



## Controlling Wasps, Bees and Hornets Around Your Home

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Wasp encounters can be painful, even life-threatening, for a few highly sensitive people. Yet some New Hampshire species are not very aggressive and they also serve as valuable predators of soft-bodied insects. A hands-off policy might be better for some situations, while others might require careful, direct action. The choice you make should depend on the species and situation.

### Aggressive species

New Hampshire is “blessed” with at least nine species of **yellow-jackets**, along with two other aggressive **wasp species**, the bald-faced hornet and giant European hornet. All these members of the wasp family *Vespidae* live in colonies and have similar life cycles. We also have a moderately aggressive, large solitary wasp, called the **cicada killer**.

Most yellow jackets are about ½ inch long, with yellow and black banded bodies, and clear wings. **Bald-faced hornets** grow up to ¾ inch long, with stout, black bodies marked with gray or white bands. **Giant European hornets** grow up to one inch long, resembling giant yellow jackets, with a stout body, but colored yellow, brown and black.

Only the mated females of *Vespidae* species survive the winter. These females overwinter individually, usually in deep leaf litter in the woods. In the spring, those that survived emerge and search for a site to start a tiny nest. Bald faced hornets prefer eaves of buildings, horizontal branches, or some similar site protected from rain. Most yellow jackets prefer to excavate a nest chamber underground, or use an existing cavity like inside the wall of a building. A crack only 3/16 inch wide is big enough to admit most wasps. The giant European hornet is bigger and seems to prefer cavities in rotting trees.

Since the queen (female) is working alone, she can only build a tiny nest, often smaller than a ping-pong ball. She lays a few eggs in the tiny comb, then tends and feeds the larvae that hatch. Once the young have matured and emerged as adults, they help the queen enlarge the nest and rear more young.

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**Yellow jacket wasp.** Wasps and hornets are important predators of soft-bodied insects, such as caterpillars.



**Bald-faced hornet: stout, black and white.**

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## ***Did You Know?***

**If you decide you must eliminate a colony, don't try it yourself if you are highly allergic to stings.**

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**The cicada killer is the largest of our digger wasps.**

The colony gets larger as the season progresses. The workers forage for caterpillars, sawflies and other soft-bodied insects. They also feed on honeydew, fruit and other sugary foods, carrion and garbage. (Honeydew is the sugary secretion that drips from colonies of aphids and related insects.)

Once the first frosts come, the wasps may become especially aggressive. Food gets scarcer, and colony size is at its largest. Wasps mate in the fall, and as the really cold weather sets in, the mated females disperse to find their own individual overwintering spots. Unlike honey bees, none survive the winter in the nest – at least, not in cold New Hampshire.

**Cicada killer** [*Sphecius speciosus* (Drury)] is a huge (1.3 inch), relatively aggressive digger wasp that has extended its range and now occurs throughout Rockingham County, much of Hillsborough County, and has reached Barrington, Lee and Durham in Strafford County. Burrows are about ½ inch in diameter. It has smoky brown wings. Its large size and bold black and yellow color pattern make it especially intimidating. It hunts adult cicadas, stings (paralyzes) them, and places them in its burrow as food for its larva.



**Giant European hornet: brown, yellow and black, sometimes more than an inch long.**

### ***Controlling the aggressive species***

We suggest you try to eliminate only those wasp colonies that really present a threat. Wasps and hornets are valuable predators of insects, so we shouldn't indiscriminately wipe them out. If a wasp colony is in an area where you can simply avoid it, do so. Mark the spot and just stay away. Don't rely on yellow-jacket traps. They don't control northeastern U.S. species. You may be able to flatten tiny early season nests on flat surfaces by pressing with a block of wood.

**If you decide you must eliminate a colony, don't try it yourself if you are highly allergic to stings.** Call an exterminator instead. If you do it yourself, the first step is to locate the colony and clearly mark it. For ground nests, use red wire flags or strips of white cloth, laid in an arrow pointing to the entrance – not too close! You can spot ground colonies by watching the workers fly in and out of the entrance. For colonies in a tree, tie flagging on a branch that is somewhat close by - be careful!



**Large, teardrop-shaped nests are made by bald-faced hornets or yellow jackets.**

Once the colony is marked, you are ready to treat it. Buy a pressurized can of wasp and hornet jet spray. The brand you choose is not important, but be sure to buy the kind that sprays a solid stream of insecticide spray that will reach 10 feet or more, rather than a fine mist that will only go a foot or so. Such products usually are called JET sprays.

