

NATURE DETECTIVES



Summer 2017



Wasps With Paper Houses and Bad Reputations

Out of the thousands of different species of wasps, only **hornets**, **yellow jackets** and **paper wasps** get a big reaction. “There’s a wasp!” is rarely an exclamation of delight and for good reason. These wasps pack a potent stinger on their rear end. The three different species are not equally likely to sting, but all three are commonly feared on sight. Learning a little about them can help you avoid getting stung and allow you to appreciate their building skills and their positive role in the balance of nature.

Pull Out and Save

Paper Home Construction 101



Hornets, yellow jackets and paper wasps are social insects that live in colonies similar to honey bees and ants. They construct paper nests to shelter their developing baby wasps.

To make the paper, these wasps bite splinters off old wood from houses or fences or bite off pieces of plants. The wasps chew up mouthfuls of these woody bits along with water. When spread out and dried, the pulpy paste makes a kind of paper.

Wasp papermaking is similar to how humans make handmade paper, except we don't mix the paper slurry with our jaws.

Ground, Tree or Roof – Each Kind to Its Own Space

Each species of social wasp has a different building plan for home construction and a different preferred home location. Shelters made out of paper cannot withstand a whole winter's worth of moisture and wind so wasps always start a new nest every year. Once you know where they typically locate their homes, you can use your detective skills to find them near where you live. Cautiously!



Sherlock Fox says: **NEVER** disturb a wasp nest or you could get stung – a lot.



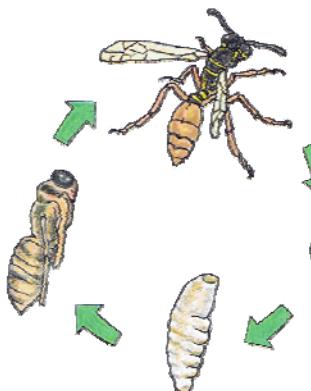
Queen Paper Wasps Begin Their Colonies in Spring

By late summer, a **paper wasp** colony can be buzzing with dozens of busy workers, but it doesn't start that way in the spring. With the end of winter and arrival of warmer days, a queen wasp crawls out from the safe hideout where she overwintered.



She warms up in the sun and sips some flower nectar for energy. As she searches alone for a good spot to begin a nest, she crawls under a roof overhang. She decides to start her nest in this place, out of the rain and wind. She shapes some paper pulp into a stalk like the knob at the top of an umbrella. The stalk anchors the nest to the underside of the house eaves. Then she begins to form six-sided cells in an umbrella shape, open toward the ground.

From Egg to Larva to Pupa to Wasp Is Metamorphosis



After she's made a few cells, the queen deposits a tiny **egg** in each cell. A single **larva**, looking like a short, fat worm, hatches out of each egg. The queen hunts for caterpillars or other soft insects to feed her growing offspring. She chews her prey into mush, and like a mama bird, she feeds some to every larva.

When the larvae grow large enough, each seals the end of its cell, and changes from a larva body into a **pupa**. Each pupa transforms into an adult wasp and chews out of the cell. From egg to adult takes about a month. The new wasps are daughters, and none competes with the queen. They are worker wasps.

Workers, Male Drones and New Queens

As the colony produces more workers, the umbrella shape grows larger, and the worker wasps do all the building, guarding, hunting, cleaning and feeding chores.

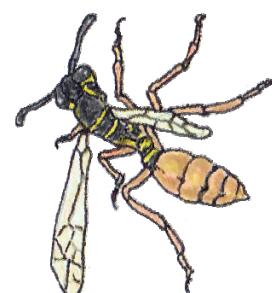
The queen stays in the nest and lays more eggs.



Beginning in autumn, some new wasps bigger than workers will hatch. These are future queen wasps and male drones. Their job is to fly around and find a mate. Once cold weather sets in, all the drones will die. All the worker wasps and the old queen will die. The new queens will search for a solitary winter hideaway. The abandoned paper nest will never be reused by a colony.

Begin Again

In spring, each surviving new queen will start her own colony. Paper wasps are usually mellow and not quick to sting unless you mess with their nest. Unlike honeybees, each wasp worker and queen can sting over and over when provoked.





Hornets Make Paper Bag Homes



Hornet colonies have the same life cycle as paper wasp colonies. They too hunt insect and caterpillar prey. Less calm than paper wasps, they are even more likely to sting when their nest is disturbed. Each upset hornet can sting repeatedly. Happily, their nest location is often high up in trees out of harm's way.

