Search for wasp spiders – they're spreading northwards

Heather is in bloom and at its best

TINY & WILD ROSS PIPER

Insect decline

With "insectageddon" making sensational headlines, what's the truth about insect loss?

Insects are among the most successful animals on land, and are fundamentally important in the functioning of terrestrial ecosystems. In browsing, predating, scavenging and getting eaten by other organisms, they profoundly affect the movement of nutrients and energy through these systems. In myriad ways they keep life on Earth ticking over, living out their lives in ways that make the mind boggle.

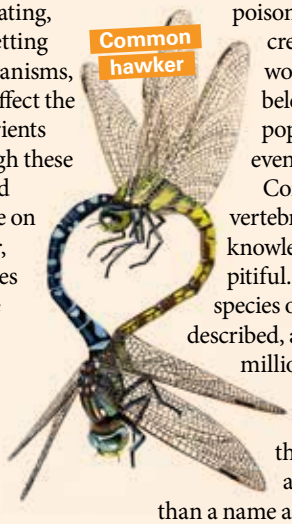
They may seem plentiful, but long-term studies have documented alarming declines. Populations of some large conspicuous insects, such as butterflies, have plummeted, but the situation for smaller, less well-known insects is not well understood. There are also nuances in these declines that are absent from recent media reports with headlines such as "Mass insect extinction within a century…" and "The world's insects are hurtling down the path to extinction…"

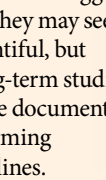
Insects are *not* heading for extinction, but there's plenty to be concerned about, especially as these animals are a barometer of environmental health and an early warning that all is not well.

Teasing apart the reasons behind these declines is difficult, but habitat loss, the intensification of agriculture (especially the large-scale use of pesticides) and climate change are the three most important factors. We're simultaneously depriving them of habitat, poisoning them and creating a warmer world that puts beleaguered populations under even more strain.

Compared to vertebrates, our knowledge of insects is pitiful. Nearly one million species of insect have been described, and there are millions more awaiting description. The vast majority of the described species are not much more than a name and precious little is known of how they live, not to mention their long-term population trends.

Insects are crucial to us, yet we are making it harder for them to thrive and provide the services we so depend on. The declines that have been documented can be reversed. To do this we must devote more resources to the study of insects. We must also look at our consumption – from food to fossils fuels – because our demands on the planet are unsustainable. We need to understand that we are part of nature rather than above it.





Dr Ross Piper is an entomologist, zoologist and explorer. His book, *Animal Earth*, is a cutting-edge introduction to animal diversity. Find out more at **rosspiper.net**

LOCAL WINNERS AND LOSERS

In the past 150 years the UK has lost many insect species, such as the large tortoiseshell butterfly, the weevil *Lixus paraplecticus* and the jewel beetle *Anthaxia nitidula*.

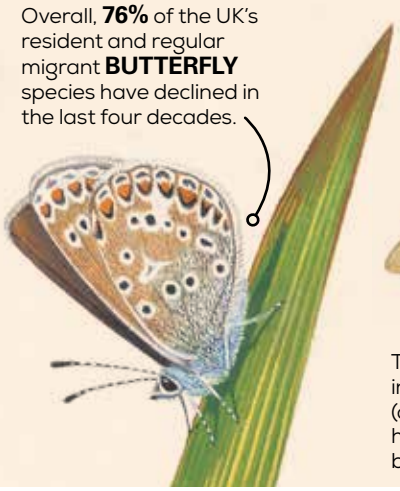
In that same period the populations of many others have plummeted, including the potter flower bee *Anthophora retusa* and shrill carder bee, *Bombus sylvarum*.

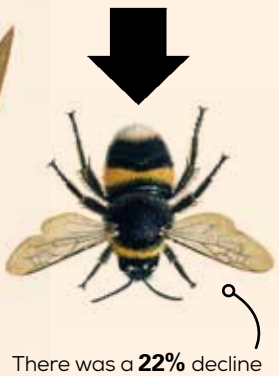
A small number of species for which there is good data appear to be thriving. Examples include the Essex skipper and comma butterflies.

Southern species not currently found in the UK will colonise and spread as the northern limit of their range expands with rising temperatures caused by climate change.

Seemingly small increases in temperatures, however, can also dupe overwintering insects to emerge too early and even halve the fertility of male insects.

Overall, **76%** of the UK's resident and regular migrant **BUTTERFLY** species have declined in the last four decades.





There was a **22%** decline in the pollinator indicator (a list of 351 bee and hoverfly species) between 1980 and 2016.

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