

THE BRITISH SPECIES OF PSILIDAE (DIPTERA)

by J.E. Collin (Ent. mon. Mag. **80**: 214-224. 1944.)

Copied by Richard Underwood.

Notes by R.U.

1. Current names in use as listed in Kloet & Hincks 1976 are inserted in {} - also other relevant comments.
 2. Authors names are bracketed where appropriate as in modern usage.
 3. Additional species listed in Kloet & Hincks 1976:
Psila persimilis Wakerly. (?= *Psila obscuritarsis* Lw. which is not listed in K & H.).
 4. The italics in the text are Collin's.
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The Psilidae are Acalyptrate Muscids easily distinguished from all except the Trypetidae by the "break" in costal margin of wing being some distance before the end of subcostal vein (R1 of some authors), *and the end of the mediastinal vein turning almost vertically upwards into this "break" as a hyaline or whitish streak in wing surface.* Among the other characters the absence of incurved lower fronto-orbital bristles and complete absence of strong bristles on the pleurae distinguish them from the Trypetidae, while the females do not possess the distinctive ovipositor of the latter family.

The species are found on low herbage or the leaves of bushes and include the well-known "Carrot-fly". Some British species are more common (or even found only) in Scotland.

TABLE OF GENERA

- 1 (2) Face concave in profile, forming an angle with peristoma at front mouth-edge. Jowls below eyes usually narrower. Often 6 scutellar bristles. Microtrichia on wing surface longer. *Chyliza* Fallén
- 2 (1) Face in profile strongly retreating and somewhat convex, side-margin of mouth forming a continuation of facial curve. Jowls below eyes very deep. Very seldom more than 2-4 scutellar bristles. Microtrichia on wing surface shorter.
- 3 (4) Third antennal joint very long, longer than face *Loxocera* Meigen
- 4 (3) Third antennal joint very much shorter than face *Psila* Meigen

In both sexes of *Loxocera* there is a curious, densely pilose pad, beneath hind femora near tip, which is probably a sense-organ. Indication of a much smaller sense-organ is found in the same situation in most species of *Chyliza*, but is not apparent in *Psila*.

TABLE OF SPECIES OF *CHYLIZA* FALLÉN

- 1 (2) Third antennal joint concave above, and arista thickened by dense black pubescence. Jowls below eyes deeper than third antennal joint is wide at middle.....*extenuata* (Rossi)
- 2 (1) Third antennal joint not concave above and arista with normal pubescence. Jowls narrower, not deeper than third antennal joint is wide..(*Chyliza* sens. str.)
- 3 (8) Thorax (except scutellum) and pleurae almost entirely black. Frons extensively black. Only orbits on lower half of occiput yellow.
- 4 (5) Femora very obviously ringed with black before the tip.....*annulipes* Mcq. {now *fuscipennis* R.-D.}
- 5 (4) Femora not annulated
- 6 (7) Third antennal joint and arista pubescence both slightly longer. Frons usually more extensively darkened. Z with anteroventral row of small black projecting spines on front tibiae. ζ with second antennal joint brownish above and upper side of humeri entirely black*leptogaster* (Pnz.) {now *scutellata* F.}
- 7 (6) Third antennal joint and arista pubescence both rather shorter. Frons usually more extensively yellowish. Z with anteroventral row of very small black excrescences resembling closely adpressed spines. ζ with second antennal joint always yellowish and at least upper side of humeri usually yellow*nova* sp.n.
- 8 (3) Thorax yellow with black stripes, or in ζ with at least broad yellow supra-alar patches. Frons more yellow than black. All lower half of occiput yellow*vittata* Mg.

TABLE OF SPECIES OF *LOXOCERA* MEIGEN

- 1 (6) Arista with short and not outstanding pubescence. Face black or at least with black middle band.
- 2 (3) Larger species (about 7-10 mm. without antennae). First 2 antennal joints larger, second as wide and deep as base of third, third very little longer than arista. Median frontal triangle reddish with dull black triangles on each side.....*aristata* Pnz. {now *ichneumonea* (L.)}
- 3 (2) Smaller species (about 5-7 mm.). First two antennal joints very short and small, second not as wide and deep as base of third, third much longer than arista.
- 4 (5) Scutellum and humeri yellow. Frons yellow on each side of black median triangle, and face yellowish except for black median band. Jowls below eyes deeper and together with lower half of occiput entirely yellow.....*sylvatica* Mg.
- 5 (4) Scutellum and humeri darkened. Frons all black or at least not as above, and face also nearly all black except for silvery bands. Jowls narrower and lower half of occiput extensively darkened*fulviventris* Mg.
- 6 (1) Arista with longer and more outstanding pubescence. Face entirely yellowish.

