

Providing Leadership in Environmental Entomology

Department of Entomology, Soils, and Plant Sciences • 114 Long Hall • Clemson, SC 29634-0315 • Phone: 864-656-3111
email:dpento@clemson.edu

EUROPEAN HORNET

The European hornet was introduced into the New York area in the 1850's. It is the only true hornet in North America. Since its introduction, the European hornet has spread throughout most of the eastern United States. In nature, European hornets are beneficial because they feed on many insect pests. European hornets can however, damage crops by feeding on fruits such as apples. The greatest concern with European hornets is when they nest near areas of human activity.

Appearance. Adult European hornets, are quite large and they are often confused with baldfaced hornets. Baldfaced hornets are black with white markings. European hornets have a yellow face with black eyes and yellow stripes with black spots on the end of their body. Adult female workers and males are up to 1 inch in length. European hornet queens are very robust and over an inch in length.



**European hornet stripping bark off a branch
(Courtesy of A. Greene, USGS and N. Breisch,
Univ. of MD)**

Habits. European hornet colonies contain a queen and many female workers. European hornet colonies are generally small in size with a range of 200-400 workers. During early spring, the queens emerge from protected sites, such as logs, stumps, and under loose bark. Once the queen finds a good nesting site, she will begin construction of the nest, lay eggs and collect

food to feed her young. After the first generation of wasps have completed development and emerge as adults, they assume the duties of expanding and maintaining the nest and caring for the colony. New queens and males are produced in mid to late summer. The males and queens will then leave the nest, mate, and the new queens find a suitable protected site to overwinter until the following spring. Nests are often active into late fall (August-November), but eventually, the original queen and workers die by early winter. In most cases, abandoned nests are not reused the following year.



**European hornet nest in an oak tree.
(Courtesy of D. Oswalt).**

European hornet nests are often constructed in hollow hardwood trees, but can also be constructed in wall voids and attics in buildings. Free-hanging nests are extremely rare but may be built in undisturbed or abandoned buildings. Nests are constructed of multiple layers of hexagonal combs, similar in shape to those of honeybees combs. Since the typical European hornet nest is constructed in voids, a paper envelope completely covering the nest (similar to that of the baldfaced hornet nest) is not used. A paper envelope is used to seal exposed areas of the nest. European hornets produce a mottled brown-tan paper in contrast

with the gray-colored paper envelope used by the baldfaced hornet. The raw materials for the "paper" are obtained from soft wood. The fibers are chewed and mixed with saliva to make a pulp which is then formed into place.

European hornets are different than other wasps in that they can be very active at night. They are also attracted to lights. European hornets are generally less defensive than yellowjackets or baldfaced hornets, but they will defend their nests if they feel threatened. Individual workers attack intruders so there is less of a threat of being stung multiple times as with yellowjackets. People are often stung when they unwittingly stumble upon a hidden nest or when the nest is located in areas adjacent to homes or places where there is human activity. It is when nests are located close to areas with human activity or there is a medical threat to persons who may be allergic that control is warranted.

Control. Effective control involves treating the nest. The nest should be located during daylight hours. Since European hornets can be active both day and night, early in the morning, before sunrise when temperatures are coolest, is generally the best time to treat. They are readily attracted to lights, so avoid using artificial light when treating. If a light is needed to see the nest clearly, it should not be held. The light source should be aimed toward the nest, but placed away from the person treating. Thick protective clothing, including boots, gloves, hat and eyewear should be worn to prevent stings.

There are many types of insecticides that will kill European hornets. Generally, aerosol sprays labeled for wasps and hornets, that shoot a long stream of insecticide, are a good choice. Many aerosol products contain materials useful in getting a quick "knockdown", while others contain foaming agents that expand within the nest to spread the insecticide, minimizing the number of wasps escaping the nest. Insecticidal dusts also can be applied into the nest, however they may take several hours to achieve the desired result and require the applicator to get close to the nest. When treating, a sufficient amount of insecticide should be applied directly into the nest

entrance to ensure thorough coverage. Once the insecticide has been applied, it is helpful to leave the nest intact for a few days to allow all the workers and newly emerging hornets in the nest to die. Nests inside a building should be removed once control has been achieved. Removing the nest will avoid creating additional problems, including foul odor from decomposing hornets or attracting other pests. Interior or exterior wall coverings may have to be removed to properly clean out nest remains. Once the nest is removed, the old nest entrance should be sealed, if possible, to prevent future infestations by European hornet colonies.

Treating European hornets can be dangerous. If a nest is in a area that does not threaten people, it should be left alone, to die naturally during the winter. This will allow for developing larvae to mature and leave the nest, avoiding the smell of decaying brood. Dry, empty nests do not smell, so removing them is often not necessary. If a nest is in a structure or near human activity, homeowners should seriously consider hiring a pest control professional with expertise in killing and removing European hornet nests.

Nests treated with insecticides should not be kept for display purposes.

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Prepared by Donald A. Oswalt, Graduate Research Assistant, Eric P. Benson, Extension Entomologist/Professor, and Patricia A. Zungoli, Extension Entomologist/Professor, Department of Entomology, Soils, and Plant Sciences, Clemson University.

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