

# The Ultimate Guide to Bees

<https://diygarden.co.uk/wildlife/ultimate-guide-to-bees/>

Bees are a part of our landscapes and gardens, we know what they are and we know they make honey, but our bees are in danger of disappearing due to habitat destruction, chemicals and disease.

**Without bees the human race will struggle to harvest enough food.** That sounds dramatic but our pollinators are responsible for the fruiting of our harvest. In short, we have to change bee fortunes not only for their sake but for our own.

Bee numbers are a good indication of environmental health. Like our native [hedgehogs](#) and [butterflies](#), [they are in decline](#) and this points to environmental problems – but there are ways you can help reverse their fortunes.

Most people know bees make honey and they sting, but there is so much more to this fascinating creature – **did you know they have five eyes?** Two standard ones and then three on top of their head, and were you aware there are hundreds of different types in the UK alone?

Here's the ultimate guide to bees and how we can help them survive.

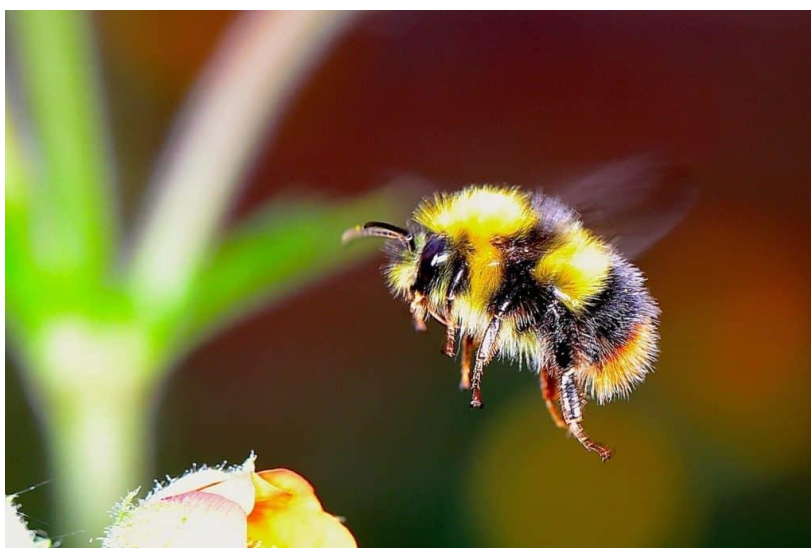
## What Bees Live in the UK?

It's less common now than 50 years ago, but most of us are acquainted with the buzzing bee busily nestling inside our flowers. There are hundreds of [different types](#), but for ease its best to classify them as solitary and social bees.

Social bees such as honeybees live in hives and nests – up to 50,000 of them can live together in a hierarchy of command. The bumblebee is also a social type, but chooses a smaller group of friends – around 50-150. Social bees are ruled by a queen. This monarch is responsible for all egg laying, the rest collect food, keep the hives clean and fertilise the queen.

***Social bee types include:***

### Bumblebees



There are a number of bumblebees including the red-tailed, white-tailed, tree, small garden and early bumble bees. They are the loud, fluffy bees that look utterly strokeable, and make a thud against your windowpanes. **Bumblebees have the longest tongue of all UK bees reaching just over 2 cm at full stretch.** The old English name for a Bumblebee is a Dumbledore just in case you ever wondered where JK Rowling got the name.

## Honeybees



Honeybees are slimmer, and they have a striped golden body, unfortunately there are few wild colonies left in the UK, [but bee-keepers tend honeybees in artificial hives](#). They are more common than bumblebees, often feeding on flowers such as lavender, fruit blossom and oilseed rape.

## Common carder bee



Carders are all brown bees ranging from light orange to a yellowy brown. They are found in most gardens and enjoy taking nectar from weeds such as dandelions and dead nettles.

Solitary bees live alone in tunnels or burrows. This is the type you might find in your [bee hotel](#). They don't make honey or wax, and feed their larvae with a mix of pollen and nectar.

***Solitary bee types include:***

### **Mason bees**



Mason bees live in the brickwork of houses, wood, hard dead flower stalks, and walls. They have quite black faces, with a deep ginger body, and a squarer head than other bees. They collect building material such as mud to construct a small home in masonry study gaps.

### **Mining bees**



Mining bees are the bees that leave little piles of earth on your lawn – these miniature volcanoes are the work of mining bees that nest in the ground. There are many different species, such as the ashy mining bee, and they range from dark fluffy orange to a pale fluffy yellow. Mining bees live in all environments ranging from quarries to gardens often taking advantage of beetle tunnels.



