

WATCH OUT FOR HORNETS!

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Asian Hornet - Hopefully that's a name that most of you will recognise. It's an invasive non-native pest which is spreading across mainland Europe and has an appetite for pollinators, particularly honey bees. But would you recognise one if you saw it? And how would you report it??

When we refer to 'Asian Hornet' in the U.K. we usually refer to the Yellow Legged Hornet, *Vespa velutina nigrithorax*, the species which is now present in Europe. It is important not to confuse this species with the many other 'Asian Hornets' (such as the Giant Asian Hornet which is not currently present in Europe), particularly when looking for images online.

It is almost impossible to mitigate against the arrival of Asian Hornet – it's a hitchhiker that can travel in suitcases, food, plant pots, car parts, packaging, and everything else we haven't thought of yet. That's why it's so important to spot new arrivals quickly to prevent them establishing – and that's where you come in!

Beekeepers are a unique group of people – you spend time outdoors, are interested in insects, know a thing or two about nectar sources, and have a vested interest in protecting your bees from new predators. Raising awareness of Asian Hornet across all communities is important, but the expertise and distribution of the beekeeping community is our best line of defence. You are our eyes and ears.

How do they get here?

Invasive species have been successful since humankind started exploring, but modern trade has allowed them to move faster and more frequently than ever before.

Asian Hornets are the ultimate hitchhikers, and a single individual is enough to start a new outbreak. Virgin queens leave their nest, mate with several drones, disperse, and then hibernate from October to March/April in any dry, protected space they can find. If this pocket of protection happens to be within a movable object, they may wake up in spring in a completely different location, fully loaded with enough eggs to start a family. A high rate of recombination (mixing up of genes) lowers the risk of in-breeding and allows a new population to establish from just one queen.

New queens set up a golf ball sized primary nest (like a small wasp nest) to rear their first brood of workers, usually in a shed or other protected site. At this point they are difficult to spot, sneaking under the radar, foraging on wild pollinators and tree sap. As the season progresses the number of workers grows, and the colony often relocates to a tree canopy, allowing them space to expand the nest and better access to food and water. It is only once the colony grows to full size (August-September) that they openly predate on honey bees, recognising apiaries as a high risk but abundant food source for their rapidly expanding numbers of voracious brood. This is the best time to look for hornets – if they are very rare, we will only spot them when their population is at its highest and they are openly foraging.

How do we find them?

Whilst several types of traps are available, most kill 'non-target' species - not ideal when we're trying to protect our biodiversity! Even wasps, many beekeepers' bitter enemy, play an important role in our environment, pollinating plants, controlling pests like aphids and caterpillars, and providing food to many birds and insects. So, for the last few years in Scotland, we've focussed on targeted observations. These require a bit more skill but can be just as successful as traps.

In order to carry out targeted observations, you need to know what you are looking for, where you find them, and how they will behave.

The first thing to focus on is what an Asian hornet looks like. Asian hornet workers are not as large as you think – approximately 2.5cm, so bigger than a wasp but not as large as a European hornet. And they never have a big pointy ‘stinger’ at the end of their body – if you see something like that it’s likely a wood wasp. The body of an Asian hornet is mostly a deep dark velvety black, it has an orange face, yellow legs and (while there may be a few more thin stripes) there’s a clear broad yellow band on its abdomen. Most misidentifications turn out to be wood wasps, horse flies or (occasionally) the Median wasp; which is a relative newcomer to Scotland and is larger than your ‘average wasp’, but quite stripy compared to Asian Hornet. Good images to help ID’s are available on the Asian hornet app which I’ll mention later.

Asian Hornet



ID notes - Size 2.5cm, black velvety body, one obvious yellow band on abdomen

Image kindly provided by John De Carteret

European Hornet



ID notes – size 3cm, chestnut body, many yellow bands on abdomen

Image courtesy of The Animal and Plant Health Agency (APHA), Crown Copyright

Wood Wasp



SASA © Crown Copyright

ID notes - Size 4cm, yellow eyes and antennae, large pointy ovipositor. This is not harmful unless you're a tree. *Image SASA Crown Copyright*

Median Wasp



ID notes - Size 2cm, yellow marks on thorax and several abdominal stripes

Image by Gail Hampshire under Creative Commons Attribution 2.0 Generic license

Horse Fly



ID notes - Size 2.5cm, huge eyes, tiny antennae and only 2 wings (it's a fly). This can give you a nasty bite! *Image by Jim Wood*

Now let's think about timing, location, and behaviour. Hornets can be spotted 'hawking' at a hive during the warmest parts of the day in Autumn – hovering close by the hive entrance and facing outward to capture tired honey bee foragers as they arrive home loaded with pollen. They catch honey bees like a world class goalkeeper, using their strong wings to take themselves and their prey to a nearby branch, where they remove the flight muscles before returning to feed their brood. Whilst European honey bees have not evolved to deal with this menace, their behaviour changes as a result – the colony is agitated, foraging reduces dramatically, with foragers only sneaking out early and late in the day when predators are not around, and congregations of bees guard the entrance.

