

# Suborder Nematocera

Antennae often long and thread-like, with more than 5 segments, although these are occasionally indistinctly separated. Almost never with a closed anal cell. Many of the families in this group are lightly built flies with long legs.

Representatives of 25 families are to be found in Britain. From my suburban garden in central southern England, I have found members of 18 families and collecting elsewhere in the area I have found another four. This means you are likely to get to know the majority of the British families without much travel if you live in the south.

This key is based in the first instance on that by Unwin (1981) "A key to the families of British Diptera" published in *Field Studies* 5(1981) 513-533. This key is now out of print but has been placed on the Field Studies website at [http://fsj.field-studies-council.org/media/351875/vol5.3\\_143\\_a.pdf](http://fsj.field-studies-council.org/media/351875/vol5.3_143_a.pdf). This key was produced before the more recent family revisions within superfamilies Tipuloidea, Anisopodoidea and Sciaroidea and can be used with reasonable confidence to identify 17 of the families. The introductory key taking you to Nematocera includes a comment about there being no closed anal cell, but some species of *Bolitophilus* (Bolitophilidae) have the posterior fork of vein cu looping round to meet the anal vein at the wing margin and certainly to a novice this looks like a closed anal cell; the antennae in this family are however, thread-like which would lead to Nematocera. In my experience this key also made identification of *Mycetobia* and two genera of Psychodidae difficult or impossible.

## Infraorder Tipulomorpha

Superfamily Tipuloidea

**Tipulidae**  
**Cylindrotomidae**  
**Pediciidae**  
**Limoniidae**

## Infraorder Bibionomorpha

Superfamily Bibionoidea

**Bibionidae**

Superfamily Sciaroidea

**Bolitophilidae**  
**Diadocidiidae**  
**Ditomyiidae**  
**Keroplastidae**  
**Mycetophilidae**  
**Sciaridae**  
**Cecidomyiidae**

## Infraorder Psychodomorpha

Superfamily Psychodoidea

**Psychodidae**

Superfamily Trichoceroidea

**Trichoceridae**

Superfamily Anisopodoidea

**Anisopodidae**

**Mycetobiidae**

Superfamily Scatopsoidea

**Scatopsidae**

## Infraorder Ptychopteromorpha

Superfamily Ptychopteromorpha

**Ptychopteridae**

## Infraorder Culicomorpha

Superfamily Culicoidea

**Dixidae**

**Chaoboridae**

**Culicidae**

Superfamily Chironomoidea

**Thaumaleidae**

**Simuliidae**

**Ceratopogonidae**

**Chironomidae**

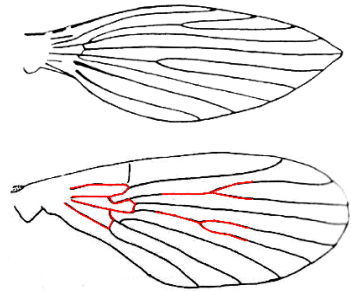


## Key to the families of British diptera in suborder Nematocera

- 1 Very small flies with wings up to 4.5 mm. long but usually much smaller. Wings with 8-11 veins reaching the wing margin and with none of these linked to one another in the outer part of the wing (some linked towards the base and two of the veins usually forked near the middle). Wings, body and legs often covered with long hairs. ....

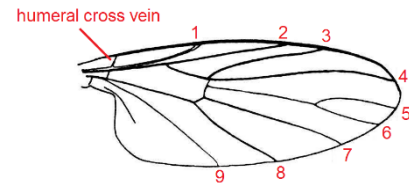
### ..... **Family PSYCHODIDAE**

These flies have been given various names including owl midges, moth flies and drain midges. In spite of their small size they often attract attention as they are attracted to light, and often occur in large numbers around compost heaps and other rotting substrates. Most genera key here.



