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Insect Pollinators Initiative

Impact and mitigation of emergent diseases on major UK insect pollinators

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One of the greatest challenges to bees is coping with new exotic diseases and diseases that are native to the UK but are becoming increasingly severe. The project will address this challenge head-on. Combining the expertise of five leading laboratories across the UK and the EU in a three year project, the research will focus on diseases caused by Deformed Wing Virus and a fungus-like microorganism called *Nosema ceranae*. These are amongst the most serious diseases that affect honeybees and they have recently been found to infect some bumblebees as well. Using laboratory and field experiments, including radar tracking of individual flying bees, researchers will investigate the direct impact of both diseases on affected honeybees and bumblebees, as well as any additional harm caused by a double infection – the whole effect may be greater than the sum of the two diseases. They will also look at the potential for the diseases to affect other bumblebee species. Cutting-edge mathematical modelling and a countrywide bee survey will assess the risk *Nosema ceranae* and Deformed Wing Virus pose to the UK's major pollinator species. The team will also test two new methods to control the microorganisms that cause such diseases which are based on pro-biotic bacteria and RNA interference technology. The project will provide an assessment of current and future risks to the UK's major pollinators that can inform government policy. New ways of controlling bee diseases will be of immediate benefit to the pollinator industry and hobby beekeepers in ensuring sustainable pollination in the UK.

This project is in partnership with Dr Mark Brown at Royal Holloway, University of London and Dr Juliet Osborne at Rothamsted Research.