



David Edwards *conservation biologist*

Before I even went to school I was obsessed with wildlife. I was the weird kid in the playgroup who could identify all sorts of animals. I blame Sir David Attenborough for making me decide to pursue a degree in ecology (at the University of East Anglia). Those amazing wildlife shows made me want to get out to the tropics and amongst the animals. I took a year out first and worked so that I was able to spend the money I earned going to tropical countries each year during the university holidays. I visited Kenya, Uganda, Ecuador, Sumatra, Java, India, Borneo, India, Madagascar...all in my university holidays.

These experiences helped me to see the difficult situation in which tropical conservation sits and the poverty in which the local people live. When I was travelling in National Parks in Indonesia, people were shooting the wildlife and cutting the trees down even whilst I was there. I also had a number of experiences which you might say were 'close to the wire'. I've been held up at gunpoint in the middle of the night whilst camping on Mount Kenya and was growled at by a tiger 10 metres away in the Sumatran bush. It's one of the reasons for going – it's wild and exciting!

Young researcher

After I graduated, I spent time working as a researcher analysing the migration of plaice in the North Sea – not related to the tropics, but it gave me skills in data analysis and made me want to do my own research project, rather than working for someone else. I ended up applying to do a PhD in Peruvian ant-plant mutualism – cooperation between ants and plants in the Peruvian Andes. This meant that I got to go to the Amazon quite a lot!

I then decided to make the jump from a tropical ecologist to a tropical conservation biologist. This took a year and a half of being nominally unemployed – taking the odd short term contract, the odd bit of teaching. Ultimately I did some voluntary work doing a month's bird surveying in Borneo and this led to a research role looking at how logging impacts food webs, specifically birds. This then moved into studying the impacts of land-use change in rainforests on biodiversity in general.

The data we collect from the field is used to make models predicting how different land-use strategies will affect biodiversity in tropical regions. For instance, is it best to farm intensively over smaller land areas, sparing some wild forests for nature, or is it better to farm less intensively but over a larger area? We also try to consider how we can provide some economic benefit to local people and poor governments and take into account the profit that they could have had by cutting down their forest instead of not.

One solution might be carbon payments. In some areas, such as cattle pastures in the Colombian Andes, agriculture is not very profitable but the local people lack the financial means to move to cities and towns to get other jobs. Our work suggests that secondary forests provide a habitat for much biodiversity and can sequester a lot of carbon. So by paying them to grow carbon, instead of cows, we can help stop climate change and the extinction of biodiversity.

Making models

It takes 2-3 years to make a model. You start with an idea, then you have to get research permissions (which might take 6 months), before selecting your

study sites and sampling the biodiversity there. We sample transects for birds, dung beetles, ants, etc. to generate species abundance data for plots in unlogged, lightly-logged and intensively-logged forest. These are used for computer simulations where we randomly extract 3 intensively-logged and 1 unlogged plot (equivalent to a 'land-sparing' strategy) and compare them with the species abundance of 4 lightly-logged plots (which represent 'land-sharing'). We can then total up the number and abundance of species in each simulation to ask whether land-sparing or sharing would be better for biodiversity.

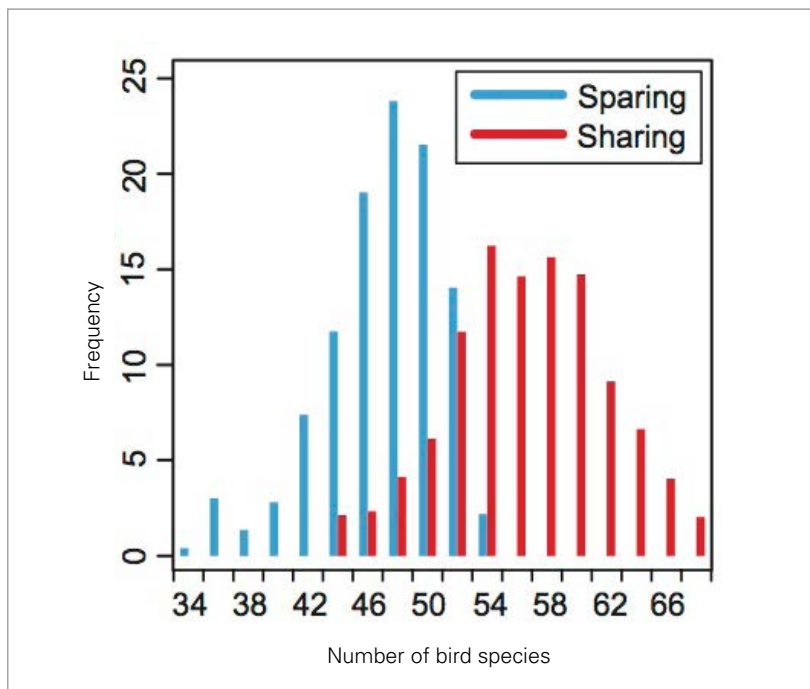
The best part of my job is feeling that I can possibly make a difference to save the biodiversity in these wonderful places. My work has shown that lightly-logged tropical forests still retain much biodiversity and are extremely valuable for most species threatened with extinction, including orangutans, elephants and birds. Given this fact, in Sabah, Borneo, they have recently protected 250 000 hectares of heavily- and lightly-logged tropical forest (an area roughly 70% the size of Essex).



Logging of tropical forest in Borneo prior to planting with oil palms.



Greenpeace celebrated when Nestlé agreed not to use products from deforested areas in the manufacture of KitKat bars.



Surveys show that there is greater diversity of bird life when farming is less intensive ('sharing') than when separate areas are set aside for wildlife ('sparing').

We have to accept that people will want to use natural resources and require land for food but this needs sensible land use management. Instead of cutting down more trees, we should look at enhancing our yields on existing croplands and placing croplands on areas which have very limited biodiversity.

Playing your part

Consumers *do* have a collective power to bring about change. The key is to aim at large companies – they are the biggest producers and own millions of hectares of former tropical forest in oilpalm, soil and cattle. They have the most to gain from being seen as green or the most to lose from being associated with deforestation. An example is the Greenpeace Nestlé campaign. In response to tens of thousands of people, Nestlé announced that they would no longer use palm oil from deforested areas in their foods. Many people think that these issues are too massive for them to be able to make a difference. But if we as consumers create a market for deforestation-free products, we remove the reason for companies to keep cutting down tropical forests.

To students interested in a career in conservation, I would advise going out and looking for birds, dragonflies or whatever you like, just for fun, speaking to people with similar interests, going on trips in Britain and abroad, volunteering at the local nature reserve – there are lots of things that can build your experience. You have to love what you're doing to work in tropical conservation. But the threats are so great that you know the work you are doing has great value.

Dr David Edwards is a lecturer in the Department of Animal and Plant Sciences at the University of Sheffield, UK.