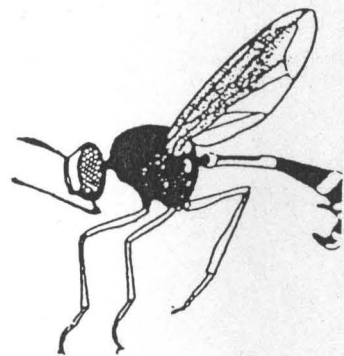


# Conopid Recording Scheme



INCORPORATING THE LONCHOPTERIDAE STUDY GROUP

Newsletter No.6

June 1995

Further disruption during 1994/95 continues to keep me fully occupied. A change of employers has meant a return to Cardiff after an absence of more than 10 years, with all the upheaval that entails. A house-move and change of address will occur in the near future (I hope!), but in the meantime all correspondence should continue to be sent to my Cirencester address.

The bulk of this newsletter comprises a set of draft keys to the British fauna, prepared originally for the conopid and larger Brachycera identification workshop at Preston Montford earlier this year, and incorporating useful comments arising at that time. These keys include reference to the more likely of the potential additional species from the European fauna, many of which are very similar to recognised British species. I have not attempted to include these within the keys, but have instead given details of 'alert characteristics' which, if noticed, should serve to mark out the specimen concerned as needing further investigation as a possible addition. Many of the potential additions are very widespread in Europe, but would almost certainly be overlooked by recorders relying on current British keys. Any comments on the success or failings of these keys would be gratefully received, as would sight of any specimens which don't fit, or which exhibit any of the noted 'alert characteristics'.

All recorders are urged especially to be on the look out for *Conops vitellinus*, which looks very much like our *C quadrifasciatus*. In investigating this widespread European species, it has become apparent that typical British *C quadrifasciatus* tends to have wider yellow bands on the abdomen than is usual in European specimens: this causes a problem since the extent of the yellow abdominal banding appears to be one of the main characteristics relied upon in keys to the continental fauna in separating these two species. The female of *C vitellinus* can be segregated with reasonable accuracy by the shape of the theca, which is much wider at the base and nearly hemispherical in comparison with that of *C quadrifasciatus*. (see key). Males are more of a problem and cannot be segregated with reliability (in my opinion) on abdominal colour patterns alone. In the meantime, however, any *C quadrifasciatus* in which the yellow banding occupies more than about half the tergite length in the mid-line should be retained until better characteristics for separation can be found.

David Clements - UK Conopid Recording Scheme Organiser  
1 Quarry Close, Stratton, Cirencester, Glos GL7 2JN, England.

-oOo-

Observations on *Conops* behaviour in N E Essex

John Bowden

The note by Eric Philp on *Conops* behaviour (CRS Newsletter 5) is interesting but tantalisingly incomplete. From the account given, one would assume that it was females of *Conops ceriaeformis* Mg and/or *C quadrifasciatus* Degeer which were observed assaulting *Tachina fera* (L). But, to mangle some current jargon, one needs to be gender-specific as well as species-specific when recording such behaviour.

In my garden in Colchester I have a patch of apple-mint (*Mentha rotundifolia*), that I keep more-or-less to a patch of about 2m x 0.5m, and which is left every year to flower. From mid-July to the end of August it is swarming with a wide variety of insects, amongst the commonest being various Syrphini and Eristalini, *Lucillia* spp and *Sarcophaga* spp. Some of the larger Tachinidae, such as *T fera*, and larger Muscidae such as *Polietes lardaria* L and *Mesembrina meridiana* L also occur. *Conops ceriaeformis* is frequent, *C flavipes* L infrequent and *C quadrifasciatus* rare, although this last species is not uncommon on ragwort (*Senecio jacobaea*) flowers within about 250m of the flowering mint. Having mentioned an apparent flower preference, it is perhaps worth noting that flowers of spearmint (*Mentha spicata*), about 4m away, seem much less attractive to insects in general than those of the apple-mint.

The flowering mint is also very attractive to hunting wasps, including three species of vespids and at least four of sphecids, three of which are quite reasonable models for *Conops*. These wasps hunt by two distinct methods. The vespids use a rather graceful, rapid, 'bouncy' searching flight, especially around the flower-heads although they do also search down amongst the mint stems, pouncing on prey whilst in flight. The sphecids, on the other hand, stalk on foot, creeping up on prospective prey and then leaping from a distance of about 2-5cm, depending on the situation and, apparently, on the size of the wasp.

Male *C ceriaeformis* commonly behave in an almost exact imitation of the behaviour of the hunting vespids, making in-flight attacks on other insects and much less frequently making a rapid aerial dart from rest against another insect. They attack most frequently *Lucillia*, *Sarcophaga* and the smaller eritalines such as *E arbustorum*, as do all of the wasps, presumably because these smaller flies are usually the ones commonest on the mint flowers. I have seen only one male *C flavipes* on the mint, which was peacefully feeding, and no male *C quadrifasciatus*. Of the many female *Conops* seen on and around the mint flowers (mostly *C ceriaeformis* with some *C flavipes* and no *C quadrifasciatus*) I have seen not a single instance of an attack on another insect, not even on the many *Bombus* workers which also frequent the flowers.

It seems unlikely that there is any reproductive connotation in the behaviour of the male *C ceriaeformis*, unless one assumes that these Essex males are completely unable to recognise females of their own species without a close encounter. The behaviour could, however, be a significant reinforcement of the mimetic or aposematic appearance of male *C ceriaeformis*, and it may be that males which adopt such aggressive behaviour enhance their survival rate by deterring predation.

In the item preceding that on *Conops*, individuals of *Zodion notatum* Mg are reported attacking a variety of other insects. The sex, female, is stated for an attack on the solitary bee *Halictus rubicundus* (Christ), a suspected host, at its nesting site, but is not stated for the attacks on, for example, syrphids and larger calypetrates; both sexes of *Z notatum* are referred to in the text as being present.

Since it would seem that both sexes of *C ceriaeformis* and, possibly, *Z notatum* indulge in aggressive behaviour towards other insects, it is vitally important to record the sex of the individual conopid involved in any future reports of such behaviour.

BRITISH CONOPIDAE.

IDENTIFICATION NOTES, pt. 1.

CONOPINAE.