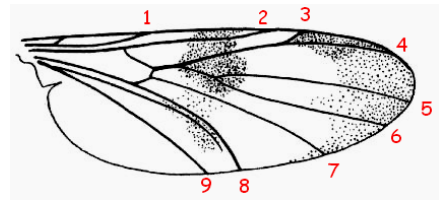
Larger flies, or smaller ones with less than 10 long veins reaching the wing margin. ....2

- 2 Wings with 9 or more veins or branches reaching the margin, (not counting the humeral cross vein). .....3



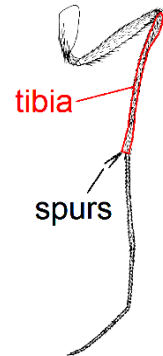
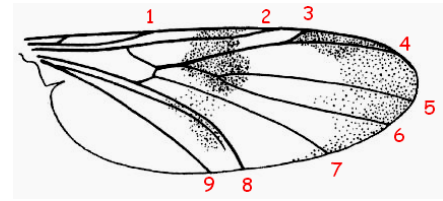
Wings with fewer than 9 veins or branches reaching the margin. ....19

3 Exactly 9 veins reaching the wing margin. ....4



More than nine veins reach the wing margin. ....5

- 4 Wing with a short branch joining front margin three-quarters of the way to the tip (the one labelled 3). Delicate, humped-backed flies with long, thread-like antennae and a pair of spurs on all tibiae. ....25



EITHER with spurs absent from the tips of *all* the tibia OR without a very short branch joining the front margin near the tip of the wing. ....5

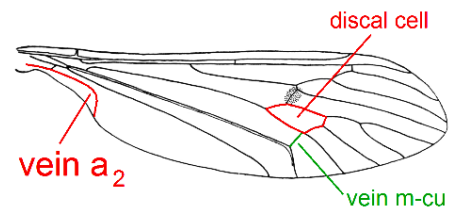
- 5 Ocelli present. ....6  
The ocelli are placed on the top of the head between the compound eyes.  
They are usually arranged more or less in an equilateral triangle and on a  
slight hump.



Ocelli absent. ....8

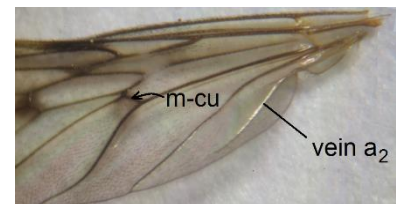
- 6 Top of the thorax with a V-shaped furrow. Wing with vein  $a_2$  short and curved and reaching the margin. ....  
 ..... **Family TRICHOCERIDAE**

Cross vein m-cu meeting the discal cell close to its tip. The species of this family are most commonly found in the colder months of the year and are known as the winter gnats.



Top of thorax smoothly domed, without this furrow. Wing with vein  $a_2$  longer and fading before reaching the margin.

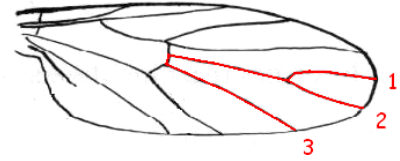
.....<sup>7</sup>  
 Cross vein m-cu meeting the discal cell near its base or meeting another vein very close to the discal cell OR discal cell absent.



- 7 Medial sector of the wing reaching the wing margin as three veins and with vein m not continuing back to the base of the wing. Discal cell absent. Wings without dark markings and without hairs on the wing surface. Antennae shorter. Wing length 2.5-4 mm. ....

..... **Family MYCETOBIIDAE**

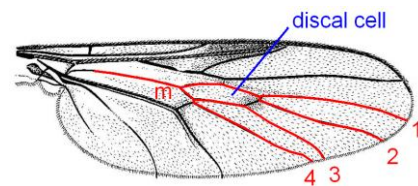
Three species occur in the British Isles, all in genus *Mycetobia*.



Medial sector of the wing reaching the wing margin as four veins and with a cross-vein connecting the two pairs of veins to form a discal cell. Vein m continuing back to the base of the wing. Wings with dark markings and with hairs present on the wing surface at least towards the tip. Wing length 4-7.5 mm. ....

..... **Family ANISOPODIDAE**

These are the window midges. All four British members of this family belong to genus *Sylvicola*.

