

Oil palm surging source of greenhouse gas emissions

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Continued expansion of industrial-scale oil palm plantations on the island of Borneo will become a leading cause of greenhouse gas emissions by 2020 unless strong forest and peatland protections are enacted and enforced, according to a National Academy of Sciences study.

The study, conducted by Yale and Stanford researchers, found that about two-thirds of lands outside of protected areas in the Ketapang District of West Kalimantan Province in Indonesian Borneo are leased to [oil palm](#) agribusiness companies. If these leases are converted to oil palm at current expansion rates, by 2020 monotypic palm stands will occupy more than a third of regional lands and intact forests will decline to less than 5 percent from approximately 15 percent in 2008.

The researchers were surprised to learn that 50 percent of oil palm plantations were established on peatlands through last year. When peat soils are drained for oil palm cultivation, they begin to release [carbon dioxide](#), a [greenhouse gas](#). The study found that if oil palm expansion continues, with no restrictions on peatland development, almost 90 percent of oil palm's [greenhouse gas emissions](#) will come from peatlands by 2020.

"Preventing oil palm establishment on peatlands will be critical for any greenhouse gas emissions-reduction strategy," said Kimberly Carlson, a doctoral candidate at the Yale School of Forestry & Environmental Studies and co-author of the study with Lisa Curran, a professor of

anthropology at Stanford University.

Carlson pointed out that even if future oil palm expansion is halted in forests and peatlands, greenhouse [gas emissions](#) will decline by only 3 percent to 4 percent. She said that instead of simply placing a moratorium on oil palm expansion, "protecting secondary and logged forests, as well as peatlands, is the strategy that most effectively reduces carbon emissions and maintains [forest](#) cover."

The researchers argue that regional emissions could be reduced by up to 21 percent by 2020 through the prevention of oil palm encroachment, wildfire, logging, and agricultural expansion on intact and previously logged forested lands and [peatlands](#). But even in the best-case scenario for reducing greenhouse gas emissions, 28 percent of 1 million acres of community lands will be converted to oil palm.

"Unfortunately forest and peatland protection does not automatically generate benefits for local communities," said Curran. "To become truly sustainable, oil palm companies must not only protect existing forests and carbon stocks, but should ensure that any land acquired from resident smallholder farmers and communities meets the criteria for free, prior and informed consent, and is equitably and transparently compensated."

Incorporating people, forests and carbon in their assessment required building a spatially explicit simulation model from scratch. The researchers started with a model of deforestation in the Brazilian Amazon developed by co-author Britaldo Soares-Filho and his team, and rebuilt it for the drastically different environment of Indonesian Borneo.

Palm oil is a form of edible vegetable oil used in many products, including cookies, crackers, popcorn, frozen dinners, low-fat dairy, candy, soap and cosmetics. Indonesia, currently the global leader in palm-

oil production, aims to increase the area for oil palm cultivation to 45 million acres by 2020 from 24 million acres in 2009, yet little is known about the influence of oil palm expansion on people and ecosystems.

"Early on we decided to include people in our assessment," said Carlson. "Local residents and their lands are often forgotten in conversations about forests."

More information: The study is titled "Committed Carbon Emissions Deforestation, and Community Land Conversion from Oil Palm Plantation Expansion in West Kalimantan, Indonesia."

Provided by Yale University

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