

... *where is thy sting?*' (Cor. 15:55)

In the insect world, bees and wasps are very close relatives. They have four wings and a sting, and (together with ants) are collectively known as the aculeate Hymenoptera. Everyone is very aware of the **social** 'aculeates' as they form colonies and can be a painful nuisance. They include the common wasps, hornets, honeybees, bumblebees and ants. However, less well known are the **solitary** bees and wasps: even though a great many of them visit our gardens. This is because they go about their business solitarily and without bothering (or stinging) anyone.

Diversity

There are very many more species of bee and wasp to be seen in the countryside and in our gardens, than most people realise. In total, there are about 570 species of bee and wasp in Britain (mostly solitary), and amazingly well over a third of these have been recorded around Shotover over the last century.

It is the sandy soil and wild flora that attracts such a good diversity of species, and this is the reason why Shotover and many of the region's old pits and quarries are excellent places for bees and wasps.



Black Borer Wasp
Trypoxylon figulus, ♀ (6-10mm)

100 years of records

In the early years of the 20th century Oxford University Entomology department worked extensively on Shotover Hill and there are many insect specimens from Shotover stored at both the Oxford and London Natural History Museums. This early work is summarized in the Victoria County History of Oxfordshire (1939), and has been the inspiration for many subsequent studies. In the 1980s several eminent entomologists visited Shotover to record bees and wasps, and in recent years, members of *Shotover Wildlife* have worked towards a comprehensive appreciation of just how special the hill's aculeate Hymenoptera are.

Bees and Wasps on Shotover

By 1939, about 140 species had been recorded on Shotover, yet about a third of these have not been seen in recent years. This result can mostly be explained by the overall changes of habitat from grass pasture to a mixture of woodland and mown grass. In addition, some species that are now rare in Britain may have been more common in the 1930s: the countryside being so very different now, from how it was then. Perhaps more surprising is the number of new species (about 80) that have been added to the Shotover list by our recent work. Notwithstanding the northward movement of some species over recent years, habitat change may also account for new arrivals. Our analysis so far indicates an increase in the species that prefer scrub woodland, and a decrease in soil nesting species.

BEE *S* & *W* *ASPS*
Shotover Wildlife

Rarities

More than 10% of the bees and wasps recently recorded on Shotover are *officially* listed as scarce or rare in Britain. However, the status of some species can change quite quickly. For



Yellow-legged Mining Bee
Andrena flavipes, ♀ (10-13mm)

example, in 2001 we found a 'rare' species of wasp (with the wonderful name, The Bee Wolf), which in 1990 was only known from a few places on the south coast of Britain. Our 2001 record was only the second sighting in Oxfordshire, after which it was seen on Shotover every year for five years. Now it appears to be scarce once more, with no records in the county for many years.

Some rare species are only found in particular places such as dry dead trees with beetle holes, or the cracks in dry clay. Others must have pollen from only one family or species of plant, for example, from willow trees. Shotover also has many bees that need other species of bee to prey on, and these tend to be rather rare. We have the rare bee *Epeolus cruciger*, that needs the scarce bee *Colletes succinctus* which will only take its pollen from heather!

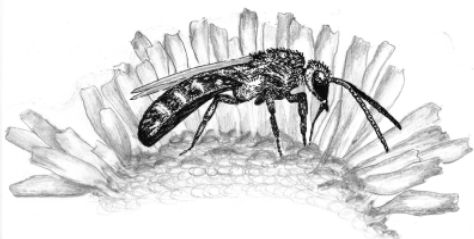
Clearly, Shotover is still an important area for aculeates, and now that Shotover Wildlife has added many more records from across the county, the importance of Shotover for bees and wasps

becomes much clearer. Most other good quality sites in Oxfordshire are post-industrial; such as quarries and railway cuttings, however Shotover is a much more natural site and supports a number of species that are seldom seen anywhere else in the county.

So where are these bees and wasps?

For **wasps**, the best time to look is on a hot sunny day in July or August; 2-3 hours either side of midday. Most **bees** are not so fussy about such hot weather, and some begin to emerge much earlier in the year (April).

Solitary bees can look like small honeybees or large flying ants. They are usually quite hairy, and can be seen most easily on sun-lit dandelion-like flowers. They can be recognised by their distinct antennae, and a 'waist' between the two main parts of the body. Unlike many flies, its wings will be folded flat along its back.



The best place to see a **solitary wasp** is around the tiny holes and mounds of soil that appear on sandy paths on the Hill. If you wait a while, a wasp (often beautifully shiny black and yellow) will arrive, search for a while, and then disappear down its hole

... and she won't bother to sting you!

Talks and courses on bees available from Ivan Wright

Shotover is a sandy hill east of Oxford with habitats ranging from heath and ancient woodland, to pasture and hay meadows. On the southern slopes is Brasenose Wood and Shotover Hill Site of Special Scientific Interest (SSSI). The SSSI status is because of the fine mosaic of interacting natural habitats and the diversity of associated wildlife.

The diversity of habitats is particularly important for mobile species such as insects, which can move around to find their optimum niche. Research by members of *Shotover Wildlife* is accumulating knowledge on those aspects of Shotover that are of value for the many insect types as well as other species groups such as birds, reptiles, mammals and the flora.

Shotover Wildlife is a voluntary organisation founded to research and communicate the importance of Shotover Hill for wildlife

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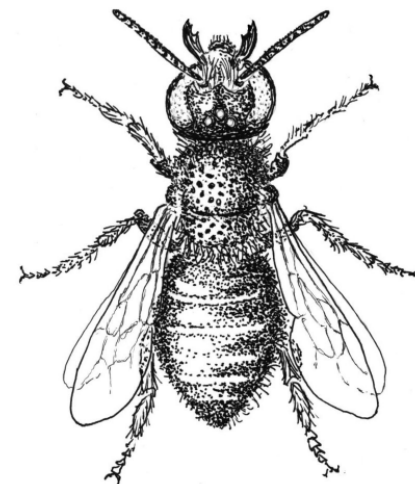
Related leaflet titles:

Heathland	Habitats
Geology	Ants
Yellow Trail	Red Trail

Cover: A Leaf-cutter Bee (*Megachile* sp.)
Illustrations: Jacqueline Wright
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BEES AND WASPS

on SHOTOVER



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Shotover Wildlife

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Measuring scale in centimetres