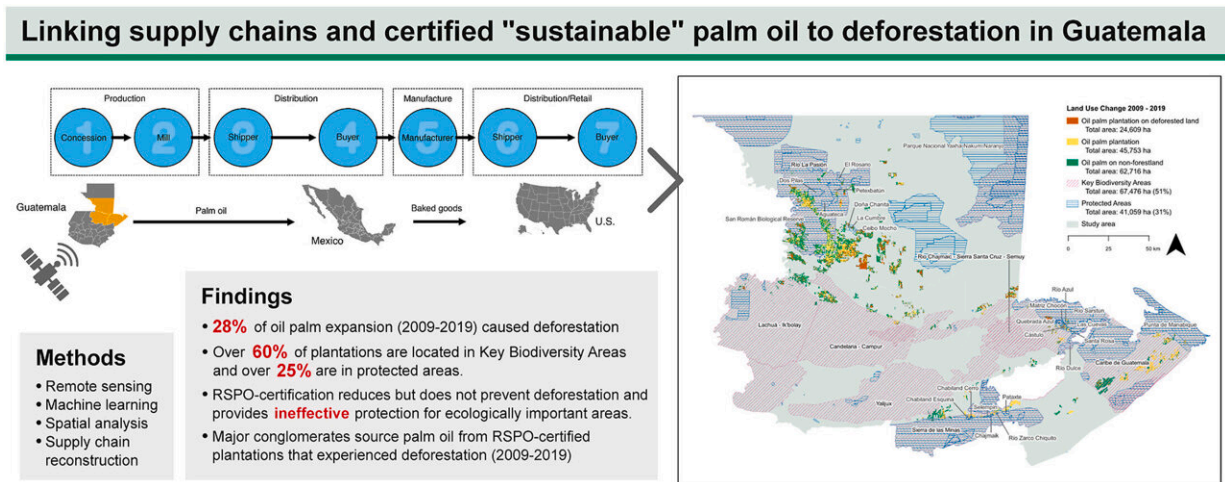


Palm oil plantations and deforestation in Guatemala: Certifying products as 'sustainable' is no panacea

July 20 2023, by Jim Erickson



Credit: *Journal of Environmental Management* (2023). DOI: 10.1016/j.jenvman.2023.118505

Cheap, versatile and easy to grow, palm oil is the world's most consumed vegetable oil and is found in roughly half of all packaged supermarket products, from bread and margarine to shampoo and toothpaste.

But producing palm oil has caused deforestation and biodiversity loss across Southeast Asia and elsewhere, including Central America. Efforts to curtail the damage have largely focused on voluntary environmental

certification programs that label qualifying palm-oil sources as "sustainable."

However, those certification programs have been criticized by [environmental groups](#) as greenwashing tools that enable multinational corporations to claim fully [sustainable palm oil](#) while continuing to sell products that fall far short of the deforestation-free goal.

Findings from a new University of Michigan-led study, published online in the *Journal of Environmental Management*, support some of the critics' claims—and go much further.

The U-M case study focuses on Guatemala, which is projected to become the world's third-largest palm-oil producer by 2030 after Indonesia and Malaysia, and an influential environmental certification system called the Roundtable on Sustainable Palm Oil, or RSPO.

"Our results indicate the supply chains of transnational conglomerates drove deforestation and ecological encroachment in Guatemala to support U.S. palm oil consumption," said study lead author Calli VanderWilde, a doctoral student at the U-M School for Environment and Sustainability who did the work for her dissertation.

"In addition, we found no evidence to suggest that RSPO certification effectively protects against deforestation or ecological encroachment. Given that oil palm expansion is predicted to increase significantly in the coming years, this pattern is likely to continue without changes to governance, both institutionally and to supply chains."

The U-M-led research team tracked palm oil sourced from former forestland, and other ecologically critical areas in Guatemala, by several large transnational conglomerates that sell food products made from the oil in the United States. The corporations are members of the

Roundtable on Sustainable Palm Oil and have RSPO commitments and sourcing policies in place to ensure the sustainability of their palm oil supplies.

