Contents

Experiences from southern Scotland show that if conditions are good and there are plenty of flowers, then hoverflies can occur in good numbers. Devil's-bit Scabious has been found to be particularly popular; in northern and western regions of Britain and in Ireland, areas with this species are good places to search for hoverflies such as *Eriozona syrphoides*, *Didea fasciata* and *Sericomyia superbiens*. This also illustrates the difference in habitat between acidic species-poor localities that support Heather and Devil's-bit Scabious compared with richer soils, which are often much more agricultural.

Finding hoverflies is a much more demanding process where tall flowering plants are not immediately obvious. For example, moorlands can be seemingly barren until you find a damp streamside with Tormentil, which will yield all sorts of small hoverflies, such as *Melanostoma*, *Platycheirus*, *Melanogaster*, *Lejogaster* and *Trichopsomyia*. The Heather itself can be very attractive to hoverflies when it is in flower and, in particular, has been found to support large numbers of *Didea*. So too can Heath Bedstraw, which in Scotland is often an exceptionally good lure in woodland rides. The trick is to try to find flowers that are attracting hoverflies and then develop your technique from there. In some places you may have to sweep the vegetation and here there are definite benefits from retaining a number of specimens: they may look very similar in the net but microscopic examination can reveal several species.

A path on Chobham Common in Surrey. Open ground like this is important on heathland in providing warm areas. Flowers like Tormentil grow along the sides of such paths and are popular with hoverflies such as *Paragus* (INSET).

Wetland hoverflies show similar variation in habitat affinities, with some favouring much more restricted habitats than others. For example, *Anasimyia interpuncta* seems to favour grazing marshes and some riverine wetlands, whereas its near relatives *A. contracta* and *A. lineata* are much more widespread, occurring in a wide range of locations where Bulrush grows, even in small roadside ditches. Some wetland species are even more specialised. *Tropidia scita*, which is readily recognised by the obvious triangular flange on its hind femora, is very closely associated with Common Reed and is most frequently found in coastal locations. Another example is *Lejops vittatus*, which is restricted to brackish grazing marsh colonised by Sea Club-rush and is usually found around the head of tidal estuaries.

Many members of the tribe Eristalini (wetland hoverflies with 'rat-tailed maggots') are relatively catholic in their habitat preferences, but some such as *Eristalis cryptarum* and *E. rupium* are more specialised.

The adults of many wetland hoverflies, such as *Helophilus pendulus*, *Eristalis pertinax* and *E. tenax*, occur well away from breeding sites, although their ubiquitous occurrence may also suggest that they can use small patches of habitat that we overlook. This behaviour means that it is not always necessary to visit what are often thought to be the ideal places for hoverflies. Roadside verges often prove to be very productive, especially if there are lots of nectar sources. Indeed, in areas where there are large expanses of intensively managed agricultural land or heavily grazed moorland, roadside verges may provide the only suitable habitat.

Conifer plantations can also be very productive, especially in the uplands, where it is not uncommon to find rich assemblages of hoverflies. The reasons for this lie in the way that conifer plantations have changed the upland environment. Former sheepwalks often revert to heathland within woodland

Sericomyia silentis on Devil's-bit Scabious.

A ditch on a coastal marsh on which *Lejops vittatus* (MIDDLE) occurs.

rides, and where there are wide margins, the resulting vegetation can be extremely floriferous, sheltered and protected from sheep grazing. Consequently, conifer plantations have plenty of lures to attract hoverflies and the hoverfly recorder.

Finally, it is worth remembering that female hoverflies need to eat pollen to provide protein for egg production and will often visit pollen-rich sources such as grasses and plantains. A list of hoverflies for any site can be greatly enhanced by sweeping a verge with flowering Ribwort Plantain. Apart from the common *Melanostoma* species, numbers of *Platycheirus* will occur, especially *P. clypeatus*, *P. angustatus* and *P. manicatus*. Sweeping is also a very effective way of finding *Sphegina* in northern and western Britain, and in Ireland, especially where Pignut abounds: occasionally three, or even all four, species in this genus can be found at the same locality, whereas visual searches may be far less successful.

Finding *Parasyrphus nigritarsis*

Parasyrphus nigritarsis (*p. 144*) was considered a great rarity until its larvae were found to feed on the larvae of the Green Dock Beetle *Gastrophysa viridula*. The beetle lays a clutch of bright orange eggs on the underside of dock leaves. The hoverfly's white eggs can be seen nestling among them. Later, the hoverfly larvae can be found with the beetle larvae by examining the underside of dock leaves (note that the beetle larvae create obvious holes in the dock leaves).

A *Parasyrphus nigritarsis* egg among a mass of eggs of the Green Dock Beetle (TOP) and a larva consuming a beetle larva (BOTTOM).

The search for *Callicera rufa*

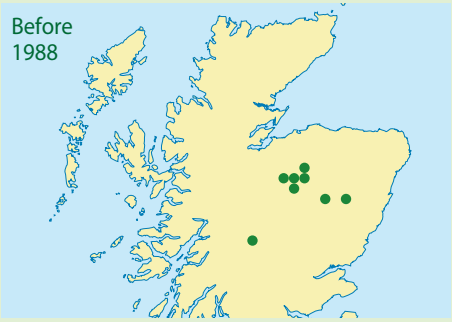
Adults of *Callicera* are very elusive. It is thought that they spend much of their time high up in the canopy and that the only times they are to be found at ground level are when they emerge, if they need to come down to drink or when females lay eggs. Consequently, the spectacular *C. rufa*, a resident of the Caledonian pine forests of central Scotland, was recorded on very few occasions before 1988 and was believed to be a great rarity.

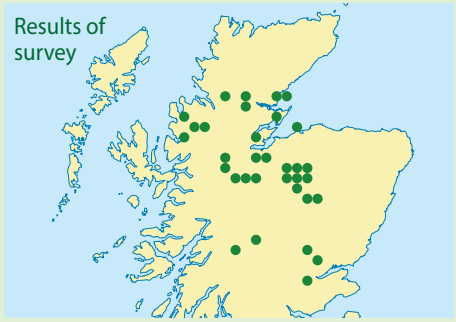
Callicera rufa

In the late 1980s work by the Malloch Society showed that *C. rufa* was much easier to find by looking for larvae in water-filled rot-holes in Scots Pine. During the course of a few field seasons they were able to record it from almost all sites in the Scottish Highlands where Caledonian pine forest still existed. It was also found in suitable rot-holes in mature Scots Pine plantations and even occasionally in spruce and larch. More recently, larvae have been found in water-filled cavities in the stumps remaining after mature plantations have been felled.

Artificial cavities in stumps, created using a chainsaw, will naturally fill with rainwater. They are often occupied the same year – making artificial rot-holes a great way to find new populations. This has been proven in England since *C. rufa* was first discovered in Sherwood Forest in 2009. The origins of this range expansion are unclear: was it southward movement from Scotland or colonisation from Europe?

Artificial rot-hole created in the stump of a Scots Pine using a chainsaw.





Glossary

Diagrams showing the locations of terms in **bold brown text** are on *pages 48–52*.

adpressed pressed closely against, or lying flat

antenna (plural: **antennae**) the 'feelers' on the front of the head of an insect. These bear chemo-sensory organs and allow the detection of chemical stimuli such as the odours emitted by sap or fungi – see *page 49*

aphidophagous feeding on aphids

apical in the direction of the apex. Hence, that part of an appendage lying nearest its tip and farthest from the point of attachment – also **distal** (opposite of **basal**)

aquatic living in water. Strictly, this covers any type of water, fresh or salt, but when applied to Diptera it usually means fresh water

arista (plural: **aristae**) appears as a bristle arising from the surface of the 3rd antennal segment. It is actually the remnant of antennal segments and can show signs of segmentation. It can be bare, clothed in short hairs ('**pubescent**') or long hairs ('**plumose**') – see *page 49*

basal in the direction of the base. That part of an appendage nearest to the point of attachment – also **proximal** (opposite of **apical**)

cell an area of the wing membrane bounded by the wing margin and/or veins. Wing cells are named after the vein that precedes them (*i.e.* in front) and are given lower-case abbreviations (*e.g.* 'cup')

chitin the tough, protective, semi-transparent substance that forms a hoverfly's body, wing veins, *etc*.

