Family Conopidae

Source material

This key is derived and updated from the work of Kenneth Smith (1969), Handbooks for the Identification of British Insects Volume 10, part 3(a). This is published by the Royal Entomological Society of London online at http://www.royensoc.co.uk/sites/default/files/Vol10_Part03a.pdf under a Creative Commons Licence. Line drawings are from this text.

Check List
(http://www.dipteristsforum.org.uk/sgb_check_browse.php?id=8682)

Subfamily CONOPINAE

Tribe Conopini

CONOPS Linnaeus, 1758
ceriaeformis Meigen, 1824
flavipes Linnaeus, 1758
quadrifasciatus De Geer, 1776
strigatus Wiedemann, 1824
vesicularis Linnaeus, 1761

LEOPOLDIUS Rondani, 1843
brevirostris Germar, 1827
signatus Wiedemann, 1824

Tribe Physocephalini

PHYSOCEPHALA Schiner, 1861
nigra De Geer, 1776
rufipes Fabricius, 1781

Subfamily MYOPINAE

Tribe Myopini

MYOPA Fabricius, 1775
buccata Linnaeus, 1758
fasciata Meigen, 1804
hirsuta Stuke & Clements, 2008
occulta Wiedemann, 1824
pellucida Robineau-Desvoidy, 1830
polystigma Rondani, 1857
tessellatipennis Motschulsky, 1859
testacea Linnaeus, 1767
vicaria Walker, 1849

THECOPHORA Rondani, 1845
atra Fabricius, 1775
fulvipes Robineau-Desvoidy, 1830

Tribe Sicini

SICUS Scopoli, 1763
abdominalis Krober, 1915
ferrugineus Linnaeus, 1761

Tribe Zodionini

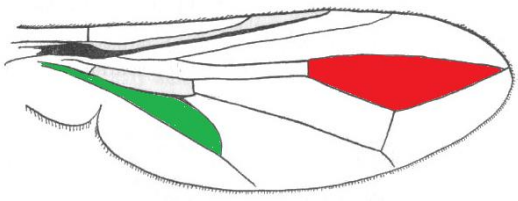
ZODION Latreille, 1796
cinereum Fabricius, 1794

Is my specimen in family Conopidae?

Species in this family are fairly easily identified as such by having the following combination of factors:

Wings

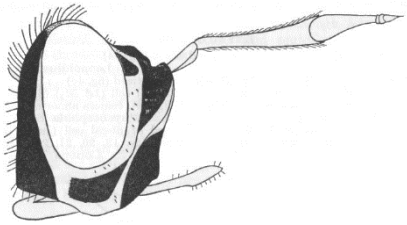
- with a distinct closed subapical cell (cell R_5), red, which does not have a wing fold running through it.
- anal cell, green, extending at least half way to the margin of the wing



Head and eyes of normal proportions for a fly

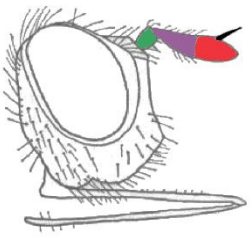
Antennae either

- very long with several tiny segments at the tip



or

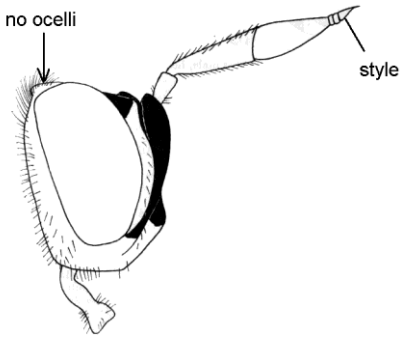
- short with the third segment bearing a thickened bristle (arista) from the top surface



