

CRANEFLY RECORDING SCHEME

TEST KEY TO SUBFAMILY LIMNOPHILINAE

These short-palped craneflies (in the family Limoniidae) have  $R_{2+3}$  forked and tibial spurs are present. Coe (1950) placed this group of craneflies in his tribe Hexatomini.

Most species are moderate sized, wing length about 8-10 mm being typical. Some species can be larger, up to 13mm (in *Limnophila punctata*) whilst one genus, *Paradelphomyia*, is only 3.5-6 mm. The latter could easily be mistaken as belonging to the Chioninae (ex Eriopterini), the more so since tibial spurs can be very small or absent: however, the genus is distinctive (see genus note).

With 46 named species, and at least one additional un-named species, this is a sizable group of craneflies. A high proportion are easy to name, aided by the fact that many have distinctive wing markings.

The current check list has raised some former subgenera to generic rank and *Phylidorea* has been split. The overall classification and most species names should be easily recognisable to those familiar with previous key works.

In the forthcoming British check list, *Dactylolabis* is placed in its own tribe, Dactylolabini, the other genera being in the Limnophilini. There have been other groupings, the Palaearctic Catalogue recognising 4 tribes (Epiphragmini, Hexatomini, Limnophilini and Paradelphomyiini) and further opinions will probably be offered in the future.

The majority of these craneflies are to be found at water margins or where soils are saturated. The only truly terrestrial species are *Austrolimnophila* and *Epiphragma* which breed in dead wood. *Dactylolabis* may need moisture, at least in the winter. This fauna is important in site evaluation, especially in aquatic and sub-aquatic situations.

KEY TO GENERA

1. Lower basal cell divided in the middle by an extra cross-vein.



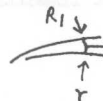
2

- Lower basal cell normal (not divided).



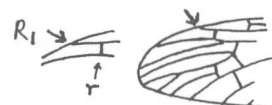
3

2.  $R_1$  turned up at apex, where it meets r.



Idioptera

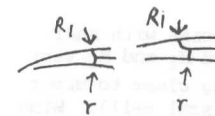
- $R_1$  straight at apex, continuing well beyond r.



Eloeophila

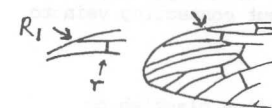
-1-

3.  $R_1$  turned up at apex (or just beyond), where it meets r.



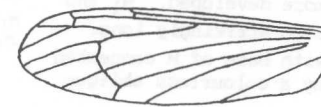
4

- $R_1$  straight at apex, continuing well beyond r.



8

4. Body black, wing without discal cell. [wing venation looks very simple at end of upper basal cell]

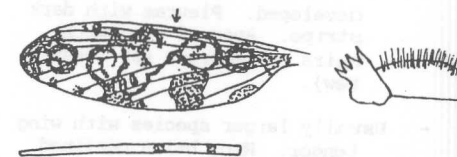


Hexatoma

- Wing usually with discal cell; only absent in a yellow bodied species.

5

5. Wing broad, typically with ocelate markings (though these can be faint or almost absent). Femur with two subapical brown rings. Top of thorax with strong bristles. An extra cross-vein between the costa and Sc - at arrow.

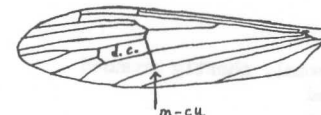


Epiphragma ocellaris

- Wing narrower, lacking all above characters.

6

6. Vein m-cu at base of discal cell. (Wing with markings).

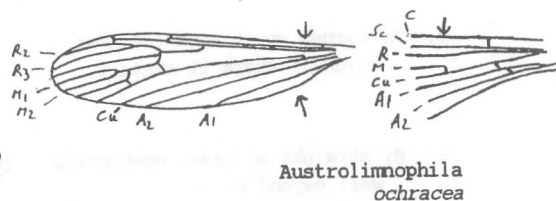


Dactylolabis

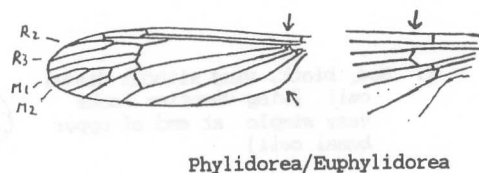
- Vein m-cu beyond base of discal cell. (Wing often without markings).