## Leafcutter bees



Leafcutter bees are responsible for removing semi-circular sections of plant foliage. There are seven different types in the UK. They use cut leaves to build a nesting cell for a single larvae. They nest in beetle holes and need around 40 pieces of leaf to make their nursery.

### Where do Bees Live?

Depending on the species they live in hives, in the earth, in tree trunks and in the bricks of your house. If you spot a large, frail-looking papery nest, it's likely to be a wasp nest – do not touch and keep your children and pets away.

If you are lucky a solitary bee may take up residence in your bee hotel. See here for guidance on [how to build your own bee and bug hotel!](#)

### What Do Bees Eat?

Bees get all they need from flowers. Nectar provides carbohydrates and pollen provides protein. Bees don't actually eat honey in summer, instead they save it for their larvae. Remaining honey is sealed off with wax and left to ferment for use over winter when flowers are dormant and nectar is in short supply.

## Do Bees Have Any Predators?

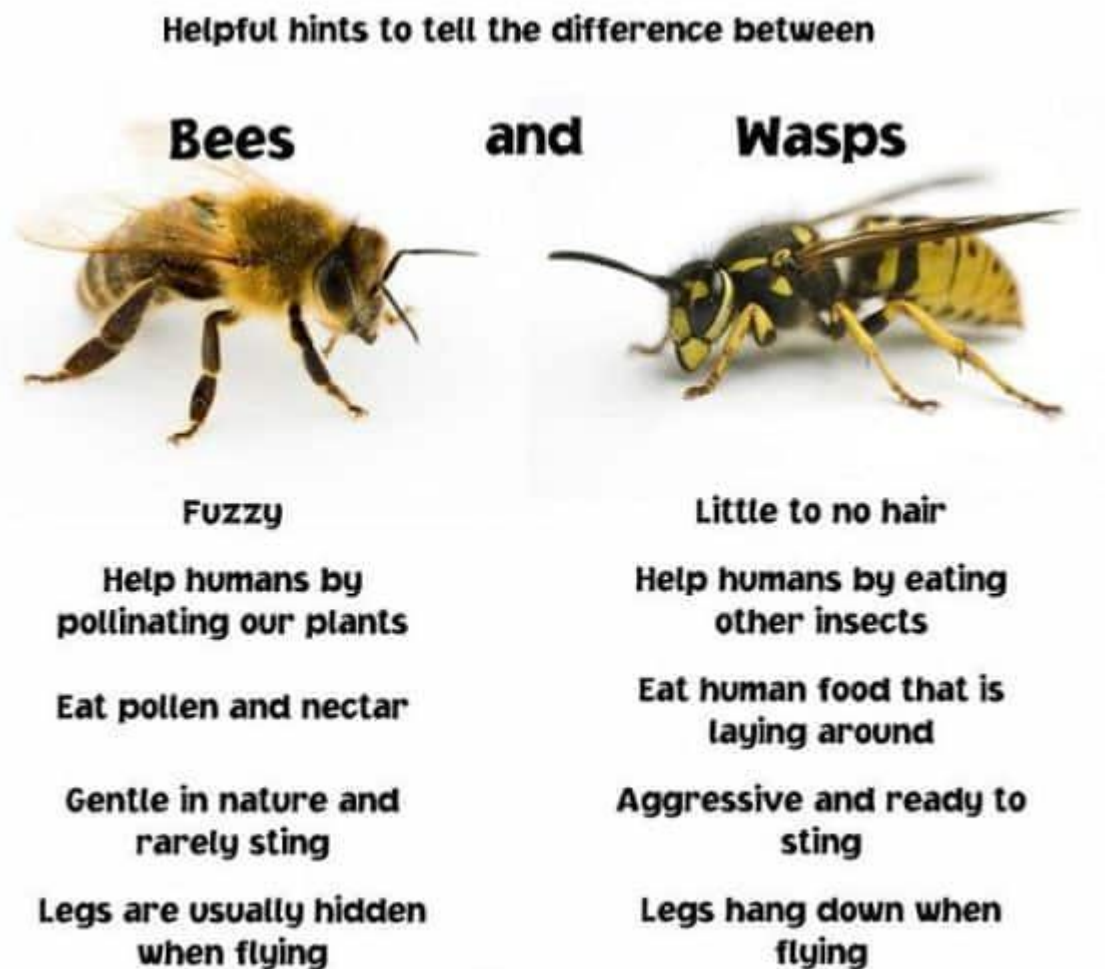
Bees are prey to a number of predators. [Birds](#) will take bees on the wing or as they bustle inside a flower. Spiders will catch bees in a web and the crab spider, a prolific hunter, is a master of stealth, changing colour to match the flower environment before pouncing on an unsuspecting bee.

