Oil palm plantations are no substitute for tropical rainforests

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The continued expansion of oil palm plantations will worsen the dual environmental crises of climate change and biodiversity loss, unless rainforests are better protected, warn scientists in the most comprehensive review of the subject to date.

Lead author, Emily Fitzherbert from the Zoological Society of London and University of East Anglia said: "There has been much debate over the role of palm oil production in tropical deforestation and its impacts on biodiversity. We wanted to put the discussion on a firm scientific footing."

Palm oil, used in food, cosmetics, biofuels and other products, is now the world's leading vegetable oil. It is derived from the fruit of the oil palm, grown on more than 50,000-square miles of moist, tropical lowland areas, mostly in Malaysia and Indonesia. These areas, once covered in tropical rainforest, the globe's richest wildlife habitat on land, are also home to some of the most threatened species on earth.

The review, published today in the journal *Trends in Ecology and Evolution,* singles out deforestation associated with plantation development as by far the biggest ecological impact, but finds that the links between the two are often much more complex than portrayed in the popular press.

Co-author Matt Struebig, from Queen Mary, University of London, explains: "Most land-cover statistics do not allow us to distinguish where

oil palm has actually driven forest clearance. Oil palm certainly has directly replaced tropical forest in some areas, but oil palm companies also often have close links with timber or paper pulp companies, giving additional motives for deforestation."

Within countries, oil palm is usually grown in a few productive areas, but it looks set to spread further. Demand is increasing rapidly and 'its potential as a future agent of deforestation is enormous', the study says.

Most of the suitable land left is within the last remaining large areas of tropical rainforest in Central Africa, Latin America and Southeast Asia. Where oil palm has replaced tropical forest the impact on wildlife depends on what species survive in the new oil palm habitat.

The study confirmed that oil palm is a poor substitute habitat for the majority of tropical forest species, particularly forest specialists and those of conservation concern.

Emily Fitzherbert continues: "By compiling scientific studies of birds, bats, ants and other species, we were able to show that on average, fewer than one-sixth of the species recorded in primary forest were found in oil palm. Degraded forest, and even alternative crops such as rubber and cocoa, supported higher numbers of species than oil palm plantations."

Even this estimate is likely to be optimistic, because forest habitats are more difficult to survey and some species inhabit plantations briefly before going extinct.

There is little potential to help wildlife within plantations, so ensuring that new plantations do not replace forest and protecting what is left of native forest in and around plantations are the only real options for protecting the majority of species, the researchers say.

International policies demanding evidence of environmental responsibility, in particular that land of high conservation value is not converted to oil palm, can help.

"There is enough non-forested land suitable for plantation development to allow large increases in production without further deforestation," said co-author Ben Phalan, from the University of Cambridge.

However, in identifying these areas, there needs to be a careful distinction between degraded land that is of low conservation value, such as imperata grasslands, and partially logged or degraded forest areas which can still harbour relatively high levels of biodiversity and bring greater wildlife and carbon storage benefits if restored.

"Unless governments in producer countries show stronger leadership in controlling logging, protecting forests and ensuring that crops are planted only in appropriate areas, the impacts of oil palm expansion on biodiversity will be substantial," adds Phalan.

This study is released as pressure mounts on UK and EU officials to rethink targets for biofuel sales. The UK's Renewable Fuels Agency revealed that more than 80 per cent of UK biofuels were not meeting even very basic environmental standards and has urged the UK government to slow the introduction of biofuels until more is known about their negative impacts.

While increases in biofuel use will almost certainly add to pressure on tropical forests, the study highlights how those pressures might be reduced.

A recent initiative, the Roundtable on Sustainable Palm Oil, has encouraged 40 per cent of the palm oil industry to commit to saving wildlife on and around plantations. The scientists hope that the

Roundtable will continue to attract many of the remaining 60 per cent.

In Indonesia, local organisations are using satellite technology and the internet to investigate illegal forest clearance by oil palm companies and to put public pressure on them to improve.

These initiatives will help, but the study warns that unless they are scaled up and better supported by stronger government action against deforestation, damage to rainforests and their unique wildlife will continue.

Source: Queen Mary, University of London