Treat at night when most all the workers will be in the nest, and inactive. To see, use a flashlight with a red filter over the bulb. Wasps can't see red light well. At least two hours after dark, quietly and carefully approach the colony and thoroughly spray into the entrance. Don't give a quick shot; spray for several seconds to make sure the spray penetrates deep into the nest.

After spraying, don't linger nearby. Walk away immediately and stay away for a full day. For ground colonies, carry a shovelful of soil with you to cover the entrance before you walk away. Dress appropriately. (See right.)

Colonies inside walls of buildings pose a special problem. They can sometimes be eliminated with jet sprays, but spraying often causes many agitated wasps to emerge inside the building and threaten people. Also, treating a large colony may cause a foul smell to linger for many days afterwards as the remaining brood decays. You might prefer to wait until the season is over and then seal things up. Or, hire an exterminator to handle the problem.

Sprays directed into cicada killer burrows are not particularly effective at killing the wasp, unless it is inside the burrow during treatment. You can discourage this species from nesting in a particular spot by encouraging the grass or other vegetation to thicken, and not have bare spots. Another alternative is to apply a layer of wood chips.

Wasps and hornets may be the biggest problems in homes and yards that provide plenty of food - dropped fruit, exposed garbage, open recycling bins, etc., so sanitation may help avoid problems. To reduce the chances of yellow jackets or giant European hornets nesting inside walls of buildings, do a good job of caulking and sealing cracks in the spring.

### Less aggressive species

**Brown paper wasp**, *Polistes fuscatus* (Fabr.), is a common New Hampshire species, about  $\frac{3}{4}$  inch long, with brown body, long legs, and brown wings. Some have narrow yellow bands on the body. They make the open paper combs that are so common in attics and under eaves of buildings. Their life cycle is like that of the species described above. Mated females overwinter in protected places such as inside building walls, in attics, or under loose bark. As with the species mentioned previously, the wasps chew weathered wood and mix with saliva to make paper. The colony starts small and grows as the season progresses.

Controlling brown paper wasps is easier than controlling aggressive species. Some colonies can just be squashed against the eaves with a board. This is especially easy early in the season, or if no

### Clothing to Wear

**If you follow instructions on the left, (two hours after dark, red light, gentle steps, etc.) you may not need special clothing. For situations where you want extra protection from wasps, here are tips on clothing to wear:**

- ✓ Coveralls can be helpful, especially if they are slick, smooth material worn over other thick clothing. Many people choose Tyvek. If you have two-piece coveralls, you may want to securely tape or tuck them together at the waist.
- ✓ Boots will give you much more protection than regular shoes—wasps may crawl over shoes and sting your ankles. You may want to seal the pant cuffs securely over the boots with tape or rubber bands.
- ✓ You can protect hands with leather or heavy rubber gloves, but sleeves need to be securely sealed to the gloves at the cuffs.
- ✓ A secure beekeeper's hat and veil will keep wasps away from your face and neck, but it must be securely fastened to the clothing around the neck and shoulders.

**Don't think that protective clothing makes you invincible. Always follow the recommendations on control products.**



**Brown paper wasps are among our less-aggressive species.**



**Brown paper wasps often locate their nests under eaves of buildings.**

wasps are sitting on the nest. Others can be controlled by treating the nest with a wasp and hornet jet spray after dark.

When you spray, stand to the side, rather than directly under the nest. Remember that these wasps are valuable caterpillar predators, so don't automatically eliminate them. A good rule of thumb is to leave wasps alone unless you must work within a foot or two of the nest. Since paper wasps find it difficult to attach their nests to slick surfaces, you may reduce the numbers of future paper-wasp nests under the eaves by painting the eaves. To exclude them from attics and indoor sites, caulk and screen vents, cracks and windows.



**Burrows of ground-nesting Colletid bees.**

**Ground-nesting bees:** New Hampshire has many species of native bees that dig individual nest burrows in soil. They like bare, fairly sandy soil, and their burrows are similar to those of digger wasps, described next. If these bees become a problem, the same methods will work to manage both them and digger wasps (read on).

