

# Australasia's hidden pollination crisis could threaten biodiversity and food security

October 30 2023

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Australasia has likely overlooked a pollination crisis, according to new research published today in the journal *Ecology and Evolution*. The research, led by Macquarie University, also underscores a pressing need

for intervention to avoid biodiversity loss and long-term food insecurity in the region.

The authors analyzed thousands of [research papers](#) on human-induced pollinator decline globally, and found that despite only a tiny portion mentioning Australasia, the causes of pollinator decline in the northern hemisphere were mirrored in this region.

Research in Europe and North America finds threats that include loss of natural habitat, [climate change](#), pesticide use, pathogen spread, and introduced species all contribute to [population decline](#) in animals (including birds and insects) that act as pollinators and in the plants they pollinate.

"At first glance it seems Australasia has dodged a bullet and missed the so-called insect apocalypse and other declines in pollinators," says lead author Honorary Professor Graham Pyke, from Macquarie University's School of Natural Sciences.

But despite little research into pollinator shortages in Australasia, Professor Pyke's team has found serious environmental threats to local pollinators that suggest Australasia's own pollination crisis has gone largely unnoticed.

"The same environmental threats to plants and their pollinators are happening in this region—but we haven't been monitoring their impact," he says.

A pollination crisis is the decline in abundance—including to the point of extinction—of animals that act as pollinators and of the plants they pollinate.

"This is not a trivial issue," says Professor Pyke. "In Australia, we

estimate 15,000 animal species act as plant pollinators. Declines in these pollinator species will cascade through to the estimated 20,000 species of flowering plants in Australia that rely on or benefit from animal pollination to reproduce.

"This includes many food plants such as most fruits and many vegetables, ranging from tomatoes and beans to coffee, strawberries, canola and even cacao—essential for chocolate, which rely partially or totally on animal pollination," he adds.

Professor Pyke says the collection of detailed taxonomic and other [research data](#) on Australasian flora and fauna is required to better understand the region's position and plan appropriate interventions.

Study co-author Dr. Kit Prendergast, adjunct researcher at Curtin University, says that neglecting to conserve local indigenous pollinators exacerbates the pollination crisis. The introduced European honey bee has spread throughout Australia, playing a key role in pollination of some crops, but competes with [native bees](#) and other pollinators and can disrupt pollination systems.

"There are currently 1,660 native bee species which are described, and hundreds more that remain undescribed. The investment into these bees is vastly overshadowed by the investment into the introduced honey bee," Dr. Prendergast says.

Study co-author Associate Professor Zong-Xin Ren, from Kunming Institute of Botany at the Chinese Academy of Sciences plans to extend the study to include China and other parts of Asia.

The authors say that the region needs to step up its game in monitoring and improving conditions for pollinators to prevent widespread impact on food security.

"Neglecting the [pollination](#) crisis in Australasia could reverberate globally, and even jeopardize biodiversity and food supply," says Professor Pyke.

**More information:** Pollination crisis Down-Under—Has Australasia dodged the bullet?, *Ecology and Evolution* (2023).

Provided by Macquarie University

Citation: Australasia's hidden pollination crisis could threaten biodiversity and food security (2023, October 30) retrieved 28 April 2024 from <https://phys.org/news/2023-10-australasia-hidden-pollination-crisis-threaten.html>

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