compound eye eye made up of large numbers of **ommatidia**. In the Diptera, the compound eyes normally occupy a large part of the head

costa the main vein forming the leading edge of the wing

coxa (plural: **coxae**) the basal segment of a leg – the part attached to the thorax

cross-vein short veins connecting the length-wise veins and their branches

cuticle the hard, protective layer that forms the outer surface ('skin') of an invertebrate

dimorphic occurring in two distinct forms

dimorphism a difference in size, form or colour between individuals of the same species, characterising two distinct types

discal cell a closed cell in the centre of the wing bordered by **M** veins and closed by cross-vein **R–M** – see *page 50*

distal farthest from the mid-line of the body. Another term for **apical**

dorsal on the upper surface

dorsum the dorsal surface, usually of the **thorax** – hence **thoracic dorsum**

dusting a characteristic of the surface of the chitinous plates making up the body of a hoverfly. 'Dust' is actually formed by minute, flattened hairs rather like the scales of Lepidoptera (butterflies and moths) – see *page 52*

entomophagous growing in or on an insect, for example certain fungi

face the plate that forms the front of the head, delineated by the antennal sockets above, the mouth opening below and, laterally, by the compound eyes

femur the principal leg segment, analogous to the 'thigh', located between the **trochanter** and the **tibia**

frass the droppings of plant-eating (phytophagous) insects

frons the plate forming the top of the head, bordered by the compound eyes, the **ocellar triangle** and the antennal bases

genitalia the copulatory organs. The shape and arrangement of the genitalia are often used to distinguish between closely related or very similar species

haltere remains of the hind wing of Diptera which has become an organ of balance

humerus (plural: **humeri**) the anterior corners or 'shoulders' of the **thoracic dorsum** – see *page 48*

imago adult

instar the stage in an insect's life history between any two moults. A newly hatched insect that has not yet moulted is said to be a first-instar larva. The adult (**imago**) is the final instar

integument the 'skin' or outer membrane

jizz the often indefinable characteristic impression given by an animal or plant, usually defined by shape or movement

larva (plural: **larvae**) the immature form of an insect which is markedly different from other life-stages such as the **pupa** or adult (**imago**)

lunule a small area on the frons just above the antennae

malaise trap a large, tent-like structure used for trapping flying insects, particularly Diptera and Hymenoptera

metatarsus the most basal of the five **tarsal segments**; also called the 'basitarsus' – see *page 51*

microtrichia the microscopic hairs on the surface of the wing membrane

occiput the back of the head, behind the compound eyes

ocellar triangle the plate on which the ocelli are located. Usually a sharply delineated, triangular area of the **frons** – see *pages 48, 49, 52*

ocellus (plural: **ocelli**) simple eye. Nearly always three, arranged in a triangle at the **vertex** of the head and located on a sharply delineated triangular plate – the **ocellar triangle**

ommatidium (plural: **ommatidia**) one of the individual structural elements of the **compound eye** of an insect

oviposition the act of laying eggs

ovipositor the egg-laying structure of the female

petiole a slender stalk between two structures. In this context: the stalk formed where wing veins join, which then runs to the wing margin (see, for example, the illustration on *page 237*)

phytophagous feeding on plants

pilosity hairiness

pleura (singular: **pleuron**) the plates making up the sides of the **thorax**

plumose with long hairs or bristles. Usually applied to the **arista**

polymorphic occurring in several distinct forms – see *page 28*

porrect extending horizontally, not drooping

posterior at the back end, towards the tail; the rearward-facing surface of a structure

proboscis in Diptera this term refers to the extensile (extendable) mouthparts

proximal another term for **basal**

pubescent with short hairs. Often applied to the **arista**

pupa the stage in a hoverfly's life-cycle, often quiescent (inactive), that precedes the emergence of the adult (**imago**)

puparium the pupal **integument** or shell

rostrum a snout-like projection of the head

saprophagous feeding on dead and decaying organic matter

scutellum the shield-shaped, posterior part of the **thoracic dorsum**

scutellar hairs and bristles the marginal hairs and bristles near the apex of the **scutellum**

spiracle an air inlet for the insect's breathing system (in the Diptera, the **thorax** has two spiracles on each side)

spurious vein See **vena spuria**

squama (plural: **squamae**) two (upper and lower) lobes at the base of the hind margin of the wing adjacent to the **halteres**

sternite the plate forming the bottom, or ventral surface, of a segment of an insect's body. Usually refers to the underside of an abdominal segment when used in keys to Diptera

stigma coloured area of the wing next to the **costa** and near the end of veins **Sc** or **R_1** – see *page 50*

subcosta (Sc) the second, usually unbranched, longitudinal wing vein, posterior to the **costa**

sweeping sweeping a net gently back and forth through low vegetation

synanthropic mainly occurring in habitats created by humans

tarsus the apical (outermost) part of a leg, consisting of five segments (tarsal segments or 'tarsomeres'). The first segment is termed the 'metatarsus' or 'basitarsus' and the fifth carries the claws – see *page 51*

taxon (plural: **taxa**) a general term for a unit of biological classification. Often used as an equivalent to species, but this is not really accurate since it can refer to any level in the taxonomic hierarchy, *e.g.* a genus or a subspecies

tergite the plate forming the top, or **dorsal** surface, of a segment of an insect's body. Usually refers to the top of an abdominal segment when used in keys to Diptera. These segments are referred to as T1 to T5 in the text

terminal at the end

thoracic dorsum the **dorsal** surface of the thorax

thorax the central division of the body of an adult insect, consisting of three fused segments each of which bears a pair of legs and the hind two of which bear a pair of wings, when present

tibia the fourth segment of a leg, analogous to the 'shin', between the **femur** and the **tarsus**

trochanter the small, second segment of a leg between the **coxa** and the **femur**

vagrant an individual that wanders outside the normal range of its species

vein chitinous, rod-like or hollow tube-like structure supporting and stiffening the wings in insects, especially those extending longitudinally from the base of the wing to the outer margin

vena spuria a longitudinal fold in the wing in the family Syrphidae which is chitinised along its crease. It runs between the **R** and **M** veins and crosses **R–M**. Although it looks like a vein it is not connected to the rest of the **venation**

venation the arrangement of the wing veins – see *page 50*

ventral on the lower surface

vertex the highest point (especially of the head); the apex

zygoma a sharply defined region of the face running along the eye margin; a feature of the tribe Cheilosiini – see *pages 59, 170*

Identifying hoverflies

Identification skills take time to develop. New recorders typically start with conspicuous species and encounter a wider range of species as their interest develops. A few hoverflies can be identified readily by sight in the field, even from some distance, whilst more species can be identified in the field with a little more practice and experience: that is what this book is primarily about. As your interest grows you will need to develop new field skills, as many hoverflies are not likely to be found without a targeted search.

♀ *Ferdinandea cuprea* – one of the more straightforward hoverflies to identify.

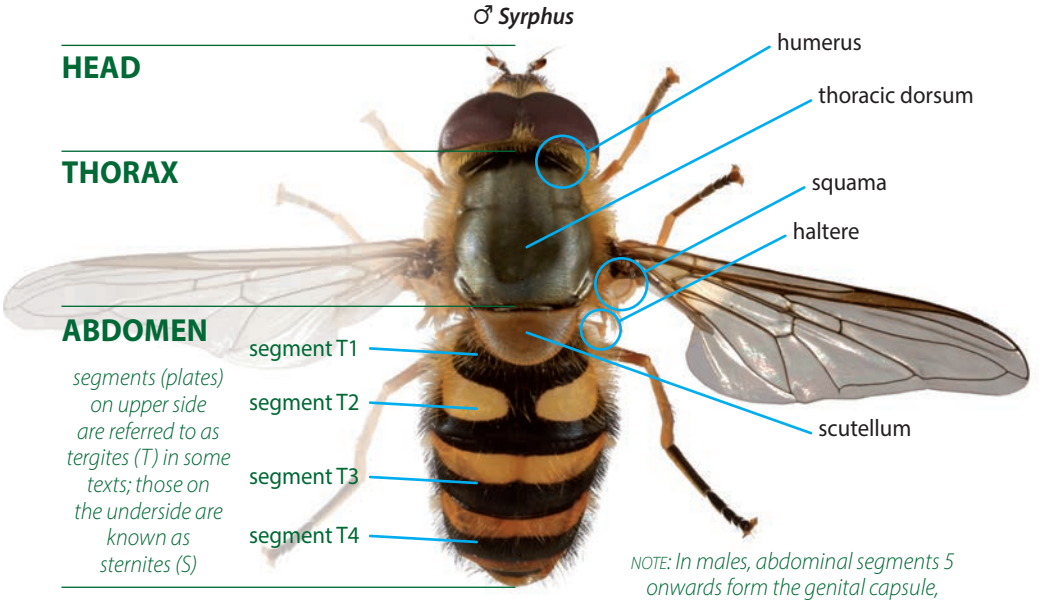
Having found your hoverfly, you need to get close (at least 50 cm – a foot or two) in order to see the necessary features. For example, among the common, bee-like *Eristalis* you need to find out whether it has a black stripe down the middle of the face, what colour its front tarsi are, and so on. Providing you can get a good, close look as it moves about you may be able to see the necessary features. Close-focusing binoculars can help and many modern roof-prism binoculars are capable of focusing down to 1 m or less. Where even more detailed examination is necessary, it is best is to catch the hoverfly in a net, pick it out carefully between your thumb and forefinger and examine it closely, with the aid of a 10× hand lens (see *page 317*). It may be helpful for photographers to try to get images of the undersides of some tricky species (*e.g.* male *Parhelophilus* and *Eumerus*, most *Neoascia*, female *Paragus* and the *Dasysyrphus venustus* complex) in the hope of depicting critical features that are not seen from above. Using the sorts of tips and tricks covered by this book, with sufficient experience you should be able to identify at least 100 or so of the British and Irish species in this way. Once you have checked the fly over, it can be released unharmed.

