

Biofuels could hasten climate change

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A new study finds that it will take more than 75 years for the carbon emissions saved through the use of biofuels to compensate for the carbon lost when biofuel plantations are established on forestlands. If the original habitat was peatland, carbon balance would take more than 600 years. The study appears in *Conservation Biology*.

The oil palm, increasingly used as a source for biofuel, has replaced soybean as the world's most traded oilseed crop. Global production of palm oil has increased exponentially over the past 40 years. In 2006, 85 percent of the global [palm-oil](#) crop was produced in Indonesia and Malaysia, countries whose combined annual tropical forest loss is around 20,000 square kilometers.

Conversion of forest to oil palm also results in significant impoverishment of both plant and animal communities. Other tropical crops suitable for biofuel use, like soybean, sugar cane and jatropha, are all likely to have similar impacts on climate and biodiversity.

"Biofuels are a bad deal for forests, wildlife and the climate if they replace tropical rain forests," says research scientist Finn Danielsen, lead author of the study. "In fact, they hasten climate change by removing one of the world's most efficient [carbon](#) storage tools, intact tropical rain forests."

As countries strive to meet obligations to reduce [carbon emissions](#) under one international agreement (Kyoto Protocol), they may not only fail to meet their obligations under another (Convention on Biological

Diversity) but may actually hasten [global climate change](#).

According to the study, reducing deforestation is likely to represent a more effective climate-change mitigation strategy than converting forest for biofuel production, and it may help nations meet their international commitments to reduce biodiversity loss.

Alternatively, planting biofuels on degraded grasslands instead of tropical rain forests would lead to a net removal of carbon from the atmosphere in 10 years. Any biofuel plantations in tropical forest regions should be considered only in former forest land which has already been severely degraded to support only grassy vegetation.

"The EU and the US should only import and subsidize bio-fuel from guaranteed sustainable productions and only from countries which can demonstrate that their forests are sustainably managed," says Danielsen.

[Tropical forests](#) contain more than half of the Earth's terrestrial species. They also store around 46 percent of the world's living terrestrial carbon, and 25 percent of total net global carbon emissions may stem from deforestation. There is therefore an inherent contradiction in any strategy to clear tropical forest to grow crops for so-called carbon-neutral fuels.

There are signs that part of the oil-palm industry is trying to minimize the impact its plantations have on biodiversity, but there is currently little effort to mitigate potential climate impacts.

More information: For more information, please visit www.interscience.wiley.com/journal/conbio .

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