7

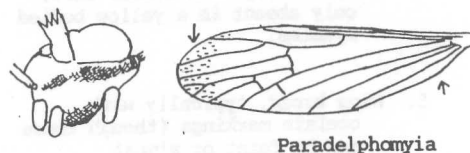
7. Drab brown species with anal lobe weak and  $M_1$  and  $M_2$  very long (forking close to upper corner of discal cell). Wing with base of M right angled and without connecting vein to R above.



- Body more often blackish or orange, sometimes brown. Anal lobe more developed.  $M_1$  and  $M_2$  not so strikingly long. Wing with base of M connected to R by a colourless oblique vein.



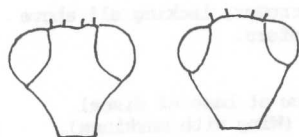
8. Small species (wing length 3.5-6 mm) with apically broad wing with anal lobe scarcely developed. Pleurae with dark stripe. Apex of wing with hairs on membrane (at least a few).



- Usually larger species with wing longer. Wing hairs confined to veins.

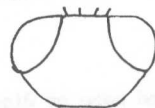
9.

9. Head elongate behind eyes.



10

- Head normal, shortly rounded behind



11

10. Back of head strongly narrowed, sides concave, hind margin very narrow. Wings normally spotted.



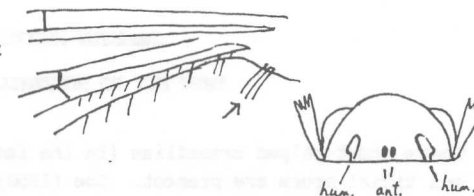
Limnophila

- Back of head gradually narrowing, sides straight or slightly convex. Wings without spots.



Pseudolimnophila

11. Squamae with a few long hairs (may get knocked off). Thorax with humeral pits large, anterior pits small and separate. Rarely entirely drab species, with orange colour or stripes on pleurae or with wing markings; bristles on antennae often strikingly long).



Pilaria

- Squamae bare. If humeral pits are well developed then the anterior pits are fused. Drab species, often fairly uniform colour and always without wing spots; bristles on antennae not particularly long. [includes some former *Pilaria*]

Neblimnomyia

#### KEYS AND NOTES TO SPECIES

##### Genus AUSTROLIMNOPHILA

The single species, *ochracea*, is common in dry and moist woods. It is such a drab species that it is obvious for that reason, the males having also a distinctive dull black pre-apical ring on the abdomen. The long apical wing-veins and very reduced anal lobe are also useful checks for identification.

##### Genus DACTYLOLARIS

1. Wing with a spot near base. Top of thorax with 4 shining black stripes.



*sexmaculata*

- Wing without a spot near base. Top of thorax entirely grey dusted.



*transversa*

These are uncommon species. *D. sexmaculata* is to be found on limestone cliffs and on limestone pavement in May and early June (mainly the Carboniferous Limestone outcrop). *D. transversa* is recorded between May and July on wet rocks, usually not limestone.

## Genus EPIPHRAGMA

*E. ocellaris* is a fairly robust brown species, with stout double-ringed femora. The ocelate wing-pattern, when strongly developed, is very distinctive but note that *Discobola* has a similar pattern (wing narrower, R<sub>2</sub>+3 fused). The third antennal segment is conical. This species is common in some woods: on occasion it can be seen swarming in small clusters over low vegetation (a fairly large brown crane fly for this behaviour).

## Genus ELOBOPHILA

1. Halteres entirely yellow. Wing rather parallel sided with only a few faint spots.

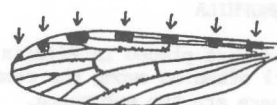


trimaculata

- Halteres with knob dark. Wing with strong spots, or if reduced, the wing is normally more wedge-shaped.

2

2. Rather narrow wing with 7 evenly spaced strong spots along the front margin: otherwise, no other spots.



verralli

- Wings without such a neat pattern.

