

## AN UNWANTED EXOTIC PEST ARRIVES

# Asian Hornet in Gloucestershire

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**T**he Animal and Plant Health Agency's National Bee Unit (APHA; NBU) has confirmed a finding of the Asian hornet in the Tetbury area of Gloucestershire – the first time the hornet has been discovered in the UK.

## Background

*Vespa velutina*, also known as the Asian hornet or yellow-legged hornet, is an aggressive predator of honey bees and other insects, although it poses no greater risk to human health than our native bees and wasps.

It was confirmed for the first time in Lot-et-Garonne in the south west of France in 2004, 12 years ago. It has since extended its geographical range to Spain, Majorca, Belgium, Portugal, Italy and Germany. The Asian hornet can travel up to 60 km/year and, in previous articles, we have noted that it could reach the UK by flying across the Channel or by hitching a ride on imports through an airport or other exotic risk point.

## Previous Reports

Up until this year, all reports had proven to be other, native, insects which had been mistakenly identified. However, this year, the Asian hornet made



Figure 1. The actual Asian hornet found in Gloucestershire

several appearances close to our shores. The first sighting was in Alderney in July where a nest was discovered and subsequently destroyed.

The following month, a single adult hornet was photographed by an amateur entomologist at Mount Bingham in Jersey. The NBU confirmed the image as being that of an Asian hornet. However, a thorough search of the area failed to find further evidence. No further hornet activity has been detected on either island since.

## Current Finding

On the 17 September, a hornet sample was collected by a beekeeper in Gloucestershire and reported to the local bee inspector who submitted it to the Fera Science laboratory. The sample was confirmed as an Asian hornet by an expert entomologist. Figure 1 shows the actual hornet that was submitted.

deciduous and non-deciduous trees. This helps to identify where any hornet nests could be and where best to concentrate the search.

Initially, bee inspectors have been deployed across a five-kilometre surveillance area around Tetbury, to inspect local apiaries and look for any of the typical hawking behaviour (Figure 2) of the Asian hornet. They have also been handing out hornet monitoring traps to local beekeepers in the area.

The NBU's Asian Hornet Contingency Response Plan was activated immediately and a local disease control centre (LDCC) set up in Gloucester to allow the response to be co-ordinated.

From the LDCC, bee inspectors have been using geographic information system (GIS) mapping to survey the local area and determine the position of local waterways, rivers,

The NBU is also working with members of the APHA's Wildlife Team which is responsible for the destruction (Figure 3, overleaf) and disposal of any Asian hornet nests that are found and, with residents' permission, for carrying out a sweep of the gardens in the area to check for any potential nests in trees or sheds.

Figure 2. Hawking behaviour of the Asian hornet can be seen outside a hive entrance



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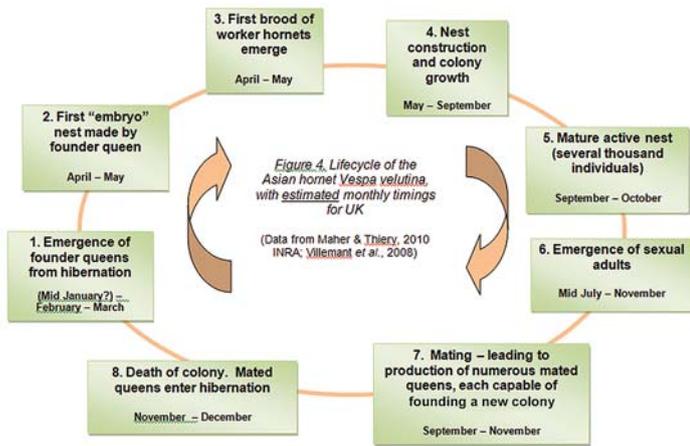


Figure 4. The lifecycle of the Asian hornet with estimated monthly timings for the UK

### Biology of the Asian Hornet

The queen, usually measuring up to 3 cm, starts building an embryonic nest in spring and rapidly starts to lay eggs. During this time, she is alone and vulnerable until the first workers emerge. As the colony and nest size increase, a larger nest is either established around the embryonic nest or the hornets relocate and build elsewhere.

