

1 November 2017

A third of animals are vanishing as roads spread through forests



Making more edge cases

Per-Anders Petterson/Getty

By **Lakshmi Supriya**

Imagine you could teleport to any forest on Earth. When you land,

you have a 50 per cent chance of being within half a kilometre of the forest's edge. That is how badly our planet's forests have been sliced and diced.

A new study shows that 85 per cent of animals are being affected by living in these dismembered forests. The findings will help conservationists figure out how best to protect these species.

While the fragmentation of forests is known to affect biodiversity and ecosystems, the effects studied so far are local and specific to particular species, making for a chaotic picture. [Marion Pfeifer](#) of Newcastle University in the UK and her colleagues came up with a new method to make sense of the data.

Instead of simply separating regions into forest and non-forest, they also took into account changes to the land that surrounds the forests. Using existing population data, they mapped the abundances of 1673 vertebrate species – including amphibians, reptiles, birds and mammals – in 22 tropical regions in the Americas, Asia and Africa. These included many threatened species such as the [Sunda pangolin](#) and [Baird's tapir](#).

Of the species whose abundance changed near forest edges, 46 per cent have become more abundant over the last few decades, compared with 39 per cent that became less abundant. This may be good news for some species, although life on the forest edge may well change their behaviours.

However, others that prefer to live deep in the forest only reached their peak abundances more than 200 to 400 metres from the forest edges. These species seem to be dependent on large, continuous forests. If forests continue to be fragmented, these species may be

driven out.

Roads everywhere

“It’s a tremendously important study, because it integrates such a large amount of data for nearly 2000 vertebrate species,” says [William Laurance](#) of James Cook University in Queensland, Australia. “In some ways, it confirms our worst fears.”

Laurance emphasises that forests in tropical developing nations will be particularly affected by the fast pace of road-building there. In a paper published last week, he and his colleagues estimated that, of the projected 25 million kilometres of paved roads that will be built by 2050, about 90 per cent will be in these regions ([Current Biology, doi.org/cfpw](#)).

“Roads typically open up a Pandora’s box of environmental problems for forest species,” says Laurance. The problems include fragmentation, hunting, logging, deforestation and illegal mining. In the Amazon, 95 per cent of all deforestation occurs within 5.5 kilometres of a legal or illegal road.

Many of these roads will be poorly built, so they will be washed away in heavy rainfall, or become riddled with holes. Rather than having a positive impact on development, [maintaining them may be a financial drain on these nations](#).

Roads, and forest fragmentation in general, may also affect us – in a dramatic way. “Tropical forest edges are much more susceptible to wildfires,” says [Jos Barlow](#) of Lancaster University, UK. A 2015 study found that [fires occur more often at forest edges](#), such as beside roads or clearings, striking there every 11 years compared with every 82 years in dense jungles. According to Barlow, preventing the fragmentation of forests may be a vital step in reducing the incidence of wildfires.

Journal reference: *Nature*, DOI: [10.1038/nature24457](https://doi.org/10.1038/nature24457)