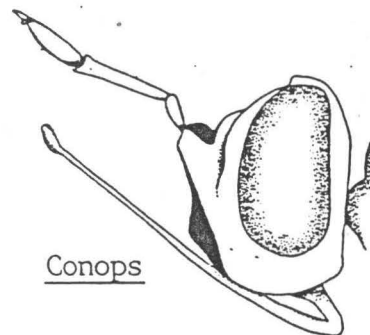
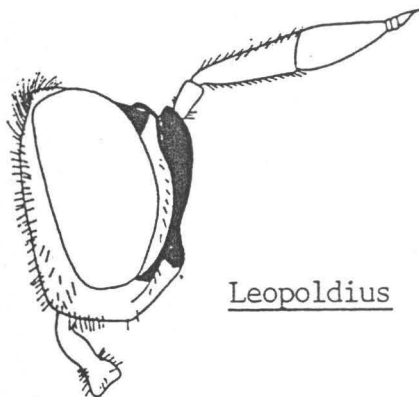
These notes are intended to amplify the keys put forward by Ken Smith in the Royal Entomological Society Handbook (1969, vol.X(3a):19pp). The illustrations used here have been liberally borrowed from both this source and the paper by M. Chvála, Czechoslovak species of the subfamily Conopinae (Diptera, Conopidae), 1961 Acta Univ. Carolinae - Biol. 1961 (2) : 103-145.

p.7 Key to Genera.

Note that there is a transpositional error on couplet 2 of this key. The first line of each half of this couplet should read :

2. Anterior cross-vein (r-m) at or beyond second third of discal cell (1st M<sub>2</sub>).....  
.....Physocephala
- Anterior cross-vein (r-m) around middle of discal cell (1st M<sub>2</sub>).....  
.....Conops

Note also that it is very easy to overlook Leopoldius unless the proboscis character is checked.



Sex distinctions in the Conopinae.

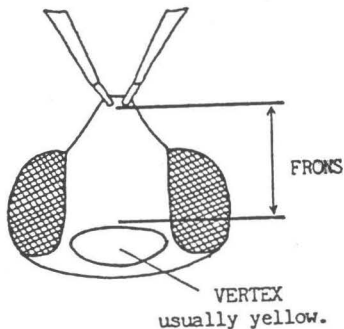
Sex distinction can be tricky for the beginner, and generally only becomes obvious with experience. The note by H.J. Faulkner (1931 : Sex distinctions in Conopidae, Ent. mon. Mag. 67 : 61-62 ) is of some help, but the problem is compounded by exceptions to the general rules. However, for the Conopinae, the following rules of thumb can be applied :

- ♀ Abdomen usually rather slender and parallel-sided when viewed from above. 7 abdominal segments distinctly visible, the 7th being rather prolonged and "shoe-shaped", with the 8th forming a small apical tip. 5th segment usually produced ventrally to form a curving structure called the Theca, which in some cases is very prominent.
- ♂ Abdomen usually rather stubby and pear-shaped when viewed from above. 6 abdominal segments distinctly visible, the 7th and 8th going to form the genitalia. 5th and 6th segments sometimes with slight ventral developments.

p.8 Key to species.

- 1 Frons partly yellow or brown .....2
- Frons wholly black .....4

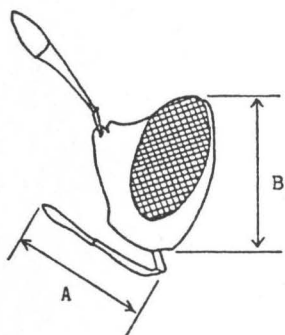
Note: Frons refers only to the area shown below, not to the vertex (where the ocelli would normally be), which appears as a prominent swelling when viewed from above, and which is invariably yellow in all species.



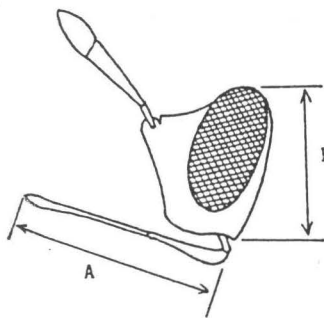
Head, viewed from above.

- 2 A large stocky species (wing length usually > 1cm), body conspicuously marked with brown and yellow, with very little black coloration visible. Longest part of proboscis shorter than vertical depth of head when viewed from the side. ....vesicularis

- Smaller species (wing length usually < 1cm), with black and yellow markings only. Longest part of proboscis as long as and usually longer than vertical depth of head when viewed from the side. ....3



vesicularis  
A < B

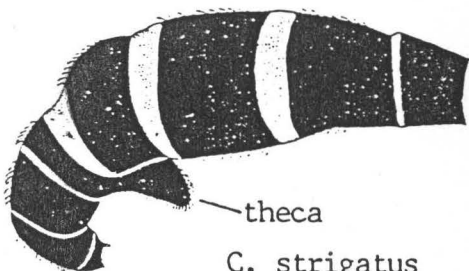
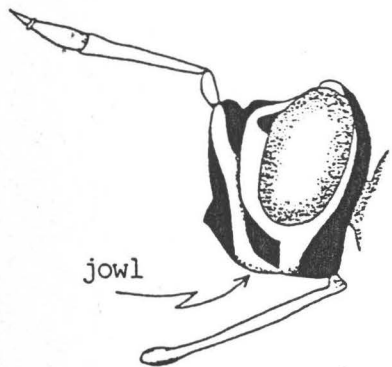


others  
A > B

- 3 Jowls yellow with triangular black marking.

♂ rather similar to C.flavipes, but has well-developed shimmer-stripes on pleura (see below).

♀ with small but distinct black theca.



C. strigatus  
female abdomen  
(side)

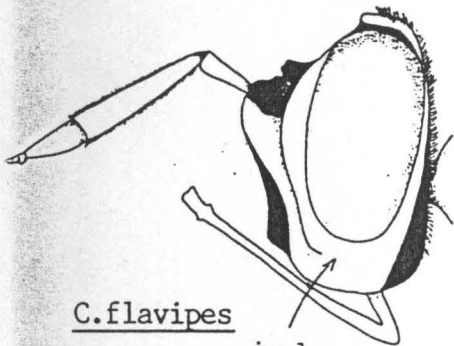
- Jowls without black marking

- .....strigatus
- .....flavipes

C. flavipes :

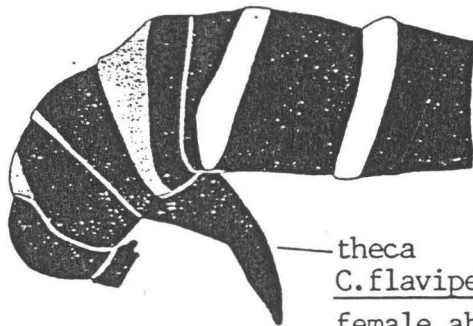
♂ (and ♀) without shimmer-stripes on pleura These are easily seen in all other Conops species by viewing the side of the thorax from behind and slightly above in shifting illumination. Shimmer-stripes appear as conspicuous areas of shifting, shining pubescence, particularly down the posterior margin of the mesopleuron, the posterior half of the sternopleuron and on the coxae. In C. flavipes these areas appear merely matt or vaguely sub-shining.

♀ has a large, conspicuous, black theca.



