



Paper wasp with caterpillar



Paper wasp



Honeybee

Cooperative Extension

Janet K. Rekesius, B.S., Master Gardener, Passaic County
Elaine Fogerty Barbour, Agricultural Assistant, Passaic County

Many people are concerned when they discover stinging insects flying in or around their home. While some may term any such insect a “bee,” some are not bees, like yellow jackets and hornets, as opposed to true bees including bumblebees and honeybees. All are common to the northeastern United States. It is important to distinguish which insects you have before taking action.

Paper wasps, hornets, and yellow jackets are all members of the paper wasp family *Vespidae*. All *Vespidae* can sting multiple times and do not leave a stinger or venom sac behind. Paper wasps, hornets, and yellow jackets are considered more aggressive and unpredictable than bees. While many of these insects have coloring similar to bees, they are smooth-bodied, lacking the many bristles that give bees a fuzzy appearance.

Paper wasps (Vespid subfamily *Polistinae*) are often distinguished by their thin “waists” and trailing hind legs in flight. They measure from 3/4 to 1” (19.1-25.4 mm) in length. Their tendency is to make papery nests in sheltered locations such as under eaves. Nests are domes that feature many open chambers for rearing young. For the most part, paper wasps are considered beneficial to the local environment as they feed on grubs and caterpillars. Unless they pose a direct threat to people, nests may be left undisturbed, but when close to people, removal may be desirable. Consult a pest control specialist, or for small-scale removal, purchase a wasp-killing aerosol foam. For safety and optimal results, read and follow all product directions.

Hornets (*Dolichovespula* species) measure 5/8 to 3/4” + (15-20+ mm) long. The most common hornet in the Northeast US is the baldfaced hornet, a black insect with a white (bald) face. They create large rounded paper nests in trees, dense shrubbery,

and sheltered areas beneath overhanging roofs. Nests have been reported measuring up to the size of a basketball. Hornets are valuable biological control agents that keep pest insect populations in check, particularly caterpillars. Nests hanging high in trees do not pose a threat to humans and should be left undisturbed. Hornets rarely sting people unless the nest is threatened. In the case of nests located where contact with people is unavoidable, such as on house eaves or in shrubbery that must be pruned, it is often preferable that the nest be removed by a pest control professional. Wasp-killing aerosol foam may also be used. For safety and optimal results, read and follow all product directions.

Yellowjackets (*Vespula* species) are yellow and black striped insects, ranging in size from 5/8 to 1” (14-25.4 mm). They can be differentiated from bees in that their bodies have the narrow wings common to paper wasps, and their bodies are smooth, even shiny, unlike the velvety bees. Their diet consists mainly of dead insects or other carrion, but yellow jackets may become picnic crashers when they scavenge meat or sweet liquids. Scavenging is a notable problem late in the summer, particularly when the weather is hot and dry. These insects, like the others discussed here, will sting in defense of the nest, but unlike bees, yellow jackets may be aggressive if challenged while scavenging. Their paper nests are located under ground or inside crevices in walls. Yellow jackets nests are usually round to oval with one hole near the bottom and may have a scalloped texture on its papery surface. These nests are commonly single-season, since freezing winter temperatures will kill off yellow jacket workers. The safest and most ecologically sound course is to outwait them, then remove debris and caulk crevice openings during the winter months.

Active yellow jacket nest removal is best attempted at dusk or later when all the insects have returned to the nest, using a wasp-killing foam directed into the nest entrance, or an insecticidal dust labeled for that purpose. Follow all label directions when using any pesticide. If access to the nest is difficult, or the colony is within the structure of the home, it is best to leave the job to a professional. Do not attempt to eliminate a nest while on a ladder, as the risk of a sting followed by a fall is high.

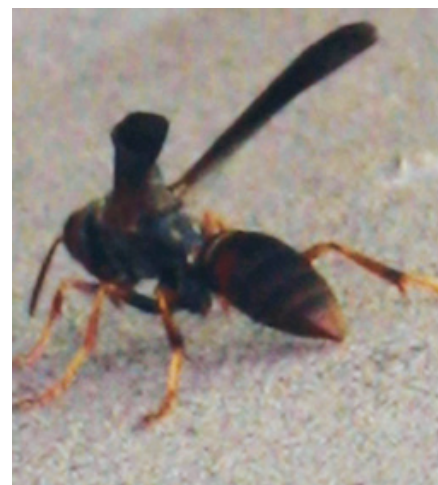
Bumble bees (*Bombus* species) are velvety, large bodied black and yellow insects that measure 3/4 to 1 1/2" (19.1-38 mm) long. Bumble bees play an important role in pollination, visiting many garden crops, such as tomatoes and squash. There are nearly 50 species of bumble bee native to North America. They form colonies led by a queen. Bumblebees will sting readily in defense of the hive, but are not considered aggressive while feeding unless directly threatened. These bees can sting multiple times, and do not leave behind a stinger or venom sac. Nests are constructed in abandoned rodent or bird nests, large piles of loose mulch, or any similar sheltered area with enough insulating material. Avoid human-bee conflicts by keeping brush and mulch piles away from dwellings, and keep window and eave seams caulked. Bumble bee colonies are abandoned at the end of the season. The worker bees die, and the fertilized queen leaves in search of a new home in which to overwinter. It is a simple matter to wait until there has been a hard freeze to remove an objectionable nest, now empty of bees, and clear away all debris and nesting material. Consult a pest control specialist if removal of an active nest is necessary.

