

News



[Conference: The Impact of Pesticides on Bee Health, Charles Darwin House, London, UK, 22-24 January 2014](#)

Adam Vanbergen posted on Oct 17, 2013

Joint meeting of the British Ecological Society, Biochemical Society and Society of Experimental Biology.

Abstract submission 24 November 2013

Early Bird Registration 16 December 2013

More details: [20130199 BSB003 Flyer_web.pdf](#)



[Sustainable Landscapes for the Future - Research, Design and Management](#)

Adam Vanbergen posted on Apr 30, 2013

On Thursday 18th July 2013 the University of Bristol is pleased to be hosting a one day workshop that will bring together different sectors of the Landscape Industry on the subject of [sustainable landscape research, design, and management](#).

The aim is to facilitate discussion between a wide range of people working in the Landscape Industry leading to future research ideas and opportunities.

The event is aimed at landscape architects, landscape planners, academic researchers, industry researchers, environmental practitioners (local councils, charities), anyone with an interest in the sustainable management of landscapes.



[Cocktail of multiple pressures combine to threaten the world's pollinating insects](#)

Adam Vanbergen posted on Apr 22, 2013

A new review of insect pollinators of crops and wild plants has concluded they are under threat globally from a cocktail of multiple pressures, and their decline or loss could have profound environmental, human health and economic consequences.

Globally, insects provide pollination services to about 75% of crop species and enable reproduction in up to 94% of wild flowering plants. One estimate valued the pollination services provided by insects worldwide at over US\$200 billion.

The [review, published today \(22 April 2013\) in the scientific journal 'Frontiers in Ecology and the Environment'](#), was carried out by an international team of 40 scientists from 27 institutions involved in the UK's Insect Pollinators Initiative (IPI), a research programme investigating the causes and consequences of pollinator decline.

Dr Adam Vanbergen from the UK's Centre for Ecology & Hydrology and science coordinator of the IPI led the review. He said, "There is no single smoking gun behind pollinator declines, instead there is a cocktail of multiple pressures that can combine to threaten these insects. For example, the loss of food resources in intensively-farmed landscapes, pesticides and diseases are individually important threats, but are also likely to combine and exacerbate the negative impacts on pollinators"

Co-author Professor Simon Potts from the University of Reading said, "Pollinators are the unsung heroes of the insect world and ensure our crops are properly pollinated so we have a secure supply of nutritious food in our shops. The costs of taking action now to tackle the multiple threats to pollinators is much smaller than the long-term costs to our food security and ecosystem stability. Failure by governments to take decisive steps now only sets us up for bigger problems in the future."

Co-author Professor Graham Stone at Edinburgh University's Institute of Evolutionary Biology says, "a major challenge is going to be understanding the whole ecosystem effects of the specific threats faced by specific pollinators. Complicated as this is, this is nevertheless what we need to do if we want to predict overall impacts on pollination services."



[INTECOL Symposium, London, 18-23 August 2013, Threats to an ecosystem service - evaluating multifactorial pressures on insect pollinators](#)

Adam Vanbergen posted on Feb 20, 2013

Threats to an ecosystem service: evaluating multifactorial pressures on insect pollinators

Organiser - Dr Adam J Vanbergen, NERC Centre for Ecology and Hydrology

Co-organiser – Professor Simon G Potts, University of Reading, UK

Co-organiser - Dr Matt S Heard, NERC Centre for Ecology and Hydrology

Keynote speaker: Prof. Claire Kremen Global trends in pollinator conservation and links with society

Invited Speakers:

1. Prof. Robert Paxton - Disease as a driver of bee losses: impacts across biological scales
2. Dr Oliver Schweiger - Multiple interacting pressures on pollinators in agricultural landscapes
3. Dr Jacobus Biesmeijer - Impacts of pollinator declines on food security, human health and wider ecosystem function
4. Dr David Kleijn - Towards multifunctional landscapes: agriculture, agri-environment schemes, and protected areas

[The abstract submission system is now open for INTECOL 2013 in London](#) with a deadline of 22 March 2013.

[INTECOL home page](#)



Will banning neonicotinoids save pollinators?

Adam Vanbergen posted on Feb 20, 2013

Lynn Dicks provides some background information and references to support her [World View](#) article, published this week in Nature.

On 25 February 2013, the European Union (EU)'s [Standing Committee on the Food Chain and Animal Health](#) votes on a proposal to ban the use of three widely used agricultural insecticides on crops attractive to bees. They are neonicotinoids - clothianidin, thiamethoxam and imidacloprid. They've been around since the mid-1980s. Often, they're applied as seed treatments and remain in crop plant tissues throughout the plant's life. This means their use is what you might call prophylactic, rather than being in response to pest attack.