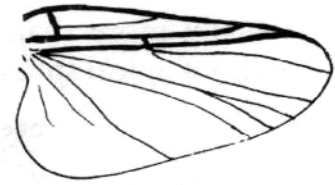




- 8 Wings relatively broad, with the veins towards the leading edge thicker; the other veins are weak and are not linked by cross veins. ....

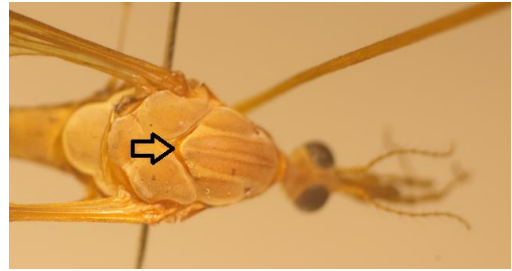
..... **Family SIMULIIDAE**

These are the blackflies, which are sometimes notorious biting insects with aquatic larvae.



Wings relatively narrower, with veins roughly equal in strength. ....9

- 9 Top of thorax with an obvious V- or U-shaped furrow, just in front of the base of the wings. ....[10](#)

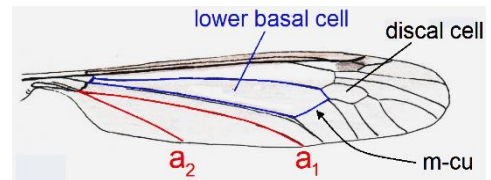


- Top of thorax smoothly domed, without this furrow. ....[14](#)

- 10 Two anal veins present behind the lower basal cell. Superfamily Tipuloidea - the crane flies.

11

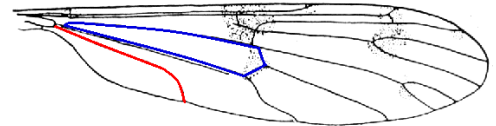
These are the crane flies. If vein  $a_2$  is very short and curved, you probably have a species of family Trichoceridae. These have ocelli but these are not visible if the head has collapsed. These species always have cross vein m-cu joining the discal cell level with its *outer* end. The wing is illustrated in [couplet 6](#).



Only one anal vein present. ....

..... **Family PTYCHOPTERIDAE**

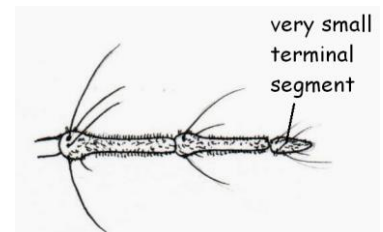
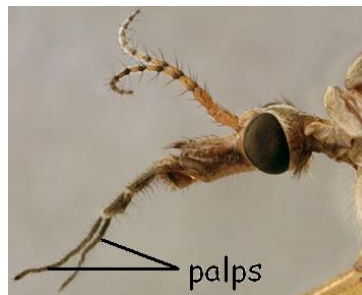
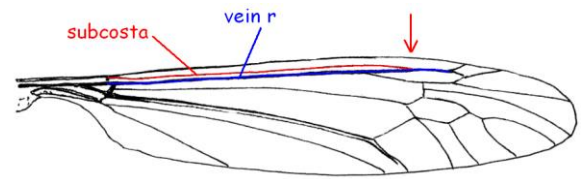
One genus *Ptychoptera*.



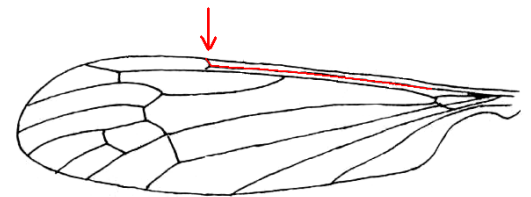
## The crane fly families

- 11 Wing with the subcosta (red) curving downwards at the tip and ending in vein r (blue). Palps long, the last segment almost always as long as the previous three together. Antennae usually 13-segmented (counting the usually tiny last segment). Large to medium-sized insects.

