

## Controlling Wasps, Hornets and Yellowjackets

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Wasp and hornet stings are a serious threat to public health. Allergic reactions to these venomous insects account for about 225,000 emergency room visits and as many as 100 deaths per year in the U.S. (a mortality rate that may be underreported due to deaths mistakenly attributed to heart attacks or other causes) (Wilderness & Environmental Medicine, vol. 29 [1] 2018). Paper wasps, hornets and yellowjackets are more dangerous and unpredictable than honeybees. When these insects are foraging for resources they are seldom aggressive. But when the nest is threatened the colony may launch a coordinated assault on the perceived threat. The attack is facilitated by the release of alarm pheromones, which attract other colony defenders to the intruder.



Fig. 1: Stinging insects can cause serious harm to the public.

Elimination of wasp and hornet nests should be performed with great care. ‘Folk’ remedies such as dousing nests with gasoline or a garden hose are seldom successful and can result in multiple stings.

**Paper Wasps** -- Paper wasps (as well as hornets and yellowjackets) construct nests of a paper-like material containing finely-chewed wood fragments and salivary secretions. They typically build their umbrella-shaped nests in protected locations, such as under eaves, gutters and ledges,

or in attics, barns or sheds. Outdoor nests also may be constructed behind shutters, or inside porch lights, barbeque grills, and mailboxes. Most paper wasps are brownish or rust-colored, although one variety, the European paper wasp, has yellow and black markings much like a yellowjacket. Paper wasps have a ‘waist’ that is very thin, however, which distinguishes them from hornets and yellowjackets.



Fig. 2: While most paper wasps are brown or reddish (above), the European paper wasp, *Polistes dominula*, (below), has markings similar to yellowjackets.

Paper wasps are not very aggressive, but stings can occur when householders inadvertently disturb nests that are hidden. If the nest is accessible, it can be eliminated fairly easily with a wasp and hornet spray sold at most retail stores. One advantage of these formulations is that they can be

sprayed as far as 20 feet. Although it's best to treat all wasp and hornet nests at night, paper wasps can be eliminated during the daytime, *provided you do not stand directly under the nest during treatment*. Most aerosol-based wasp and hornet sprays cause insects to drop instantly; standing directly under a nest increases the risk of being stung. After treatment, wait a few days to ensure that the colony is destroyed, then scrape or knock down the nest.



Fig. 3: Wasp and hornet sprays are useful when treating nests from a distance.

**Hornets** -- Hornets are far more difficult and dangerous to control than paper wasps. One common variety, the bald-faced hornet (*Dolichovespula maculate*), constructs a large, gray nest resembling a bloated football, which is typically attached to a tree, bush or side of a building. Oftentimes the nest is concealed among branches, especially in densely canopied trees such as Bradford pear. Hornet nests may contain hundreds of wasps that are extremely aggressive when disturbed. Nests are often located out of reach, requiring use of a ladder and/or other specialized equipment. If elimination is deemed necessary, it is often best to call a professional pest control firm.



Fig. 4: Bald-faced hornets construct large aerial nests (above). The wasps are larger than yellowjackets and white and black in color (below).

Householders bent on exterminating a hornet nest themselves should do so at night, when most of the insects are in the nest and less active (*see night treatment precautions mentioned below for yellowjackets*). A full wasp suit and head veil sealed at the wrists, ankles and collar is strongly recommended. Hornet nests usually have a single opening (typically toward the bottom), where the wasps enter and exit. Apply an aerosol wasp and hornet spray or insecticide dust (e.g., Tempo Dust (cyfluthrin), Delta Dust (deltamethrin) directly into the nest opening. The easiest way to apply insecticide products formulated as dusts is with a 'bulb' or 'bellows' duster sold in hardware stores or online. Professionals often use dusters connected to long extension poles so they can access and treat nests from a greater (and safer) distance. *It is crucial that the paper envelope of the nest not be broken during treatment or the irritated wasps will scatter in all directions, causing even greater problems*. Following treatment, wait at least 3-4 days before removing the nest to ensure that all of

the wasps are killed. If hornets continue to be seen, the treatment may need to be repeated.