- 7 (8) Larger species (7-9 mm.). Frons yellow on each side of black median triangle.
 Scutellum yellow..... *albiseta* (Schrank)
 8 (7) Smaller species (about 5-7 mm.). Frons and scutellum all black..... *nigrifrons* Mcq.

PSILA MG. AND *PSILOSOMA* ZETT.

The European subdivisions may be tabulated as follows:-

- 1 (4) No notopleural or supra-alar bristle. Z hind femora dilated and curved.....
 (*Psilosoma* Zett.)
 2 (3) No orbital or dorsocentral bristles. (Not recorded from Britain).....
 group *Psilosoma* sens. str.
 3 (2) A small orbital and 1 pair of dorsocentrals..... group *Camptopsila* Frey.
 4 (1) A notopleural and a supra-alar bristle present. Z hind femora simple.... (*Psila* Mg.)
 5 (8) No postvertical bristles and no orbital bristles; only 2 pairs of vertical bristles.
 6 (7) No dorsocentral bristles. (Not recorded from Britain.)..... group *Oxypsila* Frey.
 7 (6) 1 pair of dorsocentrals. (Pteropleura with a few short fine hairs)
 group *Pelethophila* Hagenb.
 8 (5) Postverticals present even if small. Pteropleura bare.
 9 (10) Only 2 scutellar bristles. Postverticals and orbitals distinct group *Psila* sens. str.
 10 (9) Usually 4 scutellars. Postverticals and orbitals small group *Tetrapsila* Frey.

TABLE OF BRITISH SPECIES OF *PSILA* SENSU STRICTU

- 1 (12) Thorax yellow or with dark stripes only, not dark with humeri and side-margins
 yellowish
 2 (5) Abdomen also yellow
 3 (4) Third antennal joint larger and entirely yellow. Arista with longer pubescence.
 Eyes deeper than long *pallida* (Fall.)
 4 (3) Third antennal joint smaller and narrower and darkened towards tip. Aristal
 pubescence shorter. Eyes quite as long as deep *luteola* sp. n.
 5 (2) Abdomen black or at least not yellow.
 6 (9) Only 1 pair of (prescutellar) dorsocentral bristles.
 7 (8) Third antennal joint above and at tip and palpi at tip darkened. Front of thorax
 at middle with brownish patch. Sternopleura unicolorous yellow *bicolor* Mg.
 8 (7) Third antennal joint and palpi yellow. Front of thorax not darkened.
 Sternopleura with brownish patch..... *nigromaculata* Strobl
 9 (6) 2 pairs of dorsocentral bristles.
 10 (11) Occiput and thorax not striped. Arista quite short haired. Third antennal joint
 and palpi usually somewhat darkened towards tip
 *nigrosetosa* Frey. {now *pallida* (Fall.)}
 11 (10) Occiput with two dark vertical stripes. Thorax usually with a narrow median
 dark stripe in front and two narrow post-sutural stripes. Antennae and palpi