Hornet colonies may contain hundreds of wasps by the end of the summer. Somewhat like additional floors in an apartment building,

hornets keep adding umbrella-shaped layers of cells, stuck together by pillars. The wasps enclose the layers of cells with an outer cover, like a paper bag. A hornet nest looks a little like an old football, covered with gray papier-mâché.

Yellow Jackets Are Thieves

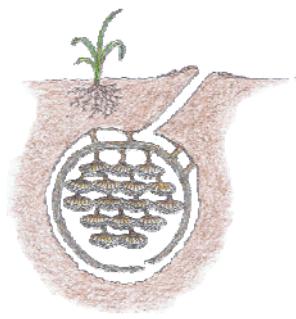


Yellow jackets are the nuisance wasps that invade outdoor summer picnics and barbecues. They are willing to sting their way into your picnic basket, grab bits of a hamburger or crawl into your soda can. They hang out in gangs around garbage cans. The vast majority of reported "bee stings" are actually yellow jacket stings. To make it worse, their venom is even more painful than hornet or paper wasp venom.

The reason these aggressive wasps are after *your* food is that they are scavengers. Unlike hornets and paper wasps, they eat recently dead earthworms, dead insects and dead animals. They like sweet things such as ripe grapes on the vine or on your plate. When the wasps' natural food becomes harder to find in the fall, feisty yellow jackets are most eager to steal your food.

Their life cycle is the same as hornets and paper wasps, except they usually build their nests underground. The cells have a paper cover like hornet nests. By the end of the summer, hundreds of yellow jackets might live in a cavern with one hard-to-spot entrance hole.

People accidentally discover the location when they are mowing a lawn or running across a yard, and the wasps zoom out for a stinging defense of their home.



Weird Wasp Facts



Entomophobia means extreme fear of being stung.

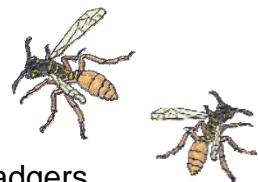
Tarantula hawks are enormous, two-inch, red-winged wasps that sting tarantulas to paralyze them for larvae food. Their sting is one of the most horrible in the world. Luckily they don't live *here*. They make yellow jackets seem not so bad.

You can tell some paper wasps from hornets or yellow jackets by their long dangling legs in flight.

Wasps Are Important



Although colony wasps are insect predators, they can become prey themselves. Raccoons will raid paper wasp nests at night, pulling the whole nest down to fish out the juicy larvae or pupae. Badgers, mice, frogs, birds, spiders, beetles, ants and other wasps are also wasp predators.



How do wasp eaters not get stung? Some animals, like frogs, crush the insect immediately so it doesn't have time to sting. Others have thick skin or are not affected by the toxin in the venom. Cats and dogs sometimes try to eat bees and wasps, and that's not a good thing! It might lead to a trip to the vet.



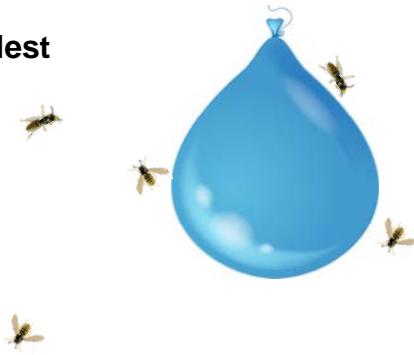
Do You Believe Colorado Has Thousands of Wasp Species? It's True!

Unlike the colony-dwelling social wasps, most wasps live solitary lives, and some species are so teeny that they escape our notice. All these different wasps contribute to a balanced ecosystem as predators or as prey or as flower pollinators. They include hunting wasps, spider wasps and parasitic wasps. Keep your detective eyes open to see how many kinds of wasps you can spot. Borrow insect books from the library or check online for help identifying species.

Build an Easy Papier-mâché Hornet Nest

What you need:

flour
water
round balloon
strips of newspaper or paper towels
brown or gray tempera paint
3-foot long piece of string



Mix equal amounts of water and flour to make papier-mâché paste. Mix well with a wire whisk until it's smooth (add more water if it's too thick).

Blow up the balloon and tie the end. The knotted end will be the stalk at the top of the nest. Tie the string to the knot so you can hang your nest.

Dip newspaper or paper towel strips in the paste and stick the paper onto the balloon. Cover the whole balloon, overlapping the paper strips in a variety of directions. Let dry and add a second and third layer of paper strips. Let dry completely.

Use paint to add some color splotches to the outside of your nest, and paint a solid circle on the bottom to look like the entrance to the nest. If you want, you can buy some plastic toy wasps and glue them to the outside!



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