Animal & Plant Health Agency

National Bee Unit

Wild bees in the UK

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In the UK, there are approximately 270 species of wild bees, but only one species of managed honey bee. Bees are a diverse group of insects and a lifetime can be spent in their study. Unfortunately, some British species are declining in numbers and a some are now extinct. This fact sheet provides a broad overview of wild bees in the UK and provides suggestions on how to help them. Supporting these creatures and understanding their activities can add to our enjoyment of our surroundings.

Wild bees

In the UK, there are around 270 species of wild bee (24 species of bumble bee and 243 species of solitary bee) that are divided into six different families (groupings based on relatedness), according to the Bees, Wasps & Ants Recording Society (BWARS)[1]. These include four families of short-tongued bees; Colletidae, Andrenidae, Halictidae, Mellitidae, and two long-tongued species; Megachilidae and Apidae. Within these families, bee species are diverse in their appearance, seasonal lifecycle timings and nesting habits.

Figure 1. A bumble bee (left) and a wool carder bee (right)

[1] Falk, S. (2015) Field guide to the bees of Great Britain and Ireland. British Wildlife Publishing, Bloomsbury Publishing Plc, London, UK.

Some wild bee species are experiencing declines in the UK. Using biological records from the BWARS, a recent study analysed species-level trends between 1980 and 2019; they found that a third of species have decreased in that time, the situation was especially bad for solitary bees that had decreased by 32%[2]. This matters to everyone as pollination is of fundamental importance to the planet and most critically, the functioning and survival of ecosystems. A vast and diverse array of creatures provide pollination services, even if you concentrate only on supporting wild bees, you will almost certainly support other pollinators and the insects, birds and mammals that feed on them.

Appearance

Differentiating between bee species can be challenging and requires skill and knowledge. Some groups are more easy to identify, for example, bumblebees with their characteristic stocky, furry bodies. Other insects may be confused with other taxonomic groups; for example many species of Nomad bees (Apidae) have a wasp-like appearance. More confusing still, many non-bee species look like bees. The best way to learn the difference is to start with a few common bees using the information provided by the Bumble Bee Conservation Trust: [Beginners - Bumblebee Conservation Trust] and then with a field guide that contains colour plates (detailed drawings) and provides an identification key with instructions on how to use it. It is easier to start with a small book that concentrates on UK species.

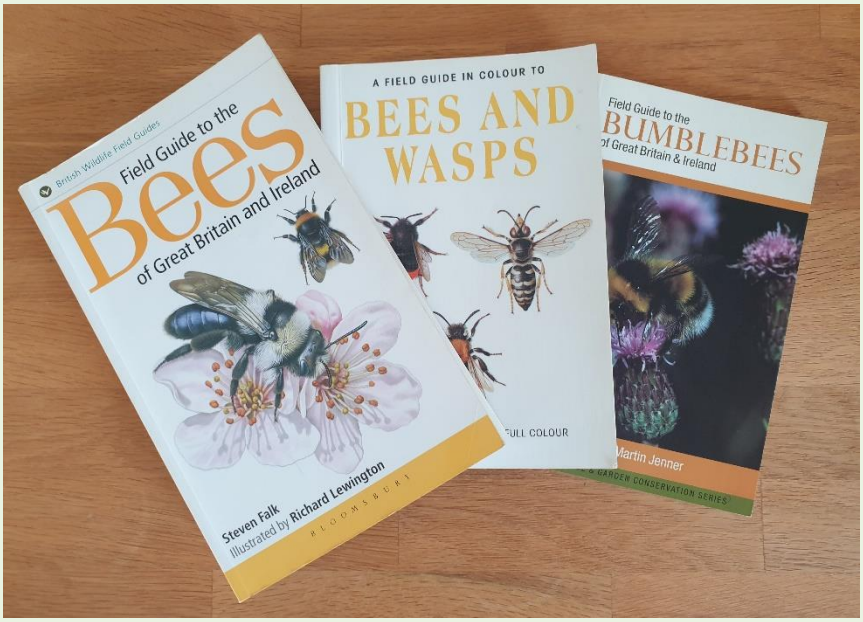

Figure 2: A small selection of colour field guides to help identify wild bees in the UK

[2] Powney, G.D., Carvell, C., Edwards, M., *et al.* (2019) Widespread losses of pollinating insects in Britain. Nature Communications, 10. DOI: [doi.org/10.1038/s41467-019-08974-9]

Life cycle

Wild bees have a seasonal life cycle because they depend on flowering plants to feed themselves. They usually go into a state of dormancy in a safe, protected place during the winter. The only exception to this is the bumble bee, *Bombus terrestris* (the buff-tailed bumblebee), which may be seen foraging in winter in warm, urban areas where winter-flowering shrubs provide forage. Some bees emerge early in the spring and can be seen foraging as early as February and March in warm parts of the country, while others emerge later to take advantage of the abundant floral resources available later in the year. Some wild bee species will continue to forage into autumn, perhaps into October but seldom later[1].