During the summer, Asian hornet predation on honey bee colonies increases and it continues until the end of November. Hornets can be seen hovering outside a hive entrance, waiting for returning foragers. This is the characteristic 'hawking' behaviour (Figure 2). When a hornet catches a returning bee, it will take it away and feed off of the protein-rich thorax; the brood requires

animal proteins which are transformed into flesh pellets and then offered to the larvae.

During autumn, the nest's priorities shift from foraging and nest expansion to producing potential queens and male hornets for mating. After this period, the fertilised queens will leave the nest to overwinter. The following spring, the founding queen will begin building her new colony. The diagram (Figure 4) summarises these seasonal hornet activities.

### What Can You Do to Help?

Being able to distinguish between hornets is a start. European hornets, wood wasps and hoverflies are all commonly mistaken for the Asian hornet.

A previous *Bee Craft* article 'The Asian Hornet: Cases of Mistaken Identity' (2013, June, page 30), outlined the insects



Figure 3. Extermination equipment used to tackle Asian hornet nests

most frequently mistaken for the Asian hornet. It is available at [www.nationalbeeunit.com/index.cfm?pageid=166](http://www.nationalbeeunit.com/index.cfm?pageid=166)

Otherwise, here are this year's top three mistaken sightings:

### European Hornet

The native European hornet (*Vespa crabro*) is the most common misreported insect.



Figure 6. European hornet

*Vespa velutina* can be distinguished easily from this native hornet. The first obvious

feature is the abdominal colouration. The European hornet resembles a large wasp and has a yellow and black striped abdomen, with some brown and brownish-yellow variation.

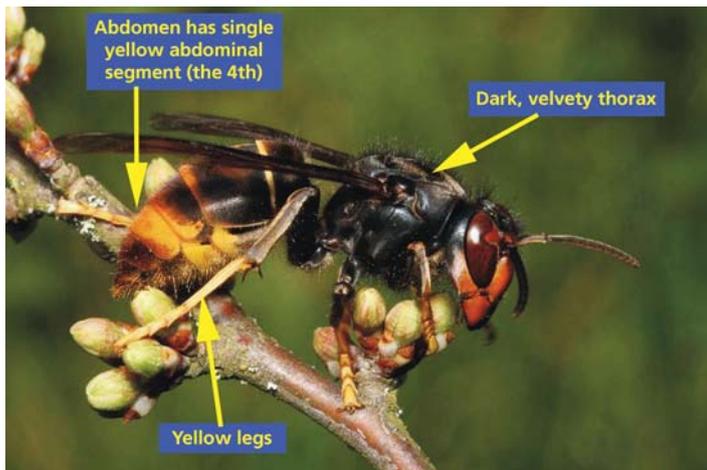
The Asian hornet is mostly black with a yellow/orange band on the fourth abdominal segment, characteristic yellow legs and an orange face (Figures 5, 6, 7, 8). There can be a bit of variation in the colouring, but this rule is very reliable. Additionally, *Vespa crabro* is the larger of the two hornets.

### Wood Wasp

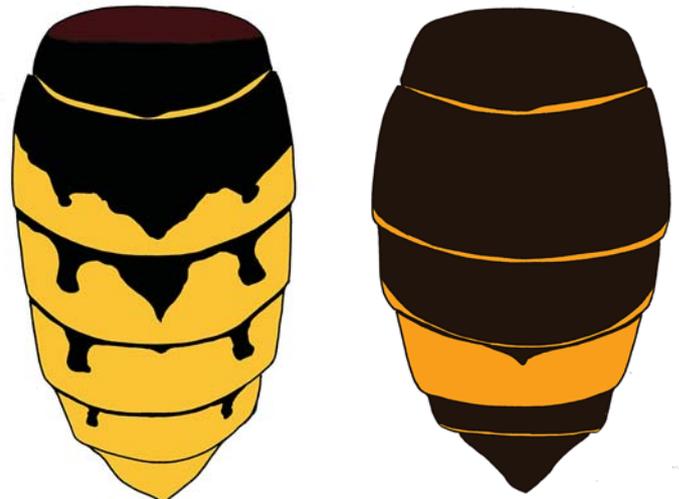
The wood wasp, *Urocerus giga* spp (Figure 9) is also mistaken for *Vespa velutina*.

