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Horticulture Diagnostic Laboratory
Extension Education Center
423 Griffing Ave, Ste 100
Riverhead, NY 11901-3071
631-727-4126
www.ccesuffolk.org
Bayard Cutting Arboretum
Montauk Hwy
Great River, NY 11739
631-727-4126
Cornell Cooperative Extension
Suffolk County

Controlling Wasps, Yellow Jackets and Hornets

Wasps, yellow jackets and hornets are members of the family Vespidae, which is contained in the insect order Hymenoptera. The following gives information on some of the more common wasps, hornets and yellow jackets encountered by the homeowner in their yards. If you click on the name of each of the highlighted insects below you'll go to a University of Maryland fact sheet on Social Wasps which contains an identification guide comparing the insects below.

The **bald-faced or white-faced hornet**, *Vespula maculata*, has black and white patterns on its face, thorax, abdomen and first antennal segment. They range from 5/8th to ¾ inch in length. The nest is usually aerial, located on the limb of a tree or under the eave of a home. Sometimes they are noticed lower to the ground in a tall shrub or thicket.

The nest (colony) is started by a single fertilized queen in the spring. She initially constructs a comb containing 10 cells surrounded by several layers of paper (about the size of a golf ball). The paper is composed of decomposed wood, which the queen collects, masticates and then works into place to construct the nest. The queen raises the first generation of workers. After these workers emerge they will collect food for the next developing workers. They are fed pre-chewed insects. Adults feed on nectar and fruit pulp.

At the end of the season, a nest (colony) can contain several thousand insects. In the fall colonies will produce males and new queens. Newly mated queens will burrow into soil where they spend the winter. They will emerge in spring and start new nests. Since this is an annual colony the old nest is never used again and will decompose over the winter.

The hornets cause little damage to agricultural crops or structures. In late summer they may be persistent, unwelcomed guests at picnics, barbecues and during outdoor dining where they scavenge for food. They do provide benefit by feeding on such insects as crane flies, flies and caterpillars. The bald-faced hornet is protective and will sting repeatedly if its nest is disturbed. They do not usually sting when away from the nest. Unlike honey bees, these insects have a smooth stinger and can sting repeatedly. Also, the venom of these wasps is different from that of bees, and may elicit a more painful sting. Check your shrubs for nests before pruning or gardening.

The **European hornet** (a.k.a. giant hornet), *Vespa crabro* , was introduced into North America from Europe in the mid-1800's. It is a very large and heavy-bodied wasp, which can range from ¾ to 1 1/8th inch in length. The head, thorax, 1st abdominal segment and legs are reddish-brown while the remainder of the abdomen is dark yellow with dark bands and small spots.

Each spring, mated queens emerge from hibernation and start new colonies. The life cycle is similar to the above mentioned bald faced hornet. Workers forage for other insects such as caterpillars to feed developing young. Adults are voracious predators and can help control harmful insects. They will also feed on sugary liquids such as sap and fruit juices. Nests are usually found under porches and in protected cavities such as hollow tree trunks. The nest is constructed of chewed tree bark and mud. It is not uncommon to see these insects stripping bark off of deciduous trees or shrubs. In late summer males and queens will develop and the newly mated queens will seek out a site to hibernate for the winter. This is typically in building or under loose bark. All other individuals will die in the fall. The colony is annual, and the nests are not reused.

The hornets will chew holes in ripe fruits, especially grapes and apples to obtain sugar. They can scrape of tender bark of young woody trees or shrubs, which is used for nest construction. They are known to raid honeybee hives and can cause a stinging hazard when nests are located near homes or buildings. These hornets are sometimes attracted to lights at night and may be a nuisance near doors and window screens. These insects mostly avoid confrontation and will usually only sting if threatened. In the presence of a hornet, avoid rapid movements, blocking their flight path and vibrating or disturbing the nest.

There are aerial and ground nesting yellow jackets. The **Aerial-nesting yellow jacket**: *Dolichovespula arenaria* has a similar life cycle and nesting habit to the above mentioned bald faced hornet. It is small in size compared to the bald faced hornet. It has a hairless body and the abdomen is black with yellow stripes and markings. In late summer they may be persistent, unwelcomed guests at picnics, barbecues and during outdoor dining where they scavenge for food. They do provide benefit by feeding on such insects as crane flies, flies and caterpillars. They do not usually sting when away from the nest. Unlike honey bees, these insects have a smooth stinger and can sting repeatedly. Also, the venom of these wasps is different from that of bees, and may elicit a more painful sting. Check your shrubs for nests before pruning or gardening. At picnics, keep all food and drink covered, except when actually serving or eating. Be careful when drinking from a can or bottle, as you may swallow a yellow jacket and receive a sting in the throat. Always keep trash containers covered.