Nesting

Wild bees have a wide variety of nesting habits. Some bees, for example mining bees (genus: Andrena) or plasterer bees (genus: Colletes), tend to nest in small aggregations in light soils or sand. Mason bees (genus: Osmia) often nest in tunnels in wood or in hollow stems, partitioning brood cells by making a mastic out of mud, leaves or petals. Leafcutter bees (genus: Megachile) cut out sections of leaves or petals and carry them back to their nest which may be sited in wood, hollow stems or various artificial cavities including bee hotels. Some bumble bee species nest underground or in cavities, for example, in unused rodent nests; others such as *Bombus hyponorum*, will nest above ground, in holes in trees and bird boxes. Carder bumble bees tend to nest in rough grassy tussocks, or the plant debris caught along stock fences. There are also ‘cuckoo’ species which exploit the nests of other bee species to rear their offspring.

What to do if bees are nesting in your garden or home

As many bee species are experiencing serious declines and some species have become extinct in the UK, we strongly urge anyone with a nest of wild bees in their garden to leave them there and support them if they can. Most wild bee species are very unlikely to become aggressive and usually only sting if trapped. If possible, isolate the small section of the garden where the nest is, especially if the nest is accessible to pets or children, and try to avoid disturbing it. Something as simple as placing a potted plant between an exit hole and a garden path can divert the bees’ flight path out of the way.

Please do not try to relocate nesting wild bees, they will not be there for long and they are likely to have completed their breeding activities by the autumn. While honey bee swarms or hives can be easily relocated, the same is not true for wild bee species; moving their nests may result in their death.

Some wild bees, such as red mason bees, may be seen nesting in cavities in brick work. They do not cause any damage to the structure of the building as they use pre-existing holes in the brick work to lay their eggs. Occasionally they may expand existing holes so, if you have specific concerns and delicate brickwork, seal the crevices in mortar joints and

bricks in autumn when bee activity has ceased. If you do this, consider replacing their lost nesting site with a new ‘bee hotel’

If honey bees set up their nest in a building, they may become a serious nuisance. There are specialist companies that can relocate them without harming them. They will be able to provide advice on how to prevent future honey bee swarms from nesting in the building. For more information on honey bees, please read our fact sheet on honey bees in the UK.

If you are concerned about insects that you cannot identify nesting near you, take a photograph of one of them to use when asking an expert for advice.

How to help wild bees

In the garden

Habitat loss is a serious problem for wild bees. The UK experienced a harsh decline in wildflower meadows during the 20th century[3]. One of the best things you can do for wild bees is to ensure ample, year-round forage for them. This means planting a variety of flowering plants that flower across the year and provide forage for different bee species. Some plants are nectar-rich, while other plants are pollen-rich and bees need a supply of both pollen and nectar to thrive. Although this is a long-term commitment, just a small patch of flowers in a sunny location can provide a meal for bees that would otherwise go without. Most garden centres have seeds labelled as ‘good for pollinators’ and a walk round the plants there on a sunny day enables you to see which plants the bees are visiting.

Figure 3: A variety of flowering plants will attract wild bees and other pollinators into the garden

[3] Plantlife International (2023) Review of trends in grasslands across the UK. https://www.plantlife.org.uk/wp-content/uploads/2023/07/Plantlife-report-1-Status-Trends-and-Definitions-of-UK-Grasslands.pdf

If you have a section of lawn, consider managing it to support wildlife. There are over 23 million gardens in the UK[4], which represent a vast potential for helping wildlife. Strategies such as 'no mow May' or 'no mow Summer' are designed to support the establishment of wild flowers in lawns; wild flowers do not thrive with regular mowing. For more advice on making a lawn more wildlife friendly, please see this Plantlife guide on how to make a nature friendly lawn. A 2022 study found that volunteer citizen scientists who planted mini wild flower meadows in their gardens of only 4 m^2 in area had approximately double the number of bumble bees and solitary bees by the following year[5]; a clear demonstration that a small patch of wild flowers can make a measurable difference.

