

Biofuels and biodiversity don't mix, ecologists warn

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Rising demand for palm oil will decimate biodiversity unless producers and politicians can work together to preserve as much remaining natural forest as possible, ecologists have warned. A new study of the potential ecological impact of various management strategies published in the British Ecological Society's *Journal of Applied Ecology* found that very little can be done to make palm oil plantations more hospitable for local birds and butterflies. The findings have major implications for the booming market in biofuels and its impact on biodiversity.

Dr Lian Pin Koh of ETH Zürich looked at the number of birds and butterflies in 15 palm oil plantations in East Sabah, Malaysia, on the island of Borneo. He found that palm oil plantations supported between one and 13 butterfly species, and between seven and 14 species of bird. Previous research by other ecologists found at least 85 butterfly and 103 bird species in neighbouring undisturbed rain forest.

Management techniques – such as encouraging epiphytes, beneficial plants or weed cover in palm oil plantations – increased species richness by only 0.4 species for butterflies and 2.2 species for birds. Preserving remaining natural forests – for example by creating forest buffer zones between plantations – made a little more impact, increasing species richness by 3.7 in the case of butterflies and 2.5 for birds.

According to Dr Koh: "Rapid expansion of oil palm agriculture onto forested lands, even logged forests, poses a significant threat to biodiversity. This study shows that to maximise biodiversity in oil palm plantations, the industry and local governments should work together to preserve as much of the remaining natural forest as possible, for example by creating forest buffer zones around oil palm estates or protecting remaining patches of forest. Even then, the industry's impact on biodiversity is enormous."

The study is particularly important because it comes at time when rising demand for both food and biofuels is putting mounting pressure on biodiversity. "The rapid expansion of oil palm agriculture in Southeast Asia raises serious concerns about its potential impact on the region's biodiversity. Unless future expansion of oil palm agriculture is regulated, rising global demand is likely to exacerbate the high rates of forest conversion in major oil palm-producing countries," says Dr Koh.

Palm oil plantations currently cover around 13 million hectares worldwide, producing 40 million tons a year. Malaysia and Indonesia account for around 56% of this cultivated area and 80% of production. Between 1960 and 2000, global palm oil production increased 10-fold (from 2 million tons in 1960 to 24 million tons in 2000). As well as biofuel, palm oil is used in food additives, cosmetics and industrial lubricants.

Source: Wiley

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