

Family Piophilidae: a guide to UK species

Donald Smith



Protopiophila latipes Image Sam Thomas

“A maggot must be born i' the rotten cheese to like it.”

George Elliot, Adam Bede (1859) Chapter 32

General

Most members of this small acalypterate family (13 species in the British Isles, of which 6 have been recorded in Ireland) are small, shiny black flies that breed on carrion or are pests of cheese and dried meats. A couple of species are yellowish. Alternative breeding sites for some species include birds nests and fungi. There are previous keys to the British species by Stubbs and Chandler (2001), and Mike Hackston (2023) (<https://sites.google.com/view/mikes-insect-keys>). This document has been prepared in order to bring together information from a variety of sources in order to assist the collection and identification of flies in this family.

Etymology

Piophilidae: from the Greek πῖον (pion) - fat and φιλεῖν (philein) – to love - presumably in relation to the association with cheese of *Piophila casei*, the “cheese skipper”.

Family characteristics

Small to medium acalypterate flies; the most commonly recorded species are small, glossy black flies, often with parts of the leg contrasting yellow; vibrissae present; postverticals divergent or parallel; arista dorsal; pedicel with an erect dorsal seta; costal vein with subcostal break, subcostal vein complete; cell cup closed; tibiae without dorsal preapical setae.

Confusion with other families

Small, black members of the family could be confused with sepsids; piophilids differ in having vibrissae and a break in the costal vein at the subcosta. *Neottiophilum praeustum* could be mistaken for a tephritid because of its size and spotted wings, but differs in the presence of vibrissae and the smoothly curved subcostal vein. The costal spines of this species could also cause confusion with helemomyzids, but unlike them, *Neottiophilum praeustum* has divergent postverticals.

NBN records

	NBN	E	W	S	I	Seasonality
[<i>Actenoptera hilarella</i>]	[0]					
<i>Neottiophilum praeustum</i>	59	+	+	+	-	4,5,[6,7]
<i>Allopiophila luteata</i>	33	+	+	+	+	[4,5],6,7,[8]
<i>Liopiophila varipes</i>	109	+	+	+	+	[4],5,6,7,8,[9]
<i>Mycetaulus bipunctatus</i>	1	+	-	-	-	
<i>Parapiophila flavipes</i>	5	+	-	+	-	6
<i>Parapiophila vulgaris</i>	271	+	+	+	+	[4],5,6,[7,8,9]
[<i>Piophila casei</i>]	[22]	+	+	-	+	[5],6,[9]
<i>Prochyliza nigrimana</i>	21	+	+	+	+	6,[7]
<i>Protopiophila latipes</i>	19	+	+	-	-	[5],6,7,[8]
<i>Pseudoseps signata</i>	0					
<i>Stearibia nigriceps</i>	101	+	+	+	+	5,6,[7,8]
[<i>Centrophlebomyia furcata</i>]	[6]	+	+	-	-	5

NBN: number of records on NBN December 2024; [] indicates species probably extinct in UK
E, W, S: NBN records for England, Wales, Scotland; I: Ireland on current checklist
Seasonality – month number of peak, with other months in []

Finding your way around the family

One obstacle to getting a handle on species in the family is that almost every species is in its own genus. The three commonest species found on carrion are *Parapiophila vulgaris*, *Liopiophila varipes* and *Stearibia nigriceps*, all of which are small shiny black flies, reminiscent of sepsids but without a narrow waist. Similar flies, also on carrion, but less frequent are *Prochyliza nigrimana*, *Allopiophila luteata*, *Protopiophila latipes* and *Parapiophila flavipes*. A small black fly with spotted wings is *Mycetaulus bipunctatus* which is associated with fungi. A very different looking fly is *Neottiophilum praeustum* which is large and yellowish with patterned wings and whose larvae suck the blood of nestlings. The remaining species in the family are now either extinct in the UK or extremely rare, these being *Piophila casei* (cheese skipper), *Centrophlebomyia furcata* (bone skipper), *Actenoptera hilarella* and *Pseudoseps signata*.

Males and females of some species are not always easily distinguishable; in general the tip of the abdomen of females is conically produced, sometimes with a long ovipositor protruding in dead specimens. The tip of the male abdomen tends to be more rounded with more or less obvious genitalia; in some dead specimens a long curving distiphallus is extruded.

