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WHAT'S THE BUZZ ABOUT THE ASIAN GIANT HORNET?

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THERE HAS BEEN LOTS OF BUZZ IN THE MEDIA LATELY ABOUT THE ASIAN GIANT HORNET AND WHAT IT COULD MEAN FOR BEEKEEPERS (AND BEES) IN NORTH AMERICA

The Asian Giant Hornet (*Vespa mandarinia*) or, more sensationally known as the 'Murder Hornet', has been trending over several social media platforms this year. Does it merit such a nickname? Here is what you should know and where to find more reliable resources to further satisfy your curiosity.

The Asian Giant Hornet (AGH) (**Figure 1**) was first found in North America in 2019. One colony was detected and destroyed near Nanaimo, British Columbia early in the fall of 2019. Other AGH adults were detected in Washington State, US in fall 2019. AGH started picking up major attention in 2020 when it was nicknamed the 'murder hornet'. This nickname raised concern for many and spread across social media platforms like wildfire. Despite the fact they have been made famous with this scary (and largely inaccurate) name, these hornets are not a great danger to humans. Although painful, humans are not likely to suffer fatal effects from a sting or two. AGH are generally not interested in humans or animals and will only sting if disturbed or threatened, or if they are trying to protect their nest.



Figure 1. An Asian Giant Hornet sample. Photo credit: British Columbia Ministry of Agriculture.

AGH seem to have an appetite for bees. Honey bees live in colonies with tens of thousands of bees which makes for great feasting grounds for the hornets. This is where the nickname 'murder hornet' might not be such a stretch. A small number of hornets can destroy an entire honey bee colony in a matter of hours. In Asian countries where this species of hornet is native, Asian honey bees can defend themselves by forming a "bee ball" around the first scout



Funders and Contributors:

Bleuets NB Blueberries
New Brunswick Beekeepers Association Inc.

Nova Scotia Beekeepers' Association
Wild Blueberry Producers' Association of Nova Scotia

Prince Edward Island Wild Blueberry Growers Association
PEI Beekeepers' Association

hornet and killing it, which will prevent the hornet from going to its nest and coming back to the bee hive with its sisters. Asian honey bees will kill the first scout hornet by luring it into the hive where worker bees will cluster around it and start vibrating their flight muscles. This produces heat that can reach up to 42°C (117°F), which is lethal to the hornet, but not to the worker bees. This process also produces CO₂ which will suffocate the hornet. European honey bees (the managed honey bees found in North America), however, do not possess this ability to the same extent. This defense mechanism may not be as evolved in North America as this is a new predator for these particular honey bees. North American honey bees can use a similar defence mechanism against other predators, but AGH is larger than what they are accustomed to.

It is important to keep in mind that beekeepers have been dealing with wasp and hornet problems for years. In recent years, significant honey bee losses have been reported in certain regions of North America due to wasps and hornets. To combat this issue, beekeepers have worked to manage strong colonies, reduce entrances in the fall, and source the wasp and hornet nests to destroy if possible. Wasps and hornets, although in the same order as bees (Hymenoptera), are largely carnivorous to feed their young (although the adults will consume pollen and nectar). A dense colony of honey bees, especially if this colony is weak, is an ideal target for wasps.

Something else to consider is the potential impact to our wild bee populations. Wild bees do not have any defence mechanisms against AGH, and with increased public awareness (and fear, thanks to sensationalized media reports), there is concern the public may begin killing all flying insects that could be mistaken for predators.

AGH might be causing unnecessary fear for human health, but the attention it is receiving might not be all bad, as this invasive species could become a problem to honey bee populations across North America. The recent AGH interest is helping bring much needed attention to invasive species and the problems they can cause to our ecosystems. Measures are being taken by several sectors in North America to help contain and eradicate this species. New public awareness of AGH is a great way to get North Americans to help by detecting AGH in their area if they are present.

We still do not know if AGH will overwinter in Canada or the US, or fully understand how this invasive species was introduced to North America. While it is unlikely that AGH will spread to Atlantic Canada at this time, concerned beekeepers and citizens alike can still do their part to be on the lookout for large hornets, advocate for fact-based information, and protect our wild bee populations. If you see or suspect a hornet that is 1.5-2 inches in length and features a large yellow or orange-colored head with a black and yellow striped abdomen, contact your provincial apiculturist. Do not try to source the nest yourself.

If you're a beekeeper concerned about AGH, remember that honey bees face numerous pests and diseases, and try to focus on management tools we can control, including monitoring and managing varroa mites (high mite levels will kill honey bee colonies), maintaining strong, healthy

colonies (which will help with numerous management issues), and preparing for overwintering.

There are many wasps and hornets that are native and naturalized to Canada. If you observe a suspicious insect and are not sure if you should report it or contact a provincial apiculturist, check out this graphic for more information (**Figure 2**):

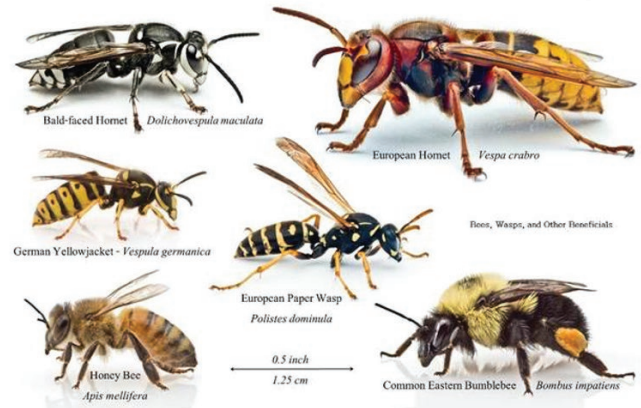


Figure 2. Bee, wasp and hornet identification guide from Kentuckiana Beekeepers Association.

We frequently encounter paper wasps, bald-faced hornets, and yellowjackets in the Maritimes, and some of these can be quite large, but there will be noticeable differences between these wasps and hornets, and the Asian Giant Hornet.

To learn more about AGH, visit these resources:

United States Department of Agriculture: AGH overview [https://cms.agr.wa.gov/WSDAKentico/Documents/PP/PestProgram/Vespa_mandarinia_NPRG_10Feb2020-\(002\).pdf](https://cms.agr.wa.gov/WSDAKentico/Documents/PP/PestProgram/Vespa_mandarinia_NPRG_10Feb2020-(002).pdf)

CBC news: AGH in Canada <https://www.cbc.ca/news/canada/prince-edward-island/pei-getting-rid-of-murder-hornets-1.5564147>

Oregon Dept. of Ag: How to spot an Asian giant hornet and what to do <https://www.oregon.gov/ODA/shared/Documents/Publications/IPPM/AsianGiantHornetPestAlert.pdf>

Tufts Pollination Initiative: AGH and pollinators <https://sites.tufts.edu/pollinators/2020/05/stop-calling-it-the-murder-hornet/>

Podcast with Dr. Sam Ramsey, a well-known American entomologists talks about the Asian giant hornet <https://www.npr.org/2020/05/07/852375483/heres-the-deal-with-murder-hornets>

Figure 1 Photo Credit: British Columbia Ministry of Agriculture. Available online: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/plant-health/pest_alert_asian_hornet.pdf

Figure 2 Photo Credit: Kentuckiana Beekeepers Association. Available online: <https://www.kyanabees.com/swarm-hive-removal/>