**"Digger wasps"** are large, solitary wasps that dig burrows in soil. They vary in size and color. Most have the front part of the abdomen extremely narrowed, so that "thread waist" describes them well. Most are shiny. The most common digger wasp in New Hampshire is *Sphex ichneumoneus*, about one inch long. It has an orange-brown, yellow and black body, with metallic blue wings. Its burrows are about the diameter of a pencil. This wasp prefers well-drained, sandy soil, with sparse vegetation.

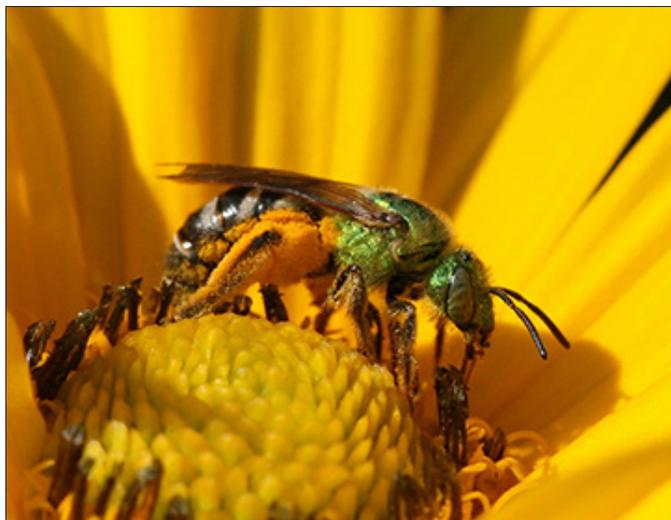
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## ***Did You Know?***

**New Hampshire has about 200 species of bees.**

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Digger wasps nest and hunt in June, July and August. The female digs a burrow, then hunts for grasshoppers to paralyze and load into the burrow as food for her larva. When the burrow is full, she lays an egg there and covers it up. Then she starts digging a new burrow. Several wasps digging in the same small area don't comprise a colony. They just were attracted to the same spot by the favorable conditions.



**This is one of our halictid bees, named *Agapostemon virescens*.**

A few species of bees live in a similar manner, though bees collect pollen, rather than insects, to feed their larvae. Although sprays directed into the burrow will kill the occupant, a better way to discourage digger wasps is to change the soil surface so they prefer to dig elsewhere. One method is to apply a layer of mulch to the surface. Standard bark mulch works well, unless you apply it so thinly that the soil is visible. Another technique is to thicken the grass or other vegetation emerging from the soil surface, by fertilizing, watering and planting. When wasps are nesting in a lawn, sometimes it helps to raise the mowing height.

**Bees:** New Hampshire has about 200 species of bees. Many live solitary lives, not in colonies. Most are not

aggressive, though species that do live in large colonies can deliver multiple stings if they feel threatened. Bees are easy to tell from wasps. Their bodies are very hairy, while wasps and hornets often have shiny bodies with relatively few hairs. Honey bee is a European species that lives in huge colonies. Honey bees are roughly ½ inch long, with honey-color and darker bands plus clear wings. They live in artificial hives, tree cavities, and sometimes inside walls or chimneys. They construct combs made of wax. Those colonies that nest in walls are sometimes confused with yellow jackets, but yellow jackets are black and yellow, and are not densely covered with hairs. Yellow jackets make combs of paper (not wax), and do not make honey.

Removing a honeybee colony from inside a house can get tricky. It is important to remove the honey as well as the bees. Leaving the honey and comb behind invites problems from bees, wasps, mice and ants. Bees are valuable pollinators, so we prefer not to kill them. They do not abandon the hive for the winter.

During the summer, honey bees may swarm, meaning hundreds of the workers leave the hive along with a queen. They look for a new place to live and sometimes stay for several hours, hanging together in a large mass under a branch while scouts look for a new home.

If you have a problem with honey bees, a local beekeeper may be able to remove the swarm or colony safely and correctly. If you don't know a local beekeeper, call your county office of UNH Cooperative Extension for help locating one. Before contacting a beekeeper, it is essential to correctly identify the insects. Beekeepers do not like being called to remove a "honeybee" colony, only to discover that they are wasps.

To reduce the chances of getting stung while identifying them, you could carefully collect a dead bee from the ground near the hive entrance. This would probably be safest very early in the morning, when it is cool.

