Visitors to apple mint *Mentha suaveoleus*

Apple mint is widely planted in gardens for culinary and medicinal uses, but it has another important role that I want to explore in this article. Gardeners are increasingly being encouraged to grow plants that encourage pollinators, and apple mint flowers attract a wide variety of visitors, many of whom are important as pollinators. When we moved to a new house in South Farnham there was an uncontained patch of apple mint in the 'vegetable patch'. The soil is heavy clay, which discouraged me from attempting to dig out the network of roots. So now we have a patch of mint that flowers profusely from early August to the end of September. During this flowering period there are some seasonal shifts in the identities of the visitors. On most days the mint attracts a wide variety of insects and other invertebrate visitors especially when the sun is shining. There is also a smaller but different array of visitors at night. Many, but not all, of these visitors play an important ecological role in the garden as pollinators, but many are also important as pest controllers.

I began to record these visitors in 2019 photographically. Many of the visiting insects are faithful and come year after year, but a few have only turned up once or twice. The photography of these rarer visitors has been challenging since the visitors seldom pose nicely and often move as one releases the shutter. Further difficulties are posed both by gusts of wind moving the subject and more annoyingly by wasps and even hornets attacking the subject just when everything is right. I am confident that I have identified many of the visiting species, but some of the species require microscopic examination, even dissection, for them to be identified correctly. The majority of the visitors come by day, but there are also several moths that visit at night.

Hymenoptera – bees and wasps

Common carder bumblebee *Bombus pascuorum* is a fairly frequent visitor and is a significant pollinator.

Tree bumblebee *Bombus hypnorum* is a newcomer to Britain. First recorded in 2001, it has spread rapidly and is now one of the commoner bumblebees around Farnham. It is an effective pollinator of many flowers and fruit-trees.

Buff-tailed bumblebee *Bombus terrestris* is one of the largest bumblebees that frequents our garden. It is one of the few species that can pollinate tomato plants. When it lands on the flowers it buzzes at a high frequency. This stimulates the anthers to release their pollen, which it carries to the next flower.

Honey bee *Apis mellifera* is probably the insect that the majority of people consider to be our most important pollinator. However, in gardens, this will depend not only on how nearby someone keeps bees, but also on what other sources of nectar are within flying distance of the hive.

Mating blood bees *Sphecodes* sp. These small solitary bees are nest parasites of some solitary bees, They cannot be identified from photographs. They visit flowers for nectar, but they rely on their host species to feed their offspring.

Common furrow bee *Lasioglossum calceatum* , a colourful bee that is a little smaller than a honey bee. It is also known as a sweat bee. They are a ground nesting species, favouring light soils. They can also be hosts for blood bees.

Common yellow-face bee *Hylaeus communis* a small bee (5mm long) shown with a head-on insert to show the characteristic yellow face markings. One of the twelve species occurring in the UK. They nest in small holes and cavities and will use bee hotels which have small chambers.

A mason wasp *Ancistrocerus nigricornis* a solitary wasp which nests in hollow plant stems and holes in dead wood and also will use bee hotels. It partitions its cells with clay, and stocks them with micromoth caterpillars.

Bee wolf *Philanthus triangulum* is a solitary ground nesting wasp, which was once a great rarity, but has undergone a population explosion through the 1990's. It prefers nesting in colonially sandy soils in burrows which it stocks with honeybees. Its yellow face is characteristic.

Davies' colletes *Colletes daviesanus* a solitary bee that is related to the ivy bee. It is the predominant species found in gardens especially on heavy clay soils. Note how it has been collecting pollen. It will nest in wall cavities.

German wasp *Vespula germanica*. One of five species of social wasp found in the UK. They hunt around the mint blossom preying on other insects. They are a great nuisance when trying to photograph the insect visitors.

Red-tailed bumblebee *Bombus lapidarius* is one of the less common visitors to our mint, probably because by the time the mint is flowering their colonies are in decline.

Sawfly *Arge pagana* are hymenopterans that have larvae that resemble lepidopteran caterpillars, but characteristically arch up their bodies when disturbed. They can quickly, completely strip the leaves off the stems of roses, much to the concern of gardeners.

A bee wolf killing a honey bee, which it will take back to stock its burrow for its larvae. Note its white face which immediately distinguishes it from social wasps.

