

NATIONAL BEE UNIT

Asian hornet update

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The National Bee Unit (NBU) working alongside the GB Non-Native Species Secretariat (NNSS) and Defra has developed contingency plans following a pest risk analysis of the yellow-legged hornet, *Vespa velutina*, also known as the Asian hornet.¹

Links to information available on BeeBase and the NNSS website are in the further information section. For reference, there have been many articles by the NBU and Fera Science Limited on the Asian hornet and the outbreaks in 2016 and 2017 have been described previously.^{2,3,4,5,6,7}

With nine confirmed sightings of Asian hornets, 2018 was the busiest year so far for the NBU and details of these sightings and responses can be found in the Regional Bee Inspector (RBI) reports on BeeBase. I will summarise below the sightings that led to nests being found, with additional information from the subsequent nest and genetic analysis carried out at Fera Science Limited.

2018 outbreak summary

The 2018 response started in April when a member of the public discovered an Asian hornet in a cauliflower



Asian hornet in a trap at Fowey

purchased from a farmers' market. This and the subsequent surveillance has been described in Bee Craft.

Cornwall

At the end of August in Fowey, Cornwall, a beekeeper caught an Asian hornet in a home-made trap. Track-and-trace methodology was used by the NBU, deploying bait stations and line of sight, and two nests were found within 10 metres of each other, approximately 700 metres to the north of where the first hornet was trapped.

Hampshire

In Hampshire, two nests were found, both initially reported by members of the public who had seen Asian hornets feeding on fallen fruit in their gardens. These sightings were followed up by the NBU and at New Alresford the nest was

located by the local seasonal bee inspector (SBI) within a few hours of being on site. Just south of Brockenhurst, a member of the public spotted Asian hornets feeding on windfall apples in their garden. These were initially reported without a photograph through the alert email address, but a photograph was subsequently obtained with the assistance of a local beekeeper. Over three days, track-and-trace using bait stations and line of sight suggested the nest was likely

to be among a patch of four trees in the midst of a belt of woodland. Tree climbers helped to establish the flight pathways of the hornets over the top of the trees. An unmanned aerial vehicle (UAV) team from Fera Science Limited and Dr Pete Kennedy from Exeter University also aided the search. However, it was the landowner's employee who spotted the nest, in the area the tracking had indicated, when a gust of wind moved the branches in the top of a London plane tree giving a fleeting glimpse of the nest.

Some branches of the tree were removed to give a better view of the nest and to enable easier access for destruction. The UAV overflew the spot but an additional and significant heat signature from the canopy was probably interfering with detection of the thermal signature from the nest. The week before there had been strong storms in the area and the nest was damaged,

Track-and-trace at Brockenhurst, Hampshire





The Brockenhurst nest in a London plane tree and a close-up showing tagged Asian hornet

exposing the bottom comb, as can be seen in the photos above, and this might possibly have led to heat loss from the nest, thus decreasing its thermal signature. Subsequent analysis of the nest shows there were no eggs present, indicating that the queen had either absconded or died (possibly during the storm).

Dr Kennedy used tags with radio telemetry which also pointed at the same patch of four trees in the woodland and, when the branches were removed, the tagged Asian hornet was observed flying to, and crawling on, the nest. This technology is exciting but still has limitations including that it can only be used on the larger worker hornets produced towards the end of the season.

All the nests were destroyed by wildlife officers from APHA's National Wildlife Management Centre (NWMC), and surveillance continued in the surrounding area with the use of traps, visits to apiaries, and by observing local forage.

As the Asian hornet is an invasive non-native species

of EU concern, it is illegal to release any without a licence. Therefore the NBU obtained a licence from the non-native species policy team in Defra and all the track-and-trace and tagging work has been done under the terms of this licence.

