

Visitors to garden flowers – *Scabious* sp. (*Scabiosa*)

Visitors to garden flowers are mostly but not exclusively insects. They visit to exploit the rewards of pollen or nectar being offered by the flower, to prey on other visitors, or in a few very special cases because they have been duped by the plant with sexual attractants.

Flowers advertise their potential for rewards with colour displays, chemical attractants (scents) and by providing landing pads. The structure of flowers can determine the specific types of pollinator they attract; for example, tubular flowers offer rewards that can only be accessed by insects with long mouthparts like butterflies. That said, these plants can still be robbed by insects that have learnt to bite through the sides of the tubes and so avoid pollinating the flower. Many garden plants have been selectively bred to provide attractiveness to human senses, often at the expense of providing rewards to pollinators; thus double flowers are often more attractive to us than single ones, but are inaccessible to most insects who cannot access their pollen or nectar due to the over abundance of petals. Selective breeding of garden flowers can also often result in the loss of scent, so they no longer attract many insects.



Scabious flower being exploited by two buff-tailed bumblebees.

The name *scabious* is used for several cottage-garden style plants that flourish best in full sunlight on well drained soils. In our garden the soil is clay and much of it is partially shaded, however our lilac coloured *Scabiosa*

species has not read the books and still flourishes. It blooms from early May through to September. The flower is a pin-cushion type of structure made up of numerous florets held on long rather flexible stalks. It flowers continuously if regularly deadheaded, although this reduces the eventual seed production. The flowers are unscented hence do not attract night-flying insects, but during the day it is visited by a rich assortment of insects including bees (Hymenoptera), flies (Diptera), butterflies (Lepidoptera), a few beetles (Coleoptera) as well as some spiders (Arachnids). Surprisingly it is seldom listed as a plant that is pollinator friendly.

The visitors

Hymenoptera – the bees and their relatives

Most people regard the most important pollinator as being the honey bee (*Apis mellifera*). Honey bees forage up to 3 miles from their hive but the distances they fly



vary according to availability of food sources, the needs of the hive and the weather conditions. Relatively few honey bees visit our garden in early spring, but their numbers peak as the *Scabious* starts to bloom in early summer. They collect both nectar and pollen from the *Scabious*. The pollen is packed into the pollen

baskets on the hind legs and you can see them hovering over the flowers tamping the pollen into their baskets. Note that none of the solitary bees have pollen baskets, and only some bumblebees have them.



The chocolate mining bee (*Andrena scotica*) is one of the most common and widespread species of mining bee seen in gardens. It is much the same size as a honey bee and emerges in mid-June and is still about into August. Males are the first to hatch and they hang around and mob the first females to emerge. Although it is a solitary bee, they tend to nest

together, and in our garden they nest in cracks in the concreted path outside our kitchen. Most mining bee species are similar in appearance and are quite difficult to identify accurately from photographs. However, their nests are invaded by *Nomada*



species - cleptoparasitic bees, which are easier to identify than their hosts. I have seen these bees on many of our garden flowers but not on *Scabious*, so I am including a photograph of *Nomada marshalli*.



Dark bees (*Stelis* sp.) are nest parasites (cleptoparasitic) mainly of leafcutter bees. This is the banded dark bee, *Stelis punctulatissima*, which is the UK's largest *Stelis* species. It is a cleptoparasite of the wool carder bee *Anthidium manicatum*, but I am yet spot this species in the garden, although it is a cleptoparasite itself of - *Osmia* species, which are the common

occupants of our bee hotels. This *Stelis* species is common particularly in gardens, from mid-June until late August.



Leafcutter bees are common inhabitants of bee hotels, but also nest in holes in wood and walls. They cut semicircular holes in the leaves or petals of plants and use these segments to line the walls of their nest holes and eventually plug the entrance. The under surface of their abdomen is lined with hairs used to carry pollen, and they often arch the abdomen up while they are

collecting the pollen. This species is the patchwork leafcutter (*Megachile centuncularis*) which has an orange pollen brush which forms a halo around the abdomen and extends to the tip of the abdomen.



This is a brown-footed leaf cutter bee (*Megachile versicolor*) which is similar to the previous species but is distinguished by the hairs of the pollen brush being blackish towards the tip of the abdomen. It is another common leafcutter in Southeast England.



The common carder bee (*Bombus pascuorum*) is the most common and widespread of the brownish bumblebees in Britain. Its queens first appear in late March and the workers towards the end of April. They continue to be one of the commoner bumblebees until mid-October. They usually nest above ground in thick tussocky vegetation. It hosts the cleptoparasitic cuckoo bumblebee *Bombus campestris*.