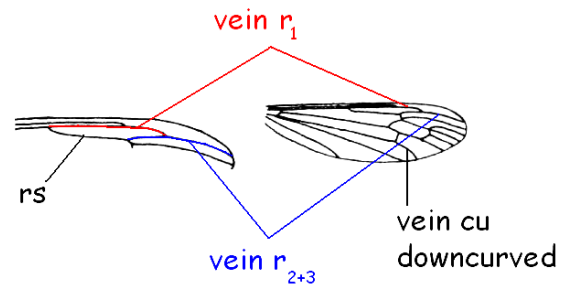
..... **Family TIPULIDAE**



Subcosta usually curving upwards at the tip and linking with the costa, but normally linked to vein r by a small cross vein. Palps usually short, the terminal segment at most as long as the previous two segments. Antennae usually 14- or 16-segmented. Small to medium-sized insects. ....[12](#)



- 12 Vein Rs divided into two branches *and* tibiae spurred. Tip of vein  $r_1$  (red) clearly down-curved and ending in vein  $r_{2+3}$  (blue). Vein cu down-curved towards the hind margin of the wing after cross vein m-cu meets it. ....  
 .... **Family CYLINDROTOMIDAE**

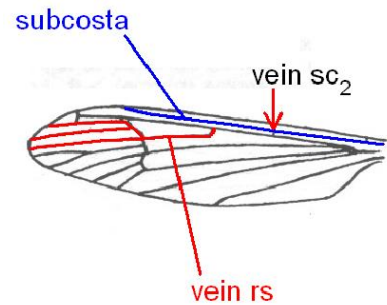


Rs with three branches *or* tibiae without spurs. Tip of vein  $r_1$  ending at the edge of the wing. Vein cu straight or only slightly curved after cross vein m-cu meets it. ....13

- 13 Vein  $r_s$  dividing into three branches *and* tibial spurs present even if small *and* eyes pubescent *and* cross vein  $sc_2$  near the middle of the subcosta well before vein  $r_s$  leaves vein  $r$ . Cell M1 nearly always present (i.e. vein  $m_1$  forked = the Y below the veins marked red). .....

..... **Family PEDICIIDAE**

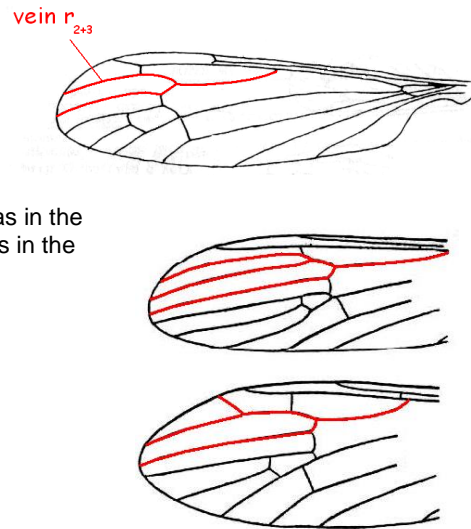
Vein  $sc_2$  links the subcosta to the next vein back.



Vein  $r_s$  dividing into two to three branches. Tibial spurs present or absent. Eyes bare. Cross vein  $sc_2$  nearer the tip of the subcosta after vein  $r_s$  leaves vein  $r$ . .....

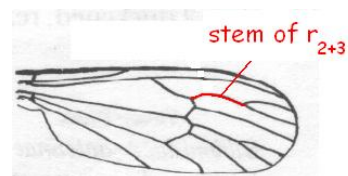
..... **Family LIMONIIDAE**

**NOTE.** A vein leaving vein  $r_{2+3}$  and linking to the vein above (as in the upper diagram) is not counted. If it goes to the wing margin (as in the bottom diagram) it is counted.



- 14 Stem of vein  $r_{2+3}$  long and curved. ....  
..... Family **DIXIDAE**

If vein  $r_{2+3}$  is not forked as shown here, check again for ocelli  
([couplet 4](#)). Anisopodidae may key here if the ocelli have been  
missed.

