



UNIVERSITY OF
FLORIDA

IFAS EXTENSION

Hornets and Yellowjackets, *Vespula* and *Dolichovespula* spp.¹

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Introduction

Only two of the 16 Nearctic species of *Vespula* are known from Florida (Miller 1961). These are the two yellowjackets: *V. maculifrons* (Buysson) and *V. squamosa* (Drury). One species of *Dolichovespula* is also present: the baldfaced hornet, *D. maculata* (Linnaeus). The baldfaced hornet is actually a yellowjacket. It receives its common name of baldfaced from its largely black color but mostly white face, and that of hornet because of its large size and aerial nest. In general, the term "hornet" is used for species which nest above ground and the term "yellowjacket" for those which make subterranean nests. All species are social, living in colonies of hundreds to thousands of individuals. These wasps are adept at stinging and are especially aroused if danger threatens the nest. Unlike the honeybee, which dies upon inflicting a single sting, vespine wasps may sting as often as they find a target.

Identification

The three species of Florida yellowjackets are readily separated by differences in body color and

pattern. Identification is possible without hand lens or microscope, and, for this reason, a simple pictorial key is all that is necessary. Color patterns are relatively stable, and their use is further strengthened by morphological characters (Miller 1961). Queens and workers may be separated by abdominal patterns; males have seven abdominal segments while females have only six.

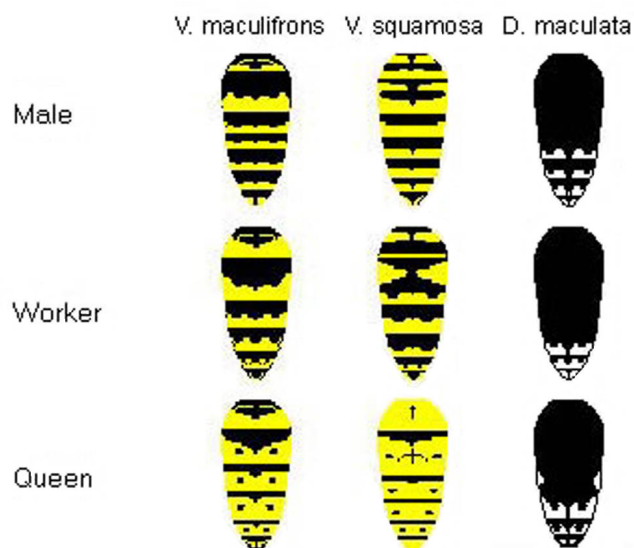


Figure 1. Color patterns of Florida yellowjackets.

1. This document is EENY-081 (originally published as DPI Entomology Circular No. 142), one of a series of Featured Creatures from the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Published: May 1999. This document is also available on Featured Creatures Website at <http://creatures.ifas.ufl.edu>. Please visit the EDIS Website at <http://edis.ifas.ufl.edu>. Additional information on these organisms, including many color photographs, is available at the Entomology and Nematology Department WWW site at <http://entnemdept.ifas.ufl.edu/>.

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Figure 2. Adult yellowjacket, *Vespula* spp. Credits: J. L. Castner, University of Florida

Biology

Colonies are founded in the spring by a single queen that mated the previous fall and overwintered as an adult, usually under the bark of a log. Nests may be aerial or terrestrial, depending in part upon the species of the wasp. Some species may construct both types of nest. Regardless of location, each nest is a series of horizontal combs completely surrounded by a paper envelope. Initially, the solitary queen must not only construct the paper brood cells, but also forage for food, lay eggs, feed her progeny, and defend the nest from intruders. When the first offspring emerge as adults they assume all tasks except egg laying. The queen devotes the remainder of her life to this task and does not leave the nest again. For most of the season the colony consists of sterile worker females which are noticeably smaller than the queen. Each worker tends to persist at a given task, such as nest building or feeding larvae, for a given day, but may change tasks if the need arises. Working habits apparently are not associated with age as they are in the honeybee. Workers progressively feed larvae a diet of masticated flesh of adult and immature insects, other arthropods, and fresh carrion. Lepidopterous larvae appear to be a favorite food. In autumn, larger cells are constructed for the crop of new queens. Larvae in these cells receive more food than do those in normal cells. At the same time, the queen begins to lay unfertilized or male eggs in either large or small cells. After emergence, the new queens mate and seek shelter for the winter. These will be the founders of next spring's colonies. The old founder

queen dies, and the workers begin to behave erratically until social order breaks down. With winter's arrival, the remaining colony dies.

Dolichovespula maculata: The baldfaced hornet is found throughout most of the Nearctic region. It constructs aerial nests often a foot or more in diameter. The wasp is easily recognized by its black and white color and by a black anterior half or more (terga I-III) of the abdomen which is black. Relatively little is known about this species despite its abundance and wide distribution.



Figure 3. Nest of the baldfaced hornet, *Dolichovespula maculata* (Linnaeus). Credits: Division of Plant Industry

Vespula maculifrons: This yellowjacket is found in eastern North America. Most reports indicate subterranean nests. Haviland described 10 nests, each

of which had a nearly spherical ground opening about 1.5 cm in diameter. The nest looks much like that of *D. maculata* except the outside envelope has the consistency of charred paper. As the nest becomes larger, workers remove soil from the burrow. The soil is always deposited about 1 cm distance from the nest. According to Haviland, nests ranged from 9.5 to 30 cm in diameter. The largest nest contained eight levels of comb with over 2800 wasps present. Green et al. (1970) reviewed some unusual above-ground nest locations of *V. maculifrons* including decayed stumps, tree cavities, and between sidings of a home. They also found an exposed nest on the side of a building. *V. maculifrons* is most readily separated from *V. squamosa* by the color patterns.



Figure 4. Yellowjacket nest, *Vespula* spp. Credits: University of Florida

Vespula squamosa: This yellowjacket is found in the eastern United States and parts of Mexico and Central America. As with *V. maculifrons*, both terrestrial and aerial nests are known. Gaul (1947) described one ground nest which was 20 cm wide by 20 cm deep. The nest was 22.5 cm below the soil surface. Tissot and Robinson (1954) described five aerial nests for *V. squamosa*. Two nests were constructed in material associated with palm and another in a rolled rug in a garage. A huge nest, about 2.5 m in height, was constructed around the end of a tree stump. A total of 74 layers of comb were found. Evidence suggested that this nest might have been a coalition of two or three independently founded colonies of *V. squamosa* on the same tree.

Economic Importance

These wasps perform a valuable service in destroying many insects that attack cultivated and ornamental plants. Nests near homes, however, may prove a source of irritation. If the nests are large or difficult to approach, for example within the walls of a house, the safest procedure would be to hire a pest control operator to eliminate the colony. Any attempt to remove or destroy nests by the layman should be done at night when nest activity is at a minimum. It is important to note that even though nests are relatively inactive at night, any disturbance will result in instant activity by the colony. It is necessary to work cautiously but quickly. Protective clothing is advisable.

For additional information see Insect Management Guide for hornets and yellowjackets.

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