “Deforestation has dropped dramatically across both companies with and without ZDCs.” So, while these efforts may help protect forests from future pressures, they do not explain the recent decline in deforestation in Indonesia.

The study, led by Matthieu Stigler at the University of Geneva (UNIGE), appears in the Proceedings of the National Academy of Sciences.

Mapping a supply chain

Deforestation is the conversion of forested land to other uses. According to Global Forest Watch, the world lost 23 million hectares (nearly 57 million acres) of natural forest in 2025. Experts believe that agricultural expansion accounts for more than half of this loss, particularly livestock production and palm oil cultivation. To curb this trend, producing countries have introduced national policies over the past decade. At the same time, many companies have adopted ‘zero deforestation and conversion’ (ZDC) commitments.

A team from the Geneva School of Economics and Management (GSEM) at the UNIGE, in collaboration with researchers from UCSB the University of Cambridge, the University of Basel, New York University and the Transparency for Sustainable Economies (Trase) initiative, examined the effectiveness of these commitments in Indonesia’s palm oil sector, one of the world’s largest producers of this product. Using public databases to identify companies that had adopted zero-deforestation commitments, the researchers compared deforestation trends in supply chains linked to these companies with those in supply chains that had not adopted such commitments.

This was a complex task, as individual plantations often supply multiple companies. In total, more than 2,600 plantations were linked to 1,200 mills, which in turn were connected to 190 companies, some with zero-deforestation commitments and others without. To assess deforestation trends over time, the researchers used satellite imagery.

No additional effect

“Our findings show that companies are implementing their commitments and that these commitments are associated with a reduction in deforestation. However, companies without such commitments have seen a virtually comparable decline in deforestation within their supply chains. Zero-deforestation and conversion commitments have therefore had no additional effect beyond the public policies already implemented,” said lead author Stigler, an assistant professor at GSEM.

Scientists found that deforestation declined by 6.63% in plantations linked to companies with ZDC. However, they observed a very similar reduction,6.50%, in plantations linked to companies without such commitments, suggesting that ZDC accounted for only a 0.12% additional reduction in deforestation.

“This pattern can likely be explained by economic conditions that were unfavorable to agricultural expansion, as well as by the Indonesian government’s moratoriums, which were already contributing to limiting deforestation,” said Rachael Garrett, a professor of conservation and development at Cambridge, who supervised the study.

Long-term potential?

The results suggest that ZDC commitments had no additional effect when pressure on forests was already easing up. However, the researchers do not rule out the possibility that companies with ZDC commitments could prove more effective at reducing deforestation if this pressure were to increase — due to changing economic conditions or shifts in conservation policies. “It is in times of crisis, when pressure on forests increases, that ZDC commitments could play a truly additional protective role,” said Stigler.

While ZDCs don’t appear to directly affect declines in deforestation, it's possible that they are part of a broader mosaic of policies that support this outcome. Heilmayr and his colleagues plan to approach the topic from a more holistic perspective, assessing how different policies interact in a way that may sustain broad transitions towards lower deforestation in the tropics.

Antoine Guenot at the University of Geneva contributed to this story. Read the full release here.

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