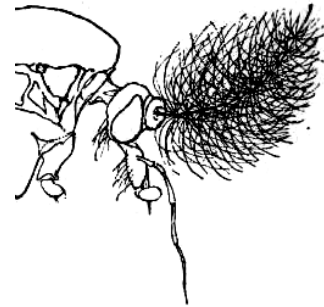


Stem of vein  $r_{2+3}$  straight. ....[15](#)

- 15 Mouth-parts relatively short extending forwards by little more than the height of the head. On the wing, scales are almost confined to the wing fringe. Body very pale brown with a white stripe on each side of the thorax. Cross vein m-cu often absent. ....

..... **Family CHAOBORIDAE**

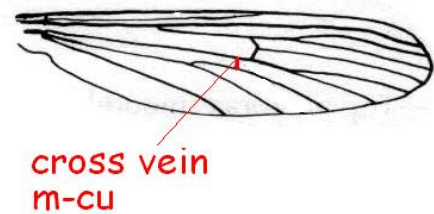
These are the phantom midges, so called because of the ghostly appearance of their aquatic larvae.



Mouth-parts forming a long, rigid proboscis which is about three times as long as the height of the head. Scales present on wing veins and legs and often the body as well, often forming, for example, coloured bands on the abdomen. ...

..... **Family CULICIDAE**

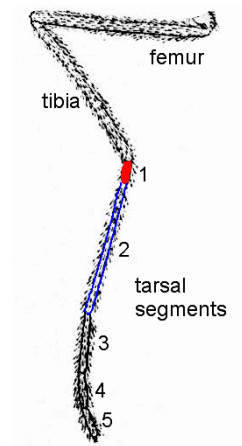
These are the mosquitoes.





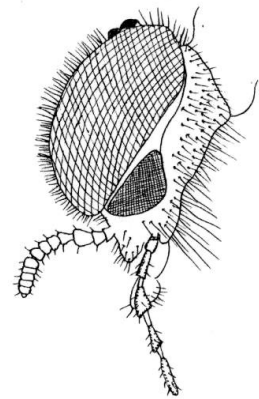
- 16 First tarsal segment very short, usually less than a quarter of the length of the second. ....  
..... **Family CECIDOMYIIDAE**

Usually very small, delicate flies with broad and often hairy wings with only 2-6 veins reaching the margin. Antennae usually long with bead-like segments, often adorned with whorls of hair. The gall midges of several subfamilies key here.



First segment of the tarsus well over a quarter of the length of the second. ....[17](#)

- 17 Antennae inserted very low down on the head, near the mouth opening and below the compound eyes. ....18

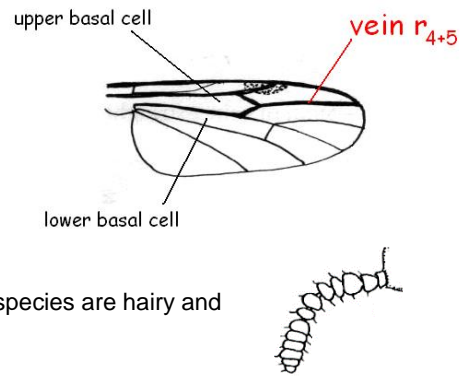


Antennae inserted in between the eyes, level with half way up the eyes or above.  
.....19

- 18 Vein  $r_{4+5}$  thickened and reaching the margin well before the wing tip. Basal cells long, the upper basal cell extending to the middle of the wing; lower basal cell sometimes reaching beyond the upper. Segments of the antennae all about the same width, tapering only slightly near the tip. ....

..... **Family BIBIONIDAE**

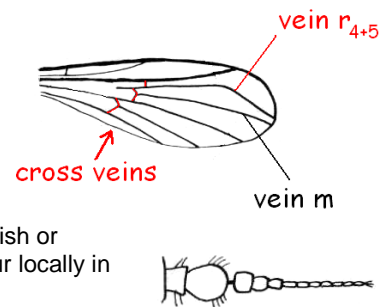
Some would see these as being rather ugly looking flies. Most species are hairy and black and have spines on the legs and thorax.



Vein  $r_{4+5}$  not thickened, convergent with vein m and reaching the margin at the wing tip. Basal cells shorter, closed well before half way across the wing. Segments of the antennae tapering noticeably after the first two. ....