General features

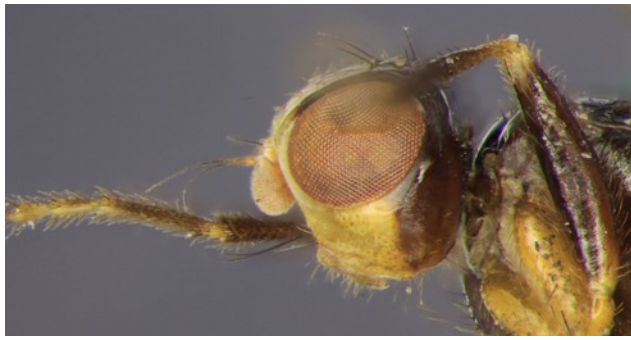
[] indicates rare or extinct species

Costal spines: *Neottiophilum praeustum* (males only), [*Centrophlebomyia furcata*]
Large and yellow: *Neottiophilum praeustum*, [*Actenoptera hilarella*]
Spots on wings: *Mycetaulus bipunctatus*, *Neottiophilum praeustum*, [*Pseudoseps signata*]
Black face and frons: *Stearibia nigriceps*, *Protopiophila latipes*, [*Parapiophila flavipes*]
Legs mostly black: *Liopiophila varipes*, *Parapiophila vulgaris*, *Stearibia nigriceps*

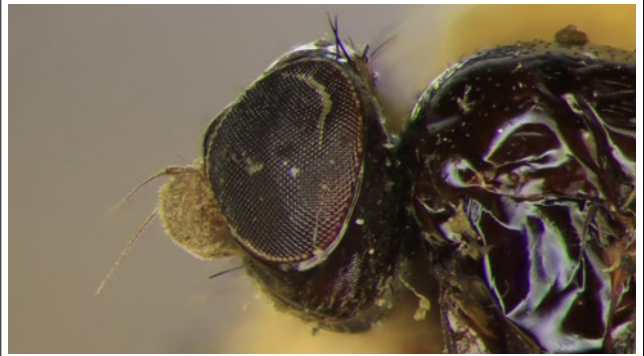
Common on carrion: *Parapiophila vulgaris*, *Stearibia nigriceps*, *Liopiophila varipes*
Anepisternum hairless: *Stearibia nigriceps*, *Protopiophila latipes*, *Parapiophila vulgaris*

Male surstylus a tubular protusion: *Parapiophila vulgaris*

Heads of some piophilid species



Piophila casei



Parapiophila flavipes



Protopiophila latipes



Allopiophila luteata



Stearibia nigriceps



Prochyliza nigrimana



Liopiophila varipes



Parapiophila vulgaris

Collecting

Adults of most species are attracted to late (rancid) stage carrion, or to fungi and animal products such as cheese and dried meat. Advice on collecting from carrion is provided in articles by James Dear (1978), Andrew Chick (2008 and 2010) and Nigel Jones (2020). Caution is necessary when collecting from carrion because of the danger of inhaling microbes or larvae; a sucking pooter should not be used. Alternatives are potting individual flies directly on the carrion or after sweeping with a net or plastic bag, or by placing a trap over the carcass. Carrion can often be detected by nose, or spotted as roadkill. Some of the species normally associated with carrion (*Parapiophila vulgaris*, *Parapiophila flavipes*) can also be bred from birds nests. Occasional specimens can also be obtained by sweeping vegetation or tree foliage. Nigel Jones (2020) reports success using a trap baited with chicken bones and hoisted into a tree. Piophilids are often described as being typical of late stages of decomposition, subsequent to colonisation by calliphorids, but adults can also be found on fresh carrion.

Specimens of *Neottiophilum praeustum*, the larvae of which suck the blood of nestlings, can be obtained by rearing from puparia in birds nests. A wide variety of bird species are recorded as hosts, ranging from wren to crow, with nest collection dates commonly in July and August, but also including all the winter months.

Behaviour

The mating behaviour of *Protopiophila litigata* (antler fly, found in Canada, Finland and Sweden) is described by McAlister (2017). Oldroyd (1964, p176) reports that “male *Piophila* indulge in a queer little mating dance round a stationary female”. He also describes how larvae of *Piophila casei* (cheese skipper) can leap 2 or 3 inches. “This leap is achieved by bending the body into an arc until the mouth hooks can grip the posterior tip of the abdomen, where *Piophila* has two small papillae to catch hold of. The abdominal muscles contract, and when the grip is suddenly released, the larva is flung into the air.” This behaviour could help larvae to move to new food sources or to avoid predators.