C. flavipes

jowl



theca  
C. flavipes

female abdomen  
(side)



male  
abdomen  
(top)

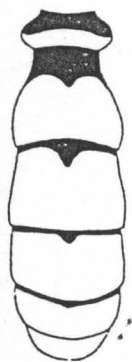
- 4 Pleura without shimmer-stripes (see above), scutellum with apex yellowish. ♀ theca as above.

...flavipes var. melanocephala

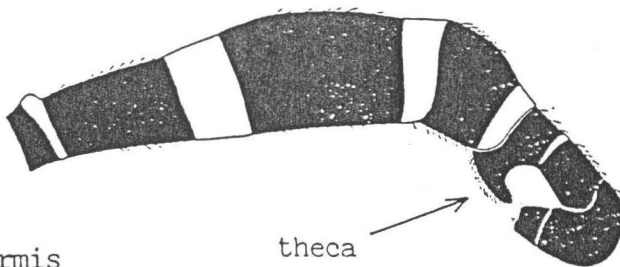
A completely black frons is unusual, but not unheard of in C. flavipes - usually there is some yellow at least. Intermediates are not uncommon. The ♀ is readily told by the large black theca.

- Pleura with shimmer-stripes, scutellum black, ♀ theca smaller.....5

- 5 Middle and hind femora somewhat thickened with a conspicuous black ring around most of the circumference of the mid-section. ♂ tergites swollen when viewed from above, and almost completely yellow, except at the basal margin. ♀ abdomen distinctively long and slender, extensively black with a small black theca.



C. ceriaeformis  
male abdomen  
(top)



female  
abdomen  
(side)

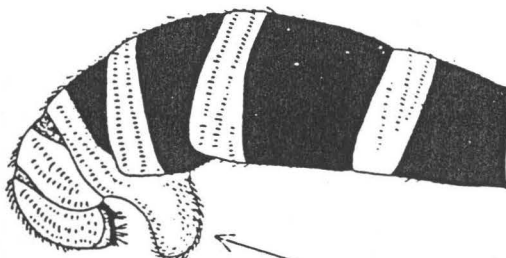
theca

.....ceriaeformis

- Femora normal, not or only obscurely banded. ♂ tergites less swollen and much more extensively marked with black. ♀ abdomen only slightly longer and more slender than ♂, with a larger, yellow theca.



male  
abdomen  
(top)



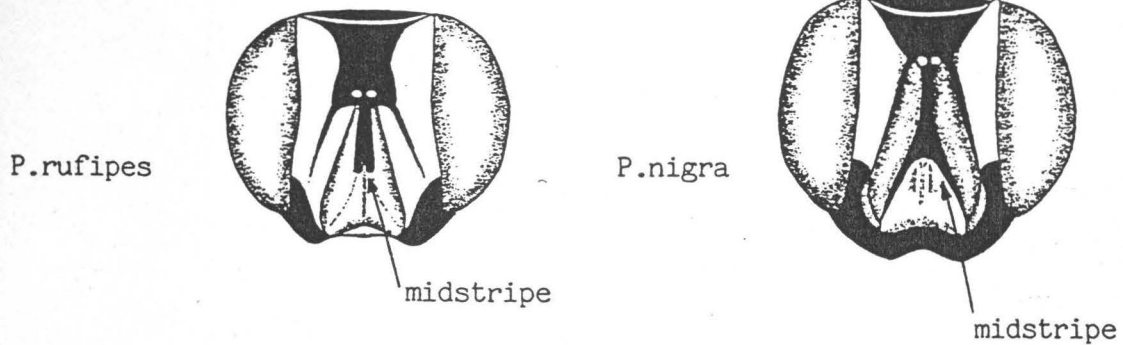
female  
abdomen  
(side)

theca

.....quadrifasciatus

PHYSOCEPHALA.

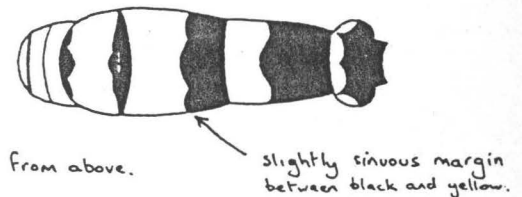
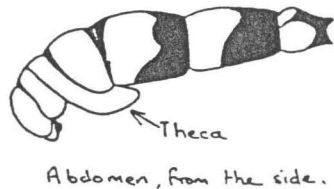
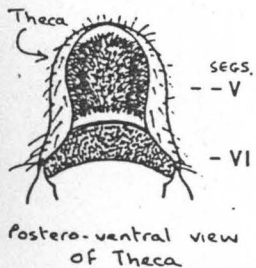
The two British species are easily told apart using the characteristics given in the handbook. The facial midstrip characteristic is illustrated below. A further characteristic is that the second, elongated abdominal segment in P. nigra is usually completely black, whereas in P. rufipes it is usually extensively marked with brown.



LEOPOLDIUS.

The two British species of this genus are generally recognisable, but are best distinguished on the genitalia. Virtually all the other characteristics are variable.

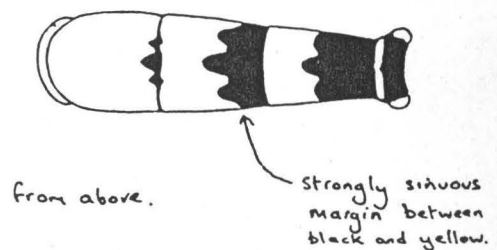
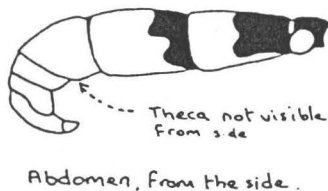
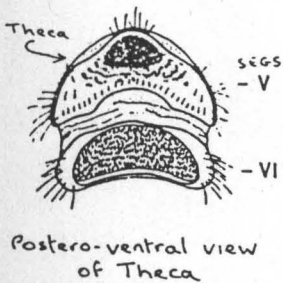
1. Female with conspicuous theca, easily visible when the abdomen is viewed from the side. Margin between black and yellow coloration on abdominal tergites is usually only slightly sinuous.



..... ♀ brevirostris

- Theca not easily visible when the abdomen is viewed from the side..... 2

2. Abdominal tergites with strongly sinuous margin between areas of black and yellow coloration. Small theca present, tucked-up beneath the abdomen.

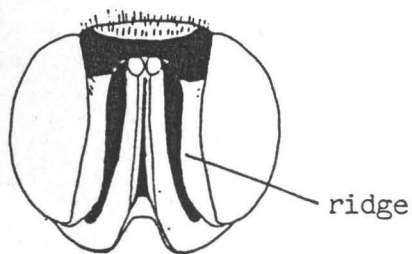


..... ♀ signatus

- Not as above. MALES ONLY

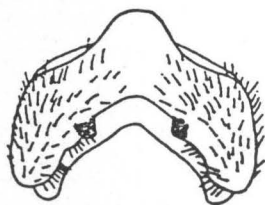
..... 3

3. a) Facial ridges black

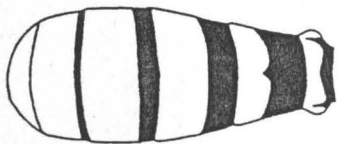


b) Femora usually completely yellow, or with only a very vague dorsal black patch.

c) Epandrium (requires hinging-out of genitalia).



