

## BALD FACED HORNETS

Bald faced hornets are three quarters of an inch long and black with ivory markings on their faces and abdomens. They are not overly defensive and can have nests quite close to human activity without becoming a nuisance. They build a grey spherical paper nest sometimes 12" or more in



diameter. Hornet nests can get quite large, even though the nest is abandoned in the fall when the colony dies and is usually not reused. Fertile female hornets over-winter under tree bark or in other small cavities and start new nests in the spring.



## PAPER (RED) WASPS

Paper wasps have the slender "wasp" waist and long legs most people associate with wasps. They may be brown, reddish brown, or black and yellow depending upon the species. They build a small paper nest with open cells in a single layer, attached to the underside of an eave, picnic table, branch, or other protected spot by a short paper stem. Paper wasps rarely sting humans unless their nest is located near a door or other location that places people near their nest.



## MUD DAUBERS



The most common species of mud dauber in New Jersey is the pipe organ mud dauber, a thread-waisted, solitary, bluish-black insect that builds pipe-shaped mud nests in protected areas such as on walls, under eaves, or in attics. Mud daubers seldom sting people.

## CICADA KILLERS

Cicada killers are large black, yellow, and red wasps, up to 1-3/4 inches in length. They are solitary, tunneling nests in bare soil, flower beds, or areas of scant vegetation. The threatening appearance of the cicada killer is made more alarming by the habit the stingless and highly territorial male has of dive-bombing intruders. Despite their appearance, these wasps rarely sting people. Female cicada killers hunt and paralyze cicadas, which they use to provision their nests and feed their young. They overwinter as larvae in the soil and emerge in spring.



Side by side at a drop of honey, it's easy to distinguish the fuzzy, more docile honey bee, lower left, from the shinier, aggressive yellow jacket. Bees are distant relatives of wasps and hornets and each type of insect has its own markings and distinct behavior. Some insects are more defensive than others, and being able to identify which type of bee or wasp is sharing your space makes it easier to adjust to their presence.



The New Jersey Beekeepers Association (NJBA) is a statewide organization of backyard, sideline, and commercial beekeepers. The purpose of the organization is to foster and promote the art of beekeeping in New Jersey, educate residents of the Garden State about the state insect, the honey bee and its vital role in agriculture, and promote public policy that nurtures and supports the honey bee.

The NJBA has local branches covering all of New Jersey. Meetings take place throughout the year at both the state and local branch level. If you are interested in becoming a beekeeper, or would simply like to learn more about bees, you are invited to visit our Web site at [www.njbeekeepers.org](http://www.njbeekeepers.org) for beekeeping information, branch locations, and state and local meeting schedules.



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**Photo credits:** Dr. Dewey Caron, U. of Delaware: bald faced hornet nest, paper wasps on nest, honey bee, yellow jacket. David Cappaert, MSU, bugwood.org: bald faced hornet. J. Lawrence, Eurofins Agrosience Svcs., bugwood.org: cicada killer.

Russ Ottens, U. of Georgia, bugwood.org: bumble bee. Dr. J. K. Barnes, U. of Arkansas: carpenter bee, mud dauber wasp. Janet Katz: cover photo of honey bee & yellow jacket

# Bees, Wasps, and Hornets

Are you being disturbed by stinging insects at your picnic, in your garden, or in the attic? Know what insects are invading your space!



A statewide organization dedicated to fostering the art of apiculture in New Jersey

Branch Identification

# BEES

Unlike wasps, bees are purely vegetarian in both the adult and larval stages. Bees gather nectar from flowers as a source of carbohydrates, as do many wasps. They fulfill their protein needs by collecting pollen. Most species of bees are valuable pollinators, and honey bees in particular are an essential partner in the production of food crops for people.

## HONEY BEES

The majority of honey bees in the U.S. exist as managed colonies living in wooden boxes called hives, which can be transported for crop pollination and from which honey can be harvested without harming the bees. Honey bees are essential to our system of agriculture. The California almond crop alone requires over 1.5 million colonies of bees for pollination. New Jersey crops like blueberries and cranberries, of vital importance to the state's agriculture, also rely on honey bee pollination. Most fruit and nut crops, as well as many legumes (such as soy beans) either require or are enhanced by honey bee pollination. In fact, the only major food group not dependent on insect pollination is that of grains, which are wind-pollinated.