At least half of the British and Irish hoverfly species cannot be identified without taking a specimen home for examination under good lighting using a binocular microscope at around 10–30× magnification. In some cases, good photographs circumvent this need but there are many that cannot be recognised from even the best photos. The identification of these species goes beyond the scope of this book. *British Hoverflies* (second edition) by Stubbs and Falk (2002) is the best available UK text for this purpose but Bot & Van de Meutter (2023) and van Veen (2004) are very useful, too – see *Further reading* (*page 337*).

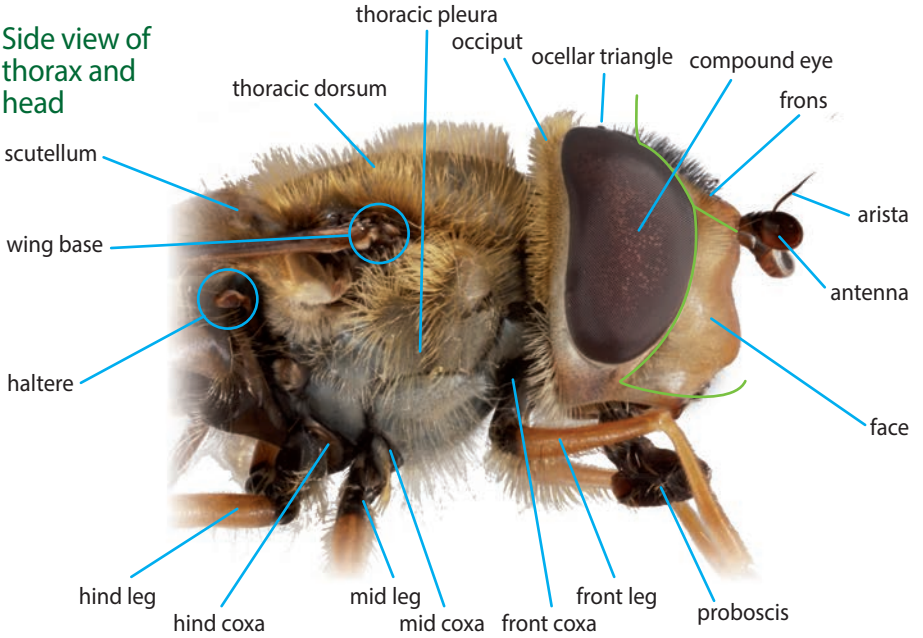
Identification also requires an understanding of a whole new terminology, describing the insect's body and its features. This book tries to explain and illustrate such terms, but there are many tips and tricks involving the handling, positioning and lighting of specimens that it is much easier to demonstrate than to describe in words – which is where training courses can help. Local Records Centres and the Field Studies Council are potential providers of such training.

Naming the parts

Knowledge of the terminology used when describing the anatomy of a hoverfly is important in understanding the descriptions given in the species accounts in this book.

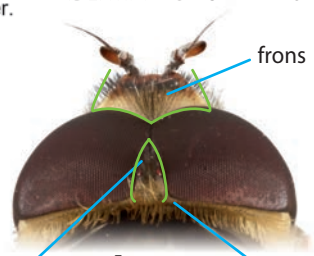


NOTE: In males, abdominal segments 5 onwards form the genital capsule, whereas in females, segments 5 and 6 are still visible.

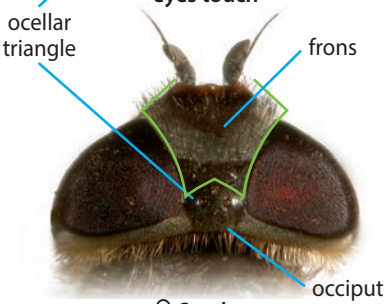


HEAD

The head is dominated by large compound eyes. In males these are typically touching at the top of the head, but in females they are separated. If the eyes are touching, then you can be sure it is a male, but if they are separated the sex of the individual depends on the genus as there are a few genera for which this rule does not apply. (*e.g. Anasimyia*, *Helophilus*, *Lejogaster*, *Lejops*, *Microdon*, *Neoascia*, *Parhelophilus*, *Pelecocera* and *Sphegina*). The area on top of the head between the eyes is the **frons** (which is rather small in the males of those species where the eyes touch). Right at the top of the head there are three simple eyes, or **ocelli**, in a triangular formation, usually on a slightly raised area known as the **ocellar triangle**. The ocelli are not capable of image resolution, but they are sensitive to light and are used to measure day length and regulate a hoverfly's internal clock.

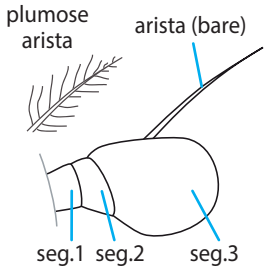


♂ *Syrphus*: eyes touch



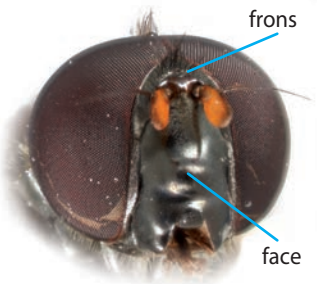
♀ *Syrphus*: eyes separated

A pair of **antennae** are situated below the front end of the frons. Each consists of three segments (conventionally numbered from the base outwards), with the third segment usually being the largest. It varies considerably between species, and the shape and size of the antennae is often used in descriptions. The third segment bears the **arista**, which usually arises from the top surface somewhere between the base and the middle, when it is described as dorsal. However, in some the arista arises from the tip, in which case it is described as apical. The aristae may be bare or hairy: if it has very long hairs so that it looks like a feather, or a TV aerial then it is described as **plumose;** if the hairs are short then it is **pubescent**; if hairs are absent then it is referred to as **bare**.



'Normal' antenna segments

The **face** is below the antennae and between the eyes. It occupies the area between the base of the antennae and the mouth margin. Its colour is often useful for identification. The face often has a nose-like bulge or 'knob' in the middle and the presence or absence and shape of this is frequently mentioned in descriptions; to appreciate this feature you need to view the hoverfly's head in profile. The frons or face may be dusted – see *page 52*.



Head of *Cheilosia*

THORAX

The thorax bears the wings and three pairs of legs and also, just behind and below the wing bases, the **halteres**. The top of the thorax is the **thoracic dorsum**, the colour and pattern of which is sometimes helpful in identification. At each front corner there is a swelling at the shoulders; together these are called the **humeri**. Behind the dorsum is a semicircular swelling termed the **scutellum**. The sides of the thorax are termed the **thoracic pleura**.

Wings

The wings consist of a transparent membrane supported by a series of struts: the **veins**. The main veins run from the base of the wing towards the tip and are occasionally linked by **cross-veins**.

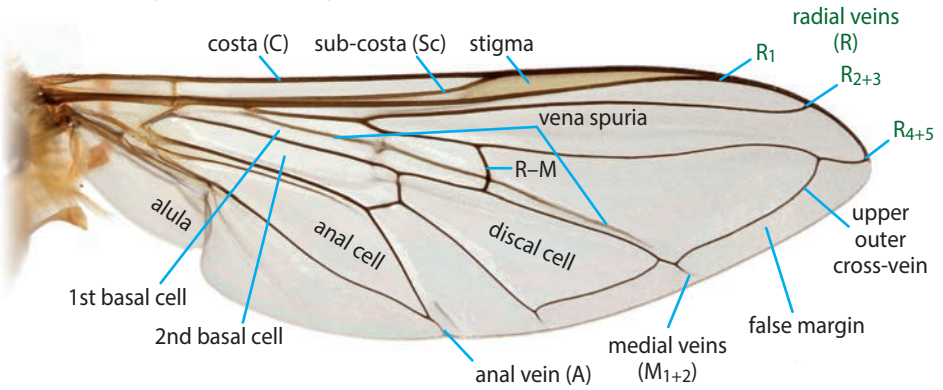
The naming of wing veins in flies is a complicated subject and many systems have been devised. Unfortunately, these various systems have sometimes used the same name for different veins, which can be very confusing when comparing descriptions in different books! The system adopted here (the Comstock-Needham system) is also used in *British Hoverflies* by Stubbs and Falk (2002) and most of the more recent European works. It recognises the following main veins running from the wing base (from front to back): the **costa** (C), **sub-costa** (Sc), **radial vein** (R), **medial vein** (M) and **anal vein** (A). It is thought that, in the most primitive flies, these veins had a series of branches, but that some of these branches have fused together again during the course of later evolution. As a result, seemingly strange labels such as R_{2+3}, R_{4+5} and M_{1+2} are used to refer to veins that are believed to derive from these fusions. Where a section of the wing membrane is surrounded by veins (or by veins on three sides and the margin of the wing on the other) it is called a **cell.** Cells are also given names.