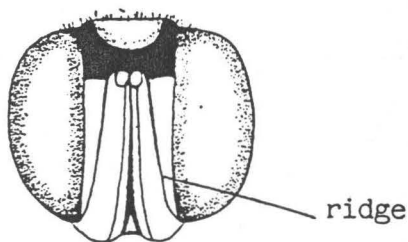
d) Abdominal tergites 2-4 usually with no projections of black coloration into yellow, except perhaps on tergite 2.



male abdomen from above

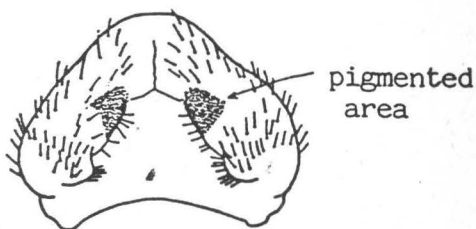
♂ brevirostris

- Facial ridges yellow

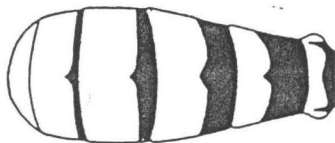


- Femora (especially hind) usually with strong dorsal blackish patch.

- Epandrium (requires hinging-out of genitalia).



- Abdominal tergites 2-4 usually with small central black projections into yellow area.



male abdomen from above

♂ signatus

L. brevirostris note.

The proboscis-colour characteristic used in the key of Chvála (1961) is not reliable. Also the assertion that the vertex is black is incorrect. Note also that Chvála's fig.4 is only correct with respect to female L. brevirostris.

MYOPINAE - SICUS Spp.

Sicus ferrugineus is the most commonly recorded Conopid in the British Isles, and one which most workers would feel confident of identifying in the field. However, the excellent review by Chvala (1963) established that there are five species of Sicus in the palaeartic region, much confused by earlier authors, and that a second species, S. abdominalis, occurs in Britain. This second species is apparently exceedingly rare, and there appears to be only one known British record, a solitary female recorded in Suffolk. Females of the two species are relatively easy to separate, but males are very much more awkward. This is compounded by the problem that many workers have difficulty in distinguishing sexes in the Myopinae generally, and in Sicus in particular. The following key should assist in resolving these difficulties.

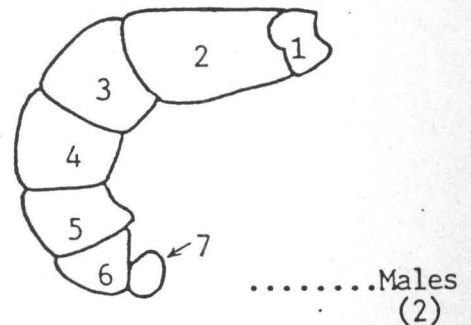
It is abundantly possible that S. abdominalis has been overlooked in collections, particularly since both species show a degree of interspecific variation. However, this key should help in the tricky business of identifying possible candidates, which can then be checked against the fuller details given in Chvala's paper or submitted for vetting by a specialist

The genus Sicus can be distinguished by the following suite of characteristics:

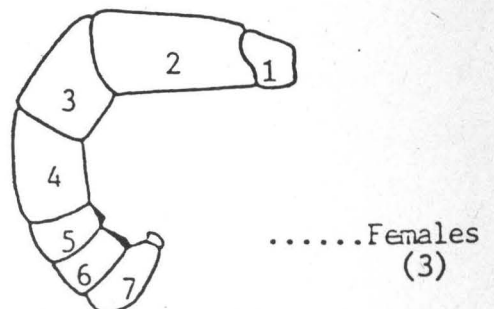


CHVALA, M., 1963 : A review of the Conopid flies of the genus Sicus, Scop. (Diptera, Conopidae). Acta Univ. Carolinae- Biologica 3 :275-282.

- 1. Abdomen viewed from side: segment 7 small & globular, smaller than segment 6.

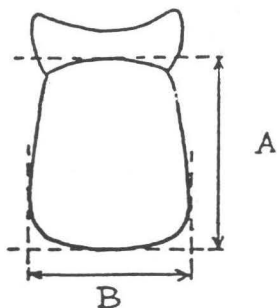


- Abdomen viewed from side: segment 7 elongate & rather 'shoe-shaped', larger than segment 6.





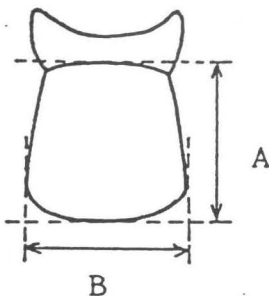
2. Abdomen viewed from above: segment 2 slightly but distinctly longer than greatest width. (Succeeding segments usually slightly longer than wide).



$$A > B$$

..... S. ferrugineus

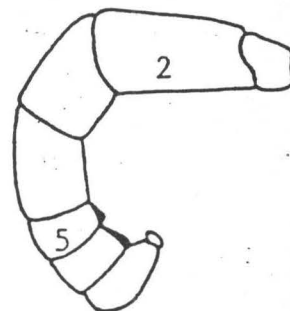
- Abdomen viewed from above: segment 2 at least as wide, usually distinctly wider, than long. (Succeeding segments usually distinctly wider than long).



$$A \ll B$$

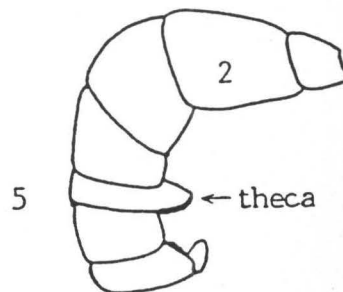
..... S. abdominalis

3. Abdomen viewed from side: segment 2 approximately twice as long as deep. No conspicuous theca projecting ventrally from segment 5.



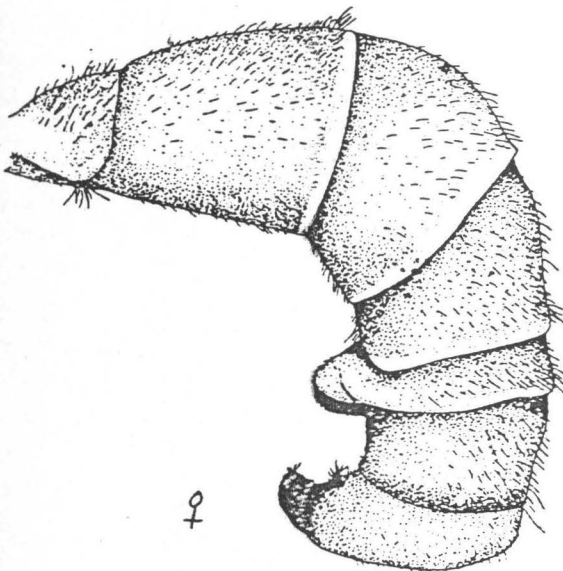
..... S. ferrugineus

- Abdomen viewed from side: segment 2 at most  $1\frac{1}{2}$  times as long as deep, usually more nearly subequal in these dimensions. Conspicuous theca projecting ventrally from segment 5.