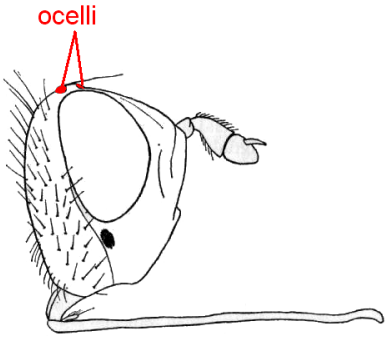
Family Conopidae

Key to British genera and species

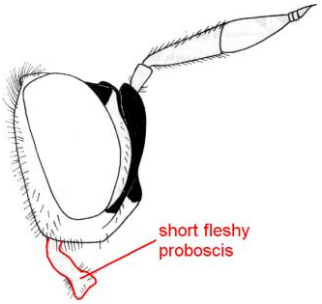
1 Ocelli absent. Antennae longer, the third segment with a short apical style. Subfamily Conopinae. 2



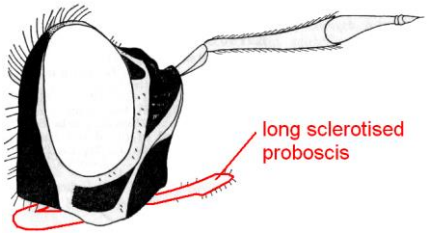
Ocelli present on top of the head. Antennae shorter, the third segment with a short thickened bristle arising from the top surface. Subfamily Mypopinae. 4



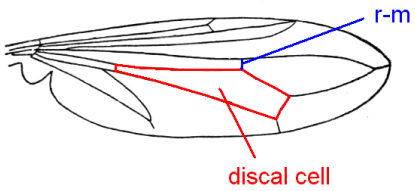
2 Proboscis fleshy and shorter than the head when measured from front to back. .... Genus ***Leopoldius***
Two British species.

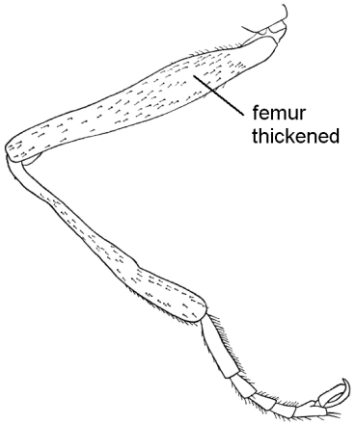


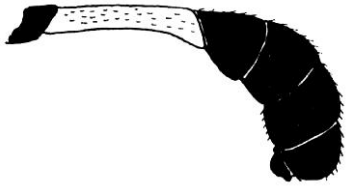
Proboscis hardened (sclerotised) and as long as or longer than head measured from front to back. 3



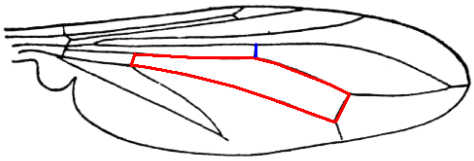
3 Front cross-vein (r-m) more than two-thirds of the way along the discal cell. Second segment of the abdomen narrow and elongated. Femora distinctly thickened near the base. .... Genus ***Physocephala***
Two British species.

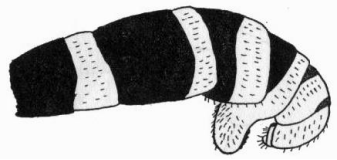






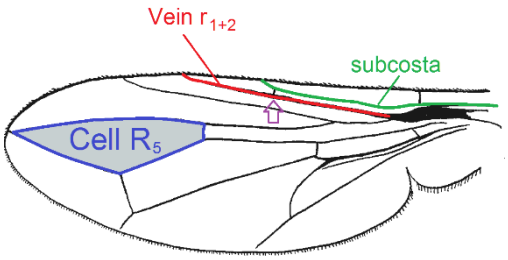
Front cross-vein (r-m) touching the discal cell just beyond half its length. Second segment of the abdomen not noticeably narrowed. Femora not distinctly thickened towards the base. .... Genus ***Conops***
Five British species



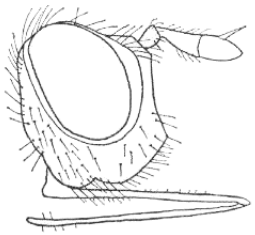


4 Proboscis bent only once, near the base. Wing with the end of the subcosta well-separated from the end of vein r_{1+2} on the front margin, and these veins joined by a cross-vein near the tip (purple arrow); cell R_5 usually closed. Small greyish species. .... Genus ***Zodion***