The most important feature to recognise is the **R–M cross-vein** in the middle of the wing. This is always present in hoverflies and is almost always near to or at the middle of the wing. **R–M** arises from vein **R_{4+5}** and forms the outer border of the **1st basal cell**. The R–M cross-vein, together with the **2nd basal cell** (the one immediately below the 1st basal cell and with three veins arising from its outer end) and the cell below it (the **discal cell**) are the main features you need to be able to find (see *page 54*) in order to follow the descriptions.

There is often a coloured area of wing membrane between the tip of the sub-costa and the tip of vein R_1, termed the **stigma**. Some species also have a strong darkening across the middle of the wing membrane, referred to as a **wing cloud**. This shading often extends from just behind the stigma, around the R–M cross-vein and over the end of the discal cell.

The wing membrane is usually covered in tiny hairs called **microtrichia**. To see these, high magnification (around 30–40×) is needed, with the light coming through the wing membrane from behind. In many cases, microtrichia do not cover the entire wing surface, and the patterns they make are useful characters in the identification of some difficult species. The degree to which the 2nd basal cell is covered is most commonly used.

'Normal' hoverfly wing venation (*Syrphus*)



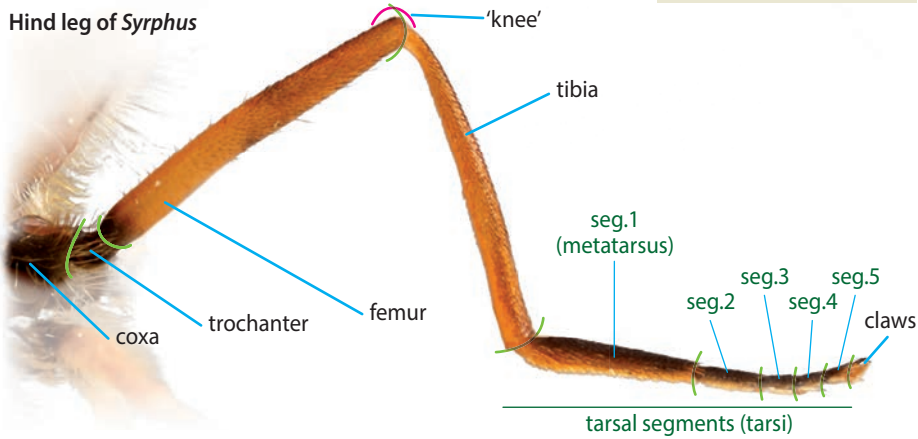
Legs

Each leg is attached to the thorax by a **coxa** and a small segment termed the **trochanter**.

The two main parts of the leg, the **femur** and the **tibia**, have the same names as the two main leg bones of a human and, like our legs, have a 'knee' joint between them. Finally, the hoverfly's equivalent of our foot is composed of five **tarsal segments** or **tarsi**. The first of these is usually the longest and is called the **metatarsus**. The last tarsal segment (seg. 5) bears a pair of claws.

When species descriptions refer to the **base** of a leg joint, they mean the part nearest to the body, so the image (left) could be described: hind femur mainly yellow, black only at extreme base. The opposite is the **apex**, or '**apical**', which is the part farthest from the body.

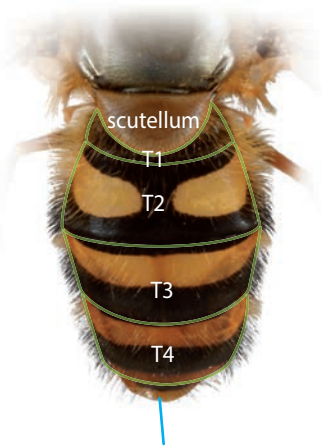
Hind leg of *Syrphus*



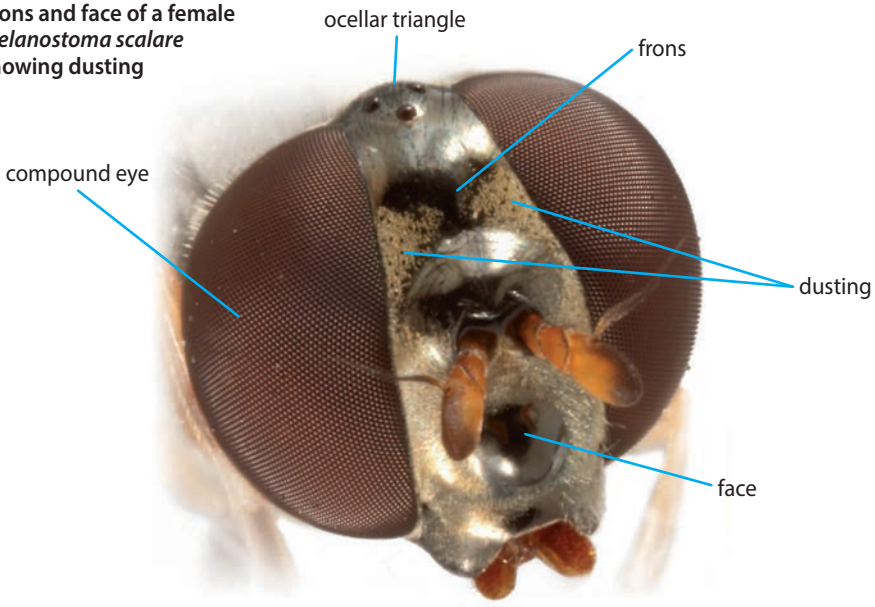
ABDOMEN

The abdomen is composed of a series of segments (or **tergites** (T)), which are numbered from the base (where the abdomen joins the thorax) towards the tip. The 1st segment (T1) is often inconspicuous, being largely hidden by the **scutellum**. Consequently, the 2nd segment (T2) is usually the first that is obvious when viewed from above. There are coloured markings on some or all the tergites in certain species, the shape, colour and positions of which are often used in identification. The male **genitalia**, positioned at the tip of the abdomen, are often obvious as a capsule, folded under the end of the abdomen and forming a distinct bulge in side view. The abdomen of the female usually tapers to a blunt, conical point, with no trace of a bulge, providing another way of determining the sex of a hoverfly in species where the males' eyes are not touching. Very occasionally the colour or dusting of the plates on the underside of the abdomen is used in species descriptions. These plates are termed **sternites** (S).

Abdomen of ♂ *Syrphus*



Frons and face of a female *Melanostoma scalare* showing dusting



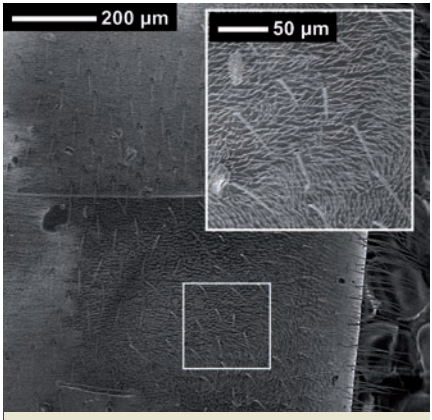
Dusting

Patterns and markings in hoverflies are of two kinds: coloured areas of the **cuticle** and patterns formed on the surface by bands of differently coloured hairs and **dusting**.

Dusting is actually formed by tiny flattened hairs. The name is quite descriptive: it looks like patches of dust on the shiny surface of the hoverfly's cuticle. The characteristic feature of dusting is that its appearance depends on the lighting. As you move a hoverfly around so that the light comes from different directions, the appearance of dusting changes. At some angles it may almost disappear, whilst at others it may be obvious, contrasting with the shiny cuticle.

The appearance of patterns formed by bands of coloured hairs changes in a similar way according to the direction and intensity of the light. It can often be difficult to assess the colour of hairs, and fine black hairs can appear to be pale when brightly lit. This is because you are actually seeing the bright reflections off the surface of individual hairs rather than their true colour.

By contrast, markings due to coloured patches of the insect's cuticle do not tend to change in appearance as the direction of lighting changes.



Scanning electron micrographs of dust patches on the abdomen of a female *Platycheirus albimanus* showing that they are composed of tiny hairs.