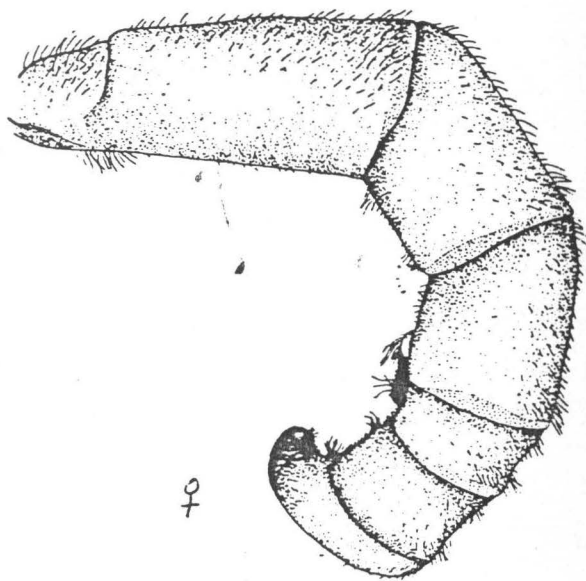


..... S. abdominalis

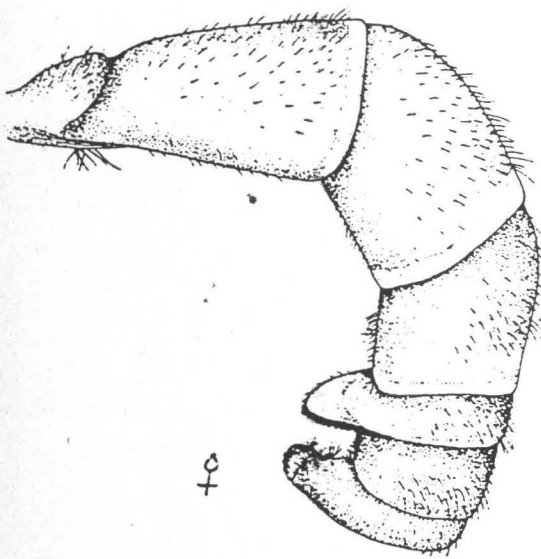
- 1 3rd section of proboscis not longer than one third of 2nd section. Tibiae decreased, external side of first femora with black spot. 2nd and 3rd abdominal segments about the same length . . . . . *femoralis* ROND. 2
- Both sections of proboscis about the same length, tibiae not decreased, femora without black spot. . . . . 2
- 2(1) Female abdomen elongated, cylindrical or lateroventrally smoothly flattened, 2nd abdominal segment long, at least one and one-half times longer than wide. 3rd and 4th segment as long or longer than wide. In male 2nd abdominal segment somewhat longer than wide. . . . . 3
- Female abdomen shortened, dorsoventrally flattened at base, 2nd abdominal segment as long or somewhat longer than wide. 3rd and 4th segment wider than long. In male 2nd abdominal segment as wide or wider than long. . . . . 4
- 3(2) Female abdomen long and slender, 2nd abdominal segment nearly twice longer than wide. Theca very small, scarcely visible. . . . . *ferrugineus* L.
- Female abdomen somewhat thickened and shorter, 2nd abdominal segment approximately one and one-half times longer than wide. Theca large and distinct. *fusenensis* OUCHI
- 4(2) General colouration reddish brown to dark brown; theca large . . . . . *abdominalis* KRÖB.
- General colouration black (especially on the upper surface of thorax and abdomen), abdomen conspicuously shortened and dorsoventrally flattened at base. Theca large . . . . . *nigricans* KRÖB.



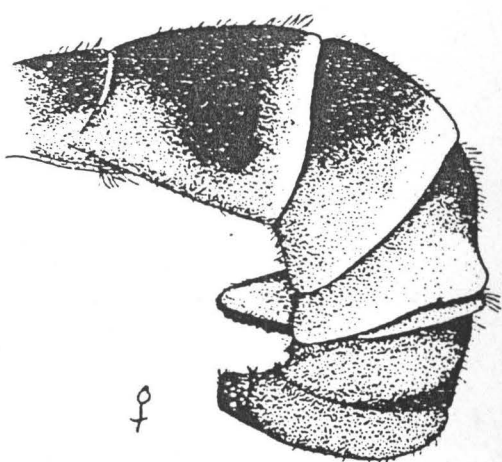
♀  
*abdominalis*



♀  
*ferruginea*



♀  
*fusenensis*



♀  
*nigricans*

# THE CONOPID FAUNA OF BRITAIN, WITH REFERENCE TO SOME POSSIBLE ADDITIONS

## Genera

1 Ocelli absent (although ocellar tubercle present). 3rd antennal segment with apical style. Palpi absent or virtually concealed in mouth cavity. Cell R5 closed. Typically medium to large, patterned flies: abdomen yellow and black banded, or occasionally brown/reddish with yellow markings. (Conopinae) 2

- Ocelli present. 3rd antennal segment with dorsal arista. Palpi small, but always easily visible. Cell R5 usually open. Medium to small flies, typically rather dull and unpatterned: black, greyish or reddish-brown. (Myopinae) 4

2 Proboscis sclerotized and as long or longer than head, or if only just as long, then a large fly with body predominantly reddish-brown and yellow patterned (*C vesicularis*). 3

- Proboscis soft, unsclerotized and much shorter than head, usually no longer than the mouth cavity. Leopoldiis

nb Medium large black and yellow species with very short sclerotized proboscis, shorter than head or only just as long, and tiny round ocellar tubercle: suspect *Abrachyglossum*.

