

The value of secondary tropical forest for endemic and globally endangered species



Could secondary forest be valuable for species like the critically endangered Colourful puffleg (*Eriocnemis mirabilis*)?

Over the last century land use change has led to widespread loss of tropical forests. However, abandonment of agricultural land has also resulted in the development of large areas of secondary forest.

There is much debate about the value of these secondary forests for biodiversity conservation. Primary forests tend to show higher species richness and population densities than secondary forests. However, given the size of recovering forest secondary vegetation undoubtedly plays an important role for conservation.

Following disturbance secondary forests tend to be dominated by generalist species and over time these sites accumulate species more characteristic of primary forest. However, other than species richness and community composition measures of secondary forest recovery and its value for conservation have been neglected.

This project will aim to:

- Test the theory that primary forest is host to species which have smaller global ranges than those in secondary tropical forest.
- Examine whether red-listed plant and animal species are found more commonly in primary tropical forest than in secondary forests.

Both of these questions will be examined by extracting data from primary studies and combining this with data from the IUCN red list.

During this project the student will:

- Gain an improved understanding of issues surrounding tropical forest conservation.
- Improve their ability to analyse and synthesise data
- Gain experience of working alongside PhD students and researchers at CEH.

Requirements

- Ability to manipulate and analyse data using R. Experience with mixed models would be an advantage.
- Enthusiasm and willingness to learn on the job.

Students will be co-supervised by Phil Martin and Professor James Bullock. Please email Phil (pmart@ceh.ac.uk) for more information on the project.

Useful references

If you are thinking of applying for this project it would be useful to read the following references to acquaint yourself with the topic.

Chazdon R.L., Peres C.A., Dent D. *et al.* (2009) The Potential for Species Conservation in Tropical Secondary Forests. *Conservation Biology* **23**, 1406-1417.

Dent D.H., Wright S.J. (2009) The future of tropical species in secondary forests: a quantitative review. *Biological Conservation* **142**, 2833-2843.

Dunn R.R. (2004) Recovery of faunal communities during tropical forest regeneration. *Conservation Biology* **18**, 302-309.

Gibson L., Lee T.M., Koh L.P. *et al.* (2011) Primary forests are irreplaceable for sustaining tropical biodiversity. *Nature* **478**, 378-381.

Lamb D., Erskine P.D., Parrotta J.A. (2005) Restoration of Degraded Tropical Forest Landscapes. *Science* **310**, 1628-1632.