The honey bee is about half an inch long with a black and amber body covered with hair. Some races are darker in color. Not native to the U.S., the most common honey bees are the Italian honey bees, which have been bred for gentleness over the course of millennia and are not usually defensive unless actively provoked. Unlike wasps, honey bees can only sting once and then they die. Honey bees collect nectar and pollen for food. They make honey from the nectar, which they store as food for the winter. Unlike wasps, most individuals in the colony will live through the winter.

The honey bee is under siege by a variety of pests and diseases and colony numbers have decreased significantly in the past two decades. In New Jersey, honey bees are a protected species, and it is illegal to kill them.

Honey bee colonies live above ground in man-made beehives or hollow trees. When the hive or nest becomes too crowded, half of the bees will fly off in search of a new home. This is called swarming. The bees look for a protected above-ground cavity of the right size. Occasionally they will make a nest in a man-made structure. If you believe a swarm has made a home on your property and you wish to have it removed, you can contact one of the beekeepers on the [njbeekeepers.org](http://njbeekeepers.org) Web site to relocate them.

## BUMBLE BEES

Bumble bees have round yellow and black bodies covered with fine hair. They build nests in cavities in the ground and are generally good neighbors, defending themselves only when actively attacked. They are not aggressive despite the fact that females can sting more than once. Small colonies of bumble bees are used in greenhouse pollination. They are valuable pollinators, but because their colonies are small and short-lived when not in the wild, they are not useful for large-scale crop pollination the way honey bees are.



## CARPENTER BEES

Carpenter bees look something like a large bumble bee but their abdomens are black and shiny. They drill tunnels in wood where they lay their eggs and rear their young. They frequently choose the fascia or siding of homes for their nests, which are visible as a pencil-sized hole, often situated above a mound of sawdust. Male carpenter bees are very territorial, often hovering at eye-level or dive-bombing perceived intruders. As they have no stingers, their displays are all show. Females are only defensive if they or their nests are directly attacked. Carpenter bees are valuable wild pollinators. However, their semi-solitary habits and their propensity to drill holes in floral nectaries, "robbing" the nectar without pollinating the flower, make them unsuitable for large-scale pollination of crops.



## The importance of Honey Bees in Pollination

More than 80% of U.S. food crops are pollinated by honey bees. In New Jersey, blueberries, cranberries, pumpkins, squash, strawberries, soybeans, cucumbers, peaches, and apples are among the many crops that benefit from honey bee pollination. Although wild insect pollinators such as wasps and other bee species help in native plant reproduction, only honey bees live in managed colonies of sufficient numbers for effective pollination of commercial crops, and only honey bees can be transported to large areas of blooming crops for pollination services. The past two decades have seen dramatic declines in the number of honey bees, due to the introduction of parasitic mites, diseases, and habitat loss. Visit [NJBeekeepers.org](http://NJBeekeepers.org) to find out about bee-friendly plants you can cultivate, and other ways you can help the honey bee.

# WASPS & HORNETS

There are many different kinds of wasps and their close relatives, hornets\*. Some live in colonies and build paper nests. Some inhabit underground cavities. Some are solitary, hunting and paralyzing living insects to provision their nests and feed their young. The biggest differences between wasps and bees, as far as humans are concerned, are that wasps can sting multiple times and some species, such as yellow jackets, are highly defensive. Most stinging incidents involve wasps and hornets, not bees.

Many wasps are pollinators, passively pollinating plants as they forage for nectar. They are not, however, used for commercial pollination of crops.

## YELLOW JACKETS

Most stings experienced by humans are from yellow jackets. They are sometimes called "meat bees" because, like all wasps, their larval stage is carnivorous and the adults must obtain animal protein to feed their young. Workers scavenge for meat and sweets at picnics and around homes, becoming a nuisance to people. Yellow jackets can and will sting repeatedly. They are extremely defensive when their nest is disturbed. Yellow jackets are more active and aggressive in late summer and fall when food becomes scarce.



The common yellow jacket (*Paravespula vulgaris*) is about half an inch long with jagged bright bands of yellow and black on the abdomen. This species nests in a hole in or near the ground, such as an abandoned rodent nest or cavity in a rock wall. All that is visible from above is a hole in the earth with yellow jackets coming and going. The unwary homeowner sometimes discovers the nest while mowing the lawn and the experience is usually both memorable and unpleasant.

However, not all yellow jacket nests are found in the ground. Other species of yellow jackets are aerial, building grey, roughly spherical or football-shaped paper nests. Such nests can be found in a bush, shed, the eaves of a home, or even a box of trash. Yellow jackets die in the fall with only the fertile queens over-wintering. Old nests are not reused.

\*Common practice uses the word wasp to mean both wasps and hornets.