Nest and genetic analysis

Subsequent genetic analysis by Fera Science shows that the

nests at Fowey were a primary and a secondary one produced by the same queen. In all cases the nests were small, between 20–25 cm in diameter, and all were highly likely to be the product of single queens that had mated with one or two drones. The Brockenhurst nest was the only one that had adult haploid drones present and it has been concluded that none of the nests had yet produced

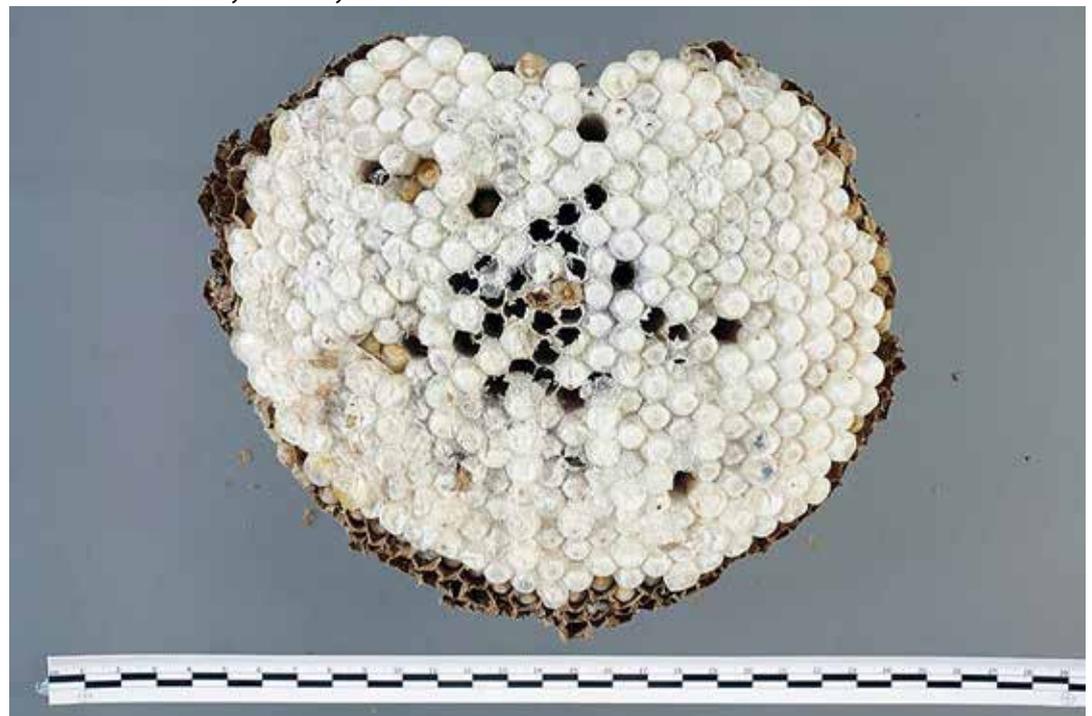
the next generation of queens. Further details of the nest and genetic analysis will soon be published by Fera Science.

Working together

At many of the outbreaks the cooperation of local beekeepers has been key, both in initially sighting or trapping Asian hornets and working with us during the response. To support this partnership, a meeting was held in November between representatives of the NBU, BBKA trustees Ken Basterfield and Anne Rowberry, some representatives of county and local associations, and Colin Lodge, the founder of the AHAT scheme. At the meeting I described the 2018 response, and Olaf Booy from the NNSS described the activities of the NNSS in raising awareness of Asian hornets. A discussion was then held to establish guidelines for working together effectively in future responses. Summarised notes of this meeting are on the new BBKA website AHAT page and there is a map of where AHATs are, as well as guidance notes for AHATs.

When suspect sightings of

A comb from the Fowey secondary nest



Asian hornet are submitted, many do not contain a photograph or compelling description. In such cases a reply email is sent giving guidance on how to obtain a specimen and photo – if possible and safe to do so. Correct identification is key. A very tiny fraction of the 8000 reports we have received each year turn out to be Asian hornets. The BBKA is in the process of setting up a webpage which will contain a search facility to allow members of the public to find their local association or AHAT and request assistance. This is an important step in improving the current triaging, and a link to this site will be included in the reply email.