- yellow. Arista very distinctly pubescent, the hairs longer than the arista is thick at base..... *unilineata* Zett. {now *pallida* (Fall.)}
- 12 (1) Thorax all black or only yellow on humeri and side margins and all or part of pleurae.
- 13 (16) At least prothorax and often humeri and sides of thoracic disc yellow or tawny-yellow. Pleurae at least partly yellow.
- 14 (15) Only 1 pair of dorsocentral bristles. All occiput tawny-yellow. Arista with quite short pubescence *limbatella* (Zett.)
- 15 (14) 2 pairs of dorsocentral bristles. Upper part of occiput darkened. Arista pubescence longer.....*humeralis* (Zett.)
- 16 (13) Thorax, including pleurae, all dark.
- 17 (24) 1 or 2 pairs of dorsocentrals.
- 18 (19) 1 pair of (prescutellar) dorsocentrals, 2 pairs of vertical bristles and legs darkened.....*gracilis* Mg.
- 19 (18) Usually 2 pairs of dorsocentrals or, if (rarely) only 1 pair, legs entirely pale and 3 pairs of verticals.
- 20 (21) Third antennal joint partly yellowish.....*rosae* (F.)
- 21 (20) Third antennal joint entirely black.
- 22 (23) Hairs behind front femora more even in length and strength. Eyes rather larger and not so round, consequently cheeks and jowls rather narrower; arista pubescence slightly longer; abdominal pubescence longer. Z genitalia as in fig. 1 (right).....*rosae* (F.) var. {Not in K & H}
- 23 (22) A spaced row of hairs behind front femora rather longer and stronger than the rest. Eyes rather smaller and rounder and consequently cheeks and jowls slightly wider; arista pubescence rather shorter, abdominal pubescence shorter. Z genitalia as in fig. 1 (left)..... *nigricornis* Mg.
- 24 (17) 3 or 4 pairs of dorsocentrals. Legs darkened.
- 25 (26) 3 pairs of dorsocentrals..... *nigra* (Fall.)
- 26 (25) 4 pairs of dorsocentrals (1 pair presutural).
- 27 (28) Smaller species. Z genitalia small and simple (without finger-like claspers). 7th abdominal tergite of ζ narrow, forming part of the ovipositor..... *atra* Mg.
- 28 (27) Rather larger species. Z genitalia larger with finger-like claspers. 7th abdominal tergite of ζ wide, with very much narrower ovipositor emerging from its end*clunalis* sp. n.

Notes on species

CHYLIZA Fallén

The subgeneric name of *Megachetum* Rdi. (1856) has usually been employed for *C. extenuata* Rossi, and *D. fuscipennis* Dsv., the type of *Dasyna* Dsv., (1830), placed as a synonym of *C. annulipes* Mcq., but Desvoidy's description proves conclusively

that his *Dasyina fuscipennis* was based upon specimens of *C. extenuata* (Rossi) (*atriseta* Mg.); therefore if this latter species is considered generically distinct from *Chyliza* it must be known as *Dasyina extenuata* Rossi.

C. extenuata (Rossi). I can record it only from Hants., Surrey, Suffolk and County Wicklow (Ireland). The larvae are said to live in the swollen underground stem of *Orobanche rapum-genistae* Thuill.

C. annulipes Mcq. {now *fuscipennis* R.-D.} Is not a common species in Britain, though my records are from the widely separated localities of Wormsley Park (Oxford), Barton Mills (Suffolk) and Aviemore (Inverness).

C. leptogaster (Panz.) {now *scutellata* F.} - There are two distinct species under this name in Britain, but it does not seem possible to identify them with the two species which Rondani in 1876 professed to recognise in Italy. Rondani used the name *scutellata* F. (Described as a *Sargus*) for *leptogaster* Pnz., Fln. and Zett. (nec Mg., etc.) and gave a new name (*permixta*) to *leptogaster* Mg., Mcq., Schin. (nec Pnz., etc.), distinguishing *scutellata* by its dark humeri and absence of apical cloud on wings; *permixta* by its paler (*rufo-vittata*) humeri and presence of apical wing cloud. On colour of frons his *scutellata* might be said to agree with my *nova*, but his females of *scutellata* besides having dark humeri were said to have the second antennal joint often brownish above, both of which character are more applicable to my *leptogaster*. Similarly the frons of Rondani's *permixta*, the dark side stripes continued to the front margin, is the more usual condition in my *leptogaster*, but the humeri of the latter are seldom yellowish, whereas in my *nova* ζ they are usually so. Finally, both British species have an apical, costal, wing cloud. If one might hazard a guess as to the identity of Rondani's two species it would be that his *permixta* was a southern form of my *leptogaster*, and his *scutellata* a distinct third species.

