

Amazon wildfires threaten bird communities

February 25 2013, by Valerie Nadeau



Habitat specialists and regional endemics, such as this harlequin antbird (*Rhegmatorina berlepschi*), failed to recover 10 years after a low-intensity understory wildfire.

Even ten years after wildfire, numbers of the most vulnerable Amazon bird species still haven't returned to normal levels, say scientists.

Researchers studying the effects of forest fires on [bird populations](#) in the Amazon found that the worst affected [bird species](#) were those specialised to live in a particular habitat. A decade after fire, populations of these [birds](#) were still lower in areas of forest that had been burned.

'These fires have a long-term impact on the bird communities,' says Dr Jos Barlow of Lancaster University, a joint author of the study. 'Even ten years after the fire you get a reduction in habitat specialists.'

Wildfires have become more common in the Amazon over the last few

decades. They are caused by a combination of [drought](#), logging, and slash-and-burn farming. The new research provides evidence that this trend might be having a bigger effect on biodiversity than previously thought.

In the past, most research has focussed on the first three years after a fire. In this study, researchers in Brazil, the USA, and the UK studied bird communities one, three, and ten years after a wildfire in the Arapiuns region of the [Amazon](#) that destroyed roughly 1140 square kilometres of forest.



A wildfire burns slowly through the understorey of an Amazonian forest.

They counted birds in four areas of burned and four areas of unburned forest. Their results showed that overall the number of bird species in the burned areas of forest was higher than in the unburned forest after both three and ten years. But the numbers of the most [vulnerable species](#) were lower in the burned forest.

'That's what you normally find after a disturbance,' explains Barlow, 'You get increases in disturbance-tolerant species, which more than compensates for the loss of the disturbance intolerant species. But that's not a good measure of [conservation value](#), because those species are going to do well regardless.'

Two types of bird were especially badly affected, even after ten years. These were ant-following birds, which follow army ant swarms and feed on insects that flee from the ants, and mixed flock specialists, which forage in groups of several species. Both require a specialist habitat and are vulnerable to human impact.

The results came as a surprise to the researchers, who expected the bird communities in the burned areas of forest to have returned to normal after ten years. 'From looking at the forests and walking in them before we started sampling birds, they seemed to be recovering quite well,' says Barlow.

These findings indicate that wildfires are worse for biodiversity in the Amazonian forest than previously thought. Barlow explains, 'This is a best-case scenario because it's in continuous forest, so you've got source populations very close by, because you've got unburned forest nearby. However, fires are even more frequent in fragmented landscapes where you haven't got source populations to recolonise afterwards. So the implication is that where fires occur in more fragmented landscapes we would expect more severe results and less recovery in the long term.'

In a related study, researchers found that wildfire also affected the mix of ant species living in burned areas of forest - more evidence that wildfire affects biodiversity in the long-term.

Forest fires are becoming more common because of human activity. Changes in climate mean they are likelier to start, and fragmentation of

the forest due to logging helps them spread and makes it harder for [species](#) to recolonise burned [forest](#).

This is threatening the biodiversity of one of the most ecologically important regions of the world. 'Fire prevention is a key target for biodiversity conservation in the humid tropics,' says Barlow, 'We know that fires are bad now. Let's focus on finding solutions.'

The research is published in *Biotropica* and [Biodiversity and Conservation](#).

More information: Mestre, L. A. M., Cochrane, M. A. and Barlow, J. (2013), Long-term Changes in Bird Communities after Wildfires in the Central Brazilian Amazon. *Biotropica*. [doi: 10.1111/btp.12026](https://doi.org/10.1111/btp.12026)

Silveira, J. et al. (2013) The responses of leaf litter ant communities to wildfires in the Brazilian Amazon: a multi-region assessment. *Biodiversity and Conservation* 22:2, 513-529

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