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Insect species 'fewer than thought'



Butterflies can be choosy eaters: But few insects are

By Alex Kirby

BBC News Online environment correspondent

Scientists have made a drastic downwards revision of the number of insect species they believe the Earth contains.

Instead of about 30-million-plus species some have suggested, the researchers say there are probably no more than four to six million different insect groups.

The new estimate stems from a study of the plants which insects eat.

The scientists say conserving the greatest possible number of species across the globe remains vital.

Not fussy

Their findings, published in the journal *Nature*, are based on a six-year study in the rainforest of New Guinea.

The main discovery by the seven scientists - three from the Czech Republic, three from the US, and one from Sweden - is that insects are much less fussy feeders than anyone had realised.

Instead of eating only individual plant species, most insects are far more catholic in their tastes.

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The team compared insect communities feeding on 51 plant species, most belonging to the fig, mulberry or coffee families.

No connection

They collected 50,734 leaf-chewing insects from more than 900 species. The insects were on 51 plant species, and all were collected by hand.

Scientists used to assume that each plant-eating insect species tended to feed on one plant species, or very few.



That would mean that the number of herbivorous insect species should be linked to the number of plant species. But the New Guinea group found that was a false assumption.

Conservation remains a priority

The principal plant expert in the team is George Weiblen, a plant biologist from the University of Minnesota, US.

Big success

He said: "Most insects turn out to be specialised not to plant species, but rather to a genus [a group of species] or a family [a group of genera] of plants.

"Fewer effective plant 'hosts' mean fewer herbivores. Where people had assumed that different insects' food sources overlapped very little, we found that many insects share their food plants with other insect species.

"There are actually few extreme specialists among tropical insect herbivores."

The number of insects identified so far is between one and two million - there is no money for a complete catalogue to summarise information from collections across the world.

As only about 10,000 new species are identified annually, it could take another four centuries to identify the rest, if they survive that long. Insects are the most abundant and successful animals on Earth.

Critical half-century

George Weiblen said: "Our estimates bring some reality to predictions about declining biodiversity in the sense that the consequences for insect herbivores of losing a particular host plant species may not be as dire as previously thought.

"But that is no reason to ignore the decreasing number of species worldwide.

"The Harvard biologist EO Wilson predicted in his book *The Future of Life* that half of all species will suffer extinction in 50 years if current land use patterns continue.



Plant and insect numbers are not linked

"Because the consequences are so severe, we've got to refine our predictions and conserve as many species as possible."

Fragile web

In the same edition of *Nature* researchers from the University of Chicago, US, report it is not only the number of species lost within an ecosystem that matters, but the species' identity.

Professor Mathew Leibold said: "How diverse the ecosystem is and how a particular species interacts with the rest of the system is perhaps more important than the actual number of species.

"When you pluck a species out of an interacting food web, the results are going to have a cascading effect and be much more dramatic."

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