Cats and dogs kill bees, often with consequential vet trips, and many bees collide with cars. We kill bees too with garden pesticides, a lack of flowers and simply squashing them because we are afraid.

The Asian hornet (*Vespa velutina*) is a particularly successful predator of honey bees. They will wait outside hives to kill and collect bees as they return. It's not native to the UK but has been accidentally introduced to France and is working its way across Europe. The Asian Hornet can wipe out entire colonies of honeybees.

Disease is also rife in bees, despite their hives having antibacterial and antifungal properties. In particular the Varroa mite is of concern to bee-keepers. It sucks the blood of bees spitting infection into their bodies, and sneaks into developing pupae inside hives and burrows. Varroa is a real threat to the bee population.

## What is the Difference between Bees and Wasps?



Many people tend to panic when they hear a buzz, but it's easy to tell the difference between a bee and a wasp.

**The main difference is that a bee will not bother trying to eat your food.** It needs nectar, not your apple or ice-cream, but wasps are attracted to sweet foods. Bees also tend to have fluffier, wider bodies with hairy legs whereas wasps are slim and have thin waists.

There are two types of wasp in the UK – the common wasp and the German wasp. They both have long, black and yellow bodies that measure 12-15mm. Bees are usually more orange in colour.

Because bees have robust, hairy bodies with flat rear legs, and wasps are slender some folk describe wasps as fast sports cars and a bee is the comfortable Volvo.

And the nests?

It's rare if not impossible to locate a wild bee nest now, but it would have wax cells and bee larvae stacked in rows. A wasp nest is papery, large and rounded. They nest in trees, lofts, and dark places. Both types of nest will hum with activity and should not be poked or messed about with.

There's another stripy insect to look out for too – if you spot what looks like a wingless wasp sipping nectar- that's a pollinating hoverfly.

Hoverflies are simple to identify because they do just that, they hover near a plant flapping their wings so fast you can't see or hear them. They have no sting and are totally harmless.

## **Do Bees Hibernate?**

Some do. Solitary bees tend to hibernate in their burrow or nest, which is another reason to keep those plant stalks up till spring – there may be a hibernating solitary bee fast asleep inside.

Honey bees congregate together for warmth in the hive taking turns to go on the outside so all are heated up. They will eat summer-stored honey supplies at this point.

Bumblebees tend to die off as the colder weather approaches, which is why we see them dead more often than others. The queen bumblebee will survive nestled away in soil. If you disturb a large bumbler digging your garden in winter just bow and leave it alone – it may well be a queen that's needed to start a new colony in spring.