The study used satellite imagery and machine learning to quantify deforestation attributable to palm oil [plantation](#) expansion in Guatemala over a decade, 2009–2019. In addition, the researchers used shipment records and other [data sources](#) to reconstruct corporate supply chains and to link transnational conglomerates to palm oil-driven deforestation.

The study found that:

- Guatemalan [palm oil plantations](#) expanded an estimated 215,785 acres during the study period, with 28% of the new cropland replacing forests.
- As of 2019, more than 60% of the palm oil plantations in the study area were in Key Biodiversity Areas. KBAs are sites that contribute significantly to the global persistence of biodiversity in terrestrial, freshwater and marine ecosystems.
- RSPO-certified plantations, comprising 63% of the total cultivated area assessed, did not produce a statistically significant reduction in deforestation and appear to be ineffective at reducing encroachment into ecologically sensitive areas in Guatemala.
- Despite their RSPO membership and pledges to source palm oil from certified plantations, several [multinational corporations](#) predominantly sourced palm oil from noncertified mills in Guatemala.
- Even RSPO-certified palm oil plantations and mills are contributing to deforestation in Guatemala.

Guatemala is divided into 22 administrative districts called departamentos. The study focused on a 20,850-square-mile region in the

three departamentos (Alta Verapaz, Izabal and the lower half of Petén) responsible for 75% of Guatemala's palm oil production.

The researchers used high-resolution [satellite imagery](#) to assess [land-use change](#) between 2009 and 2019, and a machine learning algorithm enabled them to distinguish between forests and monoculture plantations.

They found that oil palm expansion is encroaching on, and causing deforestation in, seven Key Biodiversity Areas and 23 protected areas.

Among the areas impacted, the Key Biodiversity Areas with the largest palm extent include the Río La Pasión, Caribe de Guatemala and Sierra de las Minas Biosphere Reserve. The Río La Pasión is an especially rich area for endemic fish species, making it an important area for conservation.

Oil palm encroachment on the Sierra de las Minas Biosphere Reserve threatens animals such as the quetzal, Guatemala's national bird. Known as the jewel of Guatemala, the reserve is an irreplaceable gene bank for tropical reforestation and agroforestry and supports the livelihoods of more than 400,000 people.

The researchers identified 119 RSPO-certified plantations and 82 non-RSPO plantations. During the study period, 9% of the RSPO-certified plantation expansion resulted in, or contributed to, forest loss, compared to 25% of the noncertified plantation expansion.

"Environmental certification does not effectively mitigate deforestation risk, and firms cannot rely on—or be allowed to rely on—certification to achieve deforestation-free supply chains," said study senior author Joshua Newell, a geographer and a professor at the School for Environment and Sustainability.

By reconstructing the supply chains of the three conglomerates, the researchers revealed connections to palm oil-driven deforestation. Of the 60,810 acres of [palm oil](#)-driven deforestation across the study period, more than 99% was traced to plantations supplying palm and palm-kernel oil to mills used by two multinational conglomerates. Seventy-two percent of the palm and [palm](#)-kernel oil was linked to the subset of plantations supplying a third corporation's mills.

"Palm oil has attracted attention for its ties to widespread forest and biodiversity loss across Southeast Asia. However, the literature has paid minimal attention to newer spaces of production and issues of corporate supply-chain traceability," VanderWilde said.

"As it stands, environmental certification makes unjustified claims of 'sustainability' and fails to serve as a reliable tool for fulfilling emerging zero-[deforestation](#) requirements."

More information: Calli P. VanderWilde et al, Deforestation, certification, and transnational palm oil supply chains: Linking Guatemala to global consumer markets, *Journal of Environmental Management* (2023). [DOI: 10.1016/j.jenvman.2023.118505](https://doi.org/10.1016/j.jenvman.2023.118505)

Provided by University of Michigan

Citation: Palm oil plantations and deforestation in Guatemala: Certifying products as 'sustainable' is no panacea (2023, July 20) retrieved 29 April 2024 from <https://phys.org/news/2023-07-palm-oil-plantations-deforestation-guatemala.html>

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