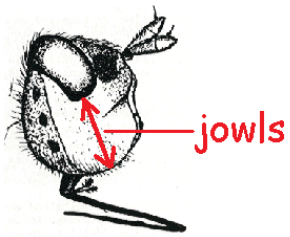
One British species ***Zodion cinereum***. Formerly a second species *Z. notatum* was recognised but this was synonymised with *cinereum* by Mei & Stuke (2008).



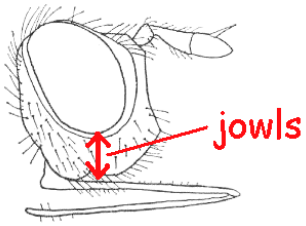
Proboscis bent twice, once near base and again at about half way. No cross-vein joining the subcosta to vein r_{1+2}. Small black species or medium-sized reddish to orange-brown species. 5



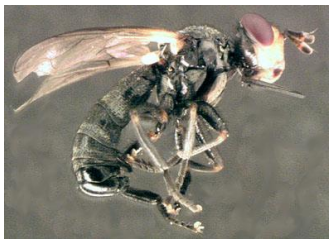
5 Jowls below eyes very wide, at least half as wide as the vertical height of the eye and usually as wide as the eye is high. .... Genus ***Myopa***
Nine British species.



Jowls below eyes at most half as wide as the vertical height of the eye. 6



6 Smaller, black to grey flies, 3-8 mm. in length. .... Genus ***Thecophora***
Two British species.



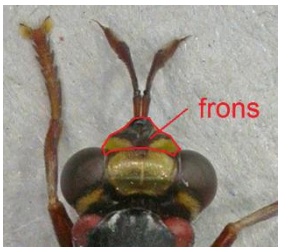
Larger brown to orange-brown species, 8-10 mm. in length. .... Genus ***Sicus***
Two British species.

Genus ***Conops***

The British species of *Conops* are mostly black and yellow or brown and yellow, of medium (8-14 mm.) size. The two species most frequently encountered are *Conops flavipes* and *C. quadrifasciatus*, while in the south-eastern coastal counties *C. ceriaeformis* is common. Species of *Conops* are best sought where large masses of flowers occur such as in fields of ragwort (*Senecio*), *Angelica* or hogweed (*Heracleum*). The members of this genus are parasitic on bees and wasps.

1 Frons partly yellow or brown. 2

Photograph © Janet Graham, published on Wikimedia Commons.



Frons wholly black. 4

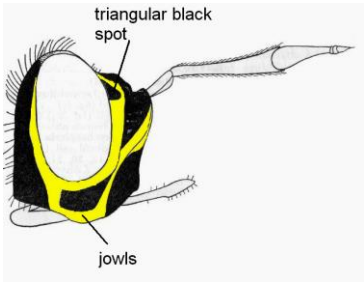
2 Body brown with black markings. Proboscis a little longer than head. Length 12-14 mm. .... ***Conops vesicularis***

Parasitic on *Bombus*. Uncommon in England south of the Humber and in Wales. Occasional records further north. April to August. Photograph © Janet Graham, published on Wikimedia Commons.

Body yellow with black markings. Proboscis much longer than head. 3

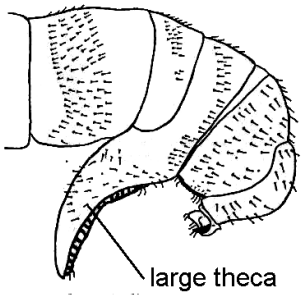
3 Jowls yellow with black markings. A triangular black spot is present at the front on the upper eye-margin. Female with smaller theca. Length 9-10.5 mm. .... ***Conops strigatus***

Hosts unknown. Rare. England from Cumbria southwards and Wales. May to September.

