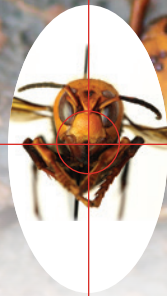


# National Pest Alert



## Asian giant hornet

### *Vespa mandarinia*

The Asian giant hornet (*Vespa mandarinia*) is native to temperate and tropical eastern Asia and is widely distributed throughout northern India, Myanmar, Laos, Korea, China, Taiwan, Japan, and parts of Russia. The Asian giant hornet is very large, and measures about one and a half to two inches in length and may weigh more than an ounce. Colonies of these hornets begin in the spring when a single queen forms a nest underground in rotten tree roots or abandoned burrows. Above-ground nests are extremely rare but may occur in tree hollows, though still close to the ground. Nests in human structures are even more rare—Matsuura and Koike (2002) reported only three nests in human buildings out of 1,756 total nests observed. The queen lays up to five eggs per day and workers begin to emerge about 30 to 40 days (depending upon temperature) after colony establishment. Colony activity can continue for about six months and ends with the death of the queen in the fall. In the late summer and fall, reproductive males and new queens are produced, mate and disperse, and the new queens overwinter to start colonies in the spring of the following year. During the peak of colony activity there may be as many as 150 to 200 workers per colony (Archer 1995).

### Detection in North America

The Asian giant hornet was detected in North America in the fall of 2019 in British Columbia and Whatcom County, Washington, where it was probably introduced through international trade on cargo ships. It is unknown when the hornets may have been introduced. A nest in British Columbia was eradicated later that year (Garvey 2020), but the recent discoveries of queens in late May and June of 2020 in Washington State and British Columbia have renewed concern about the introduction.



Photo by Karal Saup, WSDA

Asian giant hornets are very large, about 1.5 to 2 inches in length.

Modeling suggests that there is ample habitat suitable for Asian giant hornet in the United States, including the Pacific Northwest, Midwest, and the Eastern seaboard. Most of the inter-



As of July 2020, Asian giant hornets have only been found in a small area of British Columbia, Canada and Washington, USA.

mountain West, desert Southwest, and plains appear to be less suitable (Zhu et al, unpublished). To date, the only confirmed sightings have been in northwest Washington State and adjacent British Columbia. All of the confirmed sightings have come from members of the public, demonstrating that citizen science is a useful tool for tracking this species. Suspect hornet sightings can be reported at [agr.wa.gov/hornets](http://agr.wa.gov/hornets) or at [www.eddmaps.org](http://www.eddmaps.org).

### Are Asian Giant Hornets a Threat?

The Asian Giant Hornet probably does not pose a serious human health risk. They will vigorously protect their nests if disturbed, inflicting a painful sting. While their venom actually has a lower acute toxicity than that of honey bees, each sting can administer large doses of venom due to the size of the wasp. The potent venom causes pain and swelling (Main 2020). Despite the toxicity and volume of an Asian giant hornet sting, human deaths caused by this species seldom exceed a dozen each year in countries where it is native.

All *Vespa* species are predators of numerous insects. Asian giant hornets prey on many species, including caterpillars, chafer beetles, praying mantises, honey bees and other social Hymenoptera.

During late summer and autumn, Asian giant hornets begin to prey on honey bee hives, including cooperative attacks that can destroy a hive's defenses in under two hours. The Asian giant hornet is a natural enemy of Asian honey bee (*Apis cerana*), which has developed numerous defensive behaviors during their coevolutionary history. European honey bees (*Apis mellifera*) lack effective defensive behaviors for Asian giant hornet and the hornets may be a major source of colony loss. The potential impact on commercial honey bee production is among the primary reasons the appearance of Asian giant hornet in North America has caused such concern.

## Lookalike Wasp Species

Several wasp species that occur in the United States may be mistaken for the Asian giant hornet. These lookalikes include the Western and Eastern cicada killers (*Sphecius grandis* and *S. speciosus*) and others. Comparisons between the Asian giant hornet and these lookalikes can be found at [www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/honey-bees/agh](http://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/honey-bees/agh). To date, the only verified finds of the Asian giant hornet have been in British Columbia and Washington State (see map) and therefore it is unlikely that you will find this invasive hornet in other states in the United States. Therefore, citizens should refrain from killing large wasps because they believe them to be Asian giant hornet, and instead call your local university Extension office or local agricultural commissioner's office to report a suspected find. And take a picture to help with the identification.

Despite its painful sting and pestiferous attacks on honey bees, Asian giant hornets have characteristics that are distinctly useful to people. Asian giant hornet probably plays an important role in the ecology of region where it is endemic and is even considered a conservation priority species in Korea where deforestation has caused habitat loss. Asian giant hornet larvae and prepupae are considered a delicacy by people that coexist with the hornet within its natural range. And the Asian giant hornet is a source of Vespa amino acid mixture (VAAM); a mixture that may enhance athletic performance (Sasai et al. 2011, Tsuchita et al. 1997, Abe et al 1995).

### For additional information please take a look at the following resources:

Washington State University Extension fact sheet available at [s3.wp.wsu.edu/uploads/sites/2065/2020/06/AGHfs.pdf](http://s3.wp.wsu.edu/uploads/sites/2065/2020/06/AGHfs.pdf)

Washington State Department of Agriculture fact sheets available at [agr.wa.gov/hornets](http://agr.wa.gov/hornets)

New Pest Response Guidelines—Vespa mandarinia, Asian giant hornet. 2020. USDA APHIS PPQ. Available at [cms.agr.wa.gov/WSDAKentico/Documents/PP/PestProgram/Vespa\\_mandarinia\\_NPRG\\_10Feb2020-\(002\).pdf](http://cms.agr.wa.gov/WSDAKentico/Documents/PP/PestProgram/Vespa_mandarinia_NPRG_10Feb2020-(002).pdf)

2020 Strikes again: Murder Hornets. Presented by Chris Looney on June 2, 2020. Available at [www.pacificsciencecenter.org/events/murder-hornets-060220/](http://www.pacificsciencecenter.org/events/murder-hornets-060220/)

National Geographic articles on Asian giant hornet arrival in the U.S. available at [www.nationalgeographic.com](http://www.nationalgeographic.com)

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Alpsdake, Wikimedia Commons via USDA Vespa mandarinia NPRG

*Asian giant hornet colonies start new each spring with a single queen, but can grow to 150–200 workers by fall.*



*Asian giant hornets were nicknamed 'murder hornets' by the popular press. Although they are large with a painful sting, they do not pose a widespread human health risk.*



*Asian giant hornets feed primarily on other insects and can be a big problem for honey bees as they are known to prey heavily on honey bee hives.*

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