3 Anterior crossvein (r-m) at or just beyond middle of discal cell (dm). Abdomen only slightly narrowed at base, 2nd and 3rd tergites about the same length. Conops

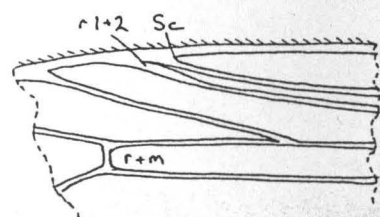
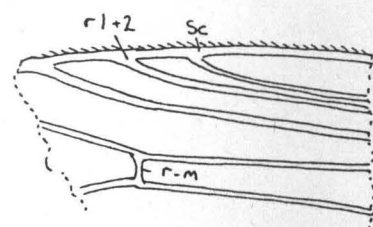
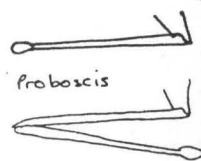
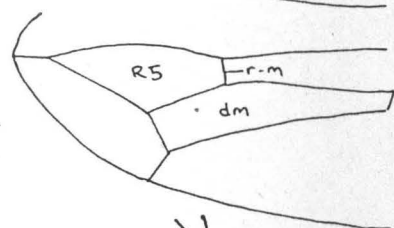
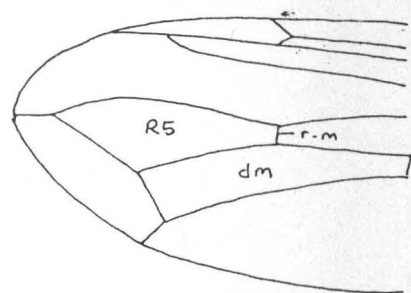
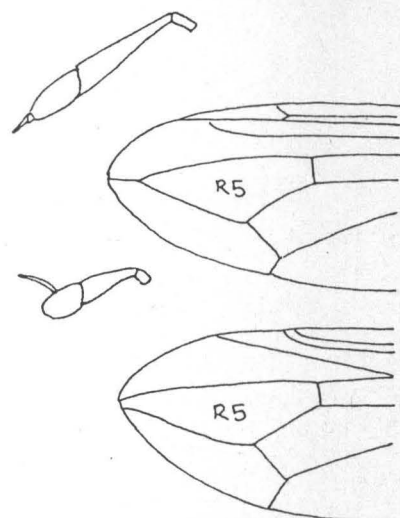
- Anterior crossvein at or beyond second third of discal cell. Abdomen conspicuously narrowed at base, especially in ♂. 2nd tergite often elongated and usually longer than 3rd. Physocephala

4 Proboscis bent only once, near base. Small greyish species. Zodion

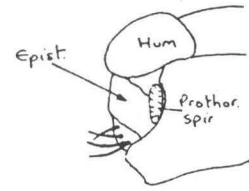
- Proboscis bent twice. Small black/greyish species or medium reddish-brown species. 5

5 End of subcostal vein Sc well separated from end of 1st radial vein (r1+2) on costa. Jowl beneath eye no more than 1/3 vertical height of eye. Medium reddish-brown species, no wing markings. Sicus

- Ends of subcostal vein and 1st radial vein close together on costa. Jowl beneath eye about 1/3 vertical height of eye or conspicuously more. Small blackish/grey species or medium reddish-brown species, wing markings present or not. 6



- 6 Jowl  $\frac{1}{2}$  vertical depth of eye or more. Small to medium flies, to 15mm long. Prothoracic episternite (area immediately in front of prothoracic spiracle) bare. Reddish-brown or blackish species, abdomen dorso-ventrally flattened, at least at base. ♀♀ without a theca, wings patterned or not. **Myopa**

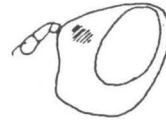


nb Jowl  $>\frac{1}{2}$  height of eye, but prothoracic episternite with setae. Proboscis very long and ♀ with theca: suspect *Melanosoma bicolor*.

- Jowl about  $\frac{1}{3}$ - $\frac{1}{2}$  vertical height of eye. Small flies, no longer than about 9mm. Prothoracic episternite with setae. Black or greyish species, abdomen cylindrical or laterally flattened. ♀♀ with obvious theca, wings without markings. **Thecophora**



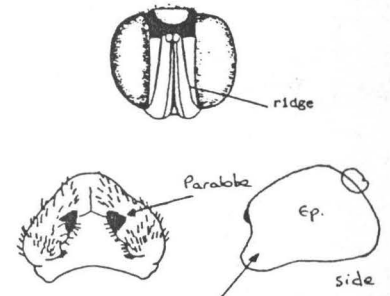
nb Jowl  $<\frac{1}{3}$  height of eye, but prothoracic episternite bare and diffuse dark spot on frons between base of antennae and eye rim: suspect *Myopota*.



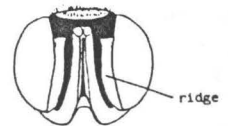
### Leopoldius

- 1 Males 2  
- Females 3

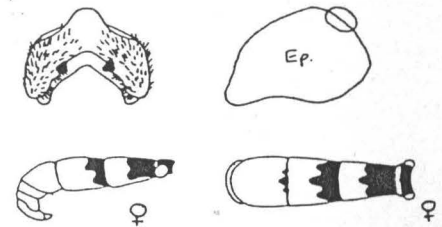
- 2 Face without black streaks either side of central keel, although latter may itself be darkened. Hind femora nearly always with central blackish dorsal patch. Epandrium as shown, with ventral bulge and paralobe pointing into peak of arch. **signatus**



- Face usually with conspicuous black streak either side of central keel. Femora usually completely yellow, or with only vague central dark patch. Epandrium as shown, with no ventral bulge and paralobe pointing into middle of arch. **brevirostris**



- 3 Theca small, not easily visible from side, lateral width at base about three times the height. Black foremarginal bands of abdominal tergites 2-5 extended into three triangular projections. **signatus**



- Theca large, easily visible from side, height equal to or greater than width at base. Black foremarginal bands of abdominal tergites 2-5 usually not extended, or only slightly so. **brevirostris**



nb Any *Leopoldius* specimens which do not have the frons entirely black (ie in which the yellow of the face extends narrowly or broadly across above the antennae): suspect *coronatus* or *diadematus*, or possibly *macrus*. Specimens with front coxae black and wing with conspicuous brown anterior margin: suspect *calceatus*.



# Conops

1 Abdomen black and yellow only. Proboscis longer than head. Medium-sized species, <12mm long. 2

- Abdominal ground colour reddish, with blackish and/or yellow markings. Proboscis not or only slightly longer than head. Large robust species, 12-14mm long. **vesicularis**

2 Jowl with conspicuous black triangular spot, frons with large black spot and with separate smaller spot near upper margin of eye. **strigatus**

- Jowl without black spots. 3

3 Pleurae with shimmering silvery bands of dusting. Scutellum usually entirely black. Theca either small and black, or yellow. 4

