

Michael Pocock

UK Ecologist

A burnet moth visiting a flower on one of the downland study sites

A couple of years ago I was doing some field work. The work was very weather-dependent, so I had to make the most of any sunny day that came. The weather was poor that particular summer so, if the weekend was sunny, I had to work then. So there I was, on a beautiful hillside in the sunshine, overlooking the incredible landscape of southern England, counting flowers and catching and identifying insects as part of a research project. To be honest I felt a bit down-in-the-dumps because I was working on a weekend, when I would much rather have been with my family doing something like... well... what I would ideally like to be doing is looking for insects on a sunny hillside in a beautiful landscape. Hmm, maybe this job isn't so bad after all!

My job is doing research in ecology. The incredible benefit of my job is that I get paid for doing something that I love – it is more of a vocation than 'work'. I also think what I do is important. Our environment is under threat from all sorts of pressures from people, such as habitat loss, agriculture, urban development and, of course, climate change. That is often bad for nature. And because we depend upon nature (for air, clean water, food, pollination, natural pest control and so on) then what is bad for nature is bad for us. And that is what I do research on. Maybe through my research I can do my bit to contribute to a better future for people and our environment.



Checking for fleas on a wood mouse by combing it with a toothbrush – not all science is hi-tech!



Michael being filmed talking about the Conker Tree Science project for BBC1's *The One Show*

Computing power

Recently, my work has involved a lot more analysis on the computer, but prior to this I used to do field work and lots of it! I would go out and sample insects, survey plants and monitor mammals. I've done research on all sorts of wildlife in Britain. (Many ecologists do field work abroad, but all of mine has been done in Britain. It's convenient but probably less exciting than going abroad!)

Some of my research seems odd to other people, two fieldwork projects in particular. In one I was live-trapping house mice on farms, covering them in fluorescent powder and then returning at night with a special torch to follow the glowing trails to discover where and how far the mice moved. (They didn't move far at all, which has important implications for the spread of disease on farms.) The other one was spending many freezing cold winter mornings combing mice with a toothbrush to find what fleas they were carrying. (I wanted to discover whether the diversity of fleas on mice and voles was related to the farmland conditions they live in.) Yes, some of the field work might seem odd but it contributes to answering important questions and it is an incredible privilege to get hands-on (literally) with nature.

Webs and networks

Going back to the start of my story, when I was looking at insects visiting flowers, I was working on food webs. When you look at all the different insects visiting flowers, you have a big network of these interactions. One fun thing is that networks crop up in lots of different areas: Facebook forms a big network, as do computer servers, people spreading disease, subatomic particles interacting together, and bankers trading on stock markets. It means that I do analysis by learning from people who do research in physics, maths, geography or economics. Science can get really creative.

Once I have the data I'll then analyse it and write up the results of my research. This will be published in scientific journals for other scientists to read. Publishing results is important, but I also get excited about engaging ordinary people about nature and their environment. One of the most exciting ways is for them to get hands on with nature too and so with a friend I set up the Conker Tree Science project, so that ordinary people could get involved in real scientific research (which is known as 'citizen science'). I've even had opportunities to talk about my work on national television and radio. I have no desire to be a TV star, but doing this once in a while definitely adds to the variety of my work and is really enjoyable.

One of the incredible privileges of being a scientist is that it is up to me to come up with interesting ideas to research; in many areas of my work I am my own boss. It means I need to be really self-motivated and I have an incredible sense of freedom to do what I think is important and interesting (as long as I can get funding for it). One disadvantage is that funding for scientific work is very competitive (only about 1 in 5 ideas will get funded) – I've had to develop a really thick skin to cope with rejections and keep persevering to get funding for some ideas. It can be tough, but when it works out it is amazing!

Michael Pocock is an Ecologist at the Centre for Ecology and Hydrology. He also co-runs the Conker Tree Science project in which anyone, including school students in key stages 2, 3 and 4, can get involved in real scientific research.

