

# Cattle pastures and other degraded lands become new oil palm plantations

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A new study published last week in the journal *Environmental Research Letters* by researchers at the University of Puerto Rico offers the first regional look at lands being converted to palm oil plantations in Latin America. Palm oil is a primary ingredient in processed foods, soaps, cosmetics, and biofuel. Growth of the palm oil industry has caused widespread deforestation in Southeast Asia, a concern among conservationists, the private sector, and consumers.

In Latin America, the agricultural area planted with [palm oil](#) has doubled in the last decade, and this new study shows that most palm oil plantations are being established on previously cleared lands, particularly cattle pastures. If palm oil continues to replace pastures instead of forests, the region may have a strong advantage for sustainable palm oil production.

"After the environmental devastation witnessed in Asia, the big question was whether Latin America would do palm oil right," says lead author Paul R. Furumo. "Especially given that the region contains the largest forested area with conditions suitable for palm oil agriculture."

"Sustainable palm oil production is complex, but begins with land use changes during planting. When forests are cut down, it is a long-term loss of both species and communities, but intensifying production on previously degraded lands may create a huge opportunity for conservation in this sector," said Furumo, a Ph.D. candidate at the Department of Environmental Science of the University of Puerto Rico.

A previous global-scale remote sensing study had suggested a less pronounced role for forest conversion to palm oil in Latin America, but the authors identified the specific land uses being converted to palm oil. Using a custom web application called Landmapper, the researchers integrated MODIS satellite imagery with very high resolution Google Earth images to map palm oil plantations in 2014. They mapped over a half-million hectares of palm oil in 10 different countries throughout the region, the equivalent to more than half of the total FAO reported area for Latin America. They visualized these polygons in Google Earth to look back in time and see what the most recent land cover was before conversion to palm oil.

The results indicate the outsized role that cattle pastures play in the development of palm oil agriculture in Latin America—nearly 60 percent of expansion occurred on these lands. This is roughly equivalent to the proportion of forest loss associated with palm oil expansion in Southeast Asia. Pastures have long dominated the production landscapes of Latin America and open up the countryside to expanding palm oil by establishing important infrastructure (i.e. roads), clearing lands for planting, and driving up land prices where large-scale industrial agriculture is more competitive. Beyond pastures, croplands were also identified as a significant source of new plantations (18 percent), as well as banana plantations (4 percent), but only in select countries.

There were, however, examples of national and sub-national variations to the pasture-palm oil narrative. Peru had the highest proportion of deforestation in the study region; 76 percent of detected palm oil plantations replaced forests, equating to nearly 16,000 hectares. This echoes other studies that have shown evidence for palm oil as an emerging threat to the Peruvian Amazon, particularly larger plantations. Similarly, while only 24 percent of palm oil expansion in Guatemala replaced forests, 89 percent of this was found in the Petén department, which contains the Mayan Biosphere Reserve. The authors point to weak

local governance and land tenure laws in these examples, suggesting the importance of industry oversight by international certification programs.

The more favorable land use dynamic surrounding palm oil expansion in Latin America, if guided by sustainability initiatives like the Roundtable on Sustainable Palm Oil (RSPO), may bring us as close as we've ever been to a sustainable [palm oil industry](#).

### **Most palm oil produced in Latin America is consumed locally**

The study also shows that most palm oil produced in Latin America is consumed in the region, instead of being exported to distant markets like Europe. There is a strong internal demand for palm oil in the region and the study suggests that this is in part driven by the surge of recent domestic biofuel targets.

Colombia, for example, the leading palm oil producer in Latin America and fourth largest in the world, has a national 10 percent biodiesel blend (B10). This target is fulfilled completely by domestic production, which accounts for about half of national palm oil production. Planting energy crops on previously degraded lands may validate biofuel development in the region, avoiding commonly cited issues of carbon and biodiversity loss.

But it remains to be seen how local demand for palm oil, especially as an ingredient for non-food products, fits in with international market-based incentives for sustainability. "Though the demand may be less for certified palm oil that ends up in your vehicle instead of your stomach, engaging in certification may, in fact, be easier for palm oil growers in Latin America that plant on pastures instead of forests," contends Furumo. "These producers may already be closer to compliance with sustainable management and land use practices."

To explore whether the development of [palm oil plantations](#) on previously degraded lands does, in fact, create benefits for Latin American palm oil producers, the lead author is conducting fieldwork in Colombia monitoring bioacoustic diversity in palm oil landscapes and interviewing local stakeholders with the support of a Fulbright fellowship.

**More information:** *Environmental Research Letters*,  
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