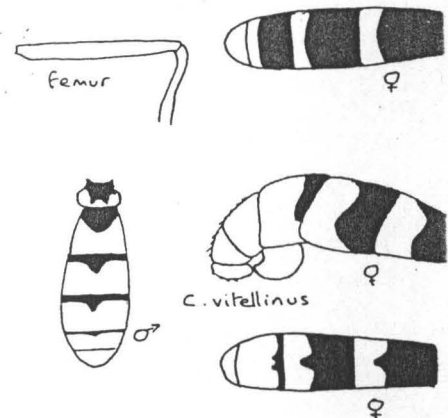
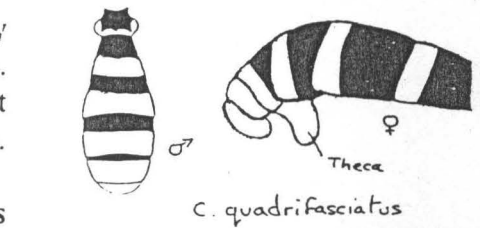
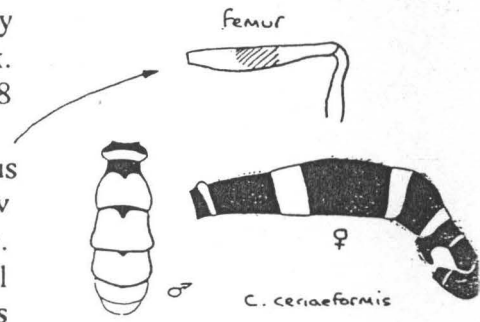
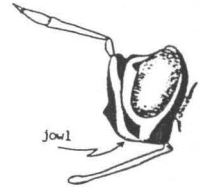
- Pleurae matt or sub-shining, without shimmering silvery bands of dusting. Scutellum usually yellowish at apex. Theca large, pointed and black. 8

4 Mid and hind femora thickened, usually with conspicuous dark spot or band. ♂ tergites usually mostly yellow and conspicuously swollen in outline when viewed dorsally. ♀ abdomen elongated and of characteristic shape, with small black theca. **ceriaeformis**

- Mid and hind femora not thickened and usually entirely yellow with at most only a vague central darkened patch. ♂ tergites usually with broader black bands and not conspicuously swollen in outline when viewed from above. ♀ abdomen not as above, with yellow theca. **quadrifasciatus**

nb *C vitellinus* is extremely similar to *C quadrifasciatus*. In females of the latter, the theca in side view is usually conspicuously higher than the antero-postero width at base, and appears parallel-sided. The yellow abdominal bands on tergites 2 and 3 usually occupy  $\frac{1}{3}$  or less of the tergite and are either straight-edged or gently drawn back in the midline. In *vitellinus* females, the theca in side view is larger and hemispherical in shape, as wide or wider at the base than the height. The yellow abdominal bands on tergites 2 and 3 occupy up to  $\frac{1}{2}$  the tergite and are sharply drawn back in the midline.

Males are not well segregated, since British *quadrifasciatus* specimens tend to be more extensively marked with yellow than continental material. In *quadrifasciatus* males, the anterior black bands on tergites 2-4 usually occupy  $\frac{1}{2}$  or more of the tergite length, at least in the midline, and tend to be straight-edged or gently drawn back in the midline. The femora usually have a darker central patch dorsally. In *vitellinus* males, the black bands on tergites 2-4 occupy no more than  $\frac{1}{2}$  the tergite length in the midline, and are sharply drawn out in a triangular extension. The



femora are usually wholly yellow. Further clarification is needed, but in the meantime all '*quadrifasciatus*' with extensive yellow markings should be retained.

8 Frons yellow with dark central patch. **flavipes**

- Frons and face wholly black. **flavipes** var **melanocephala**



**nb** Amongst the 'yellow and black' *Conops*, any specimens in which the scutellum is more-or-less entirely yellow should be checked for *scutellatus* or *silaceus*. Any specimens in which the head (ie frons, face and jowls) is entirely yellow, except sometimes for a small streak above the antennae: suspect *insignis*.

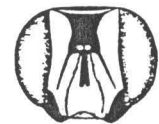
Amongst the 'red/brown' *Conops*, any specimens smaller than 12mm: suspect *flavifrons* or *elegans*. Any specimens in which the apical tergites appear to have red-brownish spots on either side: suspect *maculatus*.

### Physocephala

1 Black central marking of face usually extending from base of antennae and forking down around oral margin. Large robust black species with  $\pm$  yellow markings, 15-20mm long. **nigra**



- Black central marking extending only halfway down face, and not forked. Smaller species usually marked with brown, 10-14mm long. **rufipes**



**nb** Both the British species have the pleurae matt or subshining, without shimmering bands of dusting. Any specimens in which the pleurae *do* appear to have shimmering dust need to be referred for further checking (numerous possibilities).

If the pleurae are matt and the face and frons entirely yellow: suspect *vittata*.

### Zodion

1 Antennae yellowish-brown to reddish-brown. 4-9.5mm long. **cinereum**

- Antennae entirely black, or at most pale brownish at base of 3rd segment. Somewhat smaller species, 4-6mm long. **notatum**

**nb** Both British species have terminal abdominal segments which are subshining blackish or dark brown in coloration. Any specimens in which the terminal segments are reddish-orange or reddish-brown: suspect *carceli* or *erythrurum*.

### Sicus

1 Males 2  
- Females 3

3 Anterior crossvein white, wings usually with patterning of brown and yellowish-white on forks. Occiput behind eye swollen, with 1-4 obvious purple-brown spots. Very variable in size, 8-12mm long. **buccata**



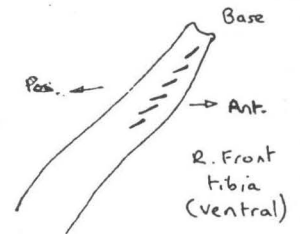
- Anterior crossvein black, usually within a small black spot, other wing markings present or not. Occiput without distinct purple-brown spots. 4

nb If occiput has purple-brown spots and anterior crossvein is black, suspect *picta*. This distinctive species has a conspicuous central black spot in cell R5. The proboscis is more than 3x head height in length and the fly has a rather ornamented appearance including striped femora. 8-11mm long.

4 Longer-haired species, hairs on disc of last two tergites as long or longer than hind metatarsus. 5

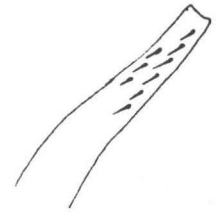
- Shorter-haired species, hairs on disc of last two tergites shorter than hind metatarsus. 6

5 Very hairy species, hairs on tibiae often more than twice as long as tibia is thick. Abdomen usually a somewhat dingy orange-yellow colour. Pleurae (other than mesopleuron) with conspicuous darkened patches. All tibiae lacking adpressed postero-ventral spinose bristles at base.



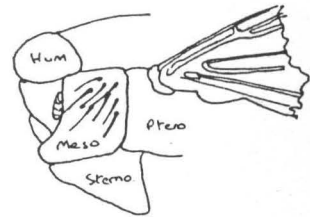
**vicaria**

- Rather less hairy, hairs on tibiae not much longer than tibia is thick, often less. Abdomen usually blood red colour. Pleurae more uniformly reddish-yellow. Four anterior tibiae with adpressed postero-ventral spinose bristles at base.