3

3. Head above with a pair of dark stripes. Wing not widened, apex with merged dark areas but leaving actual apex white between the veins.



apicata

- Head plain above. Wing often wedge-shaped and apex without above pattern and often.

4

4. Wing with a basal oblique spot (running back to vein Cu). [Not yet recorded in Britain.]



[miliaria]

- Wing with any basal spot more restricted and not strongly oblique.

5

5. Vein R4+5 runs down the centre of a continuous darkish stripe (often fainter than other markings).

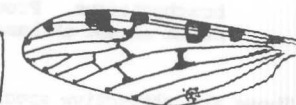
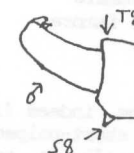


mundata

- Vein R4+5 not continuously margined in this fashion.

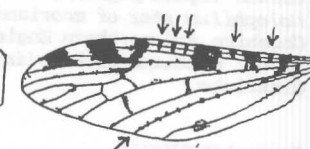
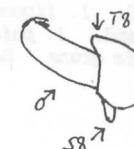
6

6. Front margin of wing with only isolated strong spots (markings can be reduced). Male genitalia in side view with short tergite 9 and short oblique sternite 8.



submarmorata

- Front margin of wing with additional minor spots or streaks (rare forms with very reduced markings may not be identifiable). Male with tergite 8 extended forwards and sternite 8 extended vertically below.



maculata

*E. maculata* is widespread at marshy edges of streams and at seepage marsh. *E. submarmorata* is more local, being associated with calcareous seepages in fens and carr. The remaining British species are scarce and associated with streams or small rivers. *E. miliaria* may yet be found in Britain and could have easily been overlooked.

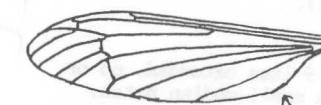
## Genus HEXATOMA

1. Femora entirely black. Abdomen mainly dull black, dusted greyish. Anal lobe more developed and more angular.



fuscipennis

- Femora obviously yellowish at base. Abdomen shining black.



bicolor

These are very distinctive black-bodied species that may be found beside rivers in May (south) and June (north). The larvae live in submerged sediment. *H. fuscipennis* has a preference for sandy substrate whilst *bicolor* occurs where pebbles and boulders are predominant, though both species can be found together. These are essentially upland district species, and where rivers come out onto the lowlands. Records on truly lowland rivers are few.

# Genus IDIOPTERA

1. Wing with basal spot and extensively dark apex. Front femora only dark at apex.



linnei

- Male wing <sup>small</sup> without basal spot and apex largely clear: female brachypterous. Front femora black except at base.



pulchella

These are attractive species, indeed *linnei* (formally known as *fasciata*) is one of the most attractive short-palped crane flies. The brachypterous females may cause initial confusion, but they are much smaller than the autumn *Tipula pagana/gimmerthali* and not nearly as small as the early season *Molophilus ater* of moorland. *I. linnei* occurs at the edges of ponds in Cheshire and northern England. *I. pulchella* is widespread but local, often in wet woodland with *Molinia* grass. Both have a preference for heathy districts.

# Genus LIMNOPHILA

This key incorporates *arnoudi* and *angustipennis* which are known in Holland.

1. Femora black in apical half, grading into yellowish basal half.



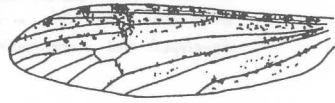
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- Femora with a black apical ring, otherwise yellowish.



