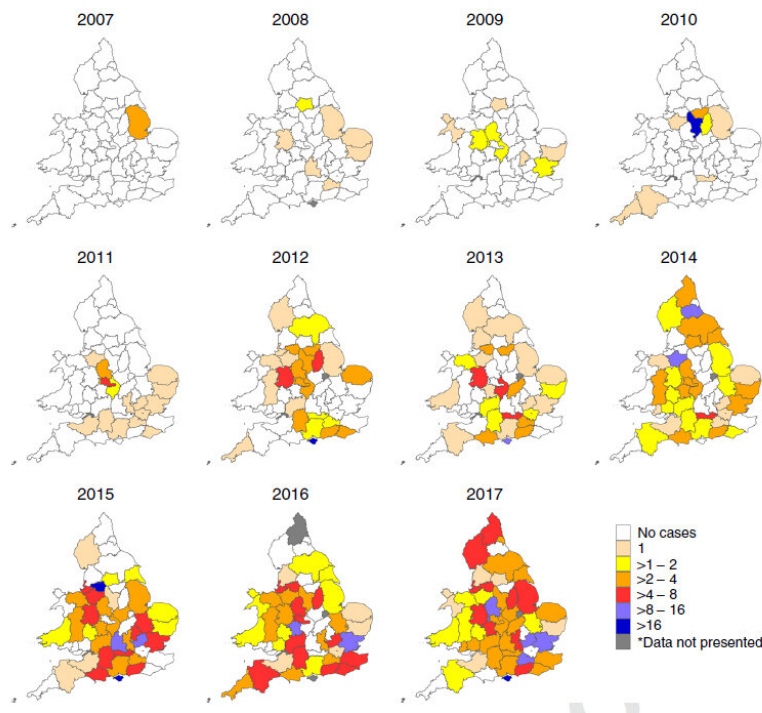


Emergence of deadly honey bee disease revealed

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Relative risk of chronic bee paralysis for each county between 2007 and 2017 compared to the overall expected risk. Credit: Newcastle University

Honey bee colonies from across the UK are increasingly suffering from a viral disease, a new study has shown.

Publishing their findings in the journal *Nature Communications*, the team

led by Professor Giles Budge of Newcastle University, UK, found that the number of [honey bee colonies](#) affected with chronic bee paralysis rose exponentially between 2007 and 2017.

Data collected from visits to over 24,000 beekeepers confirmed that while chronic bee paralysis was only recorded in Lincolnshire in 2007, a decade later it was present in 39 of 47 English and six of eight Welsh counties. The scientists also found that clusters of chronic bee paralysis, where disease cases are found close together, were becoming more frequent.

Chronic bee paralysis symptoms include abnormal trembling, an inability to fly, and the development of shiny, hairless abdomens. The disease is caused by a virus known as chronic bee paralysis virus (CBPV), and infected bees die within a week. This leads to piles of dead bees just outside [honey](#) bee hives and whole colonies are frequently lost to the disease.

Study lead, Professor Budge, from Newcastle University's School of Natural and Environmental Sciences, said: "Our analysis clearly confirms that chronic bee [paralysis](#) has been emerging across England and Wales since 2007 and that apiaries owned by professional beekeepers are at greater risk of the disease."

The study was completed in association with the Bee Farmers' Association, who represent professional beekeepers in the UK. Rob Nickless, the Chairman of the Bee Farmers' Association, said: "We are pleased to be part of this project and welcome these early results. This is the sort of research that brings practical benefits to the industry—helping bee farmers at grassroots level to improve honey bee health and increase UK honey production."

Professor Budge said: "We do not yet know why colonies of bee farmers

are at increased risk from this damaging disease, but many management practices are known to differ significantly between amateur and professional apiarists."

The study also investigated whether disease risk was associated with honey bee queen imports. Honey bee queens head up honey bee colonies and beekeepers use imported honey bee queens to replenish their stocks. The scientists used data from 130,000 honey bee imports from 25 countries to show for the first time that the disease was nearly twice as likely in apiaries owned by beekeepers who imported honey bees.

This work is being completed as a collaboration between Newcastle and St Andrews Universities, the Bee Farmers' Association and the National Bee Unit of the Animal and Plant Health Agency with funding from the BBSRC. The researchers highlight the need for further studies focussing on different virus genotypes, which will be completed at the University of St Andrews.

Future work will concentrate on the susceptibility of different honey bee races and comparing the [management practices](#) of professional and amateur beekeepers to help discover the reasons behind the current disease emergence. This work will have the potential to reduce or mitigate the damage of this emerging [disease](#) to our most important managed pollinator.

More information: Chronic bee paralysis as a serious emerging threat to honey bees, *Nature Communications* (2020). [DOI: 10.1038/s41467-020-15919-0](#)

Provided by Newcastle University

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