Guide to the tribes

Hoverflies (family Syrphidae) are divided into 'tribes' by Stubbs and Falk (2002) in order to make keys more accessible. Although the concept of tribes is not used in readily available European literature, for the purpose of this book, it is helpful from an organisational perspective to split the family into a series of subfamilies, tribes and then genera. **A summary of the features of British and Irish hoverfly tribes, arranged under the three subfamilies (Syrphinae, Eristalinae and Microdontinae) appears on *page* 61.**

This section provides a guide to the characters that are best used as pointers to identify tribes, and in some cases genera or species within that tribe. It focuses on features that can be seen in the field or by using a 10× hand lens. Experience will undoubtedly help in speeding up this process, but faced with an unfamiliar hoverfly, the following is a suggested process to assist identification.

i) **Confirm that it is a hoverfly by the presence of the vena spuria** (see *p. 50*) – [except for *Psilota* – see **2a (*p. 54*)**]

ii) **Establish whether the front of the thorax behind the head is visible or obscured and whether the humeri are hairy or bare – see 1 *below***

iii) **1a If they are visible and hairy:** look initially at the wing venation and, from there, additional characteristics of the face, antennae and aristae. **– see 2 – 7 (*pp. 54–59*)**

1b If they are obscured and/or bare: look at additional features of the **Syrphini**, **Bacchini** and **Paragini**. **– see 8 – 9 (*p. 60*)**

iv) **Once the tribe has been established using the keys go to the relevant *Guide to the tribe* page given to identify the genus.**

1

a) Front of the thorax generally visible, making it possible to see the humeri – which are hairy

Very variable in form, and includes the majority of the big bee and wasp mimics.

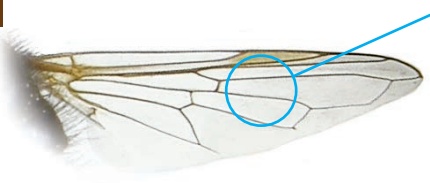
Most hoverfly tribes. ▶ 2

b) Head concave, making it hard to see the front of the thorax and obscuring the humeri – which are bare

Includes the majority of black-and-yellow hoverflies; most (except **Bacchini**) with at least some yellow on their face.

Syrphini ***p. 98*** **Bacchini** ***p. 72*** **Paragini** ***p. 96*** ▶ 8

2 *from* **1a**

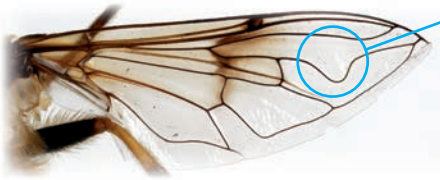


a) Vena spuria absent

The presence of a vena spuria is a feature of all British and Irish hoverflies, except for one species, and can be fundamental to the identification of those species that mimic or look very similar to Hymenoptera or other Diptera.

The species that lacks a vena spuria is *Psilota anthracina* (but this is absent from Ireland). Beware – great care should be taken with its identification as this rare species is easily confused with some blue-black muscid flies.

▶ **Merodontini:** ***Psilota*** *p. 250*



b) Strong loop in wing vein R_{4+5}

A group of mainly medium-sized hoverflies including convincing honey-bee and bumblebee mimics.

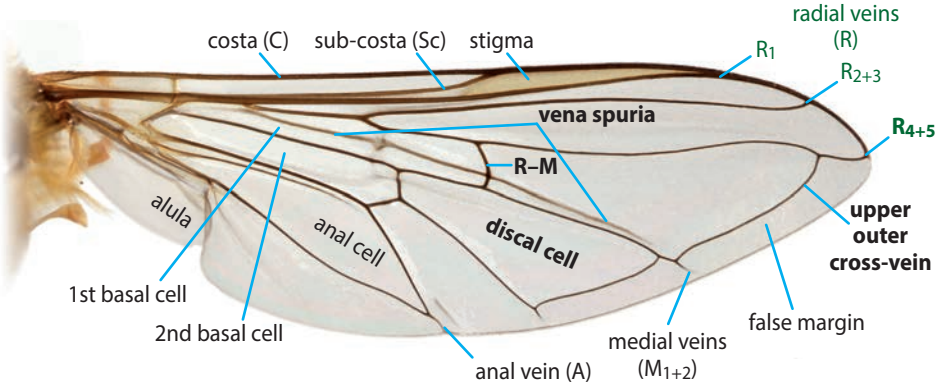
Beware – some **Syrphini** *e.g.* ***Didea***, the subgenus ***Lapposyrphus*** (within **Eupeodes**) and ***Megasyrphus*** have a dip in R_{4+5}. See *page 99*. However, checking the head and humeri (see **1b**) should avoid any confusion.

▶ **Eristalini** *p. 218*
▶ **Merodontini:** ***Merodon*** *p. 248*

c) 'Normal' wing – no wing loop present

▶ **3**

'Normal' hoverfly wing venation (*Syrphus*) (from *page 50*); features in the key are in **bold text**.



3 *from* **2c**

a) Upper outer cross-vein re-entrant (turning back towards the body)

This is a small group of hoverflies which includes some of the largest bee and wasp mimics.

▶ 4

Sphegina

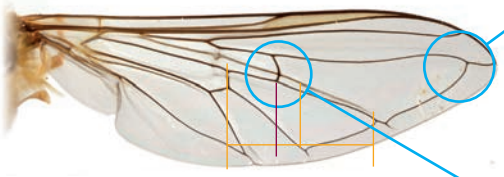
Neoascia

b) Upper outer cross-vein strongly upturned (but not turning back towards the body)

Small, narrow-bodied hoverflies

This feature is shared by two very similar genera – *Sphegina* and *Neoascia*.

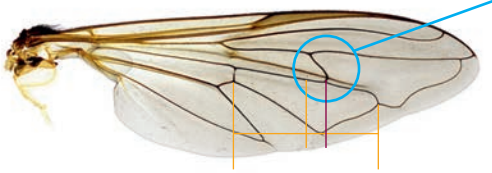
▶ **Chrysogastrini:**
Sphegina *p. 198*
Neoascia *p. 200*



c) 'Normal' wing – upper outer cross-vein neither re-entrant nor strongly upturned;

Inner cross-vein R–M meets the discal cell before the middle of the cell

▶ 5



d) As c) but the inner cross-vein R–M meets the discal cell at a point at or beyond the middle of the cell

A heterogeneous group of bumblebee and honey-bee mimics, together with more elongate species which resemble some sawflies.

▶ **Xylotini *p. 276***

Ferdinandea cuprea

Xylota sylvarum – a sawfly mimic

Beware – ***Ferdinandea*** **[Cheilosiini]** *(p. 192)* has similar wing venation, but looks very different, with a brassy, metallic abdomen; grey stripes running along the thorax; and a few bristles on the upper sides of the thorax.

4

from **3a**

a) Aristae strongly plumose

Large bumblebee and wasp mimics.

▶ **Volucellini:** ***Volucella*** *p. 270*

b) Antennae long and forward-pointing ('porrect')

Medium-sized dumpy hoverflies with relatively short wings.

▶ **Microdontinae:** ***Microdon*** *p. 298*

c) Antennae 'normal' with a bare arista

Hind femur enlarged

Small, shiny or brassy hoverflies.

▶ **Merodontini:** ***Eumerus*** *p. 246*

4 Hoverflies with wings which have the upper outer cross-vein re-entrant

Microdontinae: *Microdon analis p. 298*

Merodontini: *Eumerus* sp. *p. 246*

Bumblebee mimic
Volucellini: *Volucella bombylans p. 270*

Wasp mimic
Volucellini: *Volucella inanis p. 274*

See also *Identifying wasp and bee mimics pp. 62–65*

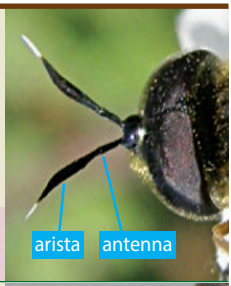
5

from **3c**

a) Antennae 'porrect' with a terminal arista (which is white-tipped)

▶ **Callicerini:** ***Callicera*** *p. 164*

The three species of *Callicera* are all rare and might be overlooked as solitary bees.



Check – wing venation (presence or absence of a vena spuria) to ascertain whether it is a hoverfly or solitary bee.

b) Aristae not terminal; strongly plumose
Large hoverflies

▶ **Sericomyiini *p. 266***

▶ Bumblebee mimic *Sericomyia suberbiens p. 266*
▶ Wasp mimics *S. lappona & S. silentis p. 268*

Beware – *Volucella* (*p. 270*) are also large with plumose aristae but with different wing venation (**3a**) and should already have keyed out at **4a**.

c) Aristae not terminal; bare or with weak pilosity
Antennae various shapes
Generally much smaller species

▶ **6**

5b Hoverflies with strongly plumose aristae and 'normal' wings

Bumblebee mimic
Sericomyiini: *Sericomyia superbiens p. 266*

Wasp mimic
Sericomyiini: *Sericomyia silentis p. 268*

See also *Identifying wasp and bee mimics pp. 62–65*

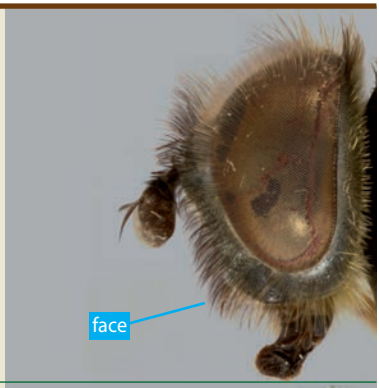
6 *from* **5c**

a) Face flat, with long drooping hairs

This is a group of mainly black hoverflies, some with yellow spots on abdomen segment T2.