General information about development egg to adult

The puparia and development sites of *Neottiophilum praeustum*, *Mycetaulus bipunctatus*, *Parapiophila vulgaris* and *Liopiophila varipes* have been described by Rotheray and Hancock (2012). The development of *Piophila casei* from egg to adult at a range of constant temperature on an artificial substrate was studied by Russo et al., (2006): 15 °C: 57 days, 19 °C: 44 days, 25 °C: 24 days, 28 °C: 20 days, 32 °C: 15 days, while adult longevity at 15 °C was 20 days, and at 32 °C, 7 days.

Terminology

Names of physical features are as used in Muller (2021). These are essentially those used in Oosterbroek (2006) except that here “postpedicel” is used for the third antennal segment.

Missing information

Illustrations of male genitalia are sparse: that of *Parapiophila flavipes* is figured in Stubbs & Chandler (2001), and of *Parapiophila vulgaris* in Rochefort & Wheeler (2015) and Merz (1996). Genitalia of the European species *Allopiophila calceata* and *Allopiophila dudai* are figured in Shtakel'berg (1988).

UK Checklist - Piophilidae

(abbreviated by placing previous taxonomic names on individual species lines)

Neottiophilidae

Thyrephoridae

NEOTTIOPHILINAE

ACTENOPTERA Czerny, 1904

GYMNOMYZA Strobl, 1894, preocc.

hilarella (Zetterstedt, 1847 – Heteromyza)

NEOTTIOPHILUM von Frauenfeld, 1868

praeustum (Meigen, 1826 – Dryomyza)

PIOPHILINAE

Piophilini

ALLOPIOPHILA Hendel, 1917

luteata (Haliday, 1833 – Piophila)

LIOPIOPHILA Duda, 1924

varipes (Meigen, 1830 – Piophila) (= *Prochyliza varipes*)

MYCETAULUS Loew, 1845

bipunctatus (Fallén, 1823 - Geomyza)

PARAPIOPHILA McAlpine, 1977

flavipes (Zetterstedt, 1847 – Piophila) (= *Allopiophila flavipes*)

vulgaris (Fallén, 1820 - Piophila) (= *Allopiophila vulgaris*)

PIOPHILA Fallén, 1810

TYROPHAGA Kirby & Spence, 1826

casei (Linnaeus, 1758 - Musca)

atrata (Fabricius, 1781 - Musca)

PROCHYLIZA Walker, 1849

nigrimana (Meigen, 1826 - Piophila)

affinis (Meigen, 1830 - Piophila)

nigricornis (Meigen, 1826 - Piophila)

PROTOPIOPHILA Duda, 1924

latipes (Meigen, 1838 - Piophila)

PSEUDOSEPS Becker, 1902

signata (Fallén, 1820 – Scatophaga)

STEARIBIA Liroy, 1864

nigriceps (Meigen, 1826 - Piophila)

foveolata (Meigen, 1826 – Piophila)

Thyreophorini

CENTROPHLEBOMYIA Hendel, 1903

furcata (Fabricius, 1794 - Musca)

cinerea Sack, 1939

Key to species

The following key is based upon that of Stubbs & Chandler (2001), but incorporating some elements of Rochefort et al., (2015) and Hackston (2023), as well as adopting structural suggestions from Iain MacGowan. Couplets were checked based upon specimens examined at the National Museum of Scotland collection, and with reference to photographs kindly provided by Nigel Jones, Geoff Hancock (Hunterian Museum, Glasgow), Sam Thomas and Nikita Vikhrev.

Characters used in previous keys, but that have not been used here are the size of the genae relative to the eye, leg colour, and the slope of the frons.

Species accounts

Following the key are individual pages giving additional information for each species. For some species the page includes a histogram showing the frequency of UK records by month and a map of their distribution – these were downloaded from NBN Atlas at <https://nbnatlas.org>.

Recording

The family Piophilidae is modestly recorded in the UK, with fewer than 700 records currently on NBN Atlas; this probably reflects the unpredictable nature of finding suitable carrion and the effort required to breed *Neottiophilum praeustum* from birds nests. Museum collections may be a rich source of additional records – as an example there are more than 500 specimens in the National Museums of Scotland collection.

