



# Yellow Jackets

information primarily from UFL-IFAS



## Introduction

Only two of the 16 Nearctic species of *Vespula* are commonly found in Florida. These are the two yellowjackets: *V. maculifrons* and *V. squamosa*. One species of *Dolichovespula* is also present: the Baldfaced Hornet, *D. maculata*. 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

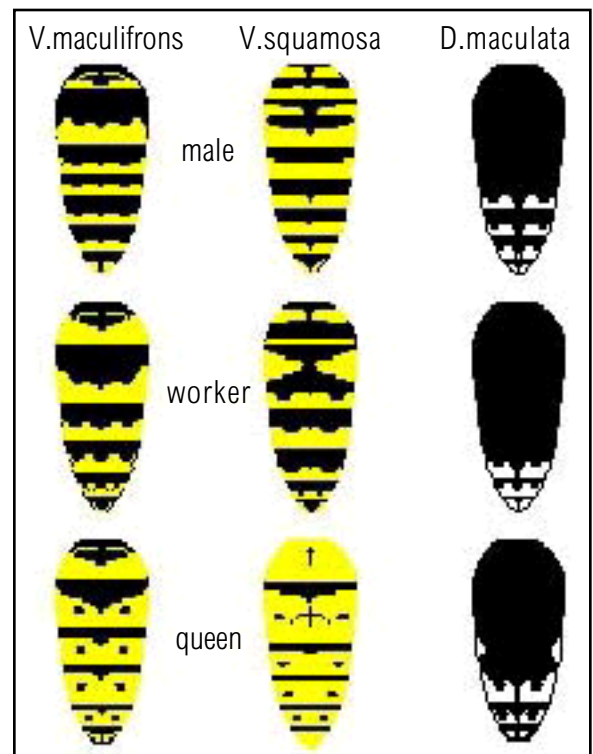
The three species of Florida Yellowjackets are distinguished by differences in body color and pattern. A typical yellowjacket worker is about 1/2-inch long, short and blocky, with alternating black and yellow bands on the abdomen while the queen is larger, about 3/4-inch long. Identification is possible without hand lens or microscope, and for this reason, a simple pictorial key is all that is necessary. Color patterns are relatively stable. Queens and workers may be separated by abdominal patterns; males have seven abdominal segments while females have only six.

### Common Name

Eastern Yellowjacket  
Common Yellowjacket  
Bald-faced Hornet

### Scientific Name

*Vespula maculifrons*  
*Vespula vulgaris*  
*Dolichovespula maculata*



## Nests

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 contains rows of horizontal combs containing six-sided cells, completely surrounded by a paper envelope. Yellow Jackets build their nests using materials such as rotted wood fibers, dead stem fibers, and cocoon silk from caterpillars. They chew the materials into pulp and build layers of chambers on top of each other. 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.

## Social Organization

Yellow Jackets live in groups called colonies and work together. They are divided into three classes: queens (large females who build the nest and lay eggs), workers (small sterile females who build nests and feed the young), and drones (males). Only the females can sting.

For most of the season, the colony consists of the 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. Female workers go out looking for food for the larvae. Although adult yellow jackets feed on nectar from flowers, workers kill other insects to feed to the larvae. Once the worker has captured and killed her prey, she will cut it into pieces and carry each piece back to the nest. Then she will chew the piece into a paste. The worker then "tickles" the larva causing it to release a sugary saliva. The workers drink the saliva and at the same time deliver the paste to the larva. Workers progressively feed larvae a diet of masticated flesh of adult and immature insects, other arthropods, and fresh carrion. Caterpillars 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 United States. It constructs aerial nests often a foot or more in diameter. The wasp is recognized by its black and white color with most of the abdomen black. Relatively little is known about this species despite its abundance and wide distribution.