C. leptogaster as identified by me is the more common species in Central Europe according to specimens in Kowarz's and Bigot's collections, and as this well-known name was published in the same year as *scutellata* it may be retained even if the two really apply to the same species. I can record this species from Kent, Hereford, Oxford, Cambs. and Suffolk. The larvae are said to make nut-like woody galls on stems of *Physicarpus opulifolius* (L.) Maxim (= *Spiraea opulifolia*) on the Continent, but the identity of the insect concerned may be open to question.

C. nova *sp. n.* $Z \zeta$ Resembling *C. leptogaster* but differing as follows:

Z Frons rather more extensively yellow, this colour usually extending in front to each side-margin and connected to yellow vertex by a band (which may be tawny about middle) as wide as inner vertical bristles are apart. First 2 antennal joints as yellow as third (in *leptogaster* they are often brownish), third joint smaller than in *leptogaster*, and arista rather shorter haired. Frontal and thoracic pubescence slightly shorter. There are decided differences in the male genitalia, one of the most conspicuous being in the shape of paralobes or side lamellae; in *leptogaster*, in profile, they are narrow, more evenly tapering, somewhat downcurved (towards penis), with a downcurved point at tip; in *nova* they are broader, with an obvious, obtusely triangular, projection near base on posterior side, and end in a bluntly rounded tip having a upcurved small point.

Front tibiae with an anteroventral row of very small black excrescences resembling *very closely adpressed spines*.

♂ Basal antennal joints always much yellower and frons even more extensively yellow than in male. Humeri variable in colour but usually more extensively yellow, at least on upper surface. Front tibiae, as in *leptogaster* ♂ without any black points.

Length: 5-6 mm. This species has been found in Devon (Ivybridge), Surrey (Boxhill), Sussex (Three Bridges), and, with *leptogaster* in Cambs. (Woodditton Wood).

C. vittata Mg. - This is the most extensively yellow, and most delicately looking, species. It approaches *annulipes* in having indications of dark bands, at least on hind femora, but in addition to being a less black insect, has a more distinctly pubescent arista. I can record this species from Hants., Hereford, Norfolk, Suffolk and Cambs. The larvae are said to make galleries in roots of *Neottia nidus-avis* (L.) Rich.

LOXOCERA Meigen

L. aristata Panz. {now *ichneumonea* (L.)} I follow Loew (1858) in using this name for the *L. elongata* of Meigen. Panzer's figure and description fit this species and *not* that known as *albiseta* Schrank. Similarly, like Loew, I find it impossible to believe that the *Musca ichneumonea* of Linnaeus described among a lot of Syrphidae, with the description elaborated in his Fauna Suecica to include 'Antennae pallidae, longitudine capitis,' . . . 'Scutellum nigrum; sub scutello utrinque mucro pallidus,' and 'Abdomen cinereo,' can have been a species of *Loxocera*. Even if this can be proved it is much more probable that Fallén and Zetterstedt were correct in associating the name with *aristata* Pnz. rather than with *albiseta* Schrank. (v. Loew, 1854, *Neue Beitr.*, 2 ; 22). The mistake of using the name *ichneumonea* for *albiseta* Schrank appears to be due to blindly following Schellenberg, whose figure published in 1803 is unmistakably that of *albiseta*.

L. aristata is very variable in extent of darkening of thorax, but the scutellum is never black when the posterior part of the thoracic disc is yellow. Very dark specimens from Scotland with entirely dark thorax and scutellum, and partly darkened femora were described by Austen as var. *Yerburyi*. The species has a wide distribution in Britain, from Sussex, Hants., Hereford and Suffolk to Inverness-shire and Sutherland.

L. sylvatica Mg. is another species found both in the south of England (Cornwall and Devon) to Scotland where I found it in some numbers in a small ditch at the north end of Loch Garten (Inverness-shire).

L. fulviventris Mg. - I can record this species from Kent, Sussex, Hereford, Warwick, and Forfarshire in Scotland.

L. albiseta (Schrank) is common and widely distributed, but I have seen no specimens from Scotland.

L. nigrifrons Mcq. is known at present only from the New Forest (Hants.) where only a few specimens have been taken.

PSILA Mg. and PSILOSOMA Zett.