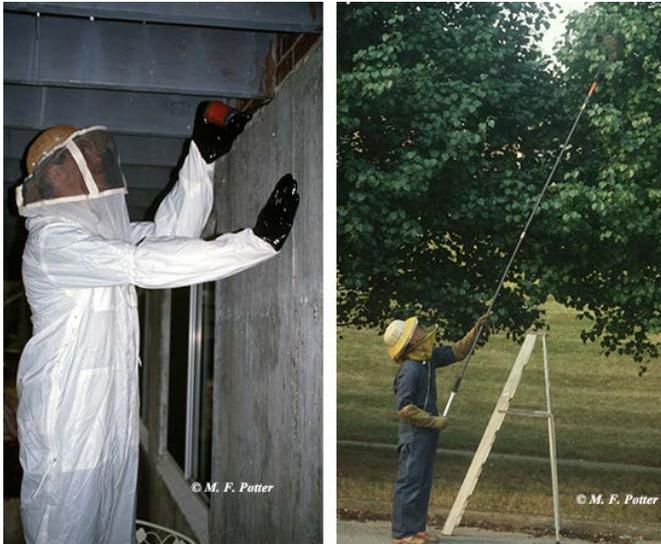


Fig. 5 and 6: Protective clothing is advisable when treating wasp and hornet nests (left). Professionals sometimes use long-handled dusters to treat nests in elevated locations (right).

If the nest is located away from frequently used areas, another option is to wait and do nothing. In Kentucky and other states with cold winters, wasp, hornet and yellowjacket colonies die off naturally once the weather turns cold and the paper carton disintegrates over the winter months.

**Yellowjackets** -- Yellowjackets are arguably the most dangerous stinging insects in the United States. They tend to be unpredictable and usually sting if the nest is disturbed. Nests are often constructed belowground in old chipmunk/rodent burrows, or beneath rocks, gutter splash blocks, or landscape timbers. They also nest in stone walls, crawlspaces, attics, and behind exterior siding of buildings.



Fig. 7: Yellowjackets are one of the most dangerous insect pests in the U.S. Although nests are often constructed belowground, this one was located in an attic.

If the yellowjacket nest can be located, it often can be eliminated by applying an aerosol-type wasp and hornet spray into the opening. Insecticide dust formulations (as mentioned previously for hornets) are especially effective but require a ‘bulb’ or ‘bellows’ duster to dispense several puffs of the dust into the nest opening. In lieu of a commercial duster, an alternative is to use a dry, empty liquid detergent bottle filled with a few inches of the dust. A couple pebbles or marbles added to the bottom prevents the dust from caking, and the bottle should be shaken before dispensing. Remember to dispose of the bottle after use, or store it away from children and pets. Dusts tend to be more effective than aerosols when the nest itself is located some distance from where the wasps are entering and existing — as often occurs

when yellowjackets build nests in rock walls, behind exterior siding, or deep within abandoned animal burrows. Insecticide dust blown into the opening penetrates farther than sprays, and is transported more thoroughly throughout the colony.



Fig. 8: Insecticide dusts are most effectively applied with a bellows-type duster.

As with hornets, treatment should be performed at night when most of the yellowjackets are in the nest and less active. Pinpoint the nest opening during the daytime, so you will remember where to direct treatment after dark. Approach the nest slowly, and do not shine the flashlight beam directly into the nest entrance as this may startle the wasps and cause them to fly toward the light. Instead, cast the shaft of light to the side to illuminate the nest opening indirectly. If possible, place the light source on the ground rather than in your hand.

When contemplating extermination of a yellowjacket nest, householders should realize they are entering a 'DANGER ZONE' — there is no pest control scenario more frightening than a 'botched' treatment. It is usually prudent to call a professional, especially when accessing nests requires use of a ladder, or is otherwise difficult. When treating nests located behind the exterior siding of a home, do not seal the spot where the wasps are entering and exiting, as this may cause them to chew their way inward and emerge indoors.

**Nuisance Foraging in Late Summer.** During late summer/early fall, yellowjacket colonies are nearing maturity and huge numbers of workers are out foraging for food for the developing queens.

With insect prey becoming scarce, yellowjackets scavenge widely for other sources of nutrition. They're particularly fond of sweets (fruit, soft drinks, ice cream, etc.) but will also feed on meat, fish, and just about anything else we eat.



Fig. 9: Yellowjackets become more apparent in late-summer, when they are attracted to picnic items.