..... **Family THAUMALEIDAE**

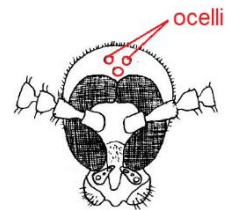
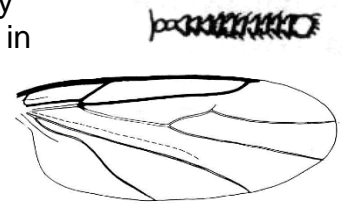
One British genus, *Thaumalea* with three species. Small bare, brownish or yellowish flies. Larvae usually found in upland stony streams but occur locally in clean streams in lowland areas.



- 19 Antennae short and compact with the segments not very distinct (this due in part to the fact they are usually dark in colour). Eyes often meeting above the antennae just in front of the ocelli. Wings with the front veins much stronger than the others. ....

..... **Family SCATOPSIDAE**

Small to minute, often black, flies.

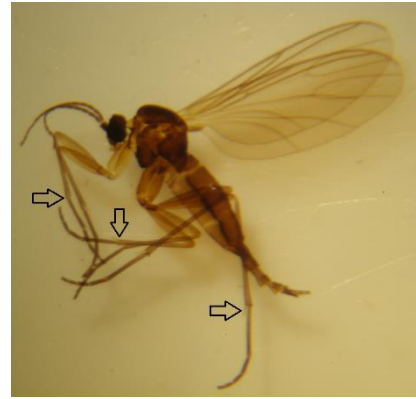
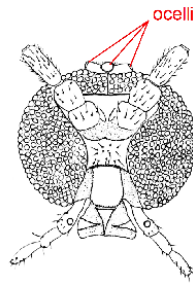


NOTE. If the antennae and the wings agree but the eyes do not meet above the antennae check the wings. Family Simuliidae have the compact antennae and strong veins only on the front of the wing, but the wings are much broader. If you missed the very faint veins marked with red arrows you will have counted seven veins on the wing and you will arrive here. See [couplet 8](#).



Antennae not of this form, usually much longer and always more delicate. With or without the other characters, but not in combination. ....[20](#)

- 20 Tibiae with apical spurs (1-2 spines at the tips).  
Ocelli present. ....21

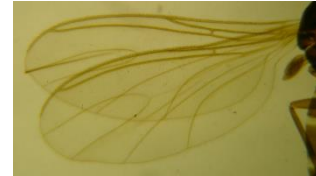
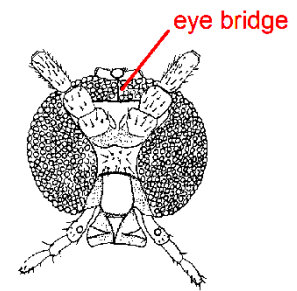


- Tibiae without spurs (or spurs quite small, those on the front tibiae usually shorter than the diameter of the tibia). Ocelli absent or present. ....22

- 21 Eyes meeting above the antennae to form an eye bridge.  
Wings often with the veins near the front margin thicker and darker than those further back. ....

..... **Family SCIARIDAE**

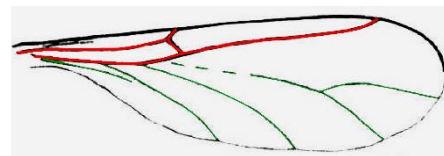
Delicate flies, head often overhung by a humped thorax; antennae long, usually thread-like; leading edge wing veins well-marked, others rather faint.



Eyes rounded and formed of relatively few facets. Wings with two long strong veins at the front with all the other veins branching off the second of these. ....

..... **Family SCIARIDAE**

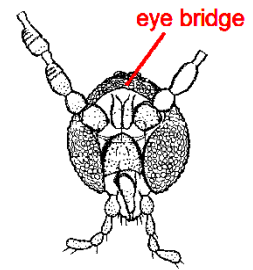
Males of *Pnyxia scabieia* key to here. The females lack wings and halteres and are not obvious as flies.