Until 1917 the two genera mentioned above were the only ones recognised in this group of species, *Pachylomera* Rdi. (1856), with the same generic limits as *Psilosoma* Zett. (1860), being preoccupied in the Coleoptera. In 1902 (*Wien. Entomologist. Z.*, **21**: 181) Hendel suggested that *Psila* Mg. could be divided into two groups, one typified by *P. fimetaria* L., the other by *P. rosae* F. Subsequently in 1917 (*Deutsch. Entomologist. Z.* **1917**: 37) he founded a genus *Chamaepsila* for *P. rosae* F. It will be seen, however, that this action cannot be accepted as it was not in accordance with Opinion 46 promulgated by the Zoological Commission in 1912.

The genus *Psila* was characterised by Meigen in 1803 (*Illig., Mag.* **2**: 178) *without mention of included species*; later, in 1826 (*Syst. Besch.*, **5**: 355), he redefined the genus, *altering its limits*, and described 13 species including *Musca fimetaria* L. and *P. rosae* F. The species *fimetaria* L. was selected as type of this 1826 genus of *Psila* by Westwood in 1840 (*Intr. Mod. Class. Ins.*, Gen. Synop.: 146) under the generic name of *Psilomyia*, an unnecessary change of name for *Psila* Mg. suggested by Latreille in 1829 (in Cuvier's *Regn. Anim.*, 2nd Ed., **5**: 525) and adopted by Macquart and Westwood. In 1856 Rondani (*Gen. Ital. Dipt.*: 122) designated '*Psila rosae* Mg.' (= *Musca rosae* F.) as genotype.

As *Psila* was originally described without included species the designation of its genotype is governed by Opinion 46, which rules that no species is available as genotype unless it can be recognised from (*i.e.* is in agreement with) the *original* generic publication, a very necessary provision to secure that, so far as is reasonably possible, the selected species was one originally included in the genus. The original diagnosis of *Psila* gives the arista as 'nakkt', this being altered in the 1826 diagnosis to 'villosa' and further defined in the 1826 description as 'haariger oder kurzgefiedert'. The arista of *P. fimetaria* is, and was described by Meigen as 'kurzgefiedert'; that of *P. rosae*, which is only slightly pubescent, was described by Meigen in 1826 as 'haarig'. It is obvious that while the arista of *rosae* might be called 'nakkt' and have been originally included in *Psila* by Meigen in 1803, *fimetaria*, with arista 'kurzgefiedert', must be accepted as a subsequent addition to the genus and the reason of the alteration of the diagnosis in 1826. The correct genotype of *Psila* Mg. (1803) is therefore *Musca rosae* F. NOT *Musca fimetaria* L., and *Chamaepsila* Hend. (1917) becomes a synonym. Incidentally this means that the 'Carrot-fly', so well-known in the literature of Economic Entomology as *Psila rosae*, is assured of retaining that binomial.

This species now known as *Psila fimetaria* L. was figured by Schellenberg in 1803 (*Gatt. d. Fliegen*, Pl. V, fig. 1) under the name of *Musca flava*, but on p. 62 was correctly referred to as '*Musca fimetaria*' F. (= *fimetaria* L.). Hagenbach in 1822 (*Symbola faunae Insect. Helvetiae*, p. 48) proposed a new generic name *Pelethophila* for the insect figured by Schellenberg (*v. Bezzi*, 1904, *Atti Soc. Ital. Sc. Nat.*, **43**: 174); therefore if *Psila fimetaria* L. be considered generically distinct from *Psila rosae* F. it must be known as *Pelethophila fimetaria* L.

Oblicia Dsv. (1830) becomes a synonym of *Pelethophila* Hagenb. because it only included species (*flava* Dsv.) is considered to be a synonym of *fimetaria* L.

Frey in 1925 (*Not. Ent.*, 5: 47-49), accepting Hendel's division of *Psila*, further subdivided *Chamaepsila* Hend. (which as shown above should be known as *Psila* Mg.) by founding two new genera: *Oxypsila* for *P. abdominalis* Schum., and *Tetrapsila* for *P. obscuritarsis* Lw. He also considered *Psilosoma* Lefebvrei Zett. generically distinct from *Audouini* Zett. And suggested a genus *Camptopsila* for its reception.

