



Asian Hornet

The Asian hornet (*Vespa mandarinia*), also referred to as Asian giant hornet, is an invasive predatory pest of European honeybees. Native to temperate and tropical Eastern Asia, Asian hornets are extremely threatening to EHB colonies. A single hornet can kill as many as 40 bees per minute due to its large mandibles.

Asian hornets begin their attack by hovering in front of the hives and picking off single honeybees which they decapitate and strip off their wings and legs. They then take the thorax, which is full of protein, and chew the flesh into a sticky liquid they use to feed their offspring. Asian hornets also attack European honeybees to obtain the larvae as food for their own larvae. A few Asian hornets are enough to kill tens of thousands of EHB.

European honeybees did not evolve alongside Asian hornets, and therefore they have no natural defence against these predators. However, Asian hornets stop killing the bees in autumn as the hornets have stopped producing eggs and there are no larvae to feed. In some instances, Asian hornets and EHB may occur together, partitioning available resources.



Where are they found?

Asian hornets are pervasive across Asia, particularly frequent in China and Japan. However, the presence of these pests has been reported across central Europe and the east and west coast of the United States as well.



Identification

Asian hornets can measure anywhere from 3.5 to 5.5 cm (1.5-2 inches) on average. The hornet's head is a light shade of orange, very similar to dirty yellow, and the brown antennae have a yellow-orange base. The colour of the eyes and ocelli ranges from dark brown

to black. One notable physical characteristic that distinguishes the Asian hornet from other hornets is the large genae (cheeks) and pronounced clypeus (lower part of the face) These pests also have an orange mandible with a black tooth that they use for digging.



Vespa mandarinia japonica, Osaka, Japan.
PHOTO: Kenpei

Asian hornets also have a dark brown thorax with two grey wings that measure between 3.5 and 7.6cm.

The base of their forelegs

is darker than the rest whilst the forelegs themselves are brighter than the mid and hind legs. The abdomen of the Asian hornet alternates between bands of brown or black and a light orange hue similar to that of the head. The sixth segment of the abdomen is yellow and continues with a stinger up to 6mm long.

Prevention

To prevent the catastrophic attacks of Asian hornets on European honeybees, it is important to carefully inspect the areas around the beehives in order to locate their nests.

The easiest prevention method is utilising special equipment such as ApiShield, which prevents Asian hornets from getting into contact with European honeybees. This piece of equipment essentially lures the hornets into a trap within the bottom of the beehive. The trap acts as a base for the hive and has a modified front entrance for EHB. Right alongside the EHB entrance are decoy side entrances for Asian hornets and other flying beehive pests.

Locate the source

Addressing Asian hornets is critical to maintaining overall hive health and functionality. The most important step of the process is locating the source — more specifically, the hornet nests. They are usually located in nearby trees

and have a circular shape the size of a basketball or football. Asian hornet nests also have a paper-like construction that results from hornets mixing their saliva together with the wood particles they gather.

It's important to remember that since hornets build their nests in trees, they may not be easily noticeable during spring and summer. They will become visible as leaves start falling off and the interior areas of the trees are more visible.

When the hornets enter the hive by the decoy entrances, they become trapped in the false bottom where they dehydrate and ultimately die. The beekeeper only has to remove the dead hornets regularly to keep the shield clean.

Because the front entrance is guarded by worker bees, Asian hornets prefer the undefended side entrances the trap provides. Once inside the trap, the hornets can smell the bees. However, they cannot reach them due to the wire mesh floor above them. The funnel design of the decoy entrances makes it impossible for the hornets to escape, thus leading to dehydration and eventually death.

Eradication

Controlling Asian hornets in apiculture is usually extremely difficult. If the number of hornets is large, controlling them on your own may be impossible. Special assistance from pest control services may be needed for larger-scale populations.

Nest removal is usually the easiest way to eliminate Asian hornet colonies before they attack beehives. Applying poisons or fire at night can help eradicate the hornets. Another option is capturing the Asian hornets at the apiary and feeding them a sugar solution containing malathion, arsenate or other poison. Since Asian hornets practise trophallaxis (the transfer of food and bodily fluids from one individual to the other), the poison will be spread, ultimately leading to the death of multiple hornets.

There are a number of environmentally-friendly products that can help control Asian hornets. They are completely natural and specifically formulated not to attract bees, so they won't put the hive at risk. For safety purposes, it's better to hire a professional pest control company to remove Asian hornet nests to avoid provoking them.

SOURCES

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BANNER PHOTOS ON PAGE 1

1. *Vespa mandarinia japonica* (Asian giant hornet) in Japan. PHOTO: Alpsdake
2. A Japanese giant hornet (*Vespa mandarinia japonica*) size comparison with a European honey bee (*Apis mellifera*). PHOTO: W.P. Armstrong
3. Japanese hornet PHOTO: Onezilla