Carpenter bees (*Xylocopa* species) are as large as bumble bees but are shiny and mostly black, having no yellow striping or hairs on their abdomens. They are most active in spring and have a tendency to hover before weathered, unpainted wood that they have chosen for their nesting site. Males in particular may hover in front of or dart at people who approach a nest, but as they have no stinger they present little danger. Females may sting if disturbed or handled. The best defense against carpenter bees is to paint exposed wood surfaces. Stains and water-repellant wood treatments are somewhat effective. Active nests may be treated with a wasp- or bee-killing aerosol or with insecticidal dust. Following treatment, tunnels should be plugged.

Honey bees (*Apis mellifera*) are an insect species introduced to North America by European colonists. Workers measure 1/2-5/8" (11-15 mm) long, and are gold or copper with fine black stripes. Wild populations have become scarce due to epidemics of mites and fungal diseases. Most honey bees are from managed hives, maintained by beekeepers. These bees are commercially important for their pollination services, for their honey, and for production of beeswax. Honey bees have been bred to be nonaggressive, usually only stinging when the hive is disturbed or they are trapped (such as in items of clothing) or when stepped on. A honey bee can only sting once, leaving behind its stinger and venom sac, after which it will die. Most stings can be avoided by taking precautions, such as avoiding walking barefoot in lawns containing low growing flowers, and shaking out items of clothing (jackets, hats, gloves, etc.) that have been left outside. Rarely does a honey bee colony take up residence in a human dwelling. If this occurs, it may be possible for the colony to be removed intact by a beekeeper, or else eliminated by a pest control professional. Honey bee hives are distinguished by the presence of their waxy combs in rows, as opposed to the papery domed nests of wasps. In case of a colony taking up residence in a dwelling, or if a swarm (large mass of bees with no nesting material) appears on a tree or dwelling, contact the NJ Beekeepers Association at cjb.njbeekeepers.org/swarms.htm for assistance.

What about **Killer (Africanized) Bees**? The range of Africanized bees is currently limited to the southern portions of Texas, New Mexico, Arizona, and California.

Other bees and bee-like insects are also present in the northeastern United States. Most are solitary, nonaggressive, and are valuable to the environment as pollinators and as predators of other insects. Leafcutter and mason bees fall into this category. In all, there are over 300 bee species native to New Jersey. The great majority of these species do not nest in hives and therefore pose very little risk to people. At the same time, they are important providers of pollination services to native plants and to crops. Cicada killers are striking, large insects similar in appearance to yellow jackets, measuring 2/3 to 2" (1.5-5 cm) long. These intimidating looking insects only use their stinger to



Paper wasp



Paper wasp nest



Syrphid fly



Mason bee on nesting box



Sweat Bee



Bumblebee

capture their prey, cicadas, and are no threat to humans. Not all yellow and black striped insects are bees. Syrphid flies, also called hover flies or flower flies, are sometimes mistaken for miniature bees, but do not sting or bite. They are extremely important in the control of aphids.

Interactions between humans and bees and wasps: “Unprovoked” stings may occur when humans venture too close to a nest, often not realizing it is there until the insects mobilize to defend their home. Peak time for such occurrences is late summer and early fall when ground nesting wasps and bees are at maximum numbers for the season. Use care when approaching an area with circling bees or wasps – you may be approaching a nest.

It is important not to swat at insects buzzing around you, lest you invite a sting. Stand still, then cautiously retreat. Avoid use of floral scents (fabric softeners, perfumes, hairsprays, body washes, and lotions) during the warm months. Be wary of drinking directly from containers with small openings, such as soda cans, which may encourage insect exploration and lead to a sting on the lip. Use a straw or a glass instead. If yellow jacket traps with lures are used, place them out well before a picnic and at a distance from the eating area. If disturbed by scavenging yellow jackets outdoors, consider moving to a screened area. Once they find a source of food, they will return with more of their kind.

Keep screens in good repair, caulk around windows and doors, and cover trash well to avoid attracting insects to your home. Inside the home, a single wasp or bee can be removed by opening a window or by covering the insect with a glass and sliding a stiff piece of paper under the glass and escorting it outside. A fly swatter is an option, but make sure your aim is good!

Most people who are stung will experience a painful welt with redness and itching. About 10 to 15% of people will experience swelling at the site of the sting. A much smaller percent (less than 1% of children and approximately 3% of adults) are severely allergic to the venom of stinging insects. Signs of a serious reaction (anaphylactic shock) include shortness of breath, dizziness, stomach cramps, widespread itching, sneezing, flushing of skin, and swelling of the lips, tongue and throat. Symptoms will develop in minutes to a few hours. In case of an emergency situation, such as a sting causing these severe symptoms, or a sting in an individual with a family history of insect allergies or heart disease, contact your physician immediately or go directly to the nearest emergency room.

Individuals concerned with allergies to insect stings should consult an allergist. Some people are excellent candidates for a series of injections to lessen the allergic reaction to insect venom. Epinephrine injectors (such as the EpiPen®) are available by prescription and are used to counteract severe reactions to stings.

Above all, remember that these insects sting in self-defense. The safest bet is to avoid aggravating them. The economic contributions of bees and wasps, in the form of pollination and insect control, is so great that elimination should be the option of last resort and only in cases when harm to humans is apparent.

Photo credits: Page 1 (l): John F. Rekesius; page 1 (c-r) & pages 2-3: J.K. Rekesius.

© 2010 Rutgers, The State University of New Jersey. All rights reserved.

For a comprehensive list of our publications visit www.njaes.rutgers.edu

October 2010

Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.