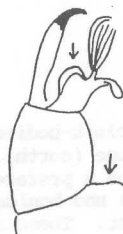
3

2. Tergite 9 extended, with a median V shaped notch. Inner style more bulbous at base. Sternite 8 angularly extended. Wing generally narrow (markings very variable or absent).



schranksi

- Tergite 9 less extended, no or only a small median notch. Inner style less bulbous at base. Sternite 8 curved at apex. Wing generally broader. [not yet recorded in GB]



[arnoudi]

3. Genitalia with a broader style. Wing usually broader.



pictipennis

- Style very narrow. Wing usually very narrow. [not yet recorded in GB]



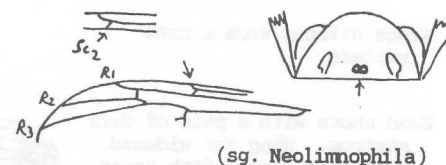
[angustipennis]

*L. shranki* (until recently called *punctata*) is a fairly large species, up to 13 mm long. Typically it has peppered spots on the wings (as *Rhipidia maculata*, Limoniinae) but even a single population can be very variable, with specimens having almost clear wings. This species is local in April and May by small streams outside woodland. *L. pictipennis* is a rare species at muddy pond sides and ditch margins.

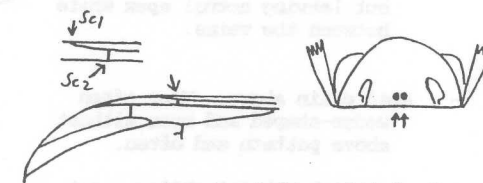
# Genus NEOLIMNOPHILA

These species were placed in *Pilaria* by Coe (1950). They are rather drab and thus will often be among the remnant after identifying distinctive species. There are two subgenera.

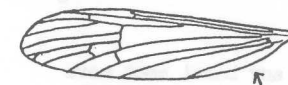
1. Sc<sub>2</sub> usually very close to apex of Sc (do not confuse with R<sub>1</sub> and r). Thorax with anterior pits fused (forming a small black shining patch at the front of the top of the thorax).



- Sc<sub>2</sub> usually well before the apex of Sc. Thorax with anterior pits separate (forming a pair of black dots at the front of the top of the thorax)



2. Body black, wings very narrow. A weak slender species.



filata

- Body drab medium brown.



batava

3.  $R_{2+3}$  about equal to  $R_2$  and  $R_3$ .  
Stigma darkish, seam from end of  $R_s$  to base of discal cell darkish.



*adjuncta*

- $R_{2+3}$  shorter than  $R_2$  and  $R_3$ .  
Stigma pale, no other wing markings..

4

4. Body entirely pale brown. [wing very narrow]



*minuscula*

4

- Body dark brown or grey.

4. Antennae entirely black, body entirely dark grey. Wing broad, rather angled on hind edge.



*separata*

5

- Antennae partly pale, including basal segments (sometimes entirely dark but then body colour rarely dark).

5. Pleurae dove grey.



*nemoralis ss*

- Pleurae dark brown. Wing rather narrowed in basal half.



*Brachylinnophila species A*

- Intermediate/uncertain

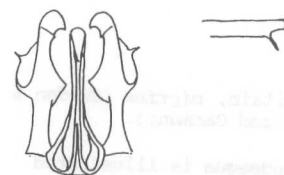
*nemoralis group*

*N. filata* is widespread in seepage marsh and carr, with *batava* more local in base rich situations.

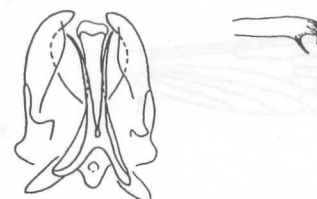
*B. adjuncta* is widespread in wet alluvial meadows. *B. separata* is characteristic on wet upland peat, including beside streams. *B. minuscula* specialises in calcareous fen carr. *B. nemoralis* is the most abundant lowland species, occurring in wet woods and sometimes open marshes. Species A is mainly a western and northern species of lowland boggy situations, including wet woods and stream sides.

