

CASES OF MISTAKEN IDENTITY

The Asian Hornet

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With the threat of the invasive Asian hornet (*Vespa velutina*; AH) arriving in the UK from continental Europe, the National Bee Unit (NBU) has been working with colleagues in the Non-Native Species Secretariat (NNS), the Centre for Ecology & Hydrology (CEH) and Bee Health Policy (BHP) to raise awareness of this potentially damaging predator of honey bees and other pollinating insects (<https://secure.fera.defra.gov.uk/beebase/index.cfm?pageid=208>).

We have been urging all members of the public (beekeepers or otherwise) to report suspect sightings to the GB Non-Native Species Information Portal (GB-NNSIP), led by CEH and hosted by NNS, alert e-mail system (alert_nonnative@ceh.ac.uk) and are encouraging the use of hanging traps to monitor for arrival.

When reporting suspect sightings the public are asked to provide as much detail as they can about the insect they have seen/found and, whenever possible, supply digital photographs – these are a very useful aid to identification. Sightings and alert e-mails are picked up by Dr Helen Roy, principal scientist at the CEH



Richard Ball

The European hornet, *Vespa crabro*

and, if necessary, referred to the NBU for confirmatory diagnosis.

People from across the country have been very concerned by the threat posed by *V. velutina* and have responded diligently to the request for information and we have received almost 80 suspect reports. Thankfully, to date, all of these have proved to be other types of insect, but each report is taken seriously.

We work together, not just to rule out that any given specimen is *V. velutina*, but also to establish its true identity. We forward the information to experts (coordinators of national recording schemes or societies hosted by the Biological Records Centre, www.brc.ac.uk) who compile records of the particular species and so the information is extremely valuable in many regards.

This article provides a brief overview of some of those species which comprise cases of mistaken identity reported since 2011.

The European Hornet (*Vespa crabro*)

This is the number one case of mistaken identity. There are probably two reasons for this: firstly, it is the only native hornet species and, superficially, bears some resemblance to *V. velutina*; secondly, given the fearsome reputation of the Asian hornet, there may be a perception that it must be a large hornet and the queens of *V. crabro* are, indeed, impressive. However, in spite of the impact of Asian hornets on other insects and the very painful stings they may inflict on people, they are smaller and less physically impressive than their European counterpart.

Key differences between the European hornet and Asian hornet are that the latter is smaller, has characteristic yellow legs, a dark velvety thorax and a dark abdomen with a distinctive yellow band on the fourth segment. Asian Hornets are never active at night whereas European Hornets may be. Their lifecycle is similar to that of the Asian hornet (and other social wasps):

- mated queens emerge in early spring and form embryo nests
- large nests are rapidly established and worker hornets attend to the needs of the growing colony
- workers are extremely active and predate a variety of insects to obtain the protein-rich diet that the developing hornet brood requires
- mature hornet nests are hard to spot, but are most likely to be seen from early summer
- sexual stages emerge later and result in the production of mated queens
- as the colony dies (in late autumn), these foundresses, which use high energy sugar-rich food sources such as fruits and nectar, seek out suitable sites in which to overwinter
- foundresses emerge the following spring to begin the cycle again.



Keep your eyes open for the Asian hornet.

To help, we have details of some of its lookalikes

Notable differences:

- Larger than the Asian hornet
- Abdomen has more yellow stripes than AH
- Legs darker than AH

The Hoverfly (*Volucella zonaria*)

Volucella zonaria is actually known as the 'hornet mimic hoverfly', so we can hardly be surprised that it accounts for a fair number of cases of mistaken identity. Seventy years ago it was considered to be very rare in the UK, with only a couple of specimens recorded prior to the 1940s (first report 1901). However, its range has since spread and sightings in southern England are not uncommon.



Adult hornet mimic hoverfly, *Volucella zonaria*

It has been suggested that *V. zonaria*, rather than being permanently established in the UK, only becomes resident when particular weather conditions result in 'substantial influxes' from continental Europe; this would explain the markedly fluctuating numbers found in the UK from year to year and the periodic, large accumulations sometimes found in coastal areas (in the Netherlands).

