

GWCT Peter Thompson's Species of the Month

Common Wasp

The hot summer of 2018 seems to have been a good or bad year for wasps, depending on how you perceive these feisty, orange and black insects!

The press has had a field day on the back of this successful year for *Vespula vulgaris*, with headlines such as "Wasp numbers are worst on record" and "Norfolk residents barricaded in homes by plagues of wasps".

Journalists have been quick to tap away on their computers creating declarations like: "It's undeniable that wasps are about as unpleasant as insects come. Aggressive, organised and fiercely territorial."



The pest control companies have been rubbing their hands and thinking up good headlines too, such as this one: "Protecting you and your family from insect stings. Wasps can be dangerous. Having a wasp nest on your property can be a problem at best and life-threatening at worst!"

Yeah, right. So can peanuts and seafood if you happen to be that way inclined!

It seems that wildlife is all fine and dandy, as long as it keeps its distance and does not interfere with us humans. If anything could potentially sting or bite us, or perhaps just be annoying, then it must be killed without further thought.

Well, perhaps if we all knew a little more about wasps then we might just be that bit more tolerant of them. There are approximately 9,000 species of wasp in the UK, but only nine of these are social wasps, similar to the common wasp that I am writing about.

The annual life cycle starts when the fertilised queen wasp emerges from hibernation in the spring and searches out a suitable nest site, often a hole in the ground or some cavity in a tree or building.

Having chosen a site, she will make a very basic nest out of chewed up wood mixed with saliva, where she will lay her eggs. These fertile eggs will develop into sterile females known as workers, which she will raise on her own. Once enough workers have been raised to help develop a larger nest and bring up offspring, the queen will concentrate on just laying more and more eggs.

Numbers of workers increase very quickly, so that by the end of July she may have produced up to 10,000! These wasp workers work continually to raise their fellow workers from eggs the queen lays, cooperating and communicating in intricate ways to build and defend the nest, collect food and look after the queen.

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When the colony is large enough, usually in late summer, the workers start to give some of the grubs more food than usual, triggering off genetic changes that cause the development of potential queens, rather than a workers. These special grubs are raised in larger compartments known as royal cells.

Also around this time of year, male wasps start to appear for the first time, hatching out of unfertilised eggs. These males will play no part in the development of the colony, but instead leave the nest to look for potential female wasps from other colonies to mate with.

Once a female has mated, she will then overwinter, eventually starting the cycle off again, becoming queen of her own colony the following spring. The rest of the colony, including the males, will all die.

But let's take a closer look at the amazing nests that wasps build. Wasps are wonderful architects, continually growing the size of the nest to house the rising numbers of insects within the colony. The largest nest recorded in the UK was over six feet by five feet!

The nests are made from chewed up wood (my garden fence has been noisily chomped by wasps all though the summer!) and wasp saliva, which creates a paper-like material resembling papier maché, which is capable of producing a strong structure.

The nest has open cells and a cylindrical column known as a petiole, which fixes the nest to make it stable. Wasps produce a chemical that repels ants and secrete it around the base of the petiole, so as to avoid predation by ants. There are a number of differences between nests underground and those above ground. Aerial nests have much thicker outside walls than those under the ground, because heat is less well insulated when the nest is above ground. Also, smaller nests have thicker walls, as the amount of heat produced is proportional to the volume of the nest, so that larger nests are better at conserving warmth. The optimal temperature of the nest is around 32°C. However, when the temperature rises above the optimal temperature (during hot days), the workers use their wings as fans to cool the nest down.

So these paper like structures are actually amazingly complex.

Wasps obviously have a sting (although males do not), which they sometimes use to help them to capture and immobilise their prey items, which include aphids, caterpillars, flies and spiders. However, they are also equipped with powerful mandibles, which are usually enough to overpower most prey items.

Scientists have worked out that social wasps in the UK might account for around 14 million kilograms (just under 14 tons!) of insect prey across an average summer! So, farmers and gardeners should be very grateful for the huge number of pest insects that they consume!

Wasps will also use their sting to defend themselves or their nest. A wasp's sting also releases a pheromone (as well as venom), which may well trigger other wasps from a nearby nest to go into attack mode. While a bee can only sting once because its stinger becomes stuck in the skin of its victim, a wasp can sting more than once during an attack. Wasp stingers remain intact.

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Wasps are also valuable pollinators of a wide range of plants. I have a water figwort plant in my garden, which seems to be almost solely pollinated by wasps. You only have to stand and watch ivy flowers in September to see how many wasps are attracted to the flowers, transferring pollen as they visit flowers to drink nectar.

I will leave you with one final thought. A long time ago a man in China was studying a wasp's nest when he had a eureka moment. He thought this is not just a nest, this material could be written on – it is paper. This occurred some time during the Han dynasty, which ended in 220 AD, and naturally the story has been much mythologised. The earliest known bit of paper was, however, based on the material that wasps create and has been dated between 179 and 41 BC. Paper then spread slowly into the Islamic world and eventually into Europe.

So the next time you go to squash a wasp, just because you can, you might stop and consider what other options you have! After all, wasps are pretty amazing!

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