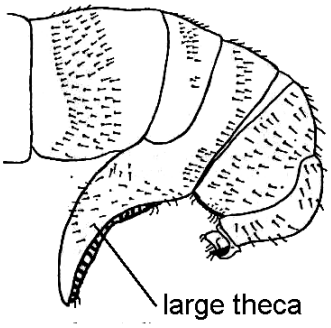


Jowls clear yellow. Female abdomen with a large theca. Length 9.5-11.5 mm. .... ***Conops flavipes***

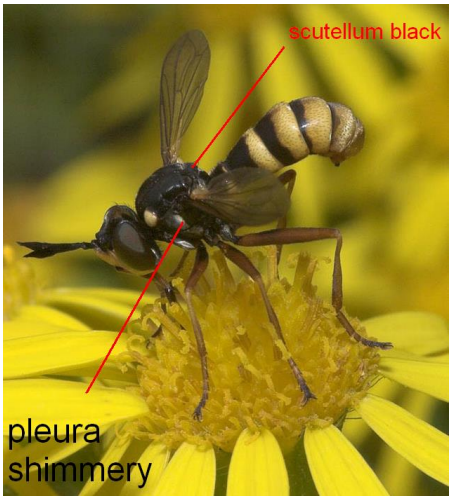
Parasitic on *Bombus lapidarius*, *Osmia* species and *Vespula rufa*. Uncommon, though widely distributed, but strangely absent from Ireland. June to August.



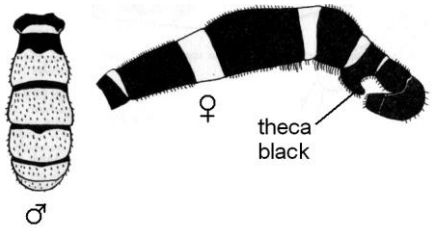
4 Pleurae without any silvery "shimmer stripes". Scutellum with the tip yellowish. Female with large theca. Length 10-11 mm. .... ***Conops flavipes*** var. *melanocephala*
Hosts unknown. Rare. August.



Pleurae with more or less evident silvery "shimmer stripes" when examined with shifting illumination. Scutellum black. Female theca smaller. 5



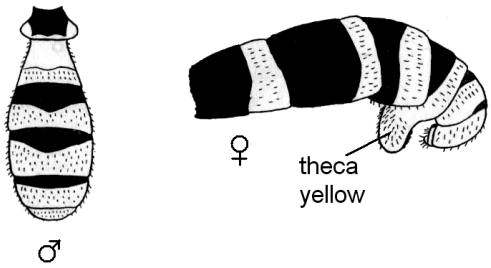
5 Middle and hind femora thickened with a blackish ring about middle, broader in female. Male tergites mainly yellow and obviously swollen. Female abdomen slender and more extensively blackish with a small black theca. Length 8-13 mm. .... ***Conops ceriaeformis***



Hosts unknown. Commonest in the southern half of England and in Wales. July to October.

Femora not thickened. Legs usually yellowish or only indistinctly banded. Male abdomen more normal in shape. Female theca yellow. Length 8.5-12 mm. ..... ***Conops quadrifasciatus***

Parasitic on *Bombus lapidarius*. Widely distributed. June to September. Photograph © David Gould, published on http://www.naturespot.org.uk/

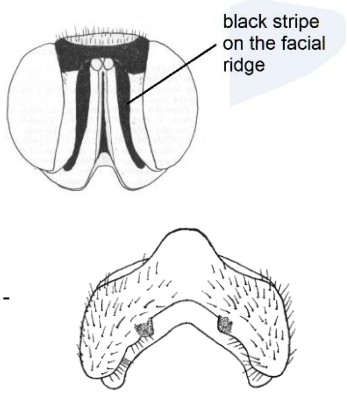


Genus ***Leopoldius***

Medium sized yellow and black species generally resembling *Conops*, but distinguished at once by the short fleshy proboscis.