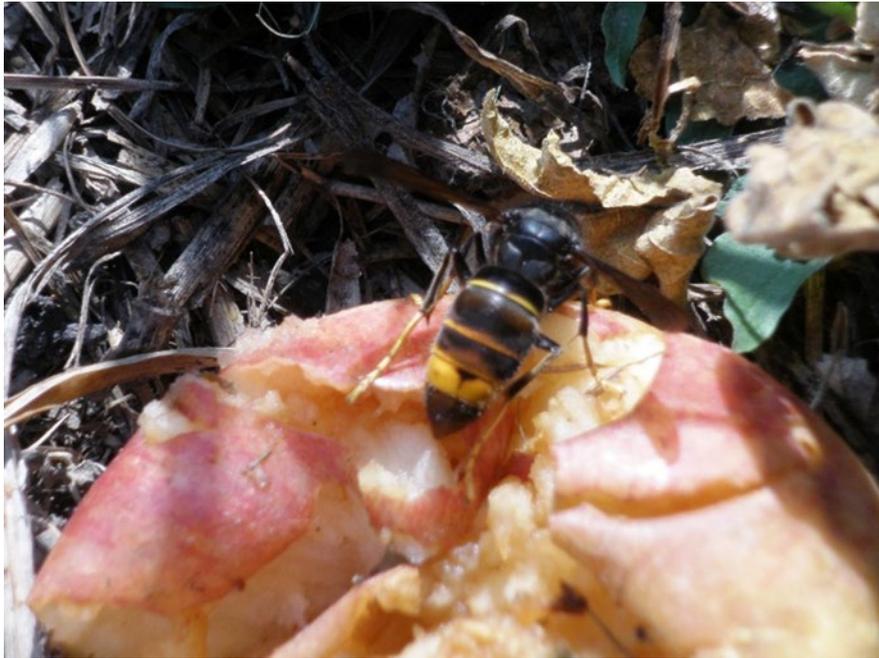
Whilst protein remains the main priority for worker hornets, they are often distracted by sweet treats, and as the colony disbands in October individuals are even more attracted by sugar. Individuals can often be found feeding on windfall apples and ivy nectar as the season draws to a close. They focus on the sugar source but will occasionally turn on their sugar feeding neighbours, as the predator instinct kicks in.

Can you help?

We are planning to carry out targeted observations across Scotland over September and October. Every apiary, orchard, and overgrown ivy bush are potential survey sites, and every beekeeper is a potential observer. Remember what (they look like), where (to find them), and how (they behave), and if you have time, please give it a try!

A step-by-step guide to targeted observations at the apiary –

- If you can, download the free [Asian Hornet](#) app (available through the Apple and Google Play app stores) – this has useful photos to help ID and a reporting tool just in case you spot one. If you can't then please check out the BeeBase Asian Hornet page before you start, this has links to more photos and videos to hone your ID skills and information on how to report a sighting
- Pick a sunny afternoon in September when there's likely to be lots of activity at the apiary
- Grab a mug of tea and a chair
- Choose an observation site at the side of your colonies, somewhere you can see bees at the hive entrance, but not too close to attract attention
- If you are carrying out October observations, again pick a sunny afternoon and find a nice spot at the ivy or under the apple tree where there's plenty of active wasps and hoverflies.
- Sit down, get comfy, and watch the arrivals and departures for at least 20 minutes.
- That's it!



Asian hornet foraging on apple

Image courtesy of The Animal and Plant Health Agency (APHA), Crown Copyright

How to report

If there are no signs of hornets we would welcome a note of your observations with the date, time, postcode and person responsible. Please send nil returns to zoology@sasa.gov.scot and we will keep a record of this activity, allowing us a degree of confidence of pest freedom.

If you spot something that you think might be an Asian Hornet, please do try to take a photo if possible. If you miss your chance don't worry - hornets will normally return to a good food source, so be patient and they should come back. Please send potentially positive sightings to the triage team through the Asian Hornet app, or to alernonnative@ceh.ac.uk . This allows all reports to be dealt with properly, preventing delay if a team member is away. Every potential sighting is important, even if the photo is really blurry, or you're not 100% sure, so please do report it.

Thank you!

Thank you to everyone who has helped us watch out for hornets in the past, and who can offer their help this year. We know that Asian Hornet is an excellent hitchhiker and expect it to turn up in Scotland sometime soon. But if we find an outbreak quickly and work together to stamp it out, we should be able to keep our honey bees and other pollinators safe from this predator for a long time to come.