▶ **Pipizini** ***p.*** *254*

Beware – *Psilota anthracina* (*p. 250*) may also key out here (see **2a**). It is a shining bluish-black hoverfly whose flat face has a strongly pointed mouth-edge.



b) Face strongly projected

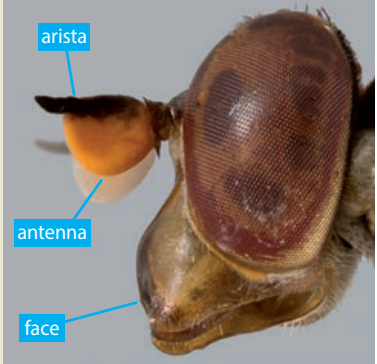
▶ **Cheilosiini:** ***Rhingia*** *p. 194*

Note: *Anasimyia lineata* [**Eristalini**] (*p. 240*) has a similar but less extreme projection, although the strong wing loop distinguishes this species.

c) Face with some projection; Antennae unusual, half-moon-shaped and with a strongly thickened arista

▶ **Pelecocerini:** ***Pelecocera*** *p. 252*

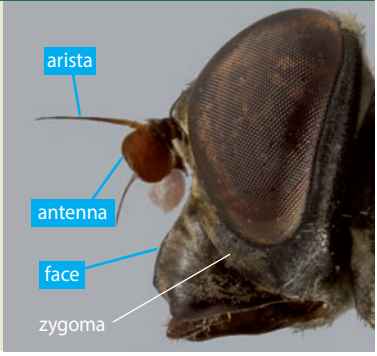
These are relatively small black-and-yellow hoverflies that are confined to the heathlands of southern England and to Scottish conifer woods.



d) Face with some or no projection; Antennae 'normal' with a fine arista

▶ **7**

Note: The species illustrated is *Portevinia maculata* – note the zygoma which is diagnostic of the **Cheilosiini** (see **7a**).



7a) Cheilosiini: *Cheilosia bergenstammi*

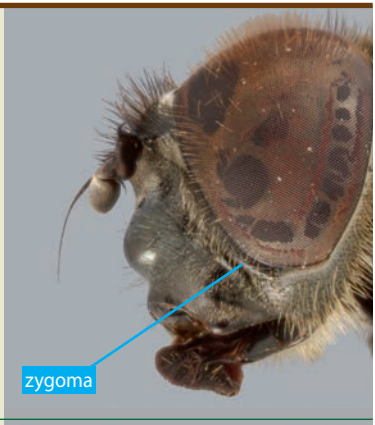
7b) Chrysogastrini: *Lejogaster metallina*

7 *from* **6d**

a) Face with a 'nose' above the mouth – giving the face a somewhat bulbous appearance; zygoma present

▶ **Cheilosiini** ***p. 168***

A heterogeneous group of hoverflies: most *Cheilosia* are black and unmarked, although some are very hairy, and are weak bee mimics; *Portevinia* (*p. 192*) has distinct markings; both *Rhingia* (see **6b**) and *Ferdinandea* (*p. 192*) are colourful and distinctive.



b) Face with no 'nose' – giving the face a strongly concave appearance; zygoma absent

Beware – some species have a slight 'nose', but never as distinct as in **Cheilosiini** (*p. 168*).

▶ **Chrysogastrini** [part] ***p. 196***

A heterogeneous group of dark hoverflies, many of which have a metallic sheen under certain light conditions.

c) Face without projection or bristles:

Wholly brownish-orange – can darken with age

▶ **Chrysogastrini:** ***Hammerschmidtia*** *p. 216*

With a grey thorax and brownish-orange abdomen

▶ **Chrysogastrini:** ***Brachyopa*** *p. 212*

Beware – many species in other fly families are similar in appearance – check the wing for a vena spuria to make sure it is a hoverfly!

Brachyopa scutellaris

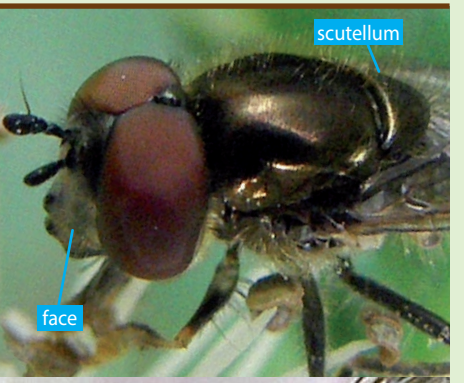
Hoverflies with head concave, making it hard to see the front of the thorax and obscuring the humeri – which are bare

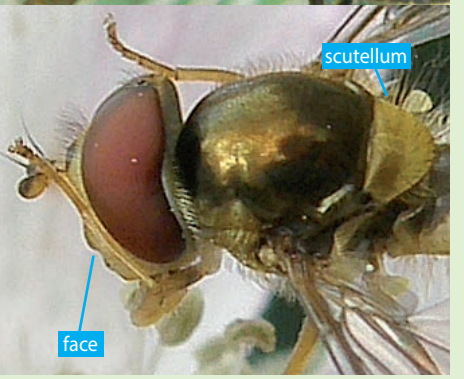
8 *from* **1b**

a) Face ground colour black (although there may be paler dusting over the black ground colour)
Scutellum black

▶ **Bacchini** ***p. 72***

Melanostoma mellinum





b) Face partially or wholly yellow
Scutellum either black or yellow

▶ **9**

Paragus [**Paragini**] (*p. 96*) can have quite a dark face with only weak yellow areas towards the edges.

9 *from* **8b**

a) Tiny black flies with a distinctly narrowed 'waist' to the abdomen
Body length less than 5 mm

Face yellow with central black stripe.

▶ **Paragini:** ***Paragus*** *p. 96*

b) Mainly colourful flies
Body length 5–12 mm

Both face and scutellum usually at least partially yellow, but a small number of species are darker *e.g. Leucozona laternaria* (*p. 118*) [black scutellum]. Some *Melangyna* (*pp. 154–159*) [very dark faces].

▶ **Syrphini** ***p. 98***

Simplified guide to British and Irish hoverfly tribes

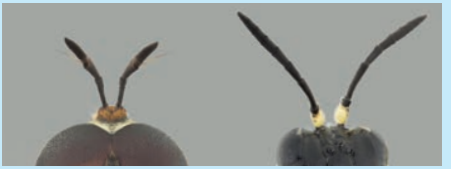
Showing the set of key features to look for.

The figures in the Gen/Spp. column indicate the number of genera within each tribe, the number of species illustrated in the book, and the [total number of species within the tribe].

SYRPHINAE:	THORAX: front obscured; humeri bare:		Gen/Spp.
BACCHINI *p. 72*	**FORM:** generally somewhat elongate **FACE black** **SCUTELLUM: black**		4 genera 15 [30] spp.
PARAGINI *p. 96*	**FORM:** tiny **(≤5mm) black** **FACE** yellow, often obscure, but always with central black stripe		1 genus 1 [4] spp.
SYRPHINI *p. 98*	**FORM:** larger **(≥5–12mm)**; colourful **FACE** some yellow, some with a central black stripe, some black **SCUTELLUM:** often yellow, at least in part		18 genera 58 [85] spp.
ERISTALINAE:	**THORAX: front visible; humeri hairy**		**Gen/Spp.**
ERISTALINI *p. 218*	**WING strong wing loop R_{4+5}** (*cf.* Merodontini: *Merodon*) **LEGS: black/yellow**		8 genera 22 [28] spp.
VOLUCELLINI *p. 270*	**WING outer upper cross-vein re-entrant** **ARISTA: plumose** (*cf.* Merodontini: *Eumerus*; Microdontinae)		1 genus 5 [5] spp.
MERODONTINI *p. 246*	**Heterogeneous tribe: ANTENNA & ARISTA: 'normal'** *Psilota* – **WING vena spuria absent** *Merodon* – **WING strong wing loop R_{4+5}** (*cf.* Eristalini) **LEGS: all black** *Eumerus* – **WING outer upper cross-vein re-entrant** **LEGS** [hind femur]**: enlarged**		3 genera 6 [7] spp.
XYLOTINI *p. 276*	**wing 'normal'** defined as one with no wing loop in R_{4+5} and the upper outer cross-vein neither re-entrant nor strongly upturned – see *page 50* and **3c**, *page 55*	**+ the inner cross-vein R–M meets the discal cell at a point at or beyond middle of the cell**	10 genera 20 [21] spp.
CALLICERINI *p. 164*		**ANTENNA: porrect** **ARISTA: terminal with white tip**	1 genus 3 [3] spp.
SERICOMYIINI *p. 266*		**WING outer upper cross-vein not re-entrant** **ARISTA: plumose**	2 genera 3 [3] spp.
PELECOCERINI *p. 252*		**ANTENNA: half-moon-shaped** **ARISTA: thickened**	1 genus 2 [3] spp.
PIPIZINI *p. 254*		**FACE flat with long drooping hairs** **FORM:** small–medium, predominantly **black**	5 genera 10 [20] spp.
CHEILOSIINI *p. 168*		**FACE nose-like central prominence; zygoma present**	4 genera 21 [43] spp.
CHRYSOGASTRINI *p. 196*		Heterogeneous tribe with no consistent features; predominantly small–medium-sized dark hoverflies with concave faces; some spp. metallic; a few spp. colourful – **see *Guide to Chrysogastrini* for more information** (*p. 196*)	10 genera 19 [29] spp.
MICRODONTINAE: *p. 298*	**WING outer upper cross-vein re-entrant** **ANTENNA: porrect** (*cf.* Volucellini, Merodontini: *Eumerus*)		1 genus 4 [4] spp.