The persistent foraging of yellowjackets this time of year at picnics and other outdoor activities prompts many calls from people wanting to know what can be done to alleviate the problem. Options include:

1. **Sanitation** – The best way to reduce the threat of foraging yellowjackets is to minimize attractive food sources. People eating outdoors should keep food and beverages covered until ready to be eaten. Spills and leftovers should be cleaned up promptly. Trash cans should be equipped with tight-fitting, preferably self-closing lids. Similar sanitation measures should be taken by outdoor cafes, produce stands, and other food establishments. Whenever possible, trash cans and dumpsters should be located away from serving tables, doors, and other high-traffic areas. Trash cans should also be equipped with a plastic liner, and emptied and cleaned frequently.



Fig. 10: Outdoor waste receptacles are very attractive to late-season yellowjackets.

Maintaining high levels of sanitation early in the summer will help make areas less attractive to yellowjackets later in the year. This approach is especially useful for parks and other outdoor recreation sites. Apples, peaches, and other fallen fruits should be raked up and discarded.

2. Avoidance – Another guideline for late-season yellowjackets is avoidance. Workers foraging away from nests are seldom aggressive and usually will not sting unless provoked. People should resist the temptation to swat at the wasps, since most stings occur when foragers are slapped or trapped against skin. If a wasp or bee enters your vehicle, stop the car and open all windows to allow it to escape. *Be extremely careful when drinking from beverage cans into which a foraging yellowjacket may have crawled.* Swelling resulting from a wasp sting inside the mouth can be especially dangerous. Avoidance is also prudent if a yellowjacket (or hornet) nest is located high up in a tree, or other out-of-the-way area. Throughout much of the country, colonies die off in late-autumn with the onset of cold weather; abandoned nests are not reused and soon disintegrate.



Fig. 11: Consuming beverages can be hazardous when yellowjackets are present. (Photo credit: Paul Valade, Chicago Daily Herald)

3. Repellents – Conventional mosquito and tick repellents will not prevent persistent foraging by yellowjackets. While formulations containing DEET may lessen the tendency of wasps to alight on bare skin, long-sleeve shirts and pants are probably a better option when hiking or camping.

Avoid scented soaps, shampoos, deodorants, perfume, or cologne since these tend to attract foraging yellowjackets.

4. Traps – Yellowjacket traps of varying design are sold by lawn and garden suppliers. Properly baited and maintained, these traps often attract and capture large numbers of foraging yellowjackets. Unfortunately, late-season nests often contain thousands of individuals and such trapping seldom results in a noticeable decline in activity. If traps are used, position them around the periphery of the area you wish to protect. Otherwise, you may end up attracting more wasps than are trapped.



Fig. 12: Yellowjacket traps may capture several wasps, but do not necessarily alleviate the problem.

5. Finding/Destroying Nests – With late-season foragers, this approach is often impractical since the nest(s) may be located several hundred yards away. Nonetheless, it still may be worth checking yards and nearby areas for signs of nests. The best time to do this is during the daytime, when wasps are actively exiting and entering the nest opening. Surveying one's yard for yellowjacket nests during the summer can help prevent a painful encounter while mowing or gardening, or by children at play.

**First Aid for Stings** - The health impacts from insect stings vary widely. Most people experience pain, itching, redness, and localized swelling,

which can be reduced with over-the-counter anti-histamines and an ice pack. Cleansing the affected areas with soap and water can also help prevent infection.

Conversely— about two million people in the U.S. (roughly one percent of the population) are hypersensitive to the venom and can have a potentially life-threatening allergic reaction. Signs and symptoms include hives, widespread itching, difficulty breathing or swallowing, swelling of the face, throat, or mouth, dizziness, rapid pulse, and a drop in blood pressure. Since death can occur in a matter of minutes, people experiencing such symptoms should receive medical attention immediately. ***They should not wait to see if the symptoms go away.***

Individuals who are hypersensitive to insect stings are often advised to carry an epinephrine auto-injector (e.g., EpiPen), to be administered immediately after a sting. After the injection, it is still prudent to go to an emergency room to ensure that symptoms do not recur. People who have experienced moderate to severe allergy symptoms, or have been stung repeatedly in the past, should consider being evaluated for hypersensitivity by an allergist or immunologist — a prudent precaution in case they are stung again in the future.



**Fig. 13: People hypersensitive to wasp stings are often advised to carry epinephrine.**

Revised: 9/10/2018

**CAUTION:** Some pesticides mentioned in this publication may not be legal in your area of the country. If in doubt, please consult your local cooperative extension service or regulatory agency. Furthermore, **ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR THE PRODUCT YOU ARE USING.**

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