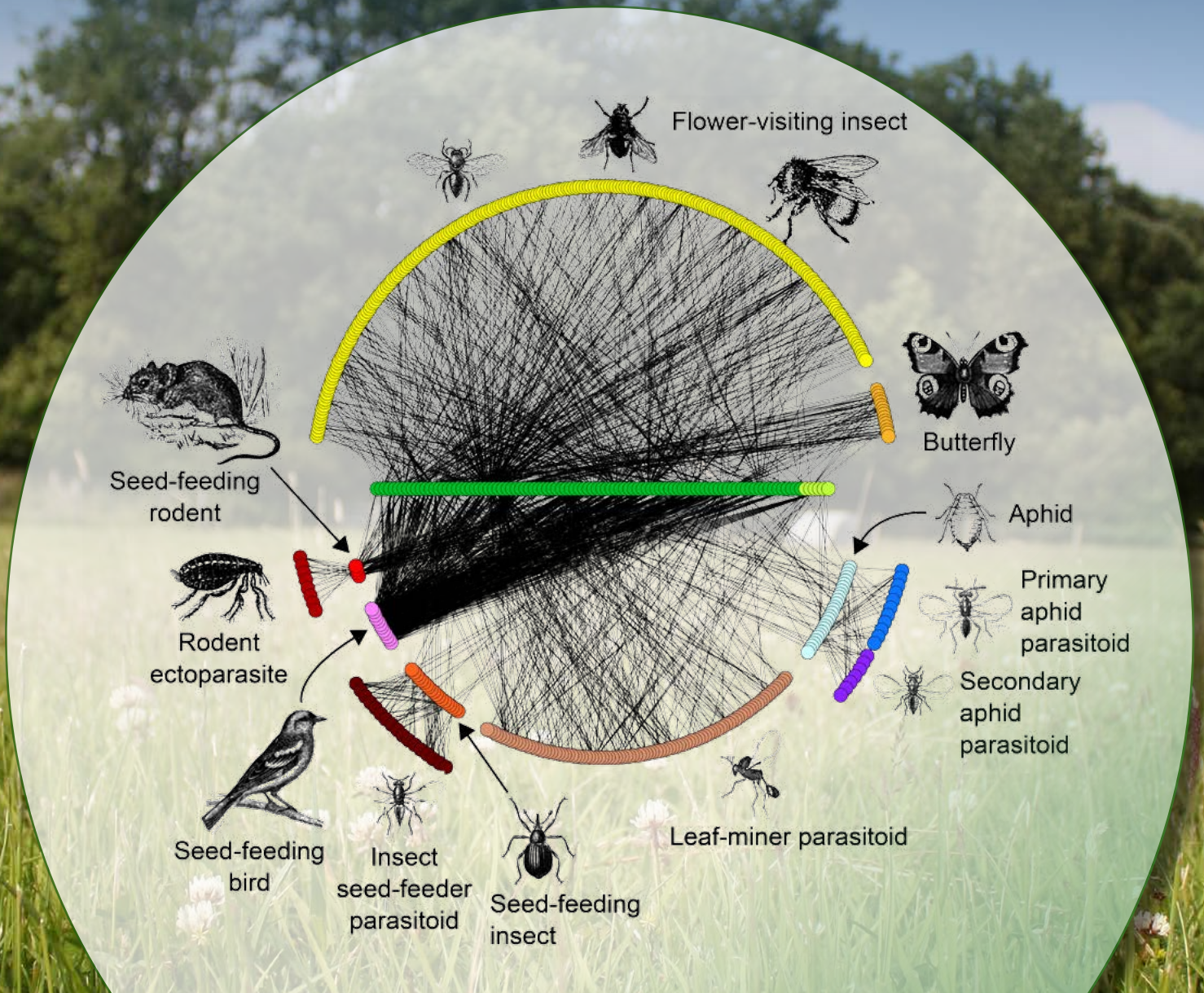
Look here!

Find out more about Michael's Conker Tree Science project here:
www.conkertreescience.org.uk/

The next page shows a typical food web resulting from a detailed survey of a single farmland habitat.

Food web

This food web, derived from Michael Pocock's survey data, shows the interactions between 560 different species on a single organic farm in Somerset.



In this web, each circle represents a different species sampled on the farm (green circles indicate plants, with the lighter green circles indicating crop plants). Even this incredibly complex food web represents just a sample of the interactions. If we had sampled predators, insectivorous animals, animals that eat decaying matter or fungi, the food web would have been far more complex!