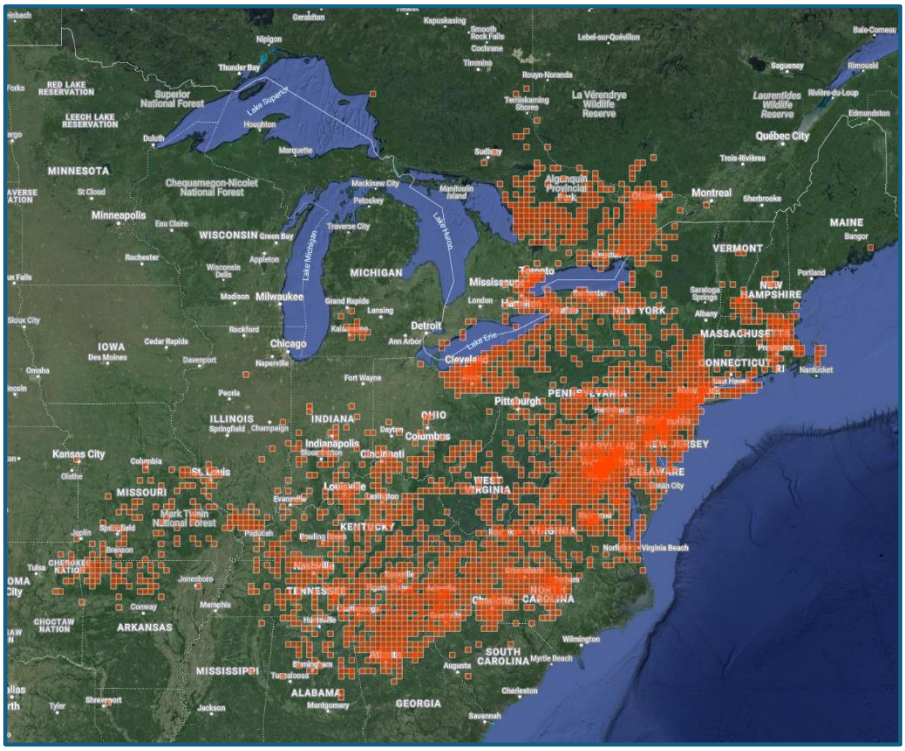
The European Hornet: A Report by the Nipissing First Nation Environment Department

Have you seen a giant, unfamiliar hornet lately? You are not alone!

The NFN Environment Department staff, in addition to Debendaagziwaad, have noticed an uptick in the number of observations of the **European hornet (***Vespa crabro*) in the past two years. Initially introduced in the 1800s and first documented in the 1840s in West Farms, New York, the European hornet has spread considerably across portions of the southeastern United States and to northern areas of Ontario and Quebec—reports of the European hornet in Quebec, Canada, date back to 1955[1].

It is important to note that this hornet should not get confused with the **Asian Giant hornet (***Vespa mandarinia*) or "*murder hornet*", which today does **NOT** occur in eastern North America and has only been found in **Washington State** and adjacent **British Columbia**[2].



The main distinguishing characteristic between the hornets is the head and abdomen. The European hornet contains a reddish-brown and yellow head instead of the entirely yellow head that characterizes the Asian Giant hornet. This feature resembles a yellow "helmet" on the Asian Giant hornet. In addition, the abdomen is black anteriorly (front) and yellow posteriorly (back) with rows

Figure 1 - iNaturalist community. Observations of the European Hornet (Vespa crabro) from North America, observed on June 05, 2024. Exported from https://www.inaturalist.org on June 05, 2024.

[1] Shaw, F.R., Weidhass, J. Jr. 1956. Distribution and habits of the giant hornet in North America. J. Department of entomology, University of Massachusetts, Amherst, 49, p. 275.
[2] European Hornet (Department of Entomology). http://ento.psu.edu/extension/factsheets/european-hornet. Department of Entomology (Penn State University). Retrieved 2024-06-05.

of black teardrops (Photo A). The Asian Giant hornet, on the other hand, has a banded yellow, black and brown abdomen (Photo B).