## BRITISH

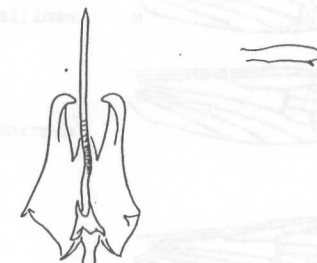
## EUROPEAN



*ecalcaratus*



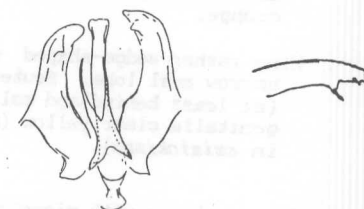
*fuscus*



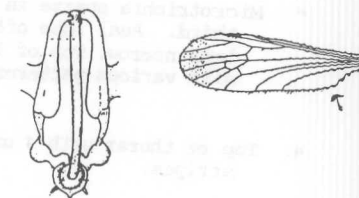
*nielsen*



*senilis*



*czizekiana*



*nigra*

AEGEAGUS & STYLES OF ♂ GENITALIA (high magnification)



# Genus PARADELPHOMYIA

This key includes two species not yet recorded in Britain, *nigrina* (Sweden & Czechoslovakia) and *czizekiana* (includes Switzerland and Germany).

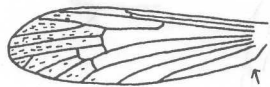
GENITALIA must be checked in if in any doubt. The aedeagus is illustrated below, a tiny structure. Fortunately the commonest species, *senilis*, is quite easy to recognise without dissection, and *nielsenii* and *dalei* are also usually no problem. Dissection is necessary to separate *fuscula*, *ecalcarata*/*czizekiana*.

1. Wing fairly broad, anal lobe at least 4 times as wide as median width of femora (at least in *senilis*). Scutellum dark, male genitalia murky orange.



2

- Wing rather wedge-shaped, with narrow anal lobe. Scutellum (at least behind) and male genitalia clear yellow (murky in *czizekiana*).



3

2. Wing membrane with microtrichia in discal cell and even apex of first basal cell: as also in *czizekiana*.



*senilis*

- Microtrichia confined to apex (not in discal cell or first basal cell. [Not 68 yet])



[*nigrina*]

3. Microtrichia very few, confined to extreme apex. Anal cell very narrow. Top of thorax with 3 dark stripes.



*nielsenii*

- Microtrichia sparse in apical third. Anal lobe often a bit less narrow. Top of thorax with various patterns.



4

4. Top of thorax with 4 narrow dark stripes.



*dalei*

5

- Top of thorax without this pattern.

5. Microtrichia extend into discal cell and even apex of first basal cell. [Not yet 68]



[*czizekiana*]

- Microtrichia absent in discal cell and first basal cell.



*fuscula*  
*ecalcarata*

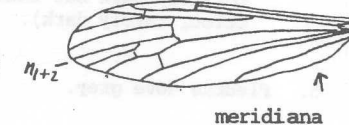
*P. senilis* is very widespread in wet woodland, especially at seepages, and has a long season. In fen carr and other calcareous wet situations, *dalei* is locally common in August. The other species are much scarcer in wet situations. *P. fuscula* and *P. nielsenii* tend to be late summer and autumn species, though can occur earlier. *P. ecalcarata* is only known from a few calcareous sites in N. Wales but ought to be found in upland England, it is recorded in June and October.

## Genus PILARIA

As now interpreted, the genus is restricted to species with a few long hairs on the squama (the key tries to allow for specimens with the hairs knocked off). These are medium sized species.

The key includes *Pilaria* Species A in Britain and the European *nigropunctata*, both of which are close to *fuscipennis*.

1. Pleurae with a single broad blackish stripe.  $M_{1+2}$  not forked. Wing very tapered at base.



*meridiana*

- Pleurae fairly plain.  $M_{1+2}$  forked.

2

2. Stigma darkish; cross-veins and vein forks clouded. Pleurae with partial stripes and spots.



*scutellata*

- Stigma faint, no wing markings. Pleurae without distinct pattern.

3

3. Thorax entirely clear shining orange, even when viewed from above. Femora entirely yellow. Tergites weakly darkened.

- Thorax blackish or murky orange when viewed from above. Femora with at least a little black at apex. Tergites black.