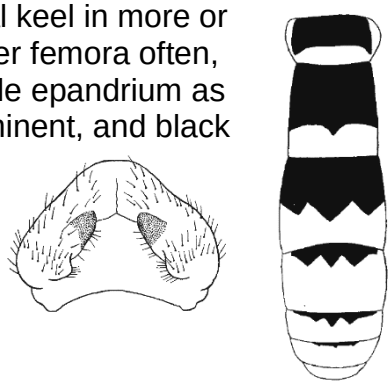
1 Male with a broad black streak down the facial ridges; femora usually completely yellow; male epandrium as illustrated. Female with the theca large and prominent and black abdominal markings reduced. Length 10 mm. .... ***Leopoldius brevirostris***

Hosts unknown, probably *Vespula* wasps. Very rare - only 20 records on the NBN Gateway from Cambridgeshire southwards. July to August.



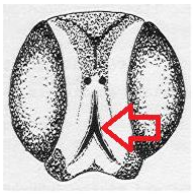
Male with facial ridges yellow though the facial keel in more or less darkened hind femora nearly always, other femora often, with a blackish patch above about middle; male epandrium as shown. Female theca rather flat and not prominent, and black abdominal markings more pronounced. Length 10-11 mm. .... ***Leopoldius signatus***

Hosts unknown. Rare – with six times as many records on the NBN Gateway map. Occurs at ivy blossom among *Vespula* wasps upon which it is probably parasitic. England and Wales. July to October.



Genus ***Physocephala***

1 Larger blacker species, 14-18 mm. Black stripe in the middle of the face distinctly forked. Antennae reddish. .. .. ***Physocephala nigra***



Parasitic on *Bombus muscorum*. A rare species with a discontinuous distribution. Heathlands in western Hampshire, eastern Dorset and south Devon, North York Moors, Lake District, western Southern Uplands and northern Highlands of Scotland. In the New Forest most often found at *Rhododendron;* elsewhere often at heater flowers. May to July.

Smaller, more reddish-brown species, 7-15 mm. Black stripe in the middle of the face scarcely forked. Antennae blackish. .... ***Physocephala rufipes***

Parasitic on a number of *Bombus* species and *Vespula rufa*. Attracted to thistles and ragwort and best sought amongst large stands of these species. England and Wales. June to September.

Genus ***Myopa***

Small to medium reddish-brown flies, usually found at flowers of ramsoms, hawthorn, dandelions etc. The hosts of the British species of *Myopa* are unknown, but on the continent unidentified species have been reared from species of *Eucera*, *Bombus*, *Andrena*, *Colletes* and *Vespula*.

This key uses Smith (1969) as a basis with the last few couplets modelled around van Veen, published at http://home.hccnet.nl/mp.van.veen/conopidae/myopa.html#item10.

1 Wings without dark spots or patches, middle cross-vein (r-m) neither strongly darkened nor whitish. No "beard" of fine hairs on the lower margin of the jowls. Hind femora with both a posteroventral and an anteroventral row of short, stubby bristles towards the tip; all tibiae with a double row of closely adpressed spinose bristles beneath near the base. Male with the sixth abdominal tergite with obvious indications of lines of fusion with seventh and eighth tergites. 2

Wings often with cloudy patches, or at least with the middle cross-vein either distinctly darkened, or whitish. Lower margin of jowls with a "beard" of long whitish hairs. Hind femora with short stubby spine-like bristles along the anteroventral surface but with at most a very few very small ones on the posteroventral surface. At least the base of the hind tibiae without any spinose bristles beneath. Male with the sixth male abdominal tergite with far less indications of being fused with the seventh and eighth tergites. ...3

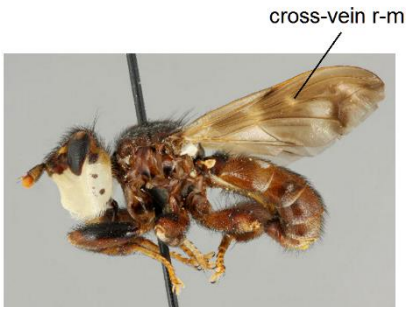
2 Second antennal segment almost equal in length to the third segment. Shining ocellar triangle almost equilateral. Humeri and sides of thoracic disc darkened. Last section of proboscis very short. All femora very strongly spinose along both the anteroventral and posteroventral surfaces. Length 5-6 mm. ..... ***Myopa occulta***

Hosts unknown. Very rarely recorded – Hampshire, south London and Lincolnshire. July to August. An image at https://galerie-insecte.org/galerie/ref-69361.htm is probably this species.