Tetrapsila Frey is somewhat intermediate between *Pelethophila* and *Psila* inasmuch the postvertical and orbital bristles are quite small. Frey himself stated that it 'kanurveillance auch als Subgenus von *Chamaepsila* Hend.' (= *Psila* Mg.) 'behandelt werden'. It was based upon the presence of four scutellar bristles, but I have seen a specimen with one of the lateral bristles absent without even a 'scar' where the bristle might have been; on the other hand, there are occasionally five or even six bristles.

Psilosoma Zett. (1860) was not proposed as a change of name for the monotypical and preoccupied *Pachylomera* Rdi. (1856), therefore does not automatically have the same type species. Its type was fixed by Frey as *P. Audouini* Zett. when he founded the genus *Chamaepsila* for *P. Lefebvrei*. It is very doubtful whether these two species are generically distinct.

My own conclusions based on the study of a large amount of material so not even support the earlier idea of two genera, *Psila* Mg. and *Psilosoma* Zett. These and recent subdivisions, in my opinion, represent species, or species-groups only.

Psila (Camptopsila) lefebvrei Zett. In this species the male hind femora, while dilated, are not tuberculate at base beneath as in *Psilosoma Audouini* Zett., and the prothoracic episterna in both sexes are not so microscopically pilose, but usually bear a few longer pale hairs. The female ovipositor is more normal, and the sixth tergite is without the tubercle on each side at base of *P. Audouini*. The species is not uncommon in Scotland but has also been taken in Durham, Lancashire, Suffolk and Herefordshire. *P. Audouini* has not yet been taken in Britain.

Psila (Pelethophila) fimetaria (L). - we have two closely allied species under this name, both common and widely distributed and not uncommon. They will probably be found in collections under the above name; this was the case in Kowarz's collection from Central Europe. The second species may be distinguished for *fimetaria* as stated below.

***Psila (Pelethophila) merdaria* sp. n.** Z ζ Compared with *fimetaria*; Eyes not quite so large but similarly reniform, not rounded. Third antennal joint rather larger *but not darkened on outer side about base of arista*; hairs beneath second antennal joint shorter; arista with rather shorter pubescence. Scutellum slightly longer in proportion to width and the pair of strong bristles not quite so widely separated. Wings with a yellowish tinge, especially about veins. Length about 8 mm. I can record the occurrence of this species in Surrey, Suffolk, Cambs., Edinburgh and Perthshire.

Psila (Tetrapsila) obscuritarsis Lw. - I have no doubt that this is the *P. rufa* Mg. of the British list; in fact, it is probable that Loew redescribed Meigen's species. Apparently Meigen's type is not longer in existence, so the synonymy cannot be definitely confirmed. It is the only species with 4 scutellar bristles and is only surpassed in size by the 2 species of *Pelethophila*. This species is not uncommon in

Chippenham Fen (Cambs.), and has also been taken in Hants., Suffolk, Derbyshire, and so far north as Musselburgh, near Edinburgh.

{N.B. This species is not listed in Kloet & Hincks (1976) under either name.}

Psila pallida (Fall.) Appears to occur more commonly in Scotland than in the south but has been taken in Westmorland, Staffordshire, Warwickshire, Somerset and Cambs.

Psila luteola sp. n. $Z \zeta$ Closely resembling *pallida* (Fall.) but eyes of different shape, their vertical not greater than their horizontal diameter. Third antennal joint smaller and narrower and brownish towards tip; arista with shorter pubescence, the longest hairs not so long as arista is stout at base. Palpi often brownish at tip. Abdomen often tawny-yellow. Crossvein closing discal cell further from wing-margin, the distance measured from lower corner being quite half length of crossvein.

Length about 4 mm.

Described from a pair taken in my garden at Newmarket (Suffolk) in September 1909, and a female taken by Mr. F. Jenkinson in his house at Cambridge.

Psila bicolor Mg. - Frey considered *P. ephippium* Zett. To be a variety of *bicolor* Mg., thus considering *bicolor* to be a species with only one pair of dorsal bristles. Becker also stated that specimens labelled *bicolor* Mg. in the collections at Vienna have similar chaetotaxy to that of *ephippium*, but it is not clear that these specimens were named by Meigen. However Séguy has recently stated that Meigen's specimens in Paris have only one pair of dorsocentrals, so that the synonymy suggested by Frey may be accepted as correct. I can record specimens from Cramond and Musselburgh (near Edinburgh) and from Shilton (Warwickshire).