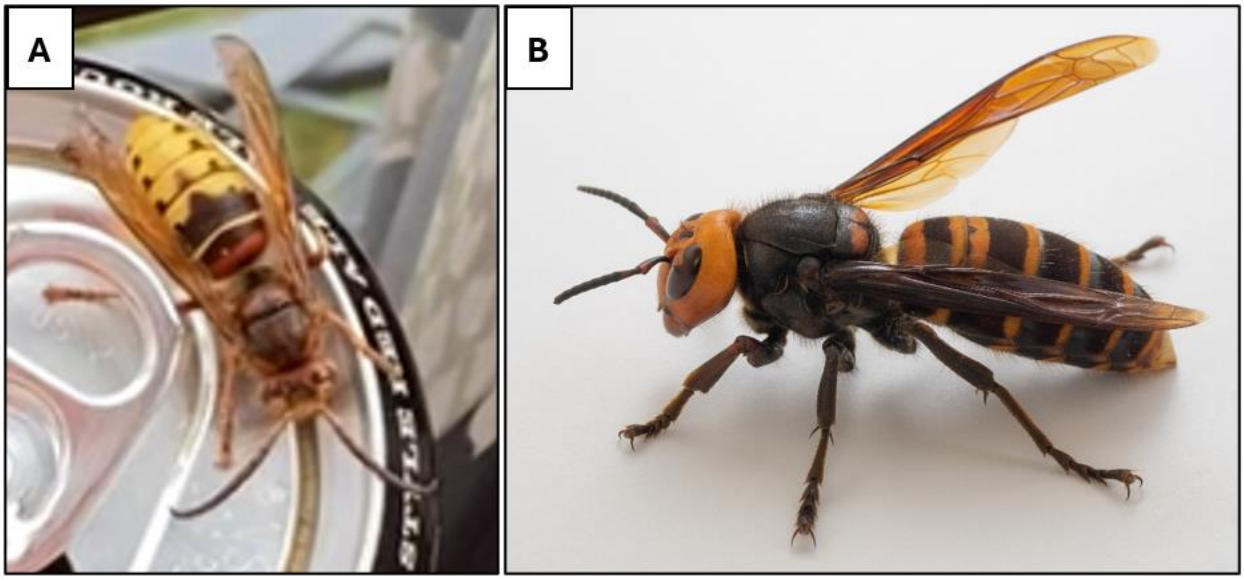


Figure 2 – Photo A: the European hornet (photo provided by David Leclerc, NFN 2023). B: Asian Giant hornet (Photo used by permission from Yasunori Koide).

We may be seeing more of these wasps due to their unique life history strategies and the milder winters brought on by climate change.

The European hornet constructs paper nests utilizing broken-up, chewed-up plants and wood fibres mixed with its saliva during the spring. Nesting locations are preferred to be hollow, closed sites in dark crevices (mainly in hollow trees), which means poorly enclosed and winterized structures (hollow walls and building cavities) are prime locations for new nesting sites. After the spring nest-building phase, colonies expand from summer until autumn, when new potential queens and males are produced. Following the changes to the autumn season, the colonies start to decay and die out due to cold and the lack of food supplies. Interestingly, the only surviving individuals are fertilized queens, which emerge in the spring of the following year to construct new nests. The emerging queen may not have constructed a nest in the previous location in which it had over-wintered.

The European hornet is a large and showy insect introduced into North America. It exhibits no heightened aggression, and its sting is no more painful than that of the common European honeybee (*Apis mellifera*), another introduced species.

First accounts of the hornet allude to docile behaviour:

> *"as a result of numerous observations we formed the opinion that the adult giant hornets, away from the nest, were not particularly vicious. Even after they were disturbed, the insects appeared to be more curious than angry"* (Shaw and Weidhaas, 1956).

The workers and queen forage on two types of foods: carbohydrates and protein. Carbohydrates tend to be liquid, while protein foods tend to be solid. Carbohydrate sources are tree sap, ripe fruits, honeydew, and flower nectar. At the same time, solid protein foods are mainly prey, with the hornet forming a ball of meat in the hunting area after capture. Insects captured include grasshoppers, mantises, dragonflies, and yellow jackets. They may also attack honeybees, but this does not harm honeybee populations [3].

The NFN Environment Department acknowledges that more sightings are being recorded in the area, representing the northern boundaries of observations (Figure 1). It is, therefore, reasonable to assume that changes in the climate – which account for milder winters and earlier and prolonged growing seasons – have aided the northward expansion of the European hornet. The consequences of these factors suggest less over-winter kill of fertilized queens, more food supplies, and shorter hibernation-fasting periods.

You can take specific measures to deter these hornets' attraction. This entails:

1. Pick up fallen fruit around trees (i.e. apple and crab apple trees)
2. Discard sugary food containers quickly (i.e. pop cans, juice boxes, fruit containers) in an appropriately sealed garbage bag.
3. Put garbage bags in a secure container (animal-proof) until they can be picked up.
4. Clean up garbage that is left outside.
5. Dispose of any hollow debris or logs around your property.
6. Seal cracks in the siding and around windows, pipes, etc.

Interesting Facts:

- European hornets have been documented in southern Quebec as early as 1955.
- The hornets have been known to steal prey from spiders – a phenomenon known as kleptoparasitism.
- The species' origin ranges from the United Kingdom to Japan.
- Unwarranted fear of the species in its native distribution (Europe and Asia) has led to the species' decline. It is considered locally threatened or even endangered in some parts. In Germany, it has been illegal to destroy nests, with fines of up to €50,000 Euros or $75,400 CAD!

If you see the European hornet and want to report the observation in the area, please utilize ***iNaturalist*** (app or web version) and submit the observation under the ***Nipissing First Nation – Species Inventory Project.***

The NFN Environment Departments encourages all citizen scientists to submit observations within NFN under this project.

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[3] Pusceddu, M.; Lezzeri, M.;Cocco, A.; F;pros, I.: Satta A. Bio-Ethology of *Vespa crabo* in Sardina (Italy) an Area of New Introduction. *Biology 2022, 11, p. 518. http://doi.org/10.3390/biology11040518*