

# Biodiversity and carbon co-benefits to improve sustainable palm oil

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Co-benefits for biodiversity and carbon in land planning decisions within oil palm landscapes

A science-for-policy paper for the Oil palm Research-Policy Partnership Network

Biodiversity and carbon co-benefits report. Credit: Jennifer Lucey

A new report by the Science-Policy Partnership Network, led by the University of York, provides important new information to conserve biodiversity and facilitate more sustainable palm oil production.

The report – 'Co-benefits for biodiversity and [carbon](#) in land planning decisions within [oil palm](#) landscapes'—examines relationships between the amount of carbon and the amount of biodiversity in different land-use types in Malaysia and Indonesia, and how land planning decisions aimed at benefiting one of these vital resources will also benefit the other.

Dr Jennifer Lucey and Professor Jane Hill from the Department of Biology at York, and Dr Glen Reynolds from the SE Asia Rainforest Research Partnership (SEARRP), drafted the new report. This report responds to a key question identified by the industry: "Are the land-uses that are important for biodiversity the same land-uses that are important for carbon?"

The report's key messages are:

- There is high agreement in the responses of biodiversity (number of species) and Above Ground Carbon (AGC) to different land-uses; meaning land-use decisions that benefit one are highly likely to also have benefits for the other.
- Primary rainforest contains the highest levels of biodiversity and of AGC per ha. Biodiversity levels in selectively logged forest are also very high, and even though [carbon stocks](#) can be almost

halved, these forests have the potential to recover over time, meaning that conserving even fairly degraded forest can have high co-benefits.

- Oil palm plantations contain only about 20 per cent of primary forest AGC and less than half of primary forest biodiversity – but many of the species which occur in oil palm are open habitat or generalist species, and not forest species. Non-forest habitats and grasslands which contain low levels of biodiversity and carbon should be targeted for future oil palm expansion to realise co-benefits.

Dr Lucey led the study, consulting experts in the fields of carbon storage and biodiversity, and collating information from 75 scientific publications including research by the University of York.

She said: "The Roundtable on Sustainable Palm oil uses the High Conservation Values approach ([www.hcvnetwork.org](http://www.hcvnetwork.org)) to conserve biodiversity, but this doesn't explicitly consider carbon stocks: an issue the industry is currently grappling with. We provided the scientific evidence base in a clear and relevant format to aid the streamlining of policy for the conservation of these two vital ecosystem services."



Towering 40m rainforest trees store large amounts of carbon and support high numbers of species including these epiphytic ferns. Credit: Jennifer Lucey

Professor Jane Hill added: "There is a wealth of scientific evidence available to inform better policy for sustainability issues, but often it is not readily accessible to decision makers: our report brings the information together in a way that is policy-relevant."

Dr Reynolds said: "Expansion of oil palm continues to threaten rainforests which are important stores of carbon and biodiversity. Our report shows that processes in place to conserve [biodiversity](#) should also conserve high levels of carbon – and vice-versa, which is relevant given

recent industry moves to include high carbon stock assessments in guiding land-use decision making."



SE Asian rainforest support some of the highest levels of biodiversity globally including some of our most iconic species. Credit: Jennifer Lucey

The network was set up by the 'Socially and Environmentally Sustainable Oil palm Research' (SEnSOR) project with funding from the British Foreign and Commonwealth Office and the RSPO ([www.rspo.org](http://www.rspo.org)), and includes representatives from oil palm growers, consumer goods companies, NGOs, government and the RSPO. Dr Lucey is a Natural Environment Research Council knowledge exchange fellow based in the Department of Biology at the University of York. She works with

stakeholders in the oil palm industry to disseminate the scientific evidence base to inform policy. The SEnSOR project will test the effectiveness of sustainability criteria for oil palm cultivation. More information about SEnSOR and the full science-for-policy report can be found at [www.sensorproject.net/knowledge-exchange](http://www.sensorproject.net/knowledge-exchange)

The network's successful first output 'Change in carbon stocks arising from land-use conversion to [oil palm plantations](#)' has been widely disseminated among the key stakeholders in the oil palm industry. It has been a key reference document and the draft report for the HCS Study, a study commissioned by some of the world's largest oil palm growers and users to define High Carbon Stock habitats to be avoided for conversion to oil palm.



SE Asian rainforest support some of the highest levels of biodiversity globally including some of our most iconic species. Credit: Jennifer Lucey

**More information:** See the carbon stock study online:  
[www.carbonstockstudy.com/](http://www.carbonstockstudy.com/)

Provided by University of York

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