Psila nigromaculata Strobl. - Originally recorded as British from specimens taken in Scotland and Herefordshire, but has since been found in Cambs., Suffolk and Oxfordshire.

Psila nigrosetosa Frey. {now *pallida* (Fall.)} - This species stood in my collection under the name *bicolor* Mg., but *bicolor* so now recognised as a species with only one pair of dorsocentrals. When describing the species Frey stated that *P. debilis* Egg. 'Stimmt in gewissen Hinsichten mit dieser Art überein,' but *debilis* was described as having an entirely yellow third antennal joint and arista 'ziemlich langhaarig.' *P. nigrosetosa* appears to be much more like Egger's *P. bicolor*, with which *debilis* was originally compared. See also note under next species. I have taken *nigrosetosa* on the windows of my house here at Newmarket (Suffolk), and in the Monnow Valley (Herefordshire).

Psila unilineata Zett. {now *pallida* (Fall.)} - This species varies inasmuch that specimens occur in which the thoracic markings are not present though the occipital markings persist. Not uncommon in Woodditton Wood (Cambs.) in June and I have also taken it in Chippenham Fen (Cambs.).

Psila limbatella (Zett.) - In 1911 I confused this species with *humeralis* Zett. In 1913, having captured a large number of true *humeralis* in Scotland, I separated the present species as probably undescribed, and about 20 years ago returned a pair which Mr. Britten had taken in Cumberland with the MS name of *uniseta*. I am now informed by Mr. Britten that it was from this pair (which he has now very kindly presented to

me) that K. Smith described *Psila uniseta* as a new species in 1922. *P. Uniseta* therefore becomes a synonym of *limbatella* Zett.] This has been a very little known species which was compared by Zetterstedt with *humeralis* and *ephiphium* (= *bicolor* Mg.), but can be at once distinguished from the former by the possession of only a single pair of dorsocentral bristles, and from the latter by its extensive blackened thorax. It undoubtedly varies in the extent of pale markings at sides of thoracic disc, and in size, but is, on the average, distinctly larger than *humeralis*, while the upper part of the occiput is never so extensively darkened as in that species. Not uncommon in Scotland in June and July; it has been taken in Yorkshire and in Cumberland and Stoke (Warwickshire).

Psila humeralis (Zett.) - This has been considered to be only a variety of *pectoralis* Mg., which it resembles in size and general appearance. I have not seen a British specimen of *pectoralis*, but Continental specimens are certainly distinct from *humeralis*. In the latter species the pleurae are entirely yellow, and the arista, though distinctly pubescent, is not sub-plumose as in *pectoralis*. The longest hairs on arista of *humeralis* are not more than $1\frac{1}{2}$ times as long as arista is at base. This species is not uncommon in the Spey Valley (Inverness-shire) in June.

Psila gracilis Mg. - Becker is responsible for the synonymy of *villosula* Mg. With this species, having examined a female under the first name in Paris and five specimens under name *villosula* in the Vienna Museum. He did not state whether these specimens agreed with the sizes given by Meigen ($2\frac{1}{2}$ lines and scarcely $1\frac{1}{2}$ lines respectively) nor whether they agreed in other respects with Meigen's descriptions. There is a sexual difference in the colour of the legs in this species, the male having all femora darkened except at tip, and tibiae brownish about the middle, while in the female this darkening is absent or confined to a faint patch below base of 4 posterior femora, and a rather more extensive darkening behind front femora. I possess a pair taken "in cop." I can record this species from Scotland, Cheshire and Suffolk.

