Asian hornet to colonize UK within two decades without action

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Asian hornet on outside of nest. Credit: National Bee Unit

The yellow legged or Asian hornet - a voracious predator of honey bees

and other beneficial insects - could rapidly colonise the UK unless its spread is combatted, according to new research by the Universities of Warwick and Newcastle, working with the National Bee Unit.

Professor Matt Keeling, from Warwick's Zeeman Institute for Systems Biology & Infectious Disease Epidemiology Research (SBIDER), predicts that if Asian hornet nests are left to thrive in the UK, there could be hundreds of thousands of them in just over two decades - putting a critical strain on British populations of honey bees and other beneficial insects.

The researchers simulated the likely spread of Asian hornet across the UK over a twenty-five year period, starting from a single active nest in a location near Tetbury, Gloucestershire - where the first verified nest in the UK was discovered and destroyed in 2016.

It is believed that Asian hornet first came to Europe in 2004, in an import of Chinese pottery to France. Since then, Asian hornet has spread through France to infest Italy, Spain, Portugal, Switzerland, Germany and Belgium - and was first identified in the UK in 2016.

Using recent data from the Andernos-les-Bains region in South-West France - where there has been detailed observation and destruction of Asian hornet nests during the past eight years - Professor Keeling and his collaborators mapped a similar potential invasion in the UK.

Professor Matt Keeling, the lead author of the research, commented:

"Our research shows the potential for this predator to successfully invade and colonise the UK, spreading rapidly from any new invasion site. Even if we have managed to successfully control this first invasion, the presence of a growing population of these hornets in Northern Europe makes future invasions inevitable."

The Asian hornet, scientifically named Vespa velutina nigrothorax, preys predominantly on honey bees - hovering outside their hives, waiting to catch and kill them as they return from foraging, but it also eats other beneficial insects such hoverflies and bumblebees.

Asian hornet hawking a bee hive. Credit: National Bee Unit

The likely invasion of Asian hornet in the UK - and consequent destruction of bee populations - could be halted if beekeepers and the general public (especially in the South-West) are vigilant, and able to identify them.

Dr Giles Budge, a fellow author from Fera Science and Newcastle University, commented:

"Our work highlights the importance of early detection for the successful eradication of this hornet. To do this, we need members of the public and beekeepers to familiarise themselves with this hornet, look out for signs of foraging hornets particularly near honey bee colonies, and check the tallest trees for their large nests. Rapid reporting could make all the difference between eradication and widespread establishment."

Vespa velutina nigrithorax is smaller than our native hornet, with adult workers measuring from 25 millimetres in length, and queens measuring 30 millimetres. Its abdomen is mostly black except for its fourth abdominal segment, which has a yellow band located towards the rear. It has yellow legs, and its face is orange with two brownish red compound eyes.

In spring, surviving Asian hornet queens begin a small nest, often in a sheltered location such as in the eaves of a roof or in a garden shed. Here they raise the first clutch of workers who take over the queen's foraging duties. At this stage the nest grows quickly, and the hornets often move to establish a secondary nest where there is more space to expand. These nests can become very large, and are often located high up in the tree canopy, close to a food source such as apiaries.

Should you find a suspect Asian hornet or nest, you can contact the Non Native Species Secretariat immediately using their alert email address: alertnonnative@ceh.ac.uk giving as much detail as possible such as your name, the location where the hornet was found and if possible an image of the suspect hornet.

Alternatively you can download an app to help you identify the report the hornet.

A confirmed hornet sighting will trigger an eradication plan by the

National Bee Unit, who are using the results of this research to help focus search efforts.

The research, 'Predicting the spread of the Asian hornet (*Vespa velutina*) following its incursion into Great Britain', is published in Nature's *Scientific Reports*.

It is co-authored by researchers at the University of Warwick's School of Life Sciences and Mathematics Institute, Fera, Newcastle University, and the Animal and Plant Health Agency.

More information: Matt J. Keeling et al, Predicting the spread of the Asian hornet (Vespa velutina) following its incursion into Great Britain, *Scientific Reports* (2017). DOI: 10.1038/s41598-017-06212-0

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