The underlying driver for the sudden policy change is the emergence of new evidence showing substantial sublethal effects of neonicotinoids on honey bee *Apis mellifera* and bumblebee *Bombus terrestris* colonies at field-realistic doses (1,2,3). These experiments imply particularly serious implications for wild bumblebee colonies, such as an 85% reduction in new queen production, if they are exposed in the wider environment at the levels tested (3).

Such effects are not considered acceptable risks by the European Food Safety Authority (4). Even more importantly, they would not have been picked up by the existing regulatory system in Europe, which focuses entirely on honey bees, although new guidance to be published this spring is expected to extend the risk assessment to cover bumblebees and solitary bees.

We know that where measured, wild flower-visiting insects (bees, hoverflies, butterflies and moths) are declining in diversity and many are declining in abundance (5). We know managed honey bees have suffered serious unexplained health problems leading to substantial colony losses in the US and parts of Europe (5). And there is clear evidence that honey bees are exposed to neonicotinoids at levels similar to those tested, via crop plants, dust from seed planters and even weeds growing near treated fields, which seem to pick up residues from the soil (6).

The key question is, to what extent are the sublethal effects demonstrated in laboratories responsible for observed declines? This is where the scientific evidence flounders. Proving causal links between pesticide use and either bee declines or honey bee health problems is difficult. We still have no data on the actual exposure of wild pollinators to neonicotinoids, or to multiple pesticides including neonicotinoids, in their natural environment. The foraging behaviour and life histories of flower-feeding insects mean that reported levels of pesticide residue in crop plant nectar and pollen do not equate to actual exposure (7). Most flower-feeding insects are generalists and opportunists. They feed on a range of available resources, including wild plants and crop plants. Landscape-scale field trials are needed, with treatment and control plots substantially larger than the standard 1 ha (100 m x 100 m), separated by a greater distance than the foraging range of bee colonies, which can be several kilometres. Such research is starting to happen. I know of at least one study recently commissioned in Sweden, but it will take years to come up with results. And so it should.

Current scientific opinion is that pollinator declines are caused by multiple interacting pressures rather than any single threat (5,8,9,10). Habitat loss, disappearance of floral resources, climate change and disease may all play a part. Pesticides are one of these multiple, interacting pressures. There is no reason to believe that simply removing one group of insecticides, without addressing the other pressures, will solve the problem. It's one step in the right direction.

Lynn Dicks is a Knowledge Exchange Fellow at the University of Cambridge, funded by the UK Natural Environment Research Council

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- 1 Gill, R. J., Ramos-Rodriguez, O. & Raine, N. E. Combined pesticide exposure severely affects individual- and colony-level traits in bees. *Nature* 491, 105-108 (2012).
- 2 Henry, M. et al. A common pesticide decreases foraging success and survival in honey bees. *Science* 336, 348-350, doi:DOI 10.1126/science.1215039 (2012).
- 3 Whitehorn, P. R., O'Connor, S., Wackers, F. L. & Goulson, D. Neonicotinoid pesticide reduces bumble bee colony growth and queen production. *Science* 336, 351-352, doi:10.1126/science.1215025 (2012).
- 4 European Food Safety Authority. Conclusion on the peer review of the pesticide risk assessment for bees for the active substance clothianidin, imidacloprid and thiamethoxam. *EFSA Journal* 11, 3066-3068 (2013).
- 5 Potts, S. G. et al. Global pollinator declines: trends, impacts and drivers. *Trends in Ecology & Evolution* 25, 345-353, doi:DOI 10.1016/j.tree.2010.01.007 (2010).
- 6 Krupke, C. H., Hunt, G. J., Eitzer, B. D., Andino, G. & Given, K. Multiple Routes of Pesticide Exposure for Honey Bees Living Near Agricultural Fields. *PLoS ONE* 7, e29268 (2012).
- 7 Brittain, C. & Potts, S. G. The potential impacts of insecticides on the life-history traits of bees and the consequences for pollination. *Basic Appl. Ecol.* 12, 321-331, doi:DOI 10.1016/j.baec.2010.12.004 (2011).
- 8 Brown, M. J. F. & Paxton, R. J. The conservation of bees: a global perspective. *Apidologie* 40, 410-416, doi:DOI 10.1051/apido/2009019 (2009).
- 9 Szabo, N. D., Colla, S. R., Wagner, D. L., Gall, L. F. & Kerr, J. T. Do pathogen spillover, pesticide use, or habitat loss explain recent North American bumblebee declines? *Conserv. Lett.* 5, 232-239, doi:10.1111/j.1755-263X.2012.00234.x (2012).
- 10 Vanbergen, A. J. & Insect Pollinators Initiative. Threats to an ecosystem service: pressures on pollinators. *Frontiers in Ecology and the Environment* doi: 10.1890/120126 (In press).