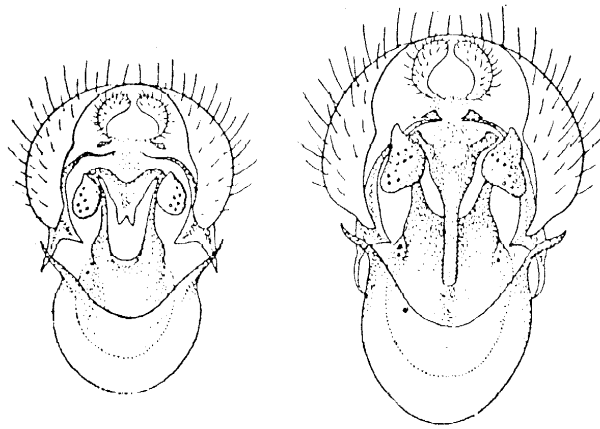


Figure 1 - Male genitalia drawn to scale;
Left, *Psila nigricornis* Mg.; right *P. rosae* F.

Psila rosae (F.) and *Psila nigricornis* Mg. - At first sight it would appear that these two species can easily be separated by the colour of the third antennal joint - partly yellow in *rosae*, entirely black in *nigricornis* - but when this separation has been effected those with all black third antennal joint still seem to be an unsatisfactory species. Dissections of the male genitalia of these supposed *nigricornis* disclose the fact that there are two types of genitalia among them, *one of which agrees better with the genitalia of rosae*. It would therefore appear that in *rosae* the third antennal joint may sometimes be entirely black. In the "Table of Species" will be found the only distinctions I can discover between such specimens and *nigricornis*, and it must be admitted that these distinctions need a close comparison, side by side, to be appreciated. Differences in the male genitalia are shown in fig. 1 (drawn to scale); in *nigricornis* (they are notably smaller) the chitinised part of the penis is much shorter and bilobed at tip, the actual intromittent organ membranous and not shown in the figure, though it may be seen in freshly killed specimens of *nigricornis* (when their genitalia are drawn out so as to expose the penis) emerging in tubular form beneath the chitinised part; the pair of somewhat swollen projections each side of penis are smaller, on the apron-like ninth sternite (lowest part of figure) shorter and less distinctly chitinised.

With this variation in the colour of antennae in *rosae* previous records of the occurrence and breeding of *nigricornis* are of little value. Both species are very common and widely distributed. In my garden *nigricornis* would appear to be the commoner species in the spring. Of bred specimens I can only state that specimens sent to me from the Cambridge School of Agriculture as bred from the roots of hemlock in 1941 (*v. Ann. Appl. Biol.*, **29**: 381) were all *rosae*, and that both species (judged by male genitalia), with *rosae* predominating, were present in cages erected in May 1941 on fields of carrots at Chatteris (*op. cit.*, p. 380). Also Smith in 1922 (when

describing *P. uniseta*) stated that *rosae* with partly yellow antennae had been bred by him in large numbers from carrots in the Manchester district.

Psila nigra (Fall.) and *atra* Mg. - These species are very much alike except in the number of dorsocentral bristles, and both have been taken by me in Scotland and Suffolk, and will certainly be found in many other districts. I have no doubt concerning their distinctness of species.

Psila clunalis sp. n. Z ζ Very much like *atra* Mg., having the same number (4 pairs) of dorsocentral bristles, but rather like a larger species with distinctly larger male hypopygium of different structure and different 7th abdominal tergite in female.

Z. The hypopygial shell, which is as usual cleft subapically to accommodate the anal lamellae (or cerci), is larger than in *atra*, and each of its two ends below these lamellae terminate in a curved finger-like process, whereas in *atra* the ends are bluntly and evenly rounded.

ζ. Differing from *atra* in structure of 7th tergite; in *atra* this is narrow and forms part of the telescoped segments of ovipositor; in *clunalis* it is almost as wide as 6th, while it is somewhat tumid and quite devoid of hairs on each side, the narrow ovipositor emerging from its broadly truncate end.

Length 3.5 mm.

Described from a male taken at Aviemore (Inverness-shire) on June 10th 1913, and three pairs taken at Grantown-on-Spey on June 1943, these latter (included among other small Diptera) collected and posted to me by my friend Mr. Colbran J. Wainwright.

This species, having the face blacker than in *gracilis*, might pass for *fuscinervis* Zett., except that the wings are in no way infuscated along the veins, and Zetterstedt's description of 'femoribus apice oblique ...flavis' applies far better to *gracilis* than to this species, in which the femora are only narrowly and evenly yellow at tip.