Eyes often curving towards one another above the level of the antennae, but always clearly separated. Veins of the wing not all arising from a single stem.

.....22

- 22 Eyes linked together above the antennae by an eye bridge.  
Ocelli usually present. ....  
..... **Family CECIDOMYIIDAE**  
Subfamilies Lestremiinae and Micromyinae key here.

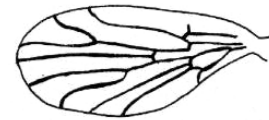


Eyes not meeting above the antennae, although they may be kidney-shaped and approach one another towards the top of the head. Ocelli absent. ....[23](#)

23 Eight veins reach the margin of the wing. ....

..... **Family PSYCHODIDAE**

The three British species of genus *Sycorax* key here. Their larvae are associated with wet moss near springs or water trickles.



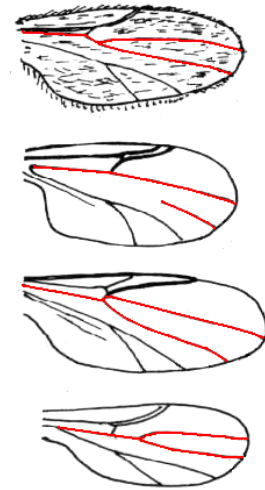
Fewer than seven veins reach the margin of the wing. .... [24](#)



- 24 Vein m dividing into two veins, thus forming a Y-fork (occasionally one of the branches of the fork is not linked to the stem at the base). .....

..... **Family CERATOPOGONIDAE**

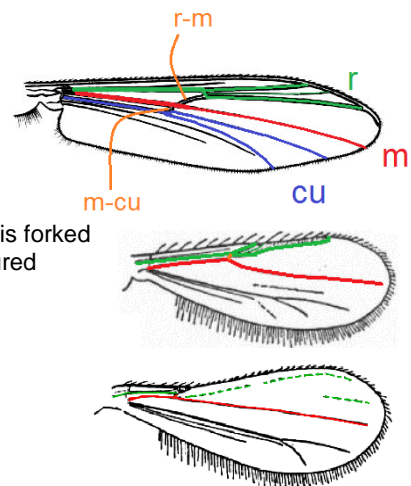
Minute flies. Mouth-parts short and adapted for piercing in some species (the biting midges). Cross-vein m-cu never present linking vein m (shown in red) to vein cu (which forms a Y-fork behind it). Sometimes with small spines under the hind femora.



Vein m never forked, or wings with reduced venation. ....

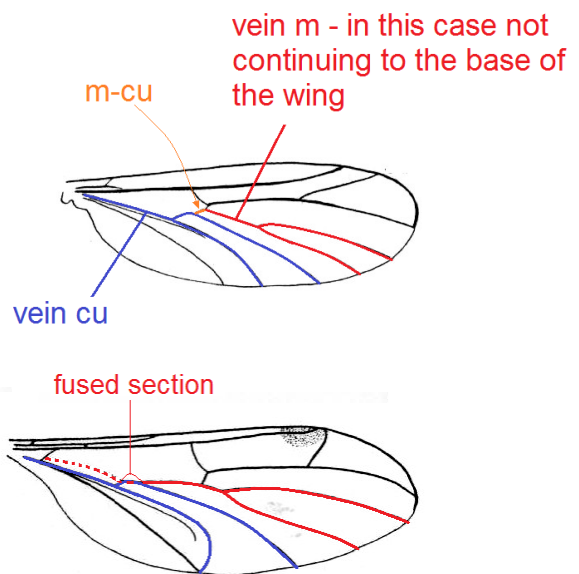
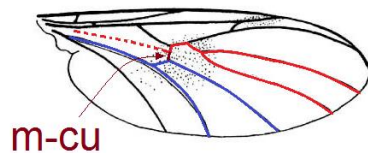
..... **Family CHIRONOMIDAE**

The non-biting midges. Delicate gnat-like flies, often with the head overhung by the thorax. Mouth-parts poorly developed. Never with small spines beneath the hind femora. Cross vein m-cu sometimes present linking vein m to vein cu. Confusion arises if the veins connected to vein m are misinterpreted. It is easy to think that vein m is forked via r-m (coloured orange) continuing on the last branch of vein r (coloured green). Once this is appreciated, the families are easily separated.