Individual dipterists may also have records from around the country that have not been submitted to wider recording schemes. One of the purposes of producing this key is to stimulate more recording. Both new and historic records can be submitted directly to Nigel Jones, the Small Acalypterate Recording Scheme organiser for the family Piophilidae (Sumner, Falk & Jones, 2023), submitted to iRecord, preferably with an informative photograph, or specimens can be sent to Nigel Jones or Donald Smith for identification.

Acknowledgements





Thanks are due to Sam Thomas, Nigel Jones, Geoff Hancock and Nikita Vikhrev for permission to use their photographs, to Iain MacGowan for helpful advice about the structure of the key, to Peter Chandler and Geoff Hancock for picking up several inaccuracies and typos, to Ian Andrews for comments on etymology, and to Ashleigh Whiffin, Curator at National Museum of Scotland for enabling access to its collection and also for assistance in taking photographs of specimens.

Contacts

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Key to species

<p>1. Scutellum elongate. Male with long, robust upwardly curving apical setae. Large (6–7 mm), hairy, heavily grey-dusted species. <i>Centrophlebomyia furcata</i></p> <p>Probably extinct in UK.</p>	 <p><i>Centrophlebomyia furcata</i> Image: Nikita Vikhrev from Diptera.info</p>
<p>- Scutellum not elongate, male without such strong apical setae. 2</p>	
<p>2. Vein R₁ bearing dorsal spinules. Thorax entirely shining orange-brown. Large species (body length > 5 mm) (subfamily Neottiophilinae)3</p>	 <p><i>Neottiophilum praeustum</i> (male)</p>
<p>- Vein R₁ without dorsal spinules. Thorax partly or entirely black. Smaller species (body length < 5 mm) (subfamily Piophilinae)4</p>	
<p>3. Wing infuscated with darkened apex, cross veins and stigma. Male with spines along leading edge of costal vein. <i>Neottiophilum praeustum</i></p> <p>Infrequent but widespread. Larvae suck blood of nestlings.</p>	 <p><i>Neottiophilum praeustum</i> (male)</p>
<p>- Wing immaculate, costal vein without spines in both sexes. <i>Actenoptera hilarella</i></p> <p>Rare, possibly extinct. Not recorded in UK since 1960.</p>	 <p><i>Actenoptera hilarella</i> Image Geoff Hancock (Hunterian Museum)</p>
<p>4. Wings infuscated with distinct or faint apical markings.5</p>	
<p>- Wings immaculate 6</p>	

5. Wing with large dark mark at apex and costal cell darkened (these markings can be faint). Two pairs of dorsocentrals. Head and most of thorax yellowish or orange-brown. Fore femur and tibia entirely yellow. Veins R_{4+5} and M_1 parallel.

.....*Mycetaulus bipunctatus*

Scarce but widely distributed.



Mycetaulus bipunctatus

- Wing with areas of discrete infuscation at apices of veins R_{2+3} , R_{4+5} and M_1 (darker in males). One pair of dorsocentrals. Veins R_{4+5} and M_1 divergent. Occiput and thorax black (apart from lower part of katepisternum). Front legs partly black.

..... *Pseudoseps signata*

Rare; Scottish Highlands, Somerset, Cumbria



Pseudoseps signata (female)
Image from Roháček et al., (2016)

6. Front tarsus laterally flattened (see picture in species account). Four pairs of dorsocentrals, although only the most posterior pair may be strong. Two divergent setae on postpronotal lobe (= humeri) – one directed dorsally, one posteriorly. *Protopiophila latipes*

Infrequent. South of England and Wales.



Protopiophila latipes Photo: Nigel Jones

- Front tarsus normal. One pair of dorsocentrals. None or one seta on postpronotal lobe. 7

7. Postpronotal lobe with a well developed seta. Pre-sutural seta present (above the notopleural seta, roughly in line with the seta on the postpronotal lobe). These setae are often lost, so check both sites on both sides.8



Parapiophila vulgaris Image: Donald Smith

- Postpronotal and presutural seta absent. 10

8. Head entirely black or with only slight hints of orange.

..... *Parapiophila flavipes*

Scarce; Inverness, Cambridge, Hampshire, Herefordshire, Berkshire, Cumbria.



