ASIAN GIANT HORNET
IN WASHINGTON STATE
INTRODUCTION

Asian giant hornet (*Vespa mandarinia*) is the world’s largest hornet. The hornet is native to Asia, and has been recorded from Japan, Korea, Russia, China, and several other countries. In December 2019, WSDA verified the first ever sightings of Asian giant hornet in the United States.

Asian giant hornet (AGH) is a predatory wasp that feeds on a wide variety of insects. The introduction of this species is of major concern to agriculture because of its predation on honeybees - a few Asian giant hornets can kill an entire beehive in a matter of hours. If unmanaged they could significantly increase costs for beekeepers and potentially disrupt pollination services. They could also impact other local insect populations.

While AGH does not generally attack people or pets, they can sting when threatened. If it becomes established, this hornet could have serious impacts on the environment, economy, and public health of Washington State.

Some of the Asian giant hornet specimens WSDA recovered during eradication of a nest in Blaine, WA - the first ever nest found in the U.S.
IDENTIFICATION

• Usually 1.5 - 2 inches in length, with queens being substantially larger than workers or males
• Large orange/yellow head with prominent eyes
• Black and orange/yellow striped abdomen
• Forms large colonies that usually nest in the ground, although sometimes in tree cavities

LOOKALIKES

• Western cicada killers are mostly rust-orange colored and have yellow spots on the abdomen.
• Great golden digger wasps have a long, narrow waist. The abdomen is not striped.
• Elm sawflies have a black face and yellow stripes, but they lack a stinger or a long ovipositor. They also have “clubbed” antennae.
• Yellow jackets are brightly marked with yellow or orange and black.
• Paper wasps are slender and have a very well-defined wasp waist. Their nests are small and usually in exposed places.
• Bald-faced hornets are actually a type of yellow jacket that is mostly black with white markings.
• Horntail wasps, like the pigeon tremex, have an elongated cylinder-shaped body. Females have a long, stinger-like tail (an ovipositor) that is actually used to lay eggs in wood.
• Bumblebees are covered in dense hair. Their coloring varies across and within species.
ASIAN GIANT HORNET LOOKALIKES

Sphecius sp.
cicada killer

Sphex ichneumoneus
great golden digger wasp

Vespa crabro
European hornet
(does not occur in WA)

Cimbex americana
elm sawfly

Vespa mandarinia
Asian giant hornet

Vespula pensylvanica
western yellowjacket

Polistes dominula
European paper wasp

Apis mellifera
western honey bee

Dolichovespula maculata
bald-faced hornet

Tremex columba
pigeon tremex

Bombus flavifrons
yellow head bumble bee
Information about Asian giant hornet biology is based on literature from its native range. There may be differences in Washington.

**NESTING HABITS**

Asian giant hornets usually nest underground, often taking advantage of hollow areas formed by rotting tree roots, or rodent burrows. On rare occasions, they have been found in tree trunks or human structures. The nests can be more than two feet wide and contain hundreds of adult hornets.

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**FORAGING**

Queens feed on carbohydrates in the spring – mostly tree sap.

Workers forage for protein and carbohydrate sources. The protein sources are fed to the young. They will attack not only honeybees but beetles and other large insects. They will also feed on carbohydrates such as ripe fruit. They will forage up to five miles from their nest.

**LIFE CYCLE**

This is the life cycle of Asian giant hornet in its native range.

**December – March**

Queens overwinter in the soil or other sheltered areas. Males and workers will die over the winter.
March – May
Queens emerge and begin founding a colony. They eat tree sap or other sugar sources. During this time queens begin to lay eggs that will develop into workers and grow the colony.

June – August
The colony continues to grow. Workers emerge and attack honeybees and other insects.

September - November
The colony matures and the founding queen produces eggs that develop into new virgin queens and males. Honeybee attacks increase and AGH may decimate entire hives.

September – December
Virgin queens and males emerge, mate, and disperse. A single nest can produce over 300 new queens. The new queens overwinter and the males and workers die off.

Colony cycle based on documented behavior in the hornets native range in Japan and Korea.

Lifecycle illustration: Washington State University
Asian giant hornets attack all kinds of insects, including individual honeybees throughout the season. However, in the late summer and early fall, they will sometimes conduct a coordinated mass attack on a hive which can decimate it in a matter of hours.

**HONEYBEE ATTACKS HAVE THREE DISTINCT STAGES:**

**Hunting phase.** Individual hornets catch individual bees, form a “meat ball” from the bee’s thorax, and return to their colony. Many hornet colonies will only feed on honeybees in this manner, without going into the slaughter/occupation phases described below.

**Slaughter phase.** Workers will target a hive and attack as a team. They capture adult bees, decapitate them, and drop their bodies to the ground. They will then begin to defend the hive as their own.

**Occupation phase.** Workers occupy and defend the hive. They harvest honeybee pupae and larvae, taking these back to their colony to feed their own young.

This behavior poses a threat not only to the survival of honeybees in Washington, but to beekeepers or other individuals who approach a hive that Asian giant hornets are actively attacking or defending.
Although not typically aggressive toward humans, Asian giant hornets can sting if they feel threatened. A person who is allergic to bee or wasp stings should never approach an Asian giant hornet.

Its stinger is longer than those of local bees and wasps, and traditional beekeeper attire is not sufficient to protect against stings. Asian giant hornet can sting repeatedly. The sting delivers a larger dose of venom than local bees or wasps. Side effects of a sting may include tissue damage and substantial pain.

To reduce the chance of stings, the Washington State Department of Health recommends the following preventive measures.

To make yourself and your home less attractive to these hornets:

- Avoid wearing fragrant perfumes, cologne, lotions, or hair products.
- Keep food and drink covered or under screens when eating outdoors.
- Clean up and dispose of food and garbage properly, including decaying fallen fruit, and dog or other animal feces.
- Use wasp guards on humming bird feeders to prevent Asian giant hornets from accessing the liquid.
- If you encounter an Asian giant hornet, slowly and calmly leave the area. Swatting may cause it to sting. If you encounter several hornets, run to get away from them or dive into dense brush to make it harder for them to get to you. If a hornet flies inside your vehicle, stop the car slowly, and open all the windows.
REPORTING ASIAN GIANT HORNET SIGHTINGS

Every Asian giant hornet sighting should be reported to the Washington State Department of Agriculture. If you see an Asian giant hornet or have seen evidence of a hive attack, please report it as soon as possible. When reporting, include a photo if you can obtain one as well as the date and location (an address or GPS location are great) indicating when and where the suspected hornet was seen.

There are several ways to report suspected sightings in Washington State:

- [agr.wa.gov/hornets](agr.wa.gov/hornets)
- [hornets@agr.wa.gov](hornets@agr.wa.gov)
- 1-800-443-6684

If you believe you have seen an Asian giant hornet outside of Washington, please report to your state or province’s invasive species managers.

*Thank you for helping protect Washington from this invasive hornet!*
On October 22, 2020 an Asian giant hornet nest was located on a property in Blaine, WA after using a radio tracker attached to a captured hornet. It is the first ever such nest found in the U.S.

**Nest entrance was about 8.3 feet up in the tree.**

It was in a cavity that was about 8-9 inches in diameter.

**Nest length - 14 inches**
- 6 combs
- 6 unhatched eggs all in the last and smallest comb
- 190 total larvae most had fallen out of the combs
- 112 workers 85 were removed with a vacuum
- 9 males
- 76 queens all but one should be new queens

**108 capped cells with pupae**

Based on size, these are likely all queens