

BEES AND WASPS



Of all insect species, the honey bee is perhaps the most beneficial. There is, of course, honey: about 200 million pounds of it is produced commercially each year. But the honey bee makes its greatest contribution by pollinating plants. More than one half of all fruit and vegetable crops are pollinated by honey bees. Wasps contribute by preying on many pest insects harmful to crops. Without bees and wasps, our menu would be very limited.

Unfortunately, bees and wasps can be a threat to human health. Each year, 50 to 100 people die from bee and wasp stings. Most die from an allergic reaction to venom within one hour of the sting. About 1 percent of the population is allergic to bee and wasp venom. Those allergic to stings should carry emergency epinephrine injection kits as directed by their doctors.

IDENTIFICATION

Though related, bees and wasps differ in important ways. Most wasps have a narrow "waistline" where the front portion of the abdomen tapers to become a small tube as it attaches to the middle body section, the thorax. Bees do not have this narrowing of the abdomen. Another difference is that bees feed nectar and pollen to their young (larvae), while wasps feed their larvae insects and spiders. Yellowjackets and hornets also scavenge food including fruit, sweets, meats and carrion.

One thing bees and wasps have in common is that some species are *solitary* and others are *social*. A *solitary* bee or wasp lives alone, making its own nest and raising its own larvae. Individuals of *social* species live together in colonies consisting of many "workers" and one or more "queens." The workers specialize in different tasks, and cooperate to raise the queen's offspring. These species should be considered a greater threat to humans than solitary species. This is because social species, such as honey bees and yellowjackets, will defend an entire colony, and have more individuals available to do so. Solitary species, such as mud dauber wasps, defend their nest alone.

BEES

Honey Bee (Apis mellifera)

The honey bee is a half-inch long, hairy, honey brown insect. They should not be confused with yellowjackets, which are black and bright yellow wasps. Honey bees live in extra large colonies of up to 50,000 individuals. Their colonies can grow this large because they survive winter, even in northern states. The nest consists of several tiers or "combs" made of beeswax. It is located in cavities of trees, rock formations and buildings. In spring, a colony may produce a "swarm." This occurs when a newly produced queen flies off with about half the colony's worker bees to establish a new colony. These



swarms often come to rest on trees and houses while scout bees search for a good spot for a new nest. If possible, such swarms should be tolerated, as they are in transit and usually leave

within two to

four days.

Bumble Bee



inch long
rodent
voids.



(*Bombus spp.*)

The familiar buzzing, fuzzy yellow and black striped bumble bee is unmistakable. Up to 200, ½- to 1- bumble bees inhabit nests in old burrows, under porches and in wall

Carpenter Bee (*Xylocopa virginica*)

This bee is a bumble bee look-alike that has a shiny, all-black abdomen, whereas the bumble bee's abdomen is fuzzy, black and yellow. Unlike bumble bees, carpenter bees are solitary. Females chew ½-inch diameter holes in wood and bore tunnels that run several inches into the wood. Inside, eggs are laid and the resulting larvae develop on a mixture of pollen and nectar. Males guard the nest by buzzing intruders, but their defense is a bluff: male bees cannot sting.

WASPS

Paper Wasps (*Polistes spp.*)

Paper wasps are perhaps the most common wasps around structures. They are also known as "umbrella wasps" because their nests look like umbrellas hanging upside-down from eaves and overhangs. There are many species, but the typical paper wasp is up to ¾-inch long, reddish brown in color with a long, cylindrical abdomen. A paper wasp nest is a single comb of hexagonal cells made of a papery material the wasps form by chewing wood and mixing it with saliva. Larger nests can harbor up to 75 paper wasps including larvae and pupae developing within the cells. To feed the larvae, paper wasps capture insects, especially caterpillars. Late in the year, colonies of paper wasps, yellowjackets and hornets produce new queens that abandon the nest (it will not be reused) and seek shelter for winter. Many find their way into structures and are later seen crawling sluggishly across the floor when temperatures rise in late winter or early spring.

Yellowjackets (*Vespula spp.*, *Paravespula spp.*)

More people are stung by yellowjackets than any other type of wasp or bee. Notoriously aggressive, the yellowjacket's shiny yellow and black striped abdomen is an unmistakable warning. Often mistakenly called "bees," yellowjackets are in fact wasps. They construct paper nests up to several feet across that contain combs arranged like the floors of a building covered by a papery envelope. Up to 3,000 (many more in warmer states) wasps can be present in the yellowjacket colony. Nests of the Eastern yellowjacket (*Vespula*



European Hornet



Bald-Faced Hornet

maculifrons) are located in the ground, while the German yellowjacket (*Paravespula germanica*) nests in cavities including crawlspaces, attics and wall voids. Adults consume nectar and sweets, but feed the larvae on captured insects. When temperatures cool in late summer, yellowjacket numbers peak just as their insect food supply begins to decline. They scavenge more aggressively at this time, taking food from trash containers and picnickers. When disturbed, yellowjackets can sting repeatedly; their stingers are not barbed nor lost after stinging like those of honey bees.