**Bumble bees** are yellow and black or orange-brown and black, with "fat" bodies, and grow up to ¾ inch long. New Hampshire is home to about a dozen species. Bumble bees prefer to nest in existing cavities, and often use old mouse nests in fields. They are important pollinators that fly even in cool weather. Their life history is similar to that of yellow jackets. They store food in saclike "honey pots" in the nest. Bumble bees are not particularly aggressive and their colonies are usually fairly small.

**Carpenter bees** look like bumble bees, except the rear section of the body (the abdomen) is shiny (not hairy) and black. They also tend to hover, something bumble bees don't do. Carpenter bees are solitary and chew large-diameter (½-inch) holes in wood - one hole per bee. The only New Hampshire species is *Xylocopa virginica*. It occurs in Rockingham, Hillsborough, Strafford and eastern Merrimack and the southern tip of Belknap County.



Honeybees are hairy, primarily tan & yellow.



This is one of our andrenid bees.



Carpenter bee.

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## ***Did You Know?***

**Carpenter bees prefer relatively soft wood such as white pine and redwood.**

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**Mud dauber nest.**

The female carpenter bee excavates a gallery - which can be several inches long - and fills the end with nectar and pollen and lays an egg. Then she makes a plug of chewed wood to partition that from the next cell she will make, repeating the process of provisioning and laying an egg. In this way, she transforms a tunnel four or six inches long into a half dozen brood cells in a row. The new adults emerge in the summer. The bees overwinter in their tunnels in the wood.

Carpenter bees prefer relatively soft wood such as white pine and redwood. They rarely attack varnished or painted surfaces. You can find the burrows by noticing where sawdust and feces have fallen from the hole. To reduce the chances of carpenter bees attacking, paint or varnish the exposed wood surfaces. Stain will not deter them. If damage has already begun, you may use the same wasp & hornet jet sprays. The idea is to apply the spray **in** the hole, then let the bees move in and out, distributing the toxicant. In the fall, fill the holes with caulking, wood plugs or putty. It is a good idea to first probe the tunnels with a flexible wire, to kill any bees or grubs inside. If you do not clean out the tunnel, the larvae inside will transform into bees in the spring, and chew their way out, creating more holes. They strongly prefer redwood, white pine, or other relatively soft wood to excavate. As with brown paper wasps, carpenter bees tend not to sting unless provoked.

### **Mud dauber wasps**

There are several species of mud daubers in New Hampshire. Each female constructs a mud nest in a protected location, often under an overhang of a building. Some nests are long tubes; others are more rounded. They fill each tube with prey they capture (often insects) and lay an egg inside. The immature wasp hatches from the egg, feeds on the prey and later emerges as an adult. They are not particularly aggressive, and since they nest individually, disturbing a nest doesn't call out a large swarm of defenders.

### **First aid for stings**

A small percentage of people become hypersensitive to bee and wasp stings. For them, a sting can be a serious, even life-threatening, emergency, requiring immediate attention from a physician. Symptoms of a serious reaction to a sting include dizziness, nausea, difficulty breathing, and very rapid heart rate.

For the rest of us, typical sting reactions are swelling and pain. These usually subside within a few hours. Cool compresses or an ice pack can help relieve pain and swelling. Commercial after-sting preparations can reduce pain and swelling if applied soon to the sting site. A paste made from baking soda and a little water is reported to do the same, but I have not evaluated its effectiveness. If you receive many stings, an oral antihistamine may reduce swelling and itching.

**Pesticide warnings next page!**

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**Stop!** This publication contains pesticide recommendations that are subject to change at any time. UNH Cooperative Extension provides these recommendations only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. Because of constantly changing labels and product registration, some of the recommendations offered in this publication may be outdated by the time you read them.

Contact the NH Division of Pesticide Control at (603) 271-3550 to check registration status. If any information in these recommendations disagrees with the label, you must disregard them and follow the label directions. No endorsement is intended for products mentioned, nor criticism intended for products not mentioned.

Open windows and ventilate the rooms while using pesticide indoors. Avoid inhaling dusts or sprays. Never smoke, drink or eat while spraying or dusting. Do not allow children nearby while you are applying pesticides. Remove or cover food, feed, water, kitchen utensils, fish and other pets while spraying.

Store pesticides in their original containers in a locked cabinet or shed away from food. Dispose of unused pesticides or empty containers safely, according to N.H. regulations. If you suspect pesticide poisoning, call the Northern New England Poison Center at 1-800-222-1222.

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