4. Flagellum with inclined hairs. Male aedeagus as shown.

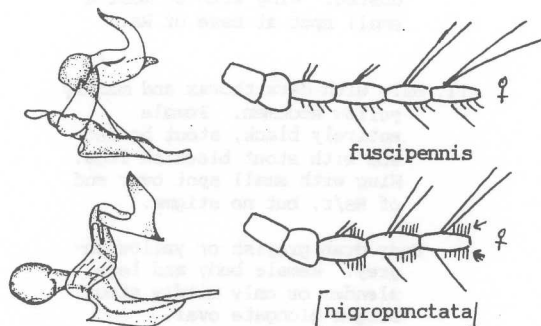
- Flagellum with erect hairs. Male aedeagus as shown. [not recognised in GB]

5. Top of thorax sharply two coloured, black above and bright orange at sides (pleurae bright orange).

- Top of thorax at most grading into dull orange at sides (pleurae drab or less bright orange)

5. Top of thorax more elevated, entirely blackish. Pleurae dull orange but usually darker in higher part.

- Top of thorax rather flattish, murky orange above grading into extensive dull orange at sides. Pleurae entirely orange (but not as bright as in *discicollis*).



Species A

*Pilaria* are typical of swamp habitats, including winter flood areas. *P. discicollis* is very widespread, even by ponds and ditches (body black as seen from above, when seen from side the pleurae are bright orange - very distinctive, plus the very long verticils). *P. fuscipennis* is widespread in carr (often with *discicollis*). The other species are scarce. *P. scutellata* is found about bare mud beside ponds. *P. meridiana* is at bare peat in winter flood acid eutrophic marsh and carr. *P. decolor* is found in mid summer where winter floods affect carr and river flood plain wet marshes. *P. nigropunctata* is only known from Crymlyn Bog NNR, near Swansea, in very wet poor fen.

# Genus PHYLIDOREA + EUPHYLIDOREA

These genera have only recently been split but it is easier to treat them together rather than create a tortuous key. The flagellum in *Phylidorea* has abundant erect pale hairs in addition to the verticils (bristles) but this is not much help in the absence of antennae or a good lens.

The key includes two widespread in European species that are not yet recorded in Britain, *P. bicolor* occurs in Denmark and *nervosa* in Belgium. Other species are less likely, occurring in Spain, or in the case of *umbrarum*, in Finland (the latter is close to *glabricula* but duller).

1. Thorax mainly strong clear orange or yellow.

- Thorax brown or black (rarely drab murky yellow).

2. Discal cell open.



Eu. aperta

- Discal cell complete.

3. Top of thorax entirely orange.

- Top of thorax with a median black stripe, at least in front.

4. Femora with strong black apical ring. Top of head yellow. Wing with some dusky markings on veins.

Ph. longicollis

- Femora at most a bit dusky at extreme apex. Top of head strongly dusted greyish. Wing strongly orange tinged but no markings.

Ph. ferruginea

5. Wing without coloured stigma. Top of thorax with a sharp very narrow black median stripe on clear orange background. Male abdomen entirely yellow, without black pre-apical ring.

Ph. (Para) fulvonervosa

- Stigma yellow or dark brown. Top of thorax with broader and often poorly defined median stripe in front. Male abdomen with a blackish pre-apical ring.

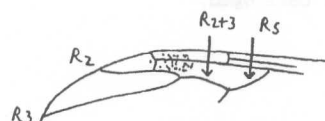
6. Stigma yellowish (rarely dark).  
Top of thorax with broad poorly defined broad median stripe, covered in dusting.  
Femora with apex darkish.  
Male tergite 9 with a pair of conical median processes.  
Female cerci curved up apically.

*Eu. lineola*

- Stigma dark brown. Top of thorax with a short median stripe, little dusting. Male tergite 9 with a pair of sub-lateral blunt processes.  
Female cerci much straighter.  
Femora extensively black, especially front femora.

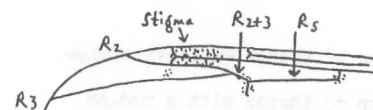
*Eu. dispar*

7. Vein Rs short, less than twice as long as  $R_{2+3}$ . Wings clear, at most a coloured stigma.



8

- Vein Rs longer, at least twice as long as  $R_{2+3}$ . Wing markings additional to stigma.