The **Eastern yellow jacket** (ground-nesting yellow jacket): *Vespula maculifrons* and the **German yellow jacket**: *Vespula germanica* are common "ground nesting yellow jackets" although the German yellow jacket typically builds its nest in the walls of houses and other buildings. Like the hornets these social insects also have annual colonies (nests). The life cycle is similar to the above mentioned bald faced hornet. The eastern yellow jacket builds nests underground or near ground level in fallen logs or tree stumps. As mentioned earlier German yellow jackets nest in walls of buildings. Both insects are predatory and eat many harmful insects. Yellow jackets which nest in walls or attics can cause structural damage. Like the hornets their numbers can become quite high by later summer and they can become persistent, unwelcomed guests near barbecues, picnics and during outdoor dining. Yellow jackets will sometimes sting without provocation; and unlike the honey bee, they can sting repeatedly. Avoid disturbing a nest, since yellow jackets are aggressive and can deliver a painful sting.

Paper wasps *Polistes dominulus*, and *P. fuscatus* are also known as umbrella wasps. They have a similar life cycle to the above mentioned bald faced hornet. They have a reddish brow to black body with yellowish rings around the abdomen. These wasps can be recognized by the long slender legs that can be seen hanging down while the insect is in flight. If you are near their nest you will notice that the wasps appear very "alert" to your activity near their nest. They construct paper-like nests of upside-down brood cells. These individual cells are compartments for the young. The nest is supported by a single stalk and the entire structure resembles and upside down umbrella. Unlike the other nests described above this contains only a single tier of cells and the cells are not enclosed by a paper cover. These nests are usually found attached under an overhang on a building, such as the eave of a roof. Each nest typically contains a few dozen workers, but may contain as many as 100. In general nests contain far less workers compared to the hornets and yellow jackets.

If provoked these insects are aggressive and will defend their nests. The can deliver a painful sting, but their nests do not cause any structural damage. These insects are very useful predators especially near vegetable gardens. They provide a natural means of control for herbivorous caterpillars. If a paper wasp approaches you, slowly raise your hands to your face and walk away. Remain calm! Avoid swatting at the wasp or running, as quick movements may elicit an attack. If possible, avoid the use of scented perfumes and soaps, and wear gray, white or tan to reduce the chances of a wasp approaching you. Unlike the honey bee, paper wasps have a smooth stinger and can sting more than once.

Management of Wasps, Hornets and Yellow Jackets

Bald-faced hornet: Bald-faced hornets should not be killed unless they pose a risk. Nests that are high in trees need not cause concern unless someone in the vicinity is allergic to their stings. If a nest is in a low-traffic area, it may be possible to mark off a warning-zone to alert people to its presence. Nests in high-traffic areas may require treatment.

European hornet: Colonies die each fall, and old nests are not reused. If present in a wall of a dwelling, do not plug the entrance, as the hornets will most likely chew a new one, possibly into a living area. If the hornets do not pose a threat, treatment may not be necessary. If they are nesting in a high traffic area and control is desired, seek professional help since there is a risk of being stung.

Aerial nesting yellow jackets. Aerial-nesting yellow jackets should not be killed unless they pose a risk. Nests that are high in trees need not cause concern unless someone in the vicinity is allergic to their stings. If a nest is in a low-traffic area, it may be possible to mark off a warning-zone to alert people to its presence. Nests in high-traffic areas may require treatment.

Ground nesting yellow jackets. Check your lawn and shrubs for nests before mowing or pruning. Before deciding on control, first decide if the nest actually poses a risk. If it is out of the way, it may be prudent to wait and let the nest die naturally in the fall.

Paper wasps. If the wasps are present in an area where they will not bother people, it is best to leave them. They will be gone after the first frost; and, in the meantime, they will reduce the populations of local pest species. They do not present a danger unless the nest is disturbed, and they will not return to the same nesting site the following year.

If yellow jackets are present, avoid using perfume or cologne, and do not wear bright colors, as they are attracted to anything that looks or smells like a flower. At picnics, keep all food and drink covered, except when actually serving or eating. Be careful when drinking from a can or bottle, as you may swallow a yellow jacket and receive a sting in the throat. Always keep trash containers covered.

If an insecticide is needed use commercially available wasp and hornet spray. Apply at night directly to nest opening(s), preferably when the temperature is cool. Wear protective clothing: long sleeves, trousers tucked into socks, gloves, and a beekeeper's hat or mosquito netting draped over a wide-brimmed hat and fastened to protect the face and neck from stings.

Remember! Insect stings can elicit a life-threatening, allergic reaction in some individuals. Check with your physician to determine what symptoms require a visit to the emergency room. Never attempt any control measure if you have a known allergy to insect stings.

Resource *The Bee Files*. Dyce Laboratory for Honey Bee Studies, Department of Entomology, Cornell University, Ithaca, NY. Updated July 2006.

Pesticide recommendations obtained from *Cornell Pesticide Guidelines for Managing Pests Around the Home, Cornell University Cooperative Extension, 2014.*

Prepared by Thomas Kowalsick, Senior Horticulture Consultant, Cornell Cooperative Extension – Suffolk County. Updated 1/2010.

The New York State Department of Environmental Conservation (NYSDEC) Bureau of Pest Management maintains a web site with a searchable database for pesticide products currently registered in New York State. Individuals who have internet access can locate currently registered insecticides at http://www.dec.ny.gov/nyspad/products?0.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (NYSDEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional NYSDEC office. Read the label before applying any pesticide.

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