Identifying wasp and bee mimics (see also *page 30*)

The following pages cover the identification of hoverflies that mimic members of the Hymenoptera (such as bees, bumblebees and wasps), although the quality of the mimicry is sometimes open to question! If there is any doubt as to whether an individual is a hoverfly or a hymenopteran, look at the shape and details of the antennae. Typical examples are illistrated here.



Hoverfly (Diptera)
3 antennal segments

Hymenopteran
long, filamentous

Wasp mimics

WING VENATION see *pp. 54–55*

Social wasp/hornet mimics

ARISTA **plumose**

WING **upper outer cross-vein re-entrant**; HIND LEGS **dark**

Beware – care is needed to separate the two *Volucella* spp.

ABDOMEN UNDERSIDE **S2 black**

Volucella zonaria *p. 274*

ABDOMEN UNDERSIDE **S2 yellow**

Volucella inanis *p. 274*

WING **'normal', upper outer cross-vein not re-entrant**; HIND LEGS **brown**

Sericomyia silentis *p. 268*

Social wasp mimics

ARISTA **porrect**

***Chrysotoxum* spp. (especially *C. cautum*)** *pp. 31, 102–107*

NOTE: *Chrysotoxum* spp. make a very good job of mimicking a social wasp's 'kneed' antennae in side view, especially when the 3rd segment is held drooped at an angle to the first two. The rather arched shape of the abdomen also adds to the deception.

Wasp mimics

ARISTA **'normal'**

most other black-and-yellow hoverflies

NOTE: Many species have yellow bands or spots and appear to mimic social and solitary wasps. The effectiveness of this mimicry is debatable, but it must be considered from the perspective of an animal in flight where the movement forms part of the illusion.

Wasp species that hoverflies mimic: Hornet *Vespa crabro* (TOP) and Common Wasp *Vespula vulgaris* (BOTTOM)

Honey-bee and other bee mimics

WING VENATION see *pp. 54–55*

Honey-bee mimics

WING **loop in vein R_{4+5} present**

LEGS **hind tibia curved and enlarged, with stiff hairs that resemble a pollen basket**

Eristalis tenax *pp. 31, 224*

NOTE: Other *Eristalis* (see *p. 220*) are less convincing bee mimics.

LEGS **hind femur enlarged, hind tibia not curved;** FORM **greenish hue**

Mallota cimbiciformis *p. 236*

WING **'normal';** FACE **mouth elongated downwards** (see *p. 293*)

LEGS **hind femur not enlarged**

Criorhina asilica *p. 292*

NOTE: All *Criorhina* (see *p. 292*) are convincing bee mimics.

Mining bee mimic

WING **'normal'**; FACE **zygoma present – diagnostic of genus** (see *p. 170*)

Cheilosia chrysocoma *p. 186*

NOTE: Other furry *Cheilosia* – *C. albipila* (*p. 184*) and *C. grossa* (*p. 184*) – are sometimes described as bee mimics but are unconvincing.

Solitary bee/honey-bee mimics

WING **'normal'**; LEGS **hind femora enlarged**

LEGS **hind femora enlarged (arched in ♂);** THORAX **underside bare**

Brachypalpus laphriformis *p. 282*

LEGS **hind femora enlarged (straight in both sexes);** THORAX **underside hairy**

Chalcosyrphus eunotus *p. 284*

NOTE: See *p. 283* for a comparison of thorax undersides.

Three bees that hoverflies mimic: Honey-bee *Apis mellifera* (LEFT), a mason bee *Andrena carantonica* (CENTRE) and a mining bee *Osmia bicornis* (RIGHT)

Bumblebee mimics

WING VENATION see *pp. 54–55*

Once established as a hoverfly, the bumblebee mimics can present an identification challenge, especially as similar-looking species are found across a wide range of genera. However, a good knowledge of hoverfly genus identification characters, as presented here, should enable identification of any hoverfly bumblebee mimic encountered.

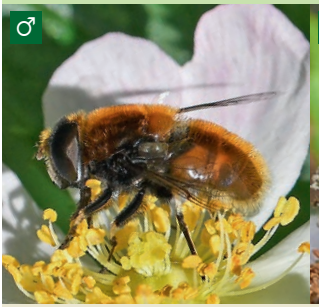
WING **loop in vein R_{4+5} present**

LEGS **hind legs all-black, triangular projection on femur**

Merodon equestris *pp. 29, 248*

4–7 colour forms are recognised but the wing and hind leg features are consistent in every form.

LEGS **hind legs partly pale, no projection on femur**



Eristalis intricaria *p. 228*

Sexually dimorphic: males are dark with a reddish-brown 'tail'; females are somewhat larger and have a white 'tail'.
Beware – a few can look more like 'typical' *Eristalis* (see *page 220*).

WING **loop in wing vein R_{4+5} absent** 1/2

ARISTA **plumose**

WING **upper outer cross-vein re-entrant**

Volucella bombylans *pp. 31, 270*

3 colour forms: a black form with a red-orange 'tail' resembling *Bombus lapidarius*; a black-and-yellow form resembling *B. lucorum*; and an entirely buff-coloured form, resembling *B. pascuorum*. The wing features are consistent across the forms.

WING **'normal', upper outer cross-vein not re-entrant**

Sericomyia superbiens *p. 266*

Upland and western distribution.

NOTE: Could be confused with the buff form of *Volucella bombylans* [check wing venation] or potentially *Criorhina floccosa* and *C. berberina* (*opposite*) [check arista].

WING **'normal'; loop in wing vein R_{4+5} absent** **2/2**

ARISTA **'normal'; bare or pubescent**

HEAD **disproportionately small in comparison to body**

Pocota personata *p. 296*

FACE **mouth elongated downwards – diagnostic of *Criorhina*** (see *p. 293*)

Criorhina ranunculi *p. 292*

Several colour forms (with a red, orange or white tail) that mimic different species.

FACE **entirely yellow – unique among mimics**

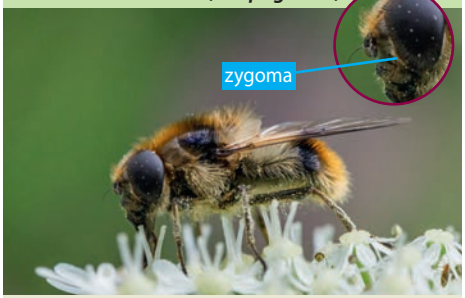
Eriozona syrphoides *p. 116*

Beware – can be confused with *Criorhina* that have golden-yellow dusting on the face.

Criorhina berberina *p. 294*

C. berberina (ABOVE) has two forms: one dark with a buff stripe across the thorax and a pale 'tail'; and one entirely buff-coloured that looks similar to *C. floccosa* (BELOW). The two species can usually be separated by their antenna colour.

FACE **zygoma present – diagnostic of Cheilosiini (see *page 170*)**



Cheilosia illustrata *p. 176*

Criorhina floccosa *p. 294*

A guide to the most frequently photographed hoverflies

These plates show the 36 species that are most often photographed and aims to provide a visual guide to what you are most likely to see in urban gardens, parks, *etc*. Looking at pictures alone will not always get you to a firm identification, but these plates should help to point you in the right direction if you are having trouble with the **Guide to the tribes** (see *page 53*). Some species/genera are very similar (*e.g. Epistrophe* and *Megasyrphus* are often mistaken for *Syrphus*). Coloration may be influenced by the temperature at which larvae develop (see *page 28*) and it is therefore not possible simply to rely on colour patterns. It also helps to check the distribution maps and flight time diagrams to rule out species that are unlikely to occur where and when a photo was taken! The section on **Photographing hoverflies** on *page 311* provides useful tips for obtaining good, identifiable images.

The smaller, grey images show the hoverfly's actual size. The frequency ranking of each species is shown before its name (*e.g.* 1 to 36), but similar-looking species are shown together. The species have an 'ease of identification' colour code (● = hard; ● = care needed; ● = easy), and, where relevant, a list of species they have been confused with (! = frequently; ! = rarely).