Parapiophila flavipes frons

- Head mainly orange including face and gena, also often occiput 9

9. Postpronotal lobe and sides of thorax extensively orange-brown. Costa often darkened at tip of R₁. Male genitalia unremarkable.

..... *Allopiophila luteata*

Infrequent but widespread.



Allopiophila luteata

- Postpronotal lobe and sides of thorax black. Costa not darkened at tip of R₁. Male with distinctively protruding tubular surstylus.

..... *Parapiophila vulgaris*

Common species on carrion. Widespread.



Parapiophila vulgaris



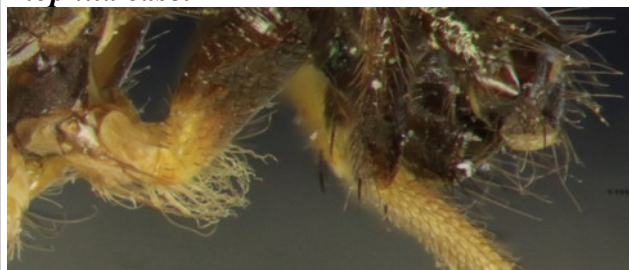
Parapiophila vulgaris (male genitalia) Image: Nigel Jones

10. Mesonotum dulled by microsculpture with oily sheen and 3 discrete lines of small setulae. Male with long pale ventral setulae on hind trochanter. *Piophila casei*

Probably extinct in UK; potential for importation



Piophila casei



Piophila casei (NMS) Male hand trochanter

- Mesonotum shining, setulae scattered in multiple rows. Male hind trochanter without long ventral setulae 11



Liopiophila varipes

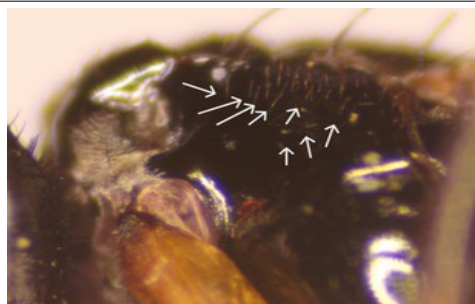
11. Head entirely black. Anepisternum bare. *Stearibia nigriceps*

Common species of carrion, widespread.



Stearibia nigriceps

- Frons, face and genae partly yellow. Anepisternum with tiny setulae – may need to adjust lighting and angle of view to see these. 12



Liopiophila varipes

12. Frons usually entirely yellow except around ocelli, as wide as an eye, not narrowing from front to back. Frons and genae can be dark in some specimens. Genae at level of vibrissae 1.5 times width of postpedicel, more than half height of eye. *Prochyliza nigrimana*

Infrequent but widespread.



Prochyliza nigrimana

- Posterior half of frons distinctly darkened, frons wider than an eye at level of ocelli. Genae at level of vibrissae equal to or less than width of postpedicel, less than half height of eye. *Liopiophila varipes*

Common, widespread species of carrion.



Liopiophila varipes

Actenoptera hilarella (Zetterstedt, 1847)



Medium sized (body length 6 mm) all yellow fly with clear wings. Rare, possibly extinct. No UK records since Rum in 1960. Previously Highlands and Suffolk. Biology unknown.

Hancock (2011) reports first recorded Suffolk 1925, otherwise Scotland: Aviemore 3.viii.1903, 12.viii.1903, Kinrara 9.vii.1936, Culbin Sands 14.vii.1938, Loch Garten 23.vi.1959, Rum 3.vi.1960.

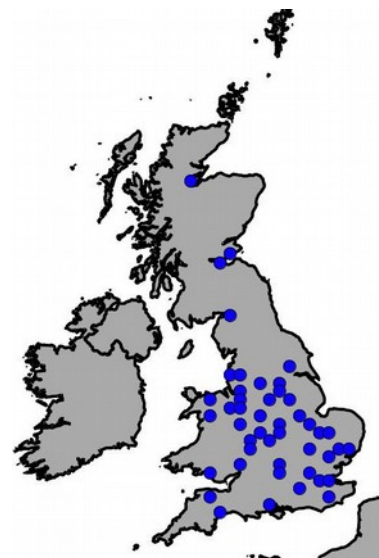
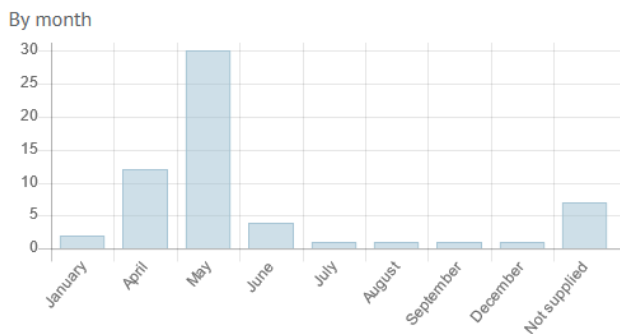
Elsewhere, records from Austria, Poland/Slovakia, Czech Republic, Slovakia, Lithuania, Norway, Sweden, Switzerland, USA, Canada