*Vespula maculifrons*: The Eastern Yellowjacket is found in eastern North America. Most reports indicate subterranean nests which typically have a nearly spherical ground openings about 1.5 cm in diameter. The nest below the ground looks much like that of *D. maculata* except the outside envelope has the consistency of charred paper. As an underground nest becomes larger, workers remove soil from the burrow. The soil is always deposited about 1 cm distance from the nest. Nests may range from 9.5 to 30 cm in diameter. A large studied nest contained eight levels of comb with over 2800 wasps present.

*Vespula squamosa*: The Common 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. In one huge nest, about 2.5m in height 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 on the same tree.

## Life Cycle and Habits

Yellowjackets are social wasps living in colonies containing workers, queens and males. Colonies are annual with only inseminated queens overwintering. Fertilized queens occur in protected places as hollow logs, in stumps, under bark, in leaf litter, in soil cavities and human-made structures. Queens usually emerge during the warm days of late March or early April, select a nest site and build a small paper nest in which eggs are laid.

After eggs hatch from the 30 to 50 brood cells, the queen feeds the young larvae for about 18 to 20 days. Larvae pupate, emerging later as small, infertile females called workers. By mid-June, the first adult workers emerge and assume the tasks of nest expansion, foraging for food, care of the queen and larvae, and colony defense. From this time until her death in the autumn, the queen remains inside the nest laying eggs. The colony then expands rapidly reaching a maximum size of 4,000 to 5,000 workers and a nest of 10,000 to 15,000 cells in August and late September. At peak size, reproductive cells are built with new males and queens produced. Adult reproductives remain in the nest fed by the workers. New queens build up fat reserves to overwinter. Adult reproductives leave the parent colony to mate. After mating, males quickly die while fertilized queens seek protected places to overwinter. Parent colony workers dwindle, usually leaving the nest and die, as does the foundress queen. Abandoned nests rapidly decompose and disintegrate during the winter. Nests are not used again. In the spring, the cycle is repeated.

Although adults feed primarily on items rich in sugars and carbohydrates (fruits, flower nectar, and tree sap), the larvae feed on proteins (insects, meats, fish, etc.). In late autumn, foraging workers change their food preference from meats to ripe, decaying fruits since larvae in the nest fail to meet requirements as a source of sugar.

## Economic Importance

Most farmers like Yellowjackets because they perform a valuable service in destroying many insects that attack cultivated and ornamental plants, especially caterpillars and some ants.

## Sting Prevention

Should a yellowjacket fly near you or land on your body, never swing or strike at it or run rapidly away since quick movements often provoke attacks. When a wasp is near you, slowly raise your hands to protect your face remaining calm and stationary for a while, and then move very slowly, backing out through bushes or moving indoors to escape. Never strike, swing or crush a wasp or bee against your body since it could incite nearby yellowjackets into a frenzied attack. Wasp venom contains a chemical "alarm pheromone," released into the air, signaling guard wasps to come and sting whomever and whatever gets in their way.

When a bee or wasp gets into a moving car, remain calm. They almost never sting when in enclosed spaces as a car or house. Instead, they fly against windows. Slowly pull over off the road, open the windows and allow the escape. Any noise and disturbance will sometimes infuriate and provoke painful stinging.

When eating outdoors, keep food covered until eaten, especially ripe fruit and soft drinks. Any scent of food caused by outdoor cooking, eating, feeding pets or garbage cans will attract many bees and wasps, especially yellowjackets in late summer/early autumn. Keep refuse in tightly sealed containers with tight-fitting trash can lids.

Pick fruits as soon as they ripen, and pick up and dispose of any fallen fruit rotting on the ground.

Individuals should avoid attracting insects by not wearing perfume, hair spray, hair tonic, suntan lotion, aftershave lotions, heavy-scented soaps, shampoos and other cosmetics when visiting areas where bees and wasps are prevalent. Avoid shiny buckles, earrings and jewelry, bright, colored, flowery prints (especially bright yellow, light blue, orange, fluorescent red).