20 ● *Volucella bombylans* ♀ (*p. 270*)
! *Merodon equestris, Cheilosia illustrata, Eristalis intricaria* [see *pages 64–65*]

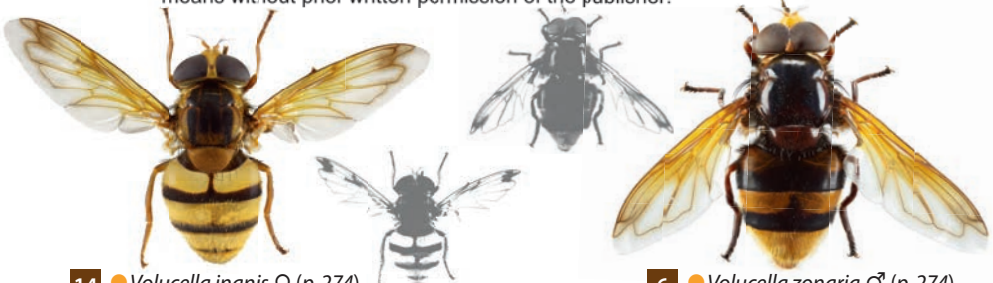
9 ● *Merodon equestris* ♀ (*p. 248*)
! *Eristalis intricaria, Volucella bombylans, Criorhina* spp. [see *pages 64–65*]

30 ● *Cheilosia illustrata* ♂ (*p. 176*)
! *Volucella bombylans* [see *page 64*]

18 ● *Eristalis intricaria* ♂ (*p. 228*)
! *Volucella bombylans* [see *page 64*]

29 ● *Leucozona lucorum* ♂ (*p. 116*)
! *Volucella pellucens* [*p. 272*]

8 ● *Volucella pellucens* ♀ (*p. 272*)
! *Leucozona lucorum* [*p. 116*]



14 ● *Volucella inanis* ♀ (*p. 274*)
! *Volucella zonaria* [*p. 274*]

6 ● *Volucella zonaria* ♂ (*p. 274*)
! *Volucella inanis* [*p. 274*]

16 ● *Sericomyia silentis* ♂ (*p. 268*)
! *Volucella zonaria* [*p. 274*]

34 ● *Chrysotoxum festivum* ♂ (*p. 102*)
! *Chrysotoxum vernale* [*p. 106*]

28 ● *Chrysotoxum bicinctum* ♀ (*p. 102*)
! *Dasysyrphus tricinctus* [*p. 120*]

36 ● *Dasysyrphus albostriatus* ♀ (*p. 120*)

25 ● *Syrphus* sp. ♂ (*pp. 132–135*)
! Other *Syrphus, Eupeodes* spp. [see *pages 128–129*]
Epistrophe grossulariae [*p. 138*]

33 ● *Epistrophe grossulariae* ♀ (*p. 138*)
! *Syrphus ribesii* [see *pages 100, 128–129*]

27 ● *Meliscaeva auricollis* ♀ (*p. 160*)
! *Platycheirus scutatus* [*p. 88*]

1 ● *Episyrphus balteatus* ♂ (*p. 162*)

13 ● *Eupeodes luniger* ♂ (*p. 147*)
! Other *Eupeodes* [*pp. 148–151*]
! *Scaeva pyrastri* [*p. 126*]

11 ● *Scaeva pyrastri* ♂ (*p. 126*)
! *Eupeodes luniger* [*p. 147*]

15 ● *Eupeodes corollae* ♂ (*p. 148*)
! Other *Eupeodes* [*pp. 147–151*]

19 ● *Xanthogramma pedissequum* ♀ (*p. 110*)
! *Xanthogramma stackelbergi* [*p. 110*]

7 ● *Melanostoma scalare* ♀ (*p. 94*)
! Other *Melanostoma* [*p. 94*], some *Platycheirus* [*p. 75*]

35 ● *Leucozona glaucia* ♂ (*p. 118*)
! *Leucozona laternaria* [*p. 118*]

23 ● *Epistrophe eligans* ♂ (*p. 136*)
! *Eristalis* spp. [*p. 220*]

22 ● *Platycheirus albimanus* (*p. 84*)
! *Platycheirus scutatus* [*p. 88*]

17 ● *Sphaerophoria scripta* ♂ (*p. 114*)
! Other *Sphaerophoria* [*p. 112*]

10 ● *Syritta pipiens* ♂ (*p. 290*)
! *Tropidia scita* [*p. 290*]

3 ● *Eristalis pertinax* ♀ (*p. 224*)
! *Eristalis tenax* [*p. 224*]

ERISTALIS SPP.
! Other *Eristalis* [*p. 220*]
! *Epistrophe eligans* [*p. 136*]

4 ● *Eristalis tenax* ♂ (*p. 224*)
! *Eristalis pertinax* [*p. 224*]

24 ● *Eristalis arbustorum* ♂ (*p. 232*)

32 ● *Eristalis nemorum* ♀ (*p. 226*)

31 ● *Eristalis horticola* ♂ (*p. 230*)

5 ● *Myathropa florea* ♀ (*p. 236*)

2 ● *Helophilus pendulus* ♀ (*p. 242*)

HELOPHILUS SPP.
! Other *Helophilus* [*p. 242*]
! *Parhelophilus* spp. [*p. 238*]

21 ● *Helophilus trivittatus* ♂ (*p. 244*)

26 ● *Xylota segnis* ♂ (*p. 288*)

12 ● *Rhingia campestris* ♂ (*p. 194*)
! *Rhingia rostrata* [*p. 194*]

Introduction to the species accounts

ACCOUNT ORDER
The species accounts are arranged by sub-family and tribe as follows: Syrphinae (3 tribes), Eristalinae (10 tribes) and Microdontinae (1 genus). There is an introductory guide to each tribe that highlights the key identification features and presents a key to its genera.
See also **Guide to the tribes** on *page 53*.

GENERA
A brief introduction to the genus includes the main distinguishing features and a general statement about larval biology. Genera with numerous species may have a table of 'pointers' to assist in identification to species.

SPECIES
Species are organised so that similar-looking species appear as close together as practicable or in alphabetical order. **An index of genera is given on the back flap of the cover**.

SPECIES ACCOUNTS
Each account is structured in a consistent way to highlight key identification features, indicate similar species, and provide observation tips, as explained *below*:

The icons for each species indicate how straightforward a species is to identify:

- Can be identified in the field (with experience).
- Identifiable in the field by close examination by capturing the hoverfly and using a hand lens.
- Requires examination of a dead specimen under a microscope.

The camera icons indicate how straightforward it is to identify the species from photographs:

- Identifiable in the majority of cases from good photographs.
- Identification often possible using a suite of good photographs (top-down, side-on and head-on).
- Identification unlikely to be possible from photographs (microscopy required).

In tables, species that are illustrated are highighted in ***bold italics***; species that are not illustrated are in *italics* (*red* if threatened or rare). Vagrant species are shown in *blue text*.

Red List status: For Europe (TOP) and Britain (BOTTOM) (see *page 302*)

NT
LC

Scientific name

Wing length: range in mm (thick bar = min.; thin bar = max.); shown at actual size as scale bar (LEFT).

Identification: Brief summary of key identification features.

Similar species: Species with which confusion is most likely; those not illustrated are coded (N/I).

Observation tips: Behavioural features relevant to identification and comments on distribution or records in Britain and Ireland.

MAIN IMAGES – Bearing in mind the challenges of photos and perspective, an attempt has been made to present the species to scale – the approximate scale used is shown on the plate.

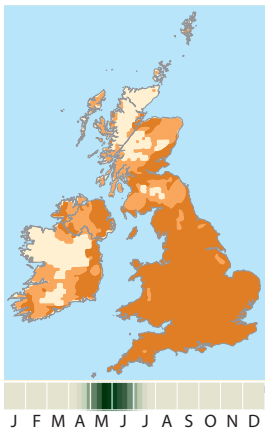
Identification icons: (see *above*)

Nationally Scarce

UKBAP Priority Species

GB: Widespread ▲

Ir: Frequent



GB/UK status: Nationally scarce/UKBAP (see *page 302*)

Frequency: Based on recording scheme data for Britain (GB) and Ireland (Ir) (see *opposite* for explanation). For GB, the trend is also given:
▲ increasing
▼ decreasing
= no significant change

Distribution map: Based on recording scheme data (see *opposite* for explanation):
- most records
- some–few records
- no records

Flight-period: Frequency of records each week in Britain (Jan 2000 to Sep 2022): the darkest shading represents the peak flight-period(s)

(continued...)

Index

This index includes the *scientific* names of all the hoverfly species mentioned.

Bold black text is used for species that are afforded a full account;
bold brown is used for tribes and sub-families.

Bold black numbers indicate the main species account.

Numbers in *italicised* text refer to the list of British and Irish hoverflies.

Numbers in regular text refer to other key pages.