

Pest Alert

Japanese Giant Hornet

Great Sparrow Bee *Vespa mandarinia japonica*



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Japanese Giant Hornets is one of the largest living wasps and are a subspecies of Asian Giant Hornets (*Vespa mandarina*). These insects are native to Japan. Their bodies are 1 ½ - 2 inches long, with a wingspan of over 2 inches. Their stinger is ¼ inch long. Three small simple eyes and two large compound eyes are located on their large yellow head. The thorax is brown. There are yellow and brown bands on the abdomen. The hornets can fly over 60 miles a day at speeds of 25 miles per hour. These hornets are not considered aggressive unless they feel threatened.

In Japan, these hornets are considered beneficial because they hunt for a variety of insects, including crop insect pests. The hornets dismember their prey, return to the nest and chew the nutritious body parts into a paste to feed the hornet larvae. The hornet larvae then produce a liquid, vespa amino acid mixture (VAAM), which the adult hornets consume. This is the only food the adult hornet consumes. This liquid is artificially produced and sold as a dietary supplement which claims to increase athletic performance. Some Japanese will fry full grown hornet larvae, considering it to be a delicacy.

Japanese Giant Hornets can be aggressive and are devastating to European honey bees. This honey bee has been introduced in Japan and is the main type of managed honey found in the United States. After the hornet finds a honey bee colony, it will mark the colony with a special scent or pheromone. This will guide the hornet's nest mates to the targeted honey bee colony. One Japanese Giant Hornet can kill up to 40 honey bees in only one minute. A colony of 30,000 honey bees can be destroyed in a little over three hours by 30 Japanese Giant Hornets. The Japanese Giant Hornets dismember the bees and feed the adult bee thoraxes (middle part of the bee), honey and bee larvae to their young.

The Japanese honey bees have adapted to this threat and are able to fight back. When they see a Japanese Giant Hornet approaching the hive, they return to the hive, allowing the hornet to enter. Approximately 500 bees will then form a tight ball surrounding the hornet. The bees vibrate their wings, directing the warmed air to the center of the ball of bees. After about 20 minutes, the carbon dioxide concentration has risen and the hornet can't survive as the temperature reaches 117 degrees F.

Habitat:

Japanese Giant Hornets prefer to nest in holes found in trees in rural forested areas. They also nest in bamboo forests in the mountains.



Photo credit: vespa_mandarina japonica_by_tong66-d5lcrar.jpg

Entry Methods: Japanese Giant Hornets could arrive in the United States several ways. Imported products or shipping containers are a common entry pathway for invasive insects. Items of special concern include soil with imported plants, cut flowers, fruit, timber, and pottery. Ironically, people may also hide these hornets in a misguided effort to bring them to the U.S. for their own use. These hornets are sometimes eaten fried or raw in Japan. Some energy drinks contain “hornet juice” which is a synthetic version of a high energy food produced by hornet larvae saliva. This is called VAAM (Vespa Amino Acid Mixture).

Problems Japanese Giant Hornets Cause to Humans: If stung, the venom damages the skin tissue and attacks the nervous system. Renal failure may also occur. While this is not the most lethal hornet venom, this hornet produces and injects a lot of venom. The sting is painful and requires medical treatment and/or hospitalization depending on the number of stings. If allergic to the venom, victims go into anaphylactic shock. Death is possible.



Karen Roccasecca, State Apiarist 5/2019

WHAT TO DO:

If you see an insect that looks like a Japanese Giant Hornet:

- Do NOT approach the insect. Many insects look very similar to each other, but caution is still necessary.
- Watch from a safe distance.
- Take a picture if you are able to do so. Pictures may be submitted to Badbug@pa.gov
- If you find a **DEAD** insect which you believe may be a stingless bee, you may place dead insect in a small container with alcohol. Please contact the PA Department of Agriculture for more details.

Call the Automated Invasive Species Report Line at 1-866-253-7189 and leave a message detailing your sighting and your contact information.