Lepidoptera – butterflies

The butterflies are daytime fliers, so their visits all occur in the daytime, especially when the sun is shining. In contrast, the majority of moths visit at night and have to be stalked at night using a torch. The moths are easier to spot if you use a head torch because of their eye-shine – the light is reflected from their eyes.

Comma butterfly *Polygonia c-album* is an ocassional visitor. Its caterpillars used to feed on hop, and when there was a decline in hop fields in England, it became quite rare. But it suddenly switched to feeding on common nettle and its population has made a dramatic recovery.

Gatekeeper *Pyronia tithonus* is the most abundant butterfly in our South Farnham garden. On sunny days it is the most numerous butterfly visiting the mint. Note that in contrast to the meadow brown, it has two white highlights in its eye-spot and the hind wings are coloured orange.

Meadow brown *Maniola jurtina* flies slightly earlier in the year than the Gatekeeper so its population is in decline when the mint blooms. Note there in a single highight in the eye-spot, the upper surface of the hind wing is uniformly coloured dull brown, and the coloration of the underwings is not so elaborate as the Gatekeeper's.

Small white *Pieris rapae* is, for many gardeners, unwelcome because its caterpillars feed on cabbages and other Brassicas. However, it is an effective pollinator. It has three broods a year; the second brood coincides with the mint blooming. In many years the population is boosted by immigration from Europe.

Common blue *Polyommatus icarus*, is more of a chalk grassland species and there is only an ocassional visitor to our mint. The butterfly produces two broods and it is the second brood that coincides with the mint flowering.

Holly blues *Celastrina argiolus* courting. It is the female that has the broad black rim to its wings. They have two generations a year; the caterpillars of the first generation favour holly, the second favours the buds of ivy, but they will feed on other shrubby plants. When you trim your hedge therefore influences its breeding success.

Peacock butterfly *Aglais io* is one of the most recognisable of our butterflies. They can be encountered almost any month of the year as they hibernate, but their abundance is declining when the mint starts to bloom. The food plant for their caterpillars is stinging nettles, so a bed of nettles in your garden can help to increase their numbers.

Red admiral *Vanessa atalanta* is another of our easily recognised species. Until the turn of the century it used to migrate to Southern Europe in the autumn, arriving back in May but it is now overwintering here. It often feeds on Buddleias, but can be abundant on our mint.

Small copper *Lycaena phleas* is more a butterfly of open fields and marginal land than gardens. So encountering it on the mint was a bit of a surprise. They are never very abundant. It produces three broods a year. The emergance of the second brood coinciding with the mint's flowering.

Brown hairstreak *Thecla betula* is an elusive species that signals the end of the butterfly season. The forewings of females are chestnut brown with large orange comma-shaped flashes in the corner. Males lack these flashes. They are usally tracked by finding their eggs over winter which are laid on blackthorn.

Moths – day flying

Mint moth *Pyrausta aurata* flies both by day and by night. Its little green caterpillars feed on the mint so it is unsurprising these moths are abundant aroung the mint. It is a species that tends to be more abundant on chalky soils.

Yellow-legged clearwing moth *Synanthedon vespiformis* – clearwing moths are day flying moths whose caterpillars feed on the cambium of recently felled oak stumps. The practice of coppicing woodland, which favoured this moth, has more or less died out. This wasp mimic is under-recorded.

Moths - night flying

Large Yellow Underwing *Noctua pronuba* is a common large, late summer moth. It overwinters as a caterpillar underground and are often dug up while gardening. Their populations can be greatly enhanced by migration.

Lesser Broad-bordered Yellow Underwing *Noctua janthe* is a moth that can out-number all other moth species in the early autumn. The proboscis of this specimen can clearly be seen probing one of the florets of the mint.

Square-spot Rustic *Xestia xanthographa* another ubiquitous species that is abundant in autumn. Its coloration is quite variable so that as an individual ages it can become hard to identify. They are also common vistors to ivy blossom. Its caterpillars feed on grasses.

A grass moth *Agriphila geniculea* is a micromoth which together with other species can be extremely abundant in late summer. They can be quite tricky to identify, but are readily disturbed from grassland during the day. As their common name implies, their caterpillars feed on grasses.