Research Update (First published in December 2012 BBKA News)

Adam Vanbergen posted on Jan 07, 2013

A short article updating (for the non-specialist) on the progress of the nine research projects funded by the IPI was solicited by the British Beekeepers Association (www.bbka.org.uk). This article was first published in BBKA News in December 2012 and can be [viewed here](#).



Insect Pollinators - Linking Research and Policy

Adam Vanbergen posted on Dec 10, 2012

The international workshop Insect Pollinators: Linking Research and Policy, which took place on 14th February in London, was organised by the UK Science and Innovation Network in collaboration with UK partners, including BBSRC and DEFRA.

The workshop brought together 59 scientists (including some IPI researchers), policy-makers and other stakeholders (including industry) from across Europe to discuss insect pollination from four different perspectives: pollinator diversity, pollinator health, pesticide impacts on pollinators and the economics of pollination.

Policy-makers need robust evidence to develop appropriate policies relating to insect pollination. Researchers around the world are engaged in a variety of projects to understand fully the problems facing pollinators, and to support the development of new strategies and interventions. The concept for the workshop grew from the policy need to understand the different messages coming from various media and lobby groups regarding insect pollinators, their role in pollination, their decline and speculation as to how this might affect global food production.

The workshop participants shared and exchanged their expertise in research, policy and best practice to identify the key research and policy priorities in insect pollination.

The final 34-page report includes a two-page executive summary of recommendations, followed by the detailed outputs of each of the four working groups. The research and policy priorities identified are clearly presented in nine individual tables.

For specific questions regarding the report's content, please contact the coordinating author, Dr Adam Vanbergen, from the NERC Centre for Ecology & Hydrology, who is the science co-ordinator of the UK Insect Pollinators Initiative ajv@ceh.ac.uk

The [final workshop report](#) is now available



[UK Parliamentary Select Committee Hearings - Insects and Pesticides, the Environmental Audit Committee](#)

Adam Vanbergen posted on Nov 29, 2012

Experts in insect pollination (including Simon Potts, Nigel Raine, Chris Connolly, Graham Stone (all IPI funded), Lynn Dicks, Dave Goulson and James Creswell) have given spoken and written evidence to the committee of MPs on the effects of pesticides on pollinating insects.

The Audit committee webpage is here: <http://www.parliament.uk/business/committees/committees-a-z/commons-select/environmental-audit-committee/news/new-inquiry-insects-and-insecticides/>

The submitted written evidence is here: <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenvaud/writev/668/contents.htm>



[Talks on Insect Pollination at British Ecological Society's Annual Meeting, 20th December, 2012 BIRMINGHAM, UK](#)

Deena C Mobbs posted on Nov 14, 2012

This thematic session represents an ideal platform for the timely dissemination of new findings from the Insect Pollinators Initiative to a scientific audience. It will appeal to ecologists interested in human impacts on biodiversity, interspecific interactions, host-pathogen interactions, landscape and behavioral ecology, conservation biology, and the role of biodiversity in ecosystem services.

Invited Speakers

Multiple pressures on pollinators and their consequences for crop production : Prof. Alexandra-Maria Klein, Institute of Ecology Leuphana University, Luneburg, Germany

The role of insect diversity in crop pollination : Mike Garratt, Chiara Polce, Andrew Challinor, Mette Termensen, Giles Budge, Nigel Boatmen, Stuart Roberts, Simon Potts and Koos Biesmeijer

Landscape heterogeneity and land-use effects on pollinator diversity and space use : Mark Gillespie, Mathilde Baude, Claire Carvell, Matt Heard, Bill Kunin, Giles Budge, Nigel Boatman, Phil Northing, Koos Biesmeijer, Dan Morton, Jane Memmott, Simon Potts, Stuart Roberts, Simon Smart, Andrew Bourke, Seirian Summer.

Pathogen impacts across bee species and biological scales : Dino McMahon, Stephan Wolf, Matthias Fuerst, James Murray, Juliet Osborne, Mark Brown, Robert Paxton, John Bryden, Vincent Jansen, Giles Budge et al, David Evans, Eugene Ryabov et al.

Pesticide impacts on bees from neurons to individuals : Mary Palmer, Sally Williamson, Chris Connolly, Nigel Raine, Jenny Harvey, Neil Millar, Jeri Wright

Urban refuges for pollinators : Kath Baldock, Jane Memmott, Lynne Osgathorpe, Nadine Mitschunas, Damien Hicks, Anna Scott, Mark Goddard, Simon Potts, Graham Stone, Bill Kunin, Koos Biesmeijer

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- [conference](#)