## How Bees Help The Garden

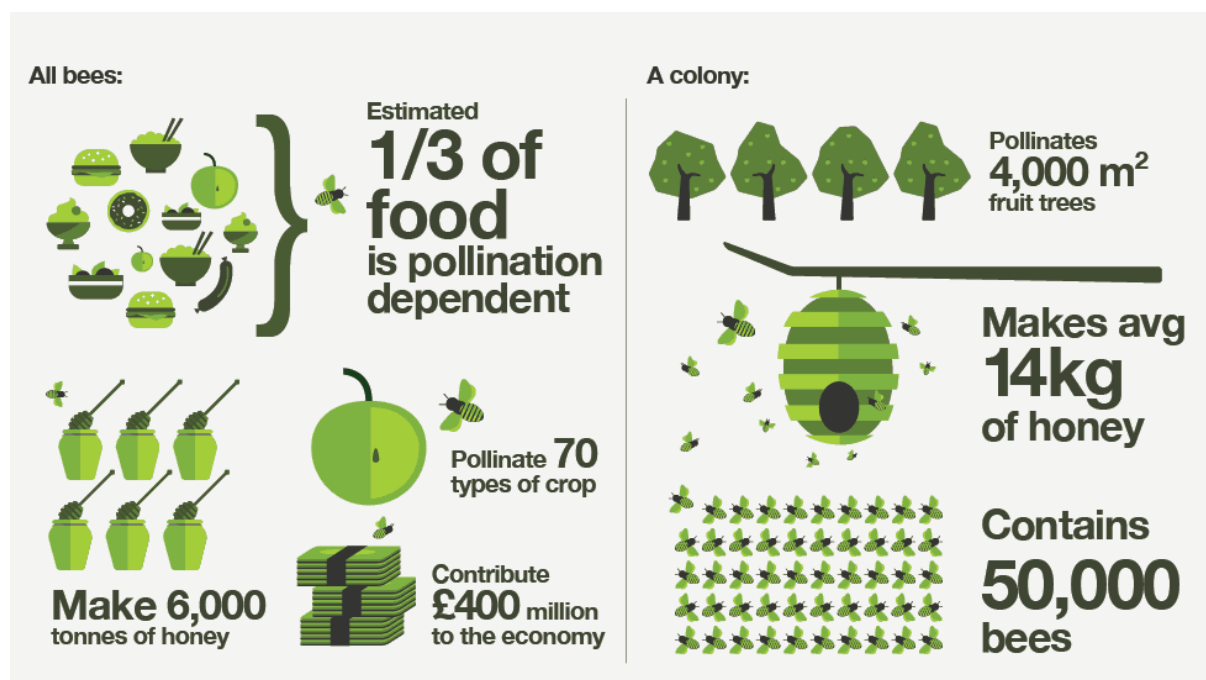


Image [source](#)

**Bees are an essential part of the food chain pollinating a third of our food supply.** 70 plants in the UK need bee pollination, and it is estimated bees are worth £400 million per year to the food production industry. Because they pollinate our plants we are in trouble without them.

Take your apple trees for example. You may have two pollinating partners, meaning two different types of apple tree that need cross pollination to produce apples. It's the bees (and other pollinators like butterflies and hoverflies) that carry out your pollination.

When they drink nectar from a flower the pollen sticks to bee feet and their hairy, fluffy bodies. Look close up at a bee drinking, it won't hurt you, and you'll see the pollen stuck to its body. Pollen will also float away as they move around on the bloom.

Plants and bees have co-evolved to help this process, which is why it's such a tragedy we are wiping out our bees – they deserve better.

Bees are also part of the food chain for birds and other predators. Breaking the natural food chain and lifecycles of our native creatures leads to environmental problems.

### What's The Waggle Dance?

In order to find the best pollen sources honey bees do a waggle dance. Yes, it's a silly name, but the man who discovered it won a Nobel Prize.

The waggle dance is a satnav for bees. A honeybee will return to the hive and perform the dance to indicate directions to good nectar sources. The basic routine is a figure of eight and a line. A long waggle means it's a far distance and their speed or angles indicate direction. They will release a scent to help with directions too.

## How Do Bees Make Honey and Beeswax?



Honey bees are the only bees that make wax and honey.

Honeybee tongues are long enough to reach inside a flower and sip out nectar. **Extracted nectar is kept in a 'honey stomach'** before they fly back to the nest to deliver their load.

Other bees in the hive take the nectar mouth to mouth and enzymes break down sugar to make it less runny. It's then put in those amazing hexagonal cells where bees fan it with their wings so it cools and solidifies.

Honeycombs are works of art made by female worker bees that only live for approximately six weeks. From ten days old bees are able to make from wax which emerges from wax glands beneath their abdomens.

Nectar stored in the honey stomach mixes with enzymes to produce flakes of wax, which they chew off to make mouldable, and add to the honeycomb. Honeycombs are made to house their young – it's a crèche, food storage area and the centre of the honeybee world.



## What is the Queen Bee?



Social bees do not believe in democracy, instead they are ruled by a queen bee.

There is only one queen in a hive – the other bees are drones and workers. The queen is responsible for laying eggs which turn into more workers, drones, and of course, the next queen.

Worker bees are always sterile females – they clean the queen and feed her so she can keep laying eggs. Drones are male bees that fertilise the queen.

**The queen eats honey and royal jelly all year round to keep up the protein levels required to lay 2000 eggs a day.** The queen bee is bigger, shiner and smoother than other bees and fairly easy to spot in the hive. **She can live 5-7 years**, but become less productive as she ages.

Without a queen the hive cannot work properly, so if she dies worker bees will immediately begin feeding female larvae large amounts of royal jelly so she develops into their new queen.