Second antennal segment usually distinctly longer than third segment, or, if they are more or less equal, then the shining ocellar triangle is longer than its width at the base, and narrow. ..... ***Myopa fasciata***

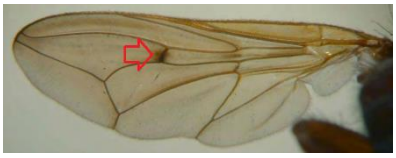
Hosts unknown. Scarce with a southern distribution. Most records are from heathlands in Surrey, the New Forest and Dorset. April to May. The image at http://www.nederlandsesoorten.nl/linnaeus_ng/app/views/search/nsr_search_pictures.php?photographer=John+Smit&page=3#prettyPhoto[gallery]/5/ is probably this species.

3 Cross-vein (r-m) whitish, wing brownish towards the front margin with the forks and cross-veins whitish; veins dark brownish, but yellowish in the whitish areas. Length 8-12 mm. .... ***Myopa buccata***
Hosts unknown. Uncommon, though generally distributed. April to July.



Cross-vein r-m obviously darkened. 4

4 Thorax with a broad middle stripe extending right to the scutellum AND wings practically without clouds except for the strongly darkened r-m cross-vein. Hairs on upper part of facial orbits mainly pale and therefore inconspicuous. Length 6-11 mm. ..... ***Myopa testacea***



Hosts unknown. Uncommon, but widely distributed in England and Wales with a few records from Scotland. April to July. Photograph of wing from Stuke & Clements (2008)

Wings with several areas darkened as well as cross-vein r-m. Thorax as above or not dark on the top right back to the scutellum. Usually with some black hairs on the upper part of facial orbits, but often mainly pale in *polystigma*. 5

5 Longer haired species, especially those hairs on the top of the last 2 abdominal tergites longer than first segment of hind tarsi, those on tergite 5 set at angle of between 45 and 90 degrees from the surface of the tergite. 6

Shorter haired species; hairs on the top of the last 2 abdominal tergites not longer than first segment of hind tarsi. 7

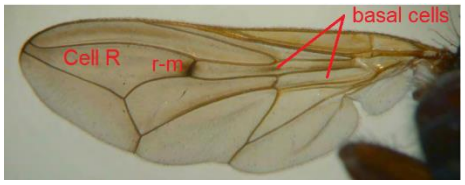
6 Abdomen of somewhat dingy orange-yellow colour. All tibiae only hairy beneath, with no indications of spine-like bristles pressed to the surface towards the base of the posteroventral surface. Vein m_2 not uniformly darkened from cross vein m-cu to the wing margin. Length 6-9 mm. .... ***Myopa vicaria***
Hosts unknown. Rare with scattered records from England. April.

Abdomen more blood-red in colour with the sides of tergite 1 contrasting orange-brown and tergite 5 with little dusting. Front and middle tibiae with a posteroventral row of short, spine-like bristles towards the base, pressed to the surface. Vein m_2 more evenly darkened along the whole distance between cross-vein m-cu and the wing margin. Length 5-9 mm. . ..... ***Myopa hirsuta***
Hosts unknown. Rare. Rather scattered records in England but most are in the Cambridgeshire/Norfolk area. April.

7 Top of the thorax distinctly black at least in the middle, right back to the scutellum. 8

Top of the thorax with the black colour not extending as far back as the scutellum but with the area in front of the scutellum brownish-red. 9

8 Wings distinctly darkened over cross-vein r-m with weaker darker areas around the veins of cell R_5; basal cells without white or yellowish patches. .... ***Myopa testacea***



Wings with several other darkened patches in addition to that over cross-vein r-m; basal cells with some white to yellow patches. .... ***Myopa polystigma***

9 Palps brown (contrasting with the pale mouth-edge). Proboscis with the third section shorter than the second section and with the last section shorter than the front tarsus. Length 7-10 mm. .... ***Myopa tesselatipennis***
Rare with scattered records through England and the Welsh borders.