A typical adult wood wasp is brown or black with greater

Figure 5. Characteristics of the Asian hornet



Figures 7 and 8. The colouration on the abdomens of the European hornet (left) and the Asian hornet (right)





**Figure 9. Female wood wasp** yellow colouration towards the end of the abdomen than an Asian hornet. The insect often reaches up to 4 cm long, making it greater in size than the 2.5 cm of the Asian hornet. Wood wasps are certainly impressive, which is probably one of the reasons why they are mistaken for the hornet. Females have a long sting-like ovipositor on the end of the abdomen which is a giveaway feature. This is used for laying eggs in timber or tree trunks.

### Hoverfly

The hoverfly (Figure 10) is not commonly mistaken for an Asian hornet but, since the current outbreak, the NBU has received a lot of reports of them, hence the mention here.

The abdominal colouration can sometimes be similar to that of the Asian hornet, which may account for people's misreports.

Several species of hoverfly have been reported, but the most common this year has been *Volucella zonaria*, the 'hornet mimic hoverfly'. This insect is harmless to humans. The main feature which sets it apart from the hornet is the large pair of compound eyes and the stubby abdomen.

### Identification Sheet

There is a helpful Asian hornet identification sheet and poster available from the Non-Native Species Secretariat website at



**Figure 10. The hornet mimic hoverfly**

[www.nonnativespecies.org/alerts/index.cfm?id=4](http://www.nonnativespecies.org/alerts/index.cfm?id=4)

### Hornet Traps

You could also consider hanging up traps for the Asian hornet or fitting the one designed to go under the floor of the hive.

On warm spring days, mated queen hornets may emerge from hibernation as early as February. However, worker hornets will be on the wing throughout the beekeeping season, right up until November. So, hanging out traps between these two dates is a useful monitoring tool.

From experience of different trap designs used for the Asian hornet in France, it is believed that funnel traps work best.

Field trials show that, when funnel traps are hung in apiaries where hornets are present, they capture considerable numbers of individuals (approximately 400 hornets/week/trap) and nest numbers are reduced by over 90% in areas where traps are deployed in the spring.

The National Bee Unit recommends that sugar-based baits such as beer and sugar are used because emerging Asian hornet queens have a high energy requirement and show a preference for sweet foods. In early spring, such food resources are comparatively rare in the environment, so sweet baits are highly attractive to hornets.

A design for a home-made trap (Figure 11) is available

on Beebase at <http://www.nationalbeeunit.com/index.cfm?pageid=167>. It was also featured in *Bee Craft*, 2013, June, page 33.

### Report Possible Sightingst

Finally, if you believe you have seen an Asian hornet, you should report it to [alernnonnative@ceh.ac.uk](mailto:alernnonnative@ceh.ac.uk) When e-mailing, please include your name, the location of the sighting and, if possible, a photograph of the hornet.

Please do not put yourself in any danger of getting stung when trying to take a photo.

Even if you are unsure, send it in anyway – it is better to be safe than sorry!

### Last But Not Least!

If you have not already done so, please sign up to BeeBase. Although not compulsory, it

is important so that the NBU can help protect your colonies, especially in and around the area of any outbreak. Records of where apiaries are helps enormously when planning where to send the bee inspectors. Not knowing where your bees are means that the eradication and containment efforts could be less effective. ☘



**Figure 11. Home-made trap**

## Don't put your bees at risk Register on BeeBase



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