The buff-tailed bumblebee (*Bombus terrestris*) is the commonest large bumblebee in our garden. Having two bees on one flower indicates they are from the same colony. Queens start to occur towards the end of February and a second brood of queens can still be around in October. They nest underground using old rodent holes.



The early bumblebee (*Bombus pratorum*) is smaller than the buff-tailed and despite its common name occurs later in March. It, too, often nests underground in old rodent holes, but also uses old birds' nests. It has a brighter, broader yellow collar both behind the head and on the abdomen than the buff-tailed, and the tail has a reddish fringe.



The red-tailed bumblebee (*Bombus lapidarius*) is the largest and the most common of the red-tailed bumblebees. It has a pollen basket on the tibia of the hind legs. It is the host species of the red-tailed cuckoo bee, which is very similar in appearance, but lacks pollen baskets and the yellow band on the head.



Vestal cuckoo bee (*Bombus vestalis*) is also known as the southern cuckoo bee. It is a social parasite of the buff-tailed bumblebee, and like all cuckoo bees lacks pollen baskets on the hind limbs; they do not have to collect pollen, because their larvae are fed by their hosts. Any bumblebee carrying pollen in a pollen

basket cannot be a cuckoo bee. This cuckoo bee occurs from late March through to September.



Tree bumblebee (*Bombus hypnorum*) is one of the most recent species to be added to the inventory of British fauna. It was first recorded in Wiltshire in 2001 and has since spread rapidly throughout most of England and much of Wales, occupying both urban and rural habitats. It nests in aerial locations including bird nest-boxes, the eaves of houses, as well

as more natural locations like tree holes. Its ginger thorax and dark abdomen makes it one of the easiest bumblebees to identify.



An unidentified ichneumonid wasp – there are about 2300 species of ichneumon wasps in Britain but very few experts who are capable of identifying them. They are all parasitic; many have long ovipositors which are used to insert their eggs into the bodies of their insect hosts and their larvae develop as internal parasitoids. Adults of many species feed on nectar

and some are very colourful.

Diptera – the flies

Diptera have only a single pair of wings that are used for flying, the hind pair of wings have been modified into dumb-bell shaped structures called halteres. If the halteres are removed the fly loses all control of its flight; they must provide the feedback needed for flight control. There is a vast and complex diversity of flies, which a diversity that is matched by their range of ecological roles. The majority of the Diptera that visit

the *Scabious* are important as pollinators but they have a range of other important ecological functions.



A pair of bee-grabbers (*Sicus ferruginous*) belong to a rather bizarre family of thick-headed flies (conopids). The male may not be actually mating with the female in this photo, but instead mate-guarding - ensuring that all her offspring are his. These flies are most commonly seen on knapweeds and ragwort which they visit to feed on nectar and to

await visiting bumblebees. All the species in the family are parasitoids of bees; *Sicus* is a parasitoid of a wide range of bumblebees. The female fly jumps a bumblebee and prises apart the sclerites of the abdomen and lays an egg inside the bee's abdomen. Larval development is rapid (10-12 days) and results in the death of the host outside the nest.

Hoverflies

These are flies which belong to the dipteran family Syrphidae. Like so many dipteran families they are defined by a characteristic of their wing venation (the arrangement, number and position of veins in their wings) – the presence of a vena spuria and cross veins that form a false margin to the wing. However, many of the numerous common garden species can be recognised by their behaviors and coloration. The majority are very welcome in the garden not only because their larvae prey on aphids but also because they are excellent pollinators.



The great pied hoverfly (*Volucella pellucens*) is one of the most readily recognisable hoverflies that occur throughout Britain visiting flowers in all types of habitat, including gardens in mid-summer. Its larvae are scavengers in the nests of social wasps, so the adults are particularly common following years of high wasp abundances.



Volucella inanis is the smaller of two wasp-mimicking members of the genus. Note that all three bands on the abdomen are yellow. It is found associated with the german and common wasps and hornets. Its larvae predate the wasp larvae in the nests. This hoverfly is being introduced into New Zealand to control the introduced wasp species that are proving to be a significant

problem to bee-keeping. In Britain it was once quite uncommon and restricted to the south but citizen science has shown that its range has been extending northwards.



Another *Volucella* species (*V. bombylans*) is a bumblebee mimic that has two colour forms. The form photographed here is the less frequent one, which mimicks the garden and heath bumblebees that are its main hosts, although its larvae are also found in wasp nests. It occurs from May to September but is most abundant in June.



Criorhina berberina is another bumblebee mimic that occurs in two colour forms. It is the commonest of all *Criorhina* species although it is not a common species. It occurs from April to September and peaks in abundance in June. Its larvae occur in the rotting heartwood of a variety of trees, so it is a species occurring in woodland.



Criorhina floccosa is more often found outside woodland, although it still uses water-logged holes in the bases of trees especially pollards of ash trees. It is likely that in the long-term, ash die-back disease will have an impact on its abundance. It is a mimic of the common carder bee *Bombus pascuorum*, but no ecological relationship with it has been described.



Eristalis intricarius is the only furry member of the genus commonly called drone flies. They all breed in organically rich ditches and puddles and have larvae known as rat-tailed maggots which have long telescopic tails which enable them to reach up above the water surface and hence survive in unsavoury, highly polluted waters. Careful examination of species is likely to show that this species is unexpectedly abundant.



Eristalis nemorum is one of the slightly smaller more brightly coloured species that can confidently be identified by the behaviour of the males, which hover over females. It is a species that is most abundant in mid-summer and is common throughout Britain. Like all *Eristalis* species it has rat-tailed larvae.



Callicera aurata is an uncommon hoverfly that is recognisable by its long white-tipped antennae and flies between June and August. Its larvae live in water-filled tree holes mostly in beech or birch trees at least 18m above ground. There are few records of it visiting flowers – mostly hawthorn, ivy and umbellifers, further records of what it visits will be important.



The marmalade hoverfly *Episyrphus balteatus* is probably the most distinctive and abundant hoverfly in the UK. It is most abundant in July and August, but can be seen in all months of the year, even on mild days in mid-Winter. In summer its numbers can be substantially boosted by migrations from Europe. Its larvae are predators of aphids and they play an important function in limiting their populations.



Helophilus pendulus is known as the footballer hoverfly and you will certainly have it in your garden if you have a pond, but it does wander well away from wet habitats, and can often be seen sunning itself. There are also several other very similar species which are quite difficult to distinguish. It is common and widespread throughout the UK. Its larvae occur in

muddy waters, including farm yard drains and manure.



Rhingia rostrata is one of two highly characteristic species because of the unusual snout on its head. The two species are quite difficult to separate, and in most areas the commonest species is *Rhingia campestris*, commonly known as the heineken fly. It breeds in cow pats, but in our immediate area there are no cows, hence the local *Rhingia* are *R. rostrata*; a

species that was once restricted to Wales but has undergone a major range expansion. It is associated with semi-natural woodland, and it has been suggested it may breed in badger latrines, which must occur commonly in our local woodlands.



Scaeva pyrastris is a species that occurs throughout the UK. It has white comma shaped dots on its abdomen, whereas a less common species has yellow comma dots. Its larvae feed on ground-layer aphids, but the majority of the adults found in the UK are migrants and so its abundance can undergo broad annual fluctuations.



Syrphus ribesii is one of the most familiar hoverflies in gardens and other habitats. Its hind femur is entirely yellow which distinguishes it from its closely related species. It occurs throughout the UK from early spring through to the autumn. Distinguishing this species from its congeners is far from easy. All the *Syrphus* species have larvae that eat aphids.



The bumblebee mimic *Merodon equestris* is very variable but can be distinguished by the hook on the end of the femora of the hind legs that can just be seen in the picture. Its colouration varies according to the bee that it is mimicing. Its larvae live in the bulbs of spring flowers and it is thought to have been introduced to this country in tulip bulbs imported from Europe at the end

of the 19th century. It occurs from April to September, peaking in late May / early June.

Tachinid flies seem to be unexpectedly infrequent visitors to scabious, but I wonder if this is due to my oversight. They tend to have bristly abdomens and they parasitise other insects especially the larvae of moths and butterflies.



The tachinid fly *Nowickia ferox* is a parasite of moth caterpillars especially the Dark Arches moth. It is common in gardens from May until September. It is a southern species confined to south of the Wash.



Dance fly *Empis tessellata* is a large predatory fly that uses its long proboscis both to suck nectar from flowers and the haemolymph (blood) of its insect prey. Curiously the female will only mate with a male after he has presented her with a dead insect. They are common in woodland and wetlands and their larvae live in soil and rotten wood.

Lepidoptera - butterflies and moths



The caterpillars of the Comma butterfly *Polygonia c-album* used to feed on hop, which was grown extensively in our area for brewing beer. With the collapse of commercial hop growing here and elsewhere it became a rare species, but then made a dramatic postwar recovery. The reasons for this recovery are still debated, but may be linked to climate

amelioration and its switching its larval food plant from hop to common nettle.



The Peacock butterfly *Aglais io* is one of the easiest species to recognise and is widespread in Surrey, occurring even in urban areas. Its undersides are grey-black so that if it settles with its wings closed it almost disappears. It hibernates and will emerge on mild days in winter when there are few nectar sources available. The caterpillars feed communally in silken tents and emerge in late summer.



The Holly Blue butterfly *Celastrina argiolus* has two generations a year. It is not a common visitor to scabious, maybe because its peak flowering occurs between the two generations. Its caterpillars feed on holly and ivy. The abundance of the adults fluctuates widely from year to year. These fluctuations are driven by a classic cycle of predator-prey relationship. The Holly Blue

caterpillar is the sole target of a parasitic wasp. After a year of the butterfly being abundant (as in 2023 in Farnham), the wasp abundance peaks resulting in a crash in the abundance of the butterfly. The population crash of the butterflies results in a subsequent crash in the wasp populations, so in the following year the butterfly recovers.



The Large Skipper butterfly *Ochlodes sylvanus* is a widespread and common species in gardens during summer. It is one of the species whose flight period has recently become a couple of weeks earlier in the year, in late May, than a couple of decades ago. Its caterpillars feed almost exclusively on cocks-foot grass, so it will be interesting to see if the adoption of a 'No-mow May' policy results in increases in the

abundance of this species. The Small and Essex Skippers are similar looking species and may be confused with this larger one.



The Meadow Brown butterfly *Maniola jurtina* is the first of the brown butterflies to appear and is probably ubiquitous in our regions. It appears in June and is followed in July by the Gatekeeper butterfly which has more ornamentation. I fear that the only reason I have not recorded a Gatekeeper on scabious is that I have not looked at it carefully enough and so confused it with a Meadow Brown. Meadow Browns are

single-brooded, so its annual abundance may be influenced by Spring temperatures. In 2023 it was heavily outnumbered by Gatekeepers, possibly a result of the unusual weather patterns.



The Large White butterfly *Pieris brassicae* is unwelcome to gardeners who grow their own Brassicas. They are distinguished from the equally common Small White butterfly by the more extensive black coloration of the wing tips and size. The two species are often referred to as 'cabbage whites'. Numbers we see can be boosted by migrations from the continent. With the

warming climate the number of broods per year is gradually increasing from two to three, so it can be seen on the wing from March to late October. Such a common insect is inevitably attacked by a number of parasitoid wasp and tachinid flies. The best option to prevent your cabbages being severely ravaged by these butterflies is to plant a sacrificial bed of nasturtiums alongside them.



The Green-veined White butterfly *Pieris napi* is a great wanderer so can turn up in almost any habitat. It is not a garden pest - its caterpillars feed on hedgerow plants such as garlic mustard and cuckooflower. It has two main broods a year, the first coinciding with Orange-tip butterflies. The second is on the wing from June to early September, so it is the second brood which visits the scabious.

Moths

I have recorded rather few moths on scabious, probably because I have been distracted by the moths visiting other types of flower rather than because not many moths are visitors.



Crambus pascuella is one of the common 'grass moths' known as the inlaid grass veneer. Along with other very similar species, it is abundant throughout the summer months. Its caterpillars feed on various grasses.



Acrobasis suavella is a common pyralid micromoth that is common in gardens and thickets in Southern England. Photographed is a rather worn specimen. It flies in July and August, and its principle food plant is blackthorn, but it also uses hawthorn and whitebeam.

Coleoptera – beetles

The beetles that visit scabious are common visitors to other flowers.



The rose chafer beetle *Cetonia aurata* is a relative of the maybug and flies at much the same time of year, but flies by day. It breeds in compost heaps and is considered by rose growers to be a pest because it damages the petals. It is a heavy beetle that weighs the flowers down – as this one is, bending the flower head down. It is a potential pollinator as can be seen from the pollen

that is adhering to the beetle's head. However, the pollen may well have been picked up from a different type of flower and be no good for pollinating the scabious.



black markings.

The Longhorn beetle *Rutpela maculata* is a common visitor to many species of garden flower as well as hedgerow plants however favours umbellifers like hogweed, at the height of summer. Like most longhorn beetles its larvae live in rotten wood taking two years to mature. There are two other black and yellow long horn beetles, both of which have regular

Arachnids- spiders

With so many insects visiting scabious the occurrence of predators is far from unexpected. Both the spider species I have recorded are ambush predators and not web weavers.



The Flower crab spider *Misumena vatia* is the commonest crab spider on garden flowers. Its colour varies from white to yellow and is adjusted to the colour of the flower it is on. When they can match the flower they are sitting on they can be extremely well camouflaged, and the best way of spotting them is to look for motionless insects they have killed. They are very common in our area.



The other crab spider that very occasionally ambushes visitors to scabious is *Xysticus cristatus*. It is a common species that is widespread throughout the UK. It is intolerant of shade so is to be found in open habitats, but tends to hunt more on the foliage than on the flowers. It may be significant that it is the only visitor to a red scabious I photographed.