

# Global biodiversity report warns pollinators are under threat

First assessment from intergovernmental body set up to track world's ecosystems suggests curbing pesticide use to save bees.

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26 February 2016



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Honeybees (pictured) are among pollinators whose population is in decline.

An international science body tasked with tracking the ecological health of the planet has announced the findings of its first report. The review warns that the ongoing decline in the number of pollinating insects and animals threatens global crop production.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) was established in 2012, and is roughly modelled on the Intergovernmental Panel on Climate Change (IPCC). The response to the pollinator report, announced on 26 February at a meeting in Kuala Lumpur, may be an early sign of whether the body's influence will one day match the IPCC's political and scientific clout.

Robert Watson, an environmental scientist at the Tyndall Centre for Climate Change at the University of East Anglia in Norwich, UK, who is vice-chairman of the IPBES, says that he is confident that the assessment will have an impact. The IPBES has 124 member governments, and its pollinator assessment went through two rounds of external peer review. And just as with the IPCC's climate reports, the assessment was debated word for word, Watson says. "The fact that all governments requested this document really bodes well that they will use the results," he says.

But Dave Goulson, a bee researcher at the University of Sussex in Brighton, UK, says: "I would question whether any practical on-the-ground action to help pollinators will happen as a result of this document. We are in the midst of the sixth global mass-extinction event, and we sit around spending thousands of hours writing documents about biodiversity, but we do not take action to address the fundamental issues that are causing this ecological catastrophe."

## Pollinator warning

The report offers a sober assessment of the decline in populations of pollinating insects and animals, affected by factors including climate change, disease and pesticide use. The global production of crops that depend on pollinators is an industry worth up to US\$577 billion annually, the report says.

“If we get further declines in wild and managed pollinators, it would be a serious risk to foods that rely on those pollinators, especially food of high nutritional quality such as seeds and fruits,” says Watson.

It is “becoming very clear” that pesticides have “definite harmful effects” on wild bees, says Simon Potts, a biodiversity scientist at the University of Reading, UK, and co-chair of the report. “There needs to be less application and smart application” of such chemicals, he adds.

Studies have [yielded mixed results](#) on the link between pesticides and declining bee health, the IPBES assessment notes. Critics have questioned some studies for using doses that are much higher than those typically found in pesticide residues on farmers’ fields, and also ask whether sub-lethal effects seen in individual insects are relevant to whole populations.

The review acknowledges these limitations, but it says that some lab studies do use realistic doses. The harmful effects seen on individual bees in [one recent field-based study](#)<sup>1</sup> are “so huge and so strong”, adds Potts, that it indicates that effects on populations and colonies will likely be negative. The next step is to get direct evidence of long-term population effects, he says.

“Exposure of pollinators to pesticides can be decreased by reducing the use of pesticides,” the report says, and by using other forms of pest control. It also suggests that farmers could adopt ecologically friendly farming techniques, such as planting strips of flowers to boost pollinating insect numbers.

In 2013, the European Commission imposed a temporary ban on the use of three controversial ‘neonicotinoid’ insecticides — clothianidin, thiamethoxam and imidacloprid. The European Food Safety Authority (EFSA) in Parma, Italy, is reviewing their safety and expects to complete its analysis by January 2017.

### **IPBES controversy**

The IPBES assessment attracted controversy before its release: some scientists [complained of a lack of transparency](#) in the appointment of two agrochemical scientists among 40 lead authors involved in the review. Axel Hochkirch, a biodiversity scientist at the University of Trier, Germany, says that he is still concerned about how the scientists from industry were selected, even though the IPBES requires all lead authors to complete conflict-of-interest statements.

Watson told *Nature* that the IPBES conflict-of-interest committee “looked carefully” at the industry scientists’ CVs and “concluded there is no conflict”. In addition, Watson says that the IPBES has “checks and balances” in place — such as planned independent reviews of its procedures in 2017 and 2018 — to ensure that everything is above board.

“The independent review will be critical,” says Thomas Brooks, head of science at the International Union for Conservation of Nature (IUCN) in Gland, Switzerland. The IPBES has proposed to hand over the leadership of the review to the International Council for Science, a non-governmental organization representing scientific bodies and unions, but Brooks says that the IPBES should select a consultancy company through a competitive and open process.

Anne Larigauderie, executive secretary of the IPBES, says that the body will decide how to conduct the reviews at the end of its Kuala Lumpur meeting, on 28 February. The meeting will also set the IPBES budget for the next two years and decide whether it should conduct a global assessment of sustainable biodiversity use, as well as a separate review on invasive species.

The IPBES is currently working on four regional biodiversity assessments including in Africa and the Americas, and a separate assessment of land degradation, all of which it hopes to complete by 2018.

*Nature* | doi:10.1038/nature.2016.19456

### **References**

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1. Rundlöf, M. *et al.* *Nature* **521**, 77–80 (2015).