10

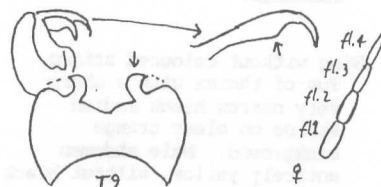
8. Small brownish species (wing length 4-6 mm). Wings clear, without a stigma, narrow and reduced in female..

*Ph. heterogyna*

- Medium sized black species (wing length 7-12mm). Stigma black, wings otherwise clear.

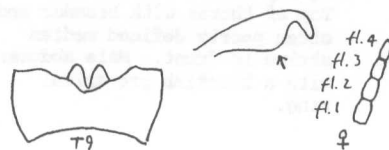
9

9. Top of thorax entirely pale dusted (care of rubbed specimens). Basal flagellar segments longer than broad. Male outer style slender, tergite 9 with sublateral broad curved processes (in dried specimens these curve down as shining structures flanked by dull membrane).



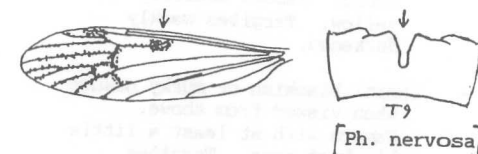
*Eu. phaeostigma*

- Top of thorax has thin dusting on median line to reveal shining black ground colour. Basal flagellar segments very compact, barrel shaped. Male tergite 9 lacks the above processes. Wings rather more elongate.



*Eu. meigeni*

10. Top of thorax almost entirely glossy black. Wing with a large spot at base of Rs.  
Male tergite 9 deeply cleft.  
[Not yet GB]

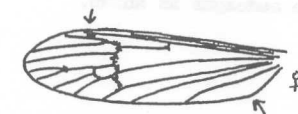


[*Ph. nervosa*]

- Top of thorax extensively dusted. Wing with at most a small spot at base of Rs.

11

11. Male with dark thorax and mainly yellow abdomen. Female entirely black, stout bodied and with stout blackish legs. Wing with small spot over end of Rs/r, but no stigma.

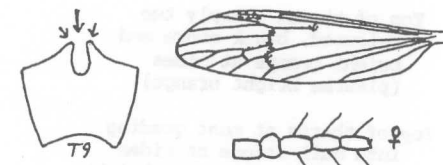


*Ph. abdominalis*

- Body drab greyish or yellowish-grey. Female body and legs slender or only mildly stout. Stigma elongate oval.

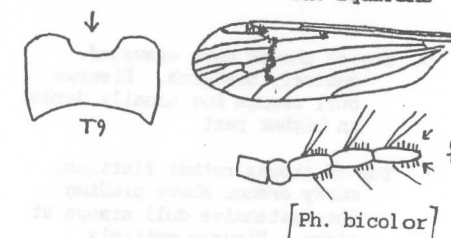
12

12. Male tergite 9 with a median pair of processes, with a narrow deep notch between. Female flagellum with short basal segments, lacking obvious fine hairs.



*Ph. squalens*

- Male tergite 9 with a broad open notch (or clearly not as above). Female flagellum with longer basal segments bearing erect fine hairs (in addition to bristles).  
[Not yet GB]



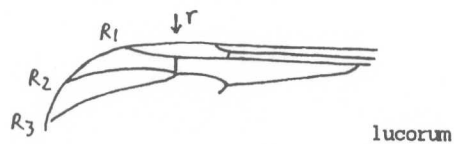
[*Ph. bicolor*]

(cont.)

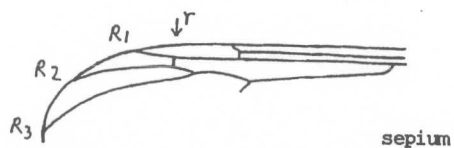


Genus PSEUDOLIMNOPHILA

1. Body dark grey. Vein r at fork of  $R_2+3$ ..



- Body brown, especially the pleurae which are quite pale. Vein r situated beyond the fork of  $R_2+3$ .



It is easy to go to the wrong genus if the head character is not checked. Both species often occur together in wet marsh and carr, but *lucorum* can manage more acid situations and *sepium* often occurs alone in base rich situations.