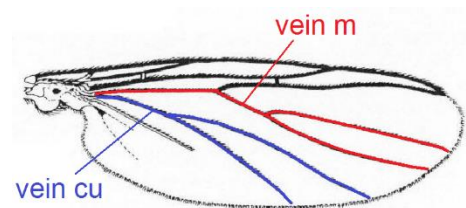


## The fungus gnat families

- 25 The veins forming the fork of vein m are connected by a cross vein to those of vein cu OR the two are fused together along a short section. ....26



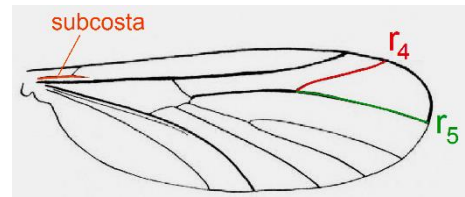
The veins forming the fork of vein m and the fork of vein cu are separate to the base of the wing without a cross vein linking them. ....  
..... **Family MYCETOPHILIDAE**



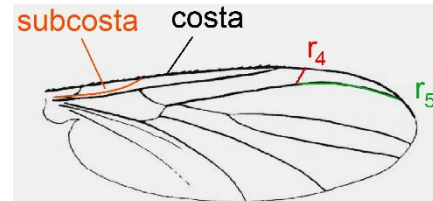
- 26 Vein  $r_4$  present and long, generally at least half as long as vein  $r_5$  and ending at the wing margin. Subcosta short and not merging with another vein at its tip, just fading out. ....

..... **Family DITOMYIIDAE**

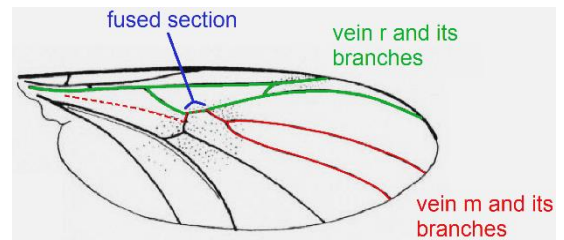
Includes two genera, *Ditomyia* and *Symmerus* with one and two species respectively.



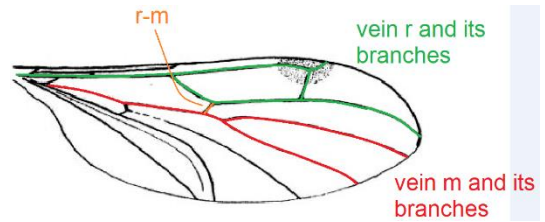
Vein  $r_4$  absent or weak, OR if present then less than half as long as vein  $r_5$  and joining the edge of the wing or the next vein forward from it. Subcosta almost always long and ending distinctly in the costa. ....27



- 27 Vein m and part of vein r fused for a short distance. ....  
 ..... **Family KEROPLATIDAE**



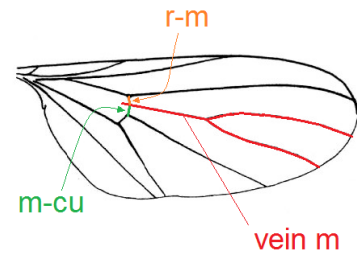
Vein m and its branches separated from vein r and its branches but linked by a cross vein (r-m). .....28



- 28 Cross veins m-cu and r-m in line. Vein m fading near the cross veins and not connecting to the base of the wing. ....

..... **Family DIADOCIDIIDAE**

Three species belong to this family, all in genus *Diadocidia*. Two species are common and widespread.



Cross vein m-cu much nearer the base of the wing than r-m. Vein m connecting to the base of the wing, albeit rather weakly and actually merged with the front branch of the fork of vein cu (green) for part of its length. ....

..... **Family BOLITOPHILIDAE**

One genus *Bolitophilus* in the British Isles with 16 species, three of which are very common and widespread.