Associations and AHATs can support this process by ensuring that there are appropriate contact numbers and people in place for each county/local association. They can follow up leads on invitation from members of the public and aid them with identification, obtaining a specimen and photograph. Photographs of

any suspect Asian hornets or nests should be sent in with contact details and details of the location through the Asian Hornet Watch apps, or online at www.nonnativespecies.org/alerts/asianhornet or by email to alertnonnative@ceh.ac.uk. The result of this should be improved triaging, allowing the NBU to focus on searching for nests and destroying them.

Next season

Many lessons have been identified from our experience over the past three years and

those from last year are currently being incorporated into our future contingency response plans. Undoubtedly, the forthcoming season will bring the threat of more incursions and we hope to continue working in partnership with beekeepers to prevent the establishment of the Asian hornet.

Thank you

Finally, our thanks go to all involved in the response last year including the members of the public and beekeepers who reported sightings, the

landowners who were all very cooperative and supportive, beekeepers and local beekeeping associations who helped with surveillance, the inspectors of the NBU along with the office at York, our colleagues in the NWMC, NNSS and others in APHA and Defra that I haven't had space to mention in this article.

References

- 1 Semmence, N (2018). Contingency planning. BBKA News, 225(March), p 85–86.
- 2 Learner, J (2016). Arrival of Asian Hornet. BeeFarmer, October, p 5–7.
- 3 Learner, J (2016). Asian Hornet in Gloucestershire. Bee Craft, 98(11), p 7.
- 4 Learner, J (2017). The Hunt is On. BBKA News, 224(March), p 93–94.
- 5 Budge, GE, Hodgetts, J, Jones, EP, Ostoja Starzewski, JC, Hall, J, Tomkies, V, et al (2017). The invasion, provenance and diversity of *Vespa velutina* Lepeletier (Hymenoptera: Vespidae) in Great Britain. PLoS ONE, 12(9): e0185172.
- 6 Wakefield, M and Jones, E (2018). Asian Hornet Analysis. BeeFarmer, June, p 8–9.
- 7 Fouracre, D (2018). The Asian Hornet in the UK: Mapping and Modelling. Bee Craft, July, p 21–23.

Further information

BeeBase: www.nationalbeeunit.com

NBU Contingency plans: <http://www.nationalbeeunit.com/index.cfm?pageid=206>

NBU Asian hornet page: <http://www.nationalbeeunit.com/index.cfm?sectionid=117>

NNSS Asian hornet pages: <http://www.nonnativespecies.org/alerts/index.cfm?id=4>

NBU RBI reports: <http://www.nationalbeeunit.com/index.cfm?pageid=168>

BBKA Asian hornet pages: <https://www.bbka.org.uk/Pages/FAQs/Category/asian-hornet-faqs>

A lead in the search for Master John Warne

Our search for the brilliant illustrator Master John Warne (aged 15 in 1953) has made some progress. We discovered Mrs Dawn Warne (no relation), still living in Halesworth, who was a classmate of John.

Mrs Warne remembers that lots of pupils would gather around John's desk after school to watch him draw. John departed the school as quietly and as quickly as he arrived, so we suspect that his father moved about in his work. Mrs Warne doesn't know where he moved to, but she does remember that John had two twin sisters, Caroline and Christine, with birthdays around Christmas time – and that only the mother could tell them apart!

Lesley Dolphin of BBC Radio Suffolk interviewed Mrs Warne and Stephen Fleming from Bee Craft on 30 January, so we hope that some listeners to the programme will come forward with information about John or his family.

Meanwhile, here is another of John's illustrations, from Bee Craft, February 1954, showing the mayhem that can ensue in honey extraction.