If you are wondering what royal jelly is – it's a secretion produced from the head of worker bees. All larvae eat some royal jelly, the drones and workers get about three days in the developing larval stages, but the new queen larvae feast on royal jelly until they are fully developed.

## 4 Things You Can Do to Help Bees

Bees are dying out and the main problem is how our environment is changing.

There are less wildflowers than ever before due to housing development and changes in farming practice, pesticides are a real problem and bee disease too.

You can help bees in numerous ways.

### 1. Grow some flowers

Pollen rich flowers are essential to bees. Grow open-headed flowers from early spring to late autumn because double flowers are too tight and difficult for bees to get inside. The best plants for our bees are native to the UK.

Some good choices are foxglove, comfrey, bluebell, knapweed, hellebore, witch hazel, honeysuckle, buddleia, sedum, lavender, fruit trees such as apple and pear, poppies, and hebe. Wildflowers are important too, in fact the rarer types of bee prefer wildflowers.

Don't forget vegetables. Bees will take nectar from broad bean and runner beans – any flowering veggie is attractive to them.

If you want to encourage [deeply purring bumblebees](#) choose deep flowers like foxgloves because only bumble bees have tongues long enough to reach inside them.

The RHS have a Perfect for Pollinator label which is worth looking out for, and they are conducting tests to see which flowers our pollinators prefer.

### 2. Don't use pesticides

Chemicals are a real problem for wildlife of all types. Chemical sprays used to kill aphids and greenfly also kill bees. If you must use them, do it at dusk when the bees have retired for the night. **A solution of citrus peel and water is often successful on aphids** and if you have lady birds these are voracious killers.

The chemical neonicotinoids (thiacloprid and acetamiprid) known as neonics are available at most garden centres and are thought to cause bees real problems.

On a wider scale chemicals used in farming practices cause widespread bee loss. There are studies and arguments over whether farming use of neonics are responsible for our bee loss.

### 3. Retain weeds

Bees love weeds! Dandelions in particular are adored by bumblebees and honeybees like clover flowers. Leave some for the bees by keeping a wild patch in your garden.

#### 4. A water source

Not many of us think about bees needing a drink, but they do get thirsty.

Bees drown in deep, cold water but a great way to help them is by putting out a terracotta saucer filled with pebbles and water. Pebbles give bees and butterflies something to sit on and drink in safety. Bee baths need filling regularly as hot sun can dry them out within a day.

#### How to Feed and House A Bee



Bee houses we've mentioned, but these do provide a safe place for solitary bees to nest.

Make one using a square frame filled with hollow bamboo canes or buy one from a garden centre or online. Whichever you choose needs to be set up correctly or you'll have a vacancy sign forever.

**Put your bee house in a south-facing position that isn't in direct sunlight.** It will need a roof so rain doesn't get in, and be fixed against a fence. Bee houses on a chain turn into wind tunnels, and no-one appreciates a draft on their back, not least bees.

You can leave long stalks, dry flower borders and dead wood around for other types of bee.

Alongside growing more flowers you can feed bees a sugar solution. Mix a half and half mixture of water with granulated sugar and pop it in your bee bath or in a saucer. Bees will alight for an energy filled drink.

#### When To Rescue A Bee

Don't be scared 😊 **Bees are not aggressive creatures**, they do sting when hurt, but this leads to their death so it's a last resort. A bee will walk over your hands and arms without stinging you, but whacking it, screaming and infecting children with panic does no-one any favours.

If you don't want the bee on you (really you should be honoured) put your body part against flowers or greenery and it will walk away. **And that buzz that so terrifies people? It's just their wings vibrating in the wind.** When scared bees flap them more it's to try and scare away predators.

If you do get stung put an ice pack over the area and it'll go off. Interestingly, beekeepers rarely get arthritis and studies are revealing bee venom may be an effective treatment against rheumatism and forms of arthritis.

A bee in water is in desperate trouble. If there are no sides to climb out, like a paddling pool bird bath or steep-sided pond, they will struggle, freeze and drown. It's a sad sight to see a fluffy bumbler dead in cold water. There is no excuse – help them out and put them in a sunny position away from predators to warm up. With a teaspoon of sugar water they should be fine after ten minutes of peace.

Bees often cling to your washing line on sunny days with chilly evenings or if there's a cold breeze. Check your washing as you take it down for bees, ladybirds, butterflies and moths who love the warm safety of a duvet cover or even your socks!

Put them somewhere sheltered and give them that teaspoon of sugary water