Palps pale yellow to whitish, more or less the same colour as the mouth-edge. Second and third sections of the proboscis equal in length and each longer than the front tarsus. Length 8.5-10 mm. .... ***Myopa pellucida***
Some workers are using the name *Myopa extricata* (Collin) for this species – this name was placed in synonymy with *pellucida* by Stuke & Clements (2005). Uncommon with records mostly from the southern half of England, but most frequent in the west Midlands and Welsh borders.

Genus ***Thecophora***

Small inconspicuous black flies, found at flowers of *Scabiosa succisa*, *Hieracium* species, thistles, *Veronica* species, *Senecio* species, etc., or near *Halictus* colonies.

1 Legs shining black except for the basal half of the hind femora and all knees orange-brown. Top surface of the thorax with three inconspicuous longitudinal stripes. Length 4-7 mm. .... ***Thecophora atra***

"Knees" are the extreme tip of the femora and the extreme base of the tibiae. Of the records of this genus on the NBN website nearly 90% are this species. Hosts unknown, but occurs near *Halictus* nests, upon which it is probably parasitic. Uncommon, though widely distributed in England and Wales; rarely recorded in the north. May to October. The photograph was placed on http://www.diptera.info/forum/viewthread.php?thread_id=42328&pid=185611 by Mucha Fero.

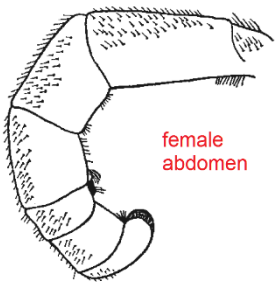
Legs more extensively orange-brown with the front and middle femora dark above and orange-brown below; hind femora orange-brown on the basal two-thirds or more. Top surface of the thorax with three distinct black stripes. Length 6-9 mm. .... ***Thecophora fulvipes***

Hosts unknown, but has been recorded among *Halictus* colonies abroad. Scarce with scattered records through England and Wales, becoming very rarely recorded further north. June to September. The image was placed on http://www.diptera.info/forum/viewthread.php?thread_id=53378 by P. Petkovic

Genus ***Sicus***

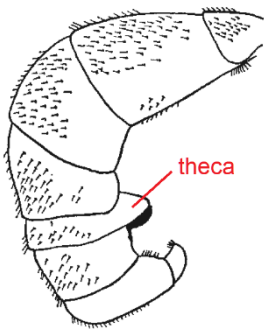
Medium-sized flies of reddish-brown to dark brown coloration. The abdomen is thickened in the males and more elongated in the females. The characters for males are from Zimina (1989) in Keys to the Insects of the European Part of the USSR, volume 5, part II.

1 Female: Abdomen long and slender; second abdominal segment nearly twice as long as wide, theca very small, scarcely visible. Male: Hind femora slightly thickened in the apical half (viewed from above) with fairly long black bristles on the lower side, whose length increases towards the middle part. Abdomen more or less cylindrical with the length of the second segment always longer than wide and with the length of the third segment at least equalling its width. Length 8-13 mm. .... ***Sicus ferrugineus***



Parasitic on various *Bombus* species. Relatively common and generally distributed in the British Isles. May to September. Image © James Lindsey published on Wikipedia.

Female: Theca large and protruding, clearly visible from the sides; second segment more or less as long as wide (viewed from above). Male: Hind femora not thickened with fairly short bristles on the lower surface which are less than half as long as the width of the femora (sometimes are few longer ones are present). Abdomen comparatively more oval with the length of the segments slightly smaller than those in the female. Length 8-11 mm. .... ***Sicus abdominalis***



Hosts unknown. Only four records listed on the NBN Gateway site from northern Suffolk.