Although wild flowers represent an excellent mixed floral resource, they are seasonal. Early spring and autumn are precarious times for wild bees so incorporating early and late flowering plants into your garden can provide a much-needed meal during a difficult time. There are some excellent resources to help with planting to support bees. For a trusted source of the best bee-friendly flowering plants, the Royal Horticultural Society has produced a variety of information sheets on the best plants for pollinators. To get the best out of your plants, here are a few tips:

- Plant species that will flower in succession throughout the year
- Plant in a sunny location; bees are less likely to visit flowers in shade
- Plant in groups; it is more economical for the bees to visit a large group of flowers rather than searching through isolated patches
- Avoid suddenly mowing or cutting down all the flowers, pollinators that have learned to visit those flowers are suddenly stranded and have to search for new resources
- Do not cut the ivy; it is an important source of pollen and nectar in autumn
- Consider the vertical spaces in your garden, use hedges and fences to support flowering plants and even a small flowering tree can provide forage
- Avoid pesticides; some pesticides can harm bees in tiny amounts
- Learn to identify the yellow-legged hornet, an invasive species that threatens native insects; learn more on our yellow-legged hornet webpage

Habitat

If you would like to provide a habitat for solitary bees, you can make a 'bee hotel', which provides ideal nesting sites for solitary bees, if they are placed in sunny locations. They are easy to make very cheaply; BWARS produce an information sheet detailing how to construct and maintain bee hotels. Bee hotels can be purchased but be aware that some may not have an ideal design. If the bamboo canes are too short or narrow, it can affect the sex ratio of the offspring; the optimal length of bamboo/hollow canes is 15 cm, with a diameter of 7 to 8 mm (the width of a pencil) to encourage solitary bees[6]. Active bee

[4] Data from Plantlife UK. www.plantlife.org.uk
[5] Griffiths-Lee, J., Nicholls, E. and Goulson, D. (2022) Sown mini-meadows increase pollinator diversity in gardens. Journal of Insect Conservation, 26. DOI: doi.org/10.1007/s10841-022-00387-2
[6] Kirk, W.D.J. and Howes, F.N. (2012) Plants for bees: A guide to the plants that benefit the bees of the British Isles. International Bee Research Association, Cardiff, UK.

hotels are a great way to interest people in nature, they are very safe and involve far less work than honey bee colonies in hives.

Try to avoid an overly tidy garden, piles of dead wood, dead hollow twigs and even empty snail shells left on a sunny patch of ground provide valuable habitat for pollinator nesting or hibernation.

Figure 4: Various designs of solitary bee hotels have been used in this garden (left) and some of the spaces are occupied with wild bees (right)

Monitoring

Planting may not be a viable option for everyone, but there are other ways to support pollinators. For example, taking part in recording activities helps provide data to make a change. The paper cited at the beginning of this fact sheet [2] used data from BWARS to model the trends in species abundance. BWARS have a website for submitting records of sightings of bees and other Hymenoptera, while the Bumblebee Conservation Trust have a variety of schemes for monitoring bumble bee populations. Smart phones enable us to take high quality photos and access identification software and recording sites.

Between April and September, the UK Pollinator Monitoring Scheme (POMS) runs a survey called the FIT (Flower-Insect Timed) counts where volunteers watch a patch of flowering plants for 10 to 15 minutes and count the insects that land on flowers. This scheme is suitable for those who are less confident in their ability to identify bee species as insects are recorded into broad groups, such as ‘bumble bee’ or ‘solitary bee’. For more information, visit the UK POMS page on fit counts.

The pollinator monitoring guide, produced by the CEH, provides ideas for community led projects for pollinator monitoring and details on current pollinator monitoring projects that individuals can get involved with.

Monitoring wild bee species is a valuable activity and the more people who monitor (even just the most common species), the better quality the data set will be. Learning more about diversity and abundance of wild bees can help focus conservation efforts and the data

generated from monitoring activities is used to shape new government policies. On top of that, a new interest can add a new dimension and enjoyment to our lives.

Further information

If you would like to know more information regarding wild bees, please visit The Bees, Wasps and Ants Recording Society website.

More information on bumblebees can be found at the website of the Bumblebee Conservation trust.

Learn more about the UK Pollinator Monitoring Scheme at https://ukpoms.org.uk/.

Figure 5: A red mason bee (*Osmia bicornis)* is using a bee hotel

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