Regarding its biology, the immature stages of *V. zonaria* develop inside colonies of European social wasp species, *Vespula vulgaris* and *V. germanica*, where they are

thought to feed on nest debris. The striking and large adults (the wingspan can be as much as 45 mm) are typically reported to us between June and October. Harmless to humans, they can be seen in a variety of habitats (urban, suburban or rural) including parks, gardens, scrubland, heaths and woods, where adults visit flowers.

Notable differences:

- Species of fly
- One pair of wings (AH and other hornets and wasps have two pairs)
- Associated with wasps nests but doesn't form paper nests of its own
- Larger than the Asian hornet
- Abdomen has more yellow stripes than AH
- Legs darker than AH.

Woodwasps

We have been sent several photographs of 'woodwasps' or 'horntails', the names commonly used to collectively identify the non-social xylophagous (ie, wood boring/feeding) sawflies. A typical adult woodwasp is brown, blue or black with yellow parts and may often reach up to 4 cm long. Being so large in size, they are certainly impressive. They are related to 'true' wasps but are harmless to humans.

The female's long ovipositor at the rear is used for laying eggs into timber/tree trunks, etc, in which the immature stages of the woodwasp complete their development. They typically migrate to just under the bark before pupation. Depending on the species in question, this can take as long as five years and sometimes results in the adult emerging from timber that has been used in construction or even to build furniture!

The species most frequently



Lloyd Harper

(Above) Female giant woodwasp, *Urocerus gigas*

reported to us as a suspect Asian hornet is *Urocerus gigas*, also known as the Giant Woodwasp, Banded Horntail or Greater Horntail. This relatively common species is usually seen on the wing between May to October, in or near coniferous forests. We have also received sightings of *Sirex* (most probable species *noctilio*). Native to Europe, northern Africa and Asia, adults vary in length from 9 mm to 36 mm, the females being especially long. These exclusively use pine trees as their hosts.

Notable differences:***Urocerus gigas***

- Horn-like protrusion on final abdominal segment
- Females have long, conspicuous ovipositor
- Lay eggs into wood/timber
- Larger than the Asian hornet
- Abdomen has more yellow stripes than AH

***Sirex* species**

- Horn-like protrusion on the final abdominal segment
- Females have long, conspicuous ovipositor
- Lay eggs into wood/timber
- Larger than the Asian hornet
- Abdomen has more yellow stripes than AH.

Ichneumon Wasps

Apart from the woodwasps, parasitic wasps are another type of related insect. This very diverse insect group (comprising several thousand species in the

(Below) *Sirex* species with exit hole from timber



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UK alone) includes some quite large and conspicuous insects, in particular members of the family *Ichneumonidae*.

Some species of ichneumon wasps lay their eggs in the ground, but the majority are parasitic on other insect species. The female lays one or more eggs (the number depends on the species in question) into or onto the body of her host, which is typically a larva or a pupa (again, the life stage and host species used depends on the ichneumon).

In the UK, large examples include the genera *Megarhyssa* (which parasitises larvae of the wood-boring horntails [see above]) and *Pimpla*, which lays eggs into the pupae of butterflies and moths. The body of a female *Megarhyssa*, including her ovipositor, can be 40 mm long. Female *Pimpla* are shorter (20–30 mm in length),

Adult female *Pimpla hypochondriaca*

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The Common wasp, *Vespula vulgaris*, feeding on grapes

but certain species have brightly coloured legs or abdomens which, to an untrained eye, may give them an exotic appearance.

Common Wasps

Found in much of Europe, the familiar 'common wasp', *Vespula vulgaris*, builds paper nests from chewed wood fibres mixed with its own saliva. A single nest may contain 5000–10,000 individuals. Nests are usually located above ground in rural or urban environments, up trees, or closer to human activities, for examples in loft spaces or wall crevices. Common wasps will also nest below ground in abandoned mammal burrows.

Adult workers measure about 12–17 mm from head to abdomen but queens can be larger (about 20 mm) and more substantial. Predominantly yellow and black in colour, their abdomen has distinctive stripes. As with hornets and other social wasps, colonies usually last only one year, with all but the queen dying at the onset of winter. Common wasp workers also prey on insects (such as caterpillars) to feed the larval stages while adults feed on nectar and sweet fruit. Common wasps are notorious for making a nuisance of themselves at summer picnics and in beer gardens throughout the UK.