Neottiophilum praeustum (Meigen, 1826)



A large (5–9 mm), shining yellowish or orange-brown fly with spotted wings, like a helomyzid or tephritid. Cell cup closed by a cross vein that bends back toward the base of the wing. Males have spines along leading edge of costal vein, although there may be only 2 or 3 spines in very small specimens. Very variable in size.

Widespread distribution. Larvae suck the blood of nestlings. Puparia in bird nests all year. Adults most often recorded in May and June. Recorded from nests of dunnock, chaffinch, linnet, thrush, whitethroat, greenfinch, bullfinch, blackcap, crow, shrike and wren.

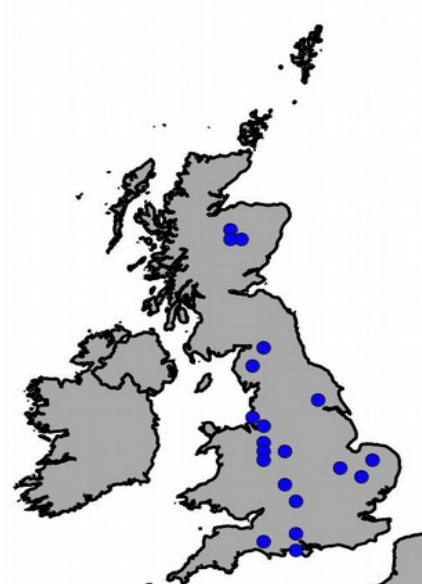
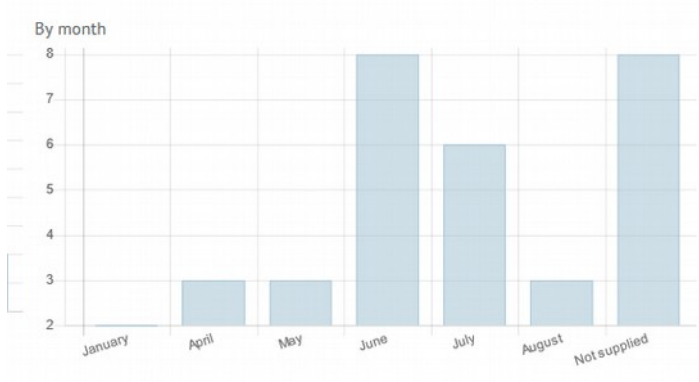


Allopiophila luteata (Haliday 1833)



Small fly (3mm). Distinctive features are the contrastingly yellowish postpronotal lobe and pleura, together with a dark mark on the costal vein at the tip of R₁ (best viewed from the front – but can be faint in some specimens). Prosternum with a pair of bristles; these are small and not easy to see. In comparison with *Parapiophila vulgaris*, the frons is more horizontal so that the antennae are placed nearer the top of the eye. Propleuron shining; that of *Parapiophila vulgaris* is dusted.

A less commonly encountered fly, widely distributed. Most records from June and July. Records on fallen birch and swept in mixed woodland.

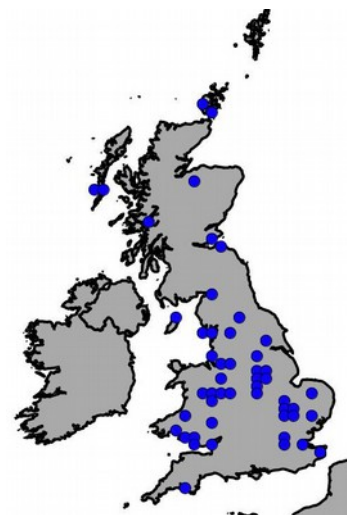