Hornets (*Dolichovespula maculata* and *Vespa crabro*)

The so-called bald-faced hornet (*Dolichovespula maculata*), about ¾-inch long, black and white, with white face, is actually a larger yellowjacket species. Its nest is the familiar basketball-size papery oval hanging from tree limbs and sometimes structures. Colonies are relatively small, containing up to 700 wasps. An even larger wasp is the European hornet (*Vespa crabro*). This is a true hornet, more than an inch long and reddish brown in color with dull orange stripes. Nests occur in trees and in attics and wall voids of structures near forested areas.



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Mud Daubers (*Sceliphron caementarium*, *Chalybion californicum*, *Tropoxylon spp.*)

Mud dauber wasps are named for their habit of constructing tubular nests of mud plastered on the exterior surfaces of structures. Inside the nest, these wasps place spiders they have paralyzed by stinging, as food for their larvae. Mud daubers are solitary wasps about ¾-inch long. Our common mud dauber (*S. caementarium*) is brownish-black with yellow markings. Its nests are about 2 inches long. Organ pipe mud daubers (*Tropoxylon spp.*) are black and construct nests that can be a foot long and resemble the pipes of a pipe organ. The blue mud dauber (*C. californicum*) is a shiny, dark blue wasp that lays its eggs in the nests of other mud daubers.

Cicada Killer (*Sphecius speciosus*)

Up to 1.5 inches long, this is the largest wasp in the Midwest. Cicada killers are mostly black with yellow markings on the abdomen. This solitary species nests in small burrows. The female searches trees for a cicada, stings it and tucks the paralyzed cicada under its body. The wasp either drags the cicada to its burrow, or launches itself from a tree and glides back to the burrow. Inside it lays an egg on the cicada, then covers the burrow with soil. The stingless male guards the nest. Larvae consume the paralyzed cicada and emerge as adult wasps the

following spring.

MANAGING BEES and WASPS

The most important element of wasp and bee control is to *destroy the nest*. Aerosol "wasp and hornet" sprays can be used to knock down bees/wasps around the nest. Small amounts of pesticides (dust and wettable powder formulations work well) applied into the nests of carpenter bees and cicada killers provide good control. Nests of mud daubers also can be treated this way or by simply scraping them off structures. To prevent reinfestation, finishes (paint, etc.) can be applied to unfinished wood to discourage carpenter bees.

In some cases, attempting to destroy a nest becomes a greater health risk than simply tolerating and avoiding it. But nests, especially those of social species, should be destroyed if they are close enough to humans to pose a stinging threat. The nests of honey bees, bumble bees, yellowjackets and hornets should always be approached with caution, preferably at night when most of the workers are present but reluctant to fly. Try not to *carry* a light, as wasps and bees may fly toward it. Instead, set the light aside or cover it with red cellophane (insects cannot see red light). If there is direct access to the nest, a fast-acting dust or wettable powder formulation can be applied. If possible, inject the material into the nest. If you must approach these nests during daytime, a quick knockdown aerosol can be used to keep the bees/wasps at bay, while you treat the nest as above. Heavy clothing or a "bee suit" can be worn for added protection.

Sometimes, yellowjacket and honey bee nests occur in voids such as vents, attics, crawlspaces or hollow walls. Destroying nests in these locations can be difficult, often requiring the services of pest management professionals. Honey bee nests contain honey that must be removed after the bees are eliminated because it will rot and attract secondary pests. Also, be mindful that nests may be located several feet away from the point at which the bees/wasps are entering the structure. Simply applying pesticides into the entrance holes may not be sufficient. It may be necessary to drill into the structure to enable injection of pesticides directly into the nest. Entrance holes should never be plugged, even after treatment, because the bees/wasps will look for other ways to get out of the nest and have been known to chew their way into living quarters, endangering persons inside. Also, use extreme caution when performing bee/wasp control from a ladder.

Another special case occurs when large numbers of yellowjackets forage in public areas such as parks, schools and zoos. Attracted to human food, especially meats and sweet liquids, wherever it is being prepared, eaten or discarded, yellowjackets pose an increased threat to humans. Control is often difficult. When located in wooded areas, the nests can be difficult if not impossible to find and treat. Yellowjacket baits and traps can kill large numbers, but there can be a lot more where they came from and the problem

may continue. Other types of pesticide applications for control of yellowjackets in outdoor recreation areas are rarely effective. Consequently, management of yellowjackets should focus on prevention, such as keeping food enclosed. Tight-fitting lids should be kept on outdoor trash containers and they should be moved away from people. In the end, not eating in infested outdoor areas may be the only sure way to avoid being stung.