Forest rehabilitation: benefits for carbon and biodiversity banking

According to researchers, opportunities for carbon sequestration and benefits for biodiversity offered by forest rehabilitation schemes mean they should be given greater value as a tool for carbon offsetting. A new study demonstrates the value of forest rehabilitation for rainforest birds.

Globally, 7 million hectares of monoculture forest are planted each year, but 13 million hectares of tropical rainforest are also destroyed, with grave consequences for wildlife and carbon. In addition, simply planting trees may not be enough to reverse biodiversity loss and forest rehabilitation may be a more effective strategy. Rehabilitation involves planting different types of native tree saplings, as opposed to a monoculture, and cutting back vines (climbing plants) that hinder tree growth.

Carbon credits given for such biodiversity enhancing programmes are marketable in carbon offset markets. The authors of the study argue that promoting more credits from rehabilitation schemes would complement proposed ‘Reducing Emissions from Deforestation and Degradation’ (REDD) programmes, in which developing countries would receive credits for reducing deforestation, and that rehabilitation provides a clear incentive to protect logged rainforests.

To study the effects of forest rehabilitation on birds, the researchers studied an area in Borneo’s Yayasan Sabah logging concession. This region combines three different types of rainforest in close proximity to each other: selectively logged, rehabilitated forest; selectively logged, naturally regenerating forest; and unlogged forest within a conservation area. Nets were hung in each forest type to catch birds. To compare biodiversity across the different forest types they measured species richness (a measure of relative species abundance) and diversity, as well as the balance of different types of foraging and feeding techniques – for example, whether birds ate mainly fruit or insects.

Their results suggest, as expected, that logging significantly reduces the number and diversity of species in a forest, but rehabilitation schemes can at least partly reverse this. Forest that had been logged and left to recover naturally had lower levels of species richness and diversity, whereas forests that have been rehabilitated had higher levels of species richness and diversity, closer to that of unlogged forest.

Rehabilitation also changed the balance of different types of birds. In particular, there was a recovery of insect eating species, but far fewer fruit eating species. The researchers suggest that fruit-eating birds depend on fruits produced by vines and shrubs, and they may not do well in rehabilitated forest where vines have been cut back to help promote tree growth. They therefore recommend that some areas of forest are left to grow without cutting back vines in future rehabilitation programmes.

Based on the additional benefits in terms of biodiversity, the researchers call for a more prominent role for forest rehabilitation programmes in carbon offset markets.


Contact: d.p.edwards@leeds.ac.uk

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