Biofuel plantations on tropical forestlands are bad for the climate and biodiversity, study finds

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Keeping tropical rain forests intact is a better way to combat climate change than replacing them with biofuel plantations, a study in the journal *Conservation Biology* finds.

The study reveals that it would take at least 75 years for the carbon emissions saved through the use of biofuels to compensate for the carbon lost through forest conversion. And if the original habitat was carbon-rich peatland, the carbon balance would take more than 600 years. On the other hand, planting biofuels on degraded Imperata grasslands instead of tropical rain forests would lead to a net removal of carbon in 10 years, the authors found.

The study is the most comprehensive analysis of the impact of oil palm plantations in tropical forests on climate and biodiversity. It was undertaken by an international research team of botanists, ecologists and engineers from seven nations.

"Our analysis found that it would take 75 to 93 years to see any benefits to the climate from biofuel plantations on converted tropical forestlands," said lead author Finn Danielsen of Denmark's Nordic Agency for Development and Ecology (NORDECO). "Until then, we will be releasing carbon into the atmosphere by cutting tropical rain forests, in addition to losing valuable plant and animal species. It's even worse on peatlands, which contain so much carbon that it would be 600

years before we see any benefits whatsoever."

Biofuels have been touted as an environmentally friendly alternative to fossil fuels, one of the major contributors to global warming. One such biofuel, palm oil, covers millions of acres in Southeast Asia, where it has directly or indirectly replaced tropical rain forests, resulting in loss of habitats for species such as rhinos and orangutans and the loss of carbon stored in trees and peatlands.

"Biofuels are a bad deal for forests, wildlife and the climate if they replace tropical rain forests," said co-author Dr. Neil Burgess of World Wildlife Fund. "In fact, they hasten climate change by removing one of the world's most efficient carbon storage tools – intact tropical rain forests."

The authors call for the development of common global standards for sustainable production of biofuels.

"Subsidies to purchase tropical biofuels are given by countries in Europe and North America supposedly to reduce their greenhouse gas emissions from transport" said Danielsen. "While these countries strive to meet their obligations under one international agreement, the Kyoto Protocol, they encourage others to increase their emissions as well as breach their obligations under another agreement, the Convention on Biological Diversity."

"Comparing the flora of the rain forest with that of oil palm plantations shows the devastating effect of forest conversion on biodiversity. Major plant groups that thrive in natural rain forest, such as trees, lianas, orchids and native palms, are completely absent. The plants that do grow abundantly in plantations are mostly common fern species that like sunshine. Forest plants need shady and undisturbed habitat to survive" said botanist Hendrien Beukema of University of Groningen in the

Netherlands.

For fauna, only one in six forest species can survive in plantations, the study finds. Most of these are common and widespread species.

"Conserving the existing forests is not only good for the climate as the emissions of greenhouse gases are reduced but also generates additional benefits, such as biodiversity protection" said Dr. Daniel Murdiyarso of the Indonesia-based Centre for International Forestry (CIFOR). Tropical forests contain more than half of the Earth's terrestrial species and Southeast Asia's forests are among the richest in 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.

"It's a huge contradiction to clear tropical rain forests to grow crops for so-called 'environmentally friendly' fuels," said co-author Faizal Parish of the Global Environment Center, Malaysia. "This is not only an issue in South East Asia – in Latin America forests are being cleared for soy production which is even less efficient at biofuel production compared to oil palm. Reducing deforestation is a much more effective way for countries to reduce climate change while also meeting their obligations to protect biodiversity."

"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," Parish added. "Care is further needed to prevent such plantations from stimulating further forest degradation in adjacent areas."

Source: World Wildlife Fund