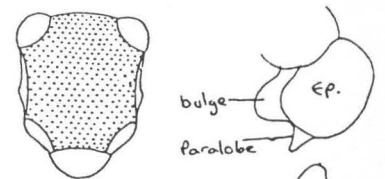
**strandii**

6 Mesopleuron with 5-9 long black setae. Wing with numerous distinct black spots and brownish patterning. Smaller species, 5.5-8mm long. Thorax typically black right up to base of scutellum. **polystigma**

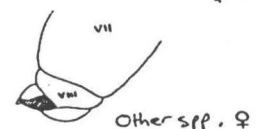
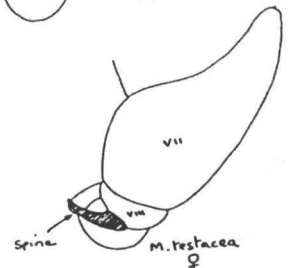


- Mesopleuron without setae (occasionally with just 1-2). Small to large species (to 11mm long), other characters various. 7

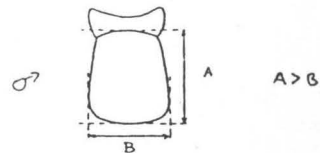
7 Thorax usually black right up to base of scutellum. ♂ *epandrium* with conspicuous ventral bulge, *paralobe* triangular. ♀ *anal* segment with long shining spines either side, length at least 3x basal width. Wing usually with only anterior crossvein blackened, although other patterning may also occur. Variable length, 6-11mm. Hairs on upper face usually all pale; palpi dark brown. **testacea**



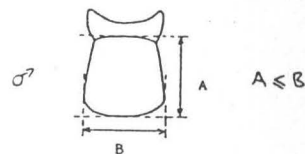
- Thorax not usually black right up to base of scutellum. Wing usually with black spots other than just on anterior crossvein, and brown patterning. Usually some black hairs



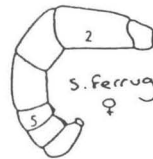
2 2nd tergite slightly but distinctly longer than greatest width, viewed from above. Succeeding tergites usually slightly longer than wide. **ferrugineus**



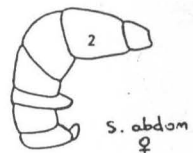
- 2nd tergite at least as wide, usually distinctly wider, than long. Succeeding tergites usually as wide or wider than long. **abdominalis**



3 Abdomen long and cylindrical, 2nd tergite viewed from side about twice length of maximum depth. No conspicuous theca visible in side view. **ferrugineus**



Abdomen shorter and dorsoventrally flattened at base. 2nd tergite from side at most 1½ times long as deep. *Conspicuous projecting theca.* **abdominalis**



nb ♀ specimens in which the 2nd tergite is intermediate in shape, and in which a visibly raised theca is present, should be checked for *fusenensis*. Male *fusenensis* is unknown.

In all three of the above, the two sections of the proboscis are about equal in length. Any specimens in which the last section is much shorter than the basal section (ie about 1/3 as long), and in which the front femora have a dark spot on the outer face would probably be *femorialis*, although this may be a mythical species.

## Myopa

1 Jowls bare (or possibly with just a scant few whitish hairs). Wings with no spots or markings. Usually dark or blackish species. 2



- Jowls with conspicuous 'beard' of whitish hairs. Wings at least with black spot on middle crossvein, often with more complex pattern. Usually reddish-brown flies. 3



2 Length 6-15mm, body blackish brown, with reddish-brown sides and coxae. Conspicuously silver pollinose, particularly on thorax and abdomen. 2nd antennal segment usually distinctly longer than 3rd. **fasciata**

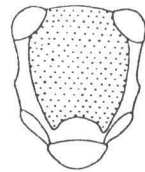
nb Mouth margin with isolated black spot at <sup>side</sup> ~~front~~: suspect *variegata*.  
Abdomen almost entirely reddish-brown: suspect *dorsalis*.

- Length 3.5-5mm, body black or very dark brown all over, matt or subshining with scant silvery pollinosity. Femora obviously thickened with two ventral rows of short stubby bristles. 2nd antennal segment about equal in length to 3rd. **occulta**

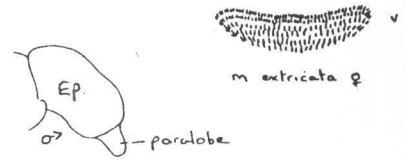
nb Jowls with a few scant long white hairs and femora not obviously thickened: suspect *morio*.



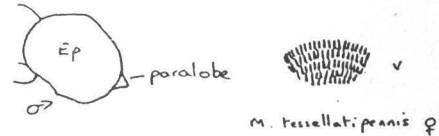
on upper face. ♂ epandrium without conspicuous ventral bulge; ♀ anal segment with shorter spines either side. 8



8. Usually larger species, 6.5–10mm long. ♂ *epandrium elongate, with huge rounded paralobe obvious in side view.* ♀ *5th sternite with narrow crescent of pegs, crescent  $\geq 4x$  wide as deep.* Wing usually, but not always, with several black spots and brownish patterning. Proboscis last section as long as front tarsi. Palpi pale tawny brown. **extricata**



- Smaller species, 5.5–8mm long. ♂ *epandrium rounded with small triangular paralobe, inconspicuous in side view.* ♀ *5th sternite with more compact crescent of pegs, crescent no more than about 3.5x wide as deep.* Wing with several black spots and brown patterning. Proboscis last section not as long as front tarsi. Palpi dark brown.



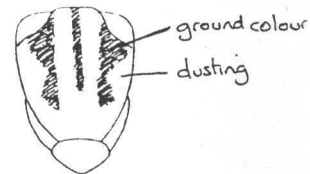
**tessellatipennis**

**Thecophora**

1. Abdomen shining black with scanty, patchy greyish dusting. Legs mostly black, except basal ½ of hind femora (and sometimes others) and all knees yellow. Dusting on dorsum of thorax with inconspicuous striping. 4–7mm long. **atra**

**nb** In *atra*, 2nd antennal segment is usually longer than 3rd, and the last section of the proboscis is longer than the head height. Any specimens in which the 2nd and 3rd antennal segments are more or less equal in length, the last section of the proboscis is shorter than the head height and which is in the length range 2.5–5mm should be checked for *pusilla*.

- Abdomen extensively grey dusted, tending towards golden-grey. Legs more extensively yellowish (variable), with femora usually yellow in basal 2/3 or more. Dusting on dorsum usually with conspicuous pattern of stripes and patches visible, including one central longitudinal stripe. Usually larger, 6–9mm long. **fulvipes**



**nb** In *fulvipes*, 2nd antennal segment is usually longer than 3rd. Any specimens in which the 2nd and 3rd antennal segments are more or less equal, and/or in which there appear to be two parallel central longitudinal stripes in the thoracic dusting, should be referred for checking (several possibilities).

