



National Bee Unit

Bumblebees

There are 24 species of bumblebee in the UK. Bumblebees look quite different from honeybees and solitary bees. The most reliable difference is that bumblebees are usually larger, and are always covered with dense and fluffy hair. This fact sheet seeks to offer some insight into the insect.

How can I identify species?

Native or common bumblebees have tails that are white, red, buff or brown. As the bee gets older, some colours may fade, so 'red' tails may begin to appear buff or orange in late summer. There can be variation in the number, colour and position of bands, depending on the species of bumblebee, but a typical pattern consists of two yellow bands: one on the thorax, and one on the abdomen. The hair on the bumblebee's head is black. If unsure, check the coloured bandings particularly tail and thorax with a field guide.

What is the bumblebee life cycle?

Spring: newly emerged queens can be observed flying along hedgerow banks diving into the undergrowth to find holes in which to establish a nest. They overwinter alone, living on fat deposits accumulated from the previous autumn. Some species such as common pasture *B. pascuorum*, nest in piles of dense leaves or grass. Whilst searching for a nest site, queens will feed themselves up on nectar and pollen, to develop their ovaries. Once a nest site has been selected, the queen will form a mound of pollen and wax (which she secretes from her body) and lays her first eggs. She also collects nectar which she stores in a pot-shaped structure made of wax which is positioned in front of her mound. The queen keeps the eggs warm by sitting on her wax 'nest' and shivering her muscles to keep warm, sipping from the nectar-pot to give her enough energy to incubate the eggs for several days until little white grub-like larvae emerge. These larvae are fed on pollen and nectar which the queen goes back-and-forth to collect from nearby flowers. Once they have eaten enough, after around two weeks, they spin a cocoon, inside which they develop into adult bees.

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Early Summer: This first brood of workers then sets about foraging for nectar and pollen, making wax and generally assisting the queen in developing the nest. Cycles of brood continue building the colony up to hundreds of bees depending on the species. Some workers will guard or clean the nest, while others will forage for pollen and nectar from flowers. Some of the nectar will be consumed by the working bees, but much of it will be brought back to the colony to feed to other workers and the next batch of offspring. From this point on, the queen will not leave the nest and will remain inside, laying more eggs.

Late Summer: drones (males) and queens are developed. Drones are developed from unfertilised eggs. After development they leave the nest and spend their time feeding on nectar and trying to mate. Once mated, new queens feed heavily on pollen and nectar, storing the energy as fat inside their bodies. This fat will be used to provide energy during hibernation. The old queen and her nest will naturally come to an end as summer turns in to autumn. Only the new queens survive until the following spring, by hibernating underground.

B. *Psithyrus*: aka 'cuckoo' or parasitic bee enters a nest of the true bumblebee in spring and often hides in the nest debris for a period of time. Eventually, the cuckoo female kills the social bumblebee queen, and lays her own eggs. The workers of the social bee unwittingly raise the cuckoo offspring as their own to adulthood where the cuckoo bee then leaves the nest to mate with others of the same species, before the females go into hibernation. *Psithyrus* will emerge the following spring, a little later than their host species, to enable the latter to develop a colony. The timing of invasion is crucial. If they emerge too soon then the colony will not be large enough to care for the *Psithyrus* young and if too late then the colony can effectively defend itself and kill the invader.

Are bumblebees at risk?

Some pest controllers or local councils believe bumblebees are listed as an endangered species; this is not currently correct. However, there has been a dramatic decline in bumblebee populations and it is generally accepted that changing agricultural practice particularly accelerated during the Second World War and continued by the Common Agricultural Policy has caused this.

Bumblebee mites

Some bumblebees may be covered in tiny red mites. These mites are *Parasitellus fucorum* and cling to the bumblebee for transport to new nests. When in the nest, the mites usually feed upon the wax, pollen, nest debris, and other small insects, not on bees. However, the mites may present a problem if an individual bumblebee becomes so heavily infested that it is unable to fly because of the weight of mites.

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