Bumblebee Conservation Trust

Look inside a bumblebee nest

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Bumblebees are social creatures, living in a colony with one queen and her worker daughters. They are also wild, which means that queens need to find safe, sheltered places to nest before they can raise their offspring!

Many queens make their homes in our gardens and local greenspaces like parks, so you very likely have bumblebees as your close neighbours. But what does a bumblebee nest look like? And what happens inside this amazing secret world?

The difference between bumblebee nests and honeybee hives

Where do the bees live?

Bumblebees are wild bees. Different species like to nest in different places, including long tangled grass, compost heaps, bird boxes, and abandoned mouse holes.

In the UK, nearly all honeybees are domesticated. They live in wooden hives managed by beekeepers.

What does the nest look like?

Bumblebee nests contain a messy, lumpy group of round wax cells and pollen lumps.

Honeybee hives contain neat, tightly packed hexagonal wax cells.

How long does a nest last?

Bumblebee nests last two or three months over spring and summer before dying off naturally by mid-autumn. Only new queens survive by hibernating over winter.

Honeybees are active all year round. The queen and many of her daughters continue to live in the hive over winter, though the colony gets smaller.

How many bees does a nest contain?

At their largest, 50 to 400 bumblebees (most nests peak at about 100).

Around 10,000 to 20,000 honeybees over winter, increasing to 60,000 to 70,000 in summer.

Do the bees make honey?

No! Bumblebee nests die off in autumn, so they don't need to make honey to eat during winter.

Yes! Honeybees produce honey to feed themselves over winter, when few flowers are around. Beekeepers can harvest some of this to eat or sell.

The lifecycle of a bumblebee nest

Spring

Setting up a nest

Every nest starts with **a single bumblebee queen**. After emerging from her winter hibernation, she must urgently build up her strength by feeding on nectar from spring flowers. She then searches for a dry, sheltered nest site. Common places include long tangled grass, compost heaps, bird boxes, and abandoned mouse and vole holes.

Once the queen has chosen her new home, she gets cosy by burrowing into whatever nesting material is available to create a small round chamber. This material could be dry grass, old moss, or an old bird or rodent nest.

This White-tailed bumblebee queen has selected an abandoned mouse burrow.

Eggs

Inside the chamber, the queen produces wax flakes from her body and shapes them into a cup. She fills it with nectar collected from flowers, bringing it back to the nest in a special second stomach.

She also collects pollen from flowers, packing it together into a **tight clump and laying her first batch of eggs on top**. Sometimes – especially later on in the colony – she will pack the pollen into a wax cup called a brood cell.

The queen sits on the brood cell, shivering her flight muscles to generate enough heat to keep the eggs warm. She feeds from the little nectar pot when the weather is too bad to visit flowers.

Larvae

After four to six days, the eggs hatch into white, C-shaped larvae. These wriggling offspring munch their way through the pollen that surrounds them. They grow very quickly and shed their skins several times.

The queen now faces a tricky balancing act! She must keep the nest warm (a constant 25°C to 32°C) by shivering, or her offspring will die. But she must also leave regularly to feed on flowers and bring back more pollen and nectar.

Many nests and queens die at this point.

New bumblebees

After two to three weeks, the larvae spin themselves tough silky cocoons. Inside, they shed their skins to reveal a hard case: **the pupa**.

The former larvae dissolve into a soupy liquid before rebuilding themselves into adult bumblebees. The pupae are white and see-through at first, but as they develop, the colours and features of the adult bumblebees can be seen through the pupal skin.

After two weeks, the new bumblebees force their way out of the pupae and then bite their way out of their cocoons. To start, they are weak, soft, and floppy! It takes a day for their bodies to harden up and for their damp wings to dry, so they can fly. Their hair also starts out silvery-white before darkening to its normal colours.

The queen's first batches of eggs all hatch into female workers. **This army of daughters takes over the important job of collecting pollen and nectar from flowers**, to help feed new larvae and fill more wax pots with nectar.

Early summer

The workforce grows…

The nest grows steadily over the summer. Now the queen has workers to help her, she stays in the nest and focuses her energy on building more brood cells and laying more eggs.

Not all workers collect food from flowers. Some (usually the smaller and weaker bumblebees) stay in the nest to help remove dead larvae or adults, protect the nest against predators, and keep the nest at the right temperature. On hot days, when the nest might over-heat, workers use their wings to fan cooler air inside.

With more and more workers collecting food over time, each batch of larvae gets more pollen to eat, producing bigger and stronger adult bumblebees. **Workers only live about four to six weeks**, so they need to be replaced constantly.

Late summer

Males and new queens

Finally, if the nest grows big enough and the workers collect enough food, the queen starts to lay eggs which hatch into males and new queens.

Once grown, males leave the nest to mate with new queens from other colonies, and never return. They spend their days hanging out on flowers, drinking nectar, and flying around looking for queens.

New queens are fed up to three times more pollen as larvae, making them very big. As adults, they build their strength by feasting on the food stored in the nest, and taking trips outside to feed on flowers. The more energy they can store as body fat now, the better their chances of surviving winter hibernation. Finally, they leave to mate with male bumblebees.

Creating new queens is the ultimate goal of a bumblebee nest. Only queens can start a new nest the following year, carrying the genes of the colony onto the next generation, so the future of bumblebees depends on them! Many nests, however, fail before they can produce queens, as there are not enough flowers to feed on.

Autumn and winter

Hibernation

In autumn, nests die off naturally. This includes the old queen, female workers, and the males who have already left.

Only new queens survive by going into hibernation over winter. Favourite places include holes in rotten logs, beneath stones, or under thick layers of moss on the ground. Many queens dig down into the soil to hibernate.

Queens sleep until spring, when temperatures rise and spring flowers start to bloom. **At last they emerge, hungry and (for the moment) homeless, ready to start this cycle all over again!**

How to help bumblebee nests through the year

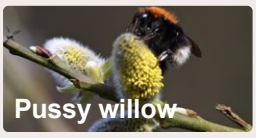
Bumblebee nests run on flower power! Queens and their offspring need a constant supply of pollen and nectar from early spring until autumn (generally March to October). If they are unable to find enough food at any point, the nest is at risk of failing.

The best thing you can do to help is **grow plants which flower across the different seasons.** Here are just a few ideas…

Spring


Crocus


Dandelion


Pussy willow

Early summer

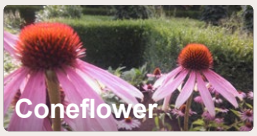

Borage


Allium


Thyme

Late summer


Nasturtium


Coneflower


Lavender

Autumn


Salvia


Stonecrop (Sedum)


Cosmos

For lots more planting ideas visit **bumblebeeconservation.org/beethechange**

What to do if you find a bumblebee nest

If you accidentally discover a bumblebee nest in your outdoor space, you're very lucky! Just leave it 'bee' and enjoy watching the busy workers coming and going. Nests only last a few months before dying off naturally.

Read our full nest FAQ at bumblebeeconservation.org/bumblebee-nests

Bee the Change

Photos: Dandelion – Bex Cartwright; Pussy willow – Andy Jones; Borage – Kevin Tuffs; Allium – Margaret Alston; Coneflower – Tim Griffiths; Salvia – Chloe Headdon; Stonecrop/sedum – Jo Johns