The Median wasp, *Dolichovespula media*

The Median Wasp

Although not reported as a case of mistaken identity, the Median wasp, *Dolichovespula media*, does warrant a mention in this article. This is partly because of its similarity to other native wasps (and the resulting potential for confusion between species) and partly because it, too, is a non-native species that, unlike the Asian hornet, has established in the UK. Present in England since the 1980s, it was first recorded in the coastal area of East Sussex, implying that it flew across the Channel from mainland Europe.

Its basic biology is similar to that of *V. vulgaris*. Median wasp queens are smaller than hornets and, unlike the Asian hornet, have yellow markings on the thorax.

Notable differences: *Vespula vulgaris* and *Dolichovespula media*

- Yellow markings on thorax
- Abdomen has more yellow stripes than AH.

Thank You

Thank you to everyone who is looking out for the Asian Hornet, and to those of you who have gone to the time and trouble to report suspect sightings. Your help is really appreciated.

Such efforts from beekeepers and members of the public greatly increase our chances of intercepting this pest, should it arrive here, and thus our

chances of eradication before it can establish and spread. This is making a significant contribution to the security, not just of our honey bee stocks, but to other unmanaged insect pollinators predated by *V. velutina*.

Please continue to be vigilant and please do forward all sightings of concern, even if you are in doubt about the identification. We are very pleased to receive your sightings.

Reporting Suspect Sightings

To report any suspect sightings of concern, please either e-mail alert_nonnative@ceh.ac.uk or you can also complete the on-line recording form at www.brc.ac.uk/irecord/enter-non-native-records □

Further Information

The National Bee Unit

The BeeBase website gives a great deal of information about the NBU and its work. BeeBase is regularly updated with the latest news and information, at www.nationalbeeunit.com There is also a general e-mail address: nbu@fera.gsi.gov.uk to which you can send any enquiries about honey bees. For enquiries regarding Bee Health Policy and Regulatory issues,

please contact Bee Health at beehealthinfo@fera.gsi.gov.uk **BWARS**

The Bees, Wasps and Ants Recording Society (BWARS) is the national society dedicated to studying and recording these species (aculeate Hymenoptera) in Britain and Ireland. You can find additional information about species mentioned in this article on their website www.bwars.com.

Hymettus

For useful advice on the conservation of bees, wasps and ants within Great Britain and Ireland, visit www.hymettus.org.uk

Other Flies and Wasps

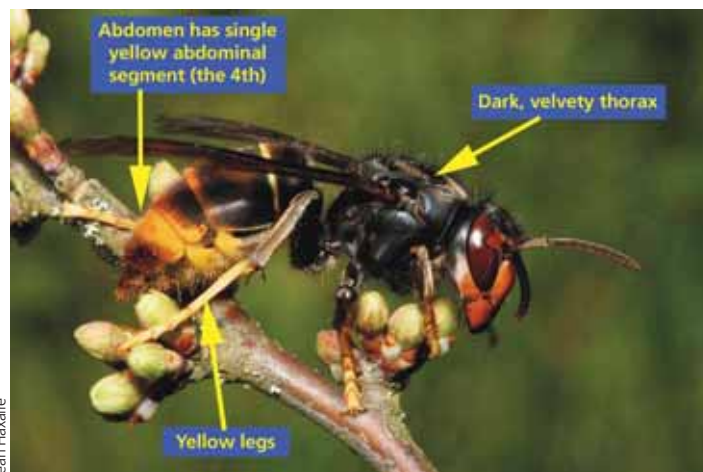
More information on the Hoverfly Recording Scheme is available from www.hoverfly.org.uk/

For information on other relevant recording schemes and societies, such as the Symphyta (Sawfly) Recording Scheme and the Parasitic Wasps Recording Scheme, please visit www.brc.ac.uk/recording_schemes.asp **NNSS and Asian Hornet Risk Assessment**

You can find out more about the NNSS and the Asian Hornet Risk Assessment for Great Britain on its website:

<https://secure.fera.defra.gov.uk/nonnativespecies/home/index.cfm>.

Just another reminder – the hornet in question



Jean Haxaire