Beautiful plume moth *Amblyptilia acanthadactyla* is one of the commoner plume moths. It overwinters as an adult so may be encountered at any time during the year. The best chance of seeing this rather skeletal moth is by inspecting ragwort flowers at night.

Common Plume moth *Emmelina monodactyla* is another very commonn plume moth that is easily mistaken as a mosquito when it is flying. Its caterpillars feed on bindweeds, a much hated plant for many gardeners.

A micromoth *Bryotropha terrella.* There are twice as many micromoths in the UK as the larger macromoths. With most being less than a centimetre long they get overlooked and many are very hard to identify. Its caterpillars feed on grass and some mosses.

Another tiny micromoth *Blastobasis adustella,* is native to Australia and was introduced into Britain during WWII in shipments of vegetables from Madeira. It is now an abundant micromoth throughout the UK. Its caterpillars will feed on almost any vegetable matter.

Brimstone moth *Opisthograptis luteolata* is one of the most abundant moths in summer, and is ubiquitous throughout the UK. Its caterpillars feed on hawthorns and blackthorn. It has up to three generations a year.

Crambid micromoth *Catoptria falsella* a one centimetre micromoth that is fairly common in our region and through most of Britain. Its caterpillars feed on mosses, and it is on the wing in late summer.

Ear Moth *Amphipoea oculea* is a common moth nectaring on our garden flowers in July, but is seldom caught in light traps. It is quite common in England. There are two less common larger species that are simillar in other areas. Its caterpillars feed on grass stems and roots.

Angle Shades *Phlogophora meticulosa* is a common species whose caterpillars feed on a wide variety of plants. So it is unsurprising to find one on the mint. In general caterpillars tend to feed at night and hide away by day, so it is likely you will be unaware of their presence.

Diptera – the flies

There are several types of fly, some of which are excellent pollinators, others are considered pests, and others have parasitic larvae and provide natural control of pest species.

Hoverflies

These include many significant pollinators and many are mimics of wasps.

Bumblebee mimic hoverfly *Volucella bombylans* is widely distributed in woods and scrubby grasslands. It flies from May to September peaking in June – just before the mint begins to flower. They are quite variable, but this one is mimicing the buff-tailed bumblebees. Their larvae are scavengers in the bee's nests.

Great pied hoverfly *Volucella pellucens* is one of the commoner visitors to mint. Its larvae are scavengers in wasps' nests. These handsome hoverflies are most abundant in June to July and visit a wide range of flowers.

Eristalis tenax is one of four very common species that are hard to distinguish, and are mimics of bees. They commonly hover between flowers with their hind legs daggling, reputedly to resemble pollen sacs. Their larvae are the rat-tailed maggots that live in ditches organically enriched by run-off from dung heaps and silage.

Eristalis nemorum is one of the smaller species in the genus of drone flies. This species can be immediately recognised in the field behaviourally since the male will hover above a female feeding at a flower. It, too, has a rat-tailed maggot as a larva.

Eristalis arbustorum is another drone fly that mimics bees. It is common throughout the UK and is most abundant in mid-summer. Its face is completely dusted with yellow, but this dusting tends to rub off with age. In common with other drone flies its larva is a rat-tailed maggot.

Eristalis pertinax is one of the larger *Eristalis* and appears early in the year hovering a metre or so above the ground. Males can be seen defending small territories along woodland rides. It can be the most abundant hoverfly, and also breeds in organically rich waters.

Eristalis intricarius is a hoverfly that favours damp places but is never common. It has a particular liking for flowers that are either blue or purple. It is more furry that other species in the genus. It, too, breeds in drains and ponds and is most abundant in July.

Criorhina berberina a bumblebee mimic. Predominantly it has a southern distribution in England and Wales in woodlands. It has a strongly arched hind femur that distinguishes it from other similar insects.

Dasysyrphus albostriatus is a wasp mimicing hoverfly that is common in woodlands throughout England. It has two generations a year - one in spring, the other in late summer. Note the long black 'stigma' on the anterior edge of the wing. Its larva eat aphids.

Helophilus pendulus is a common sight around ponds and is one of the brightly striped species that abound in gardens in summer. They breed in water but spend a lot of time basking in sunny spots. The longitudinal stripes on its thorax distinguishes this genus from other gaudy species like *Myathropa.*

Myathropa florea is another very common brightly coloured hoverfly that visits mint. Note the banding on the thorax is horizontal, and it is a bit larger than the *Helophilus* species. It also breeds in water especially in rot-holes in wood, but will also breed in water butts filled with decaying leaves.

Sphaerophoria scripta are very common small, highly variable hoverflies which cannot be identified to species without dissection. It has been suggested that some populations in northern UK are maintained by migration. Their larvae feed on ground-living aphids.

Syritta pipiens is one of the smaller common hoverflies that is recognisable because of the swollen 'thighs' of its hind legs. It is abundant in July and August, but is also commonly seen feeeding on ivy flowers later in the season.

Eupeodes luniger is one of the species whose larvae are predators of ground-living aphids. The coloration of the adult flies is influenced by the temperatures experience by the larvae. They are most common in summer but are one of the first hoverfly species seen in spring.

Marmalade hoverfly *Episyrphus balteatus* is probably the most abundant hoverfly in our gardens. The native populations are boosted each year by massive immigrations from Europe. It is not only important as a pollinator but also its larvae are predators of aphids.

Tachinid flies

Tachinids are bristly flies whose larvae are internal parasites of other insects and serve to limit the populations of many pest species, but they are also pollinators of many types of flower.

Eriothrix rufomaculata is a quite small but quite common fly, whose larvae parasitise the larvae of grass moths (crambid micromoths). It commonly visits a range of flowers, especially umbellifers, and as such is an effective pollinator.

Tachina fera is a large (0.9-1.5mm) bristly fly that is a common visitor to a variety of flowers especially umbellifers in summer and early autumn. Their larvae are parasites of moth caterpillars. They, too, are effective pollinators.

Exorista larvarum resembles a bluebottle but is smaller (6-14mm). It is another summer species that visits a variety of flowers. Its larvae are parasitic on moth larvae, noteably the Gypsy Moth which has been introduced and become a serious pest in the USA; also the box-tree moth *Cydalima perspectalis* that was introduced recently into the UK and has become a serious garden pest.

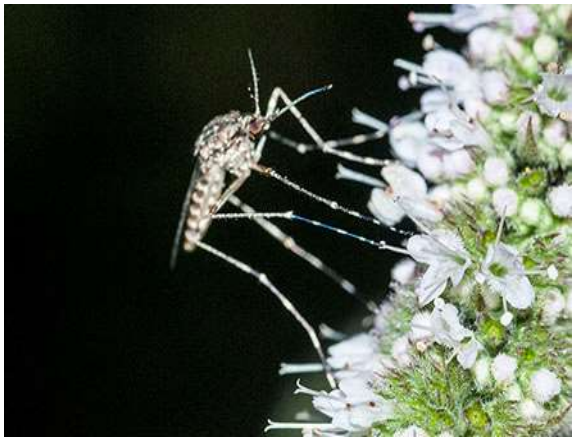
Nowickia ferox a large (11-15mm) black and yellow species that ocurs in summer, visiting a range of flowers. Its larvae are parasites of the Dark Arches moth *Apamea monoglypha* caterpillars.

Phasia hemiptera is sexually dimorphic-meaning males and femles look quite different. This is a male which is more colouful than the female. It first flies in early summer, but visits our mint in September. It parasitises various bugs including our common red-lgged shieldbug.

Other Diptera

'Green bottle' - there are several species of flies referred to colloquially as greenbottles, including some tachinids. I think this is a muscid fly - *Lucilia sericata,* which is a notorious spreader of disease. Howeveer, it performs a significant ecological role by cleaning up carcases; it plays an important role in forensic science.

A species of flesh fly another muscid fly that plays an important ecological role by cleaning up dead bodies and other decaying material. When not exploiting carcasses they also visit flowers and can pollinate them.



A mosquito. There are 30 species of biting mosquito in the UK, but there are over a thousand of other midges that are non-blood-sucking. Even amongst those that are blood-sucking it is only the females that need a blood feed before they can breed – the males feed on nectar. I do not know if this a blood-sucking species!

Conopid fly *Conops flavipes* the colloquial name for this type of fly is bee grabber. The female conopids grab hold of a bee, in this species probably Bombus terrestris, and inserts an egg into the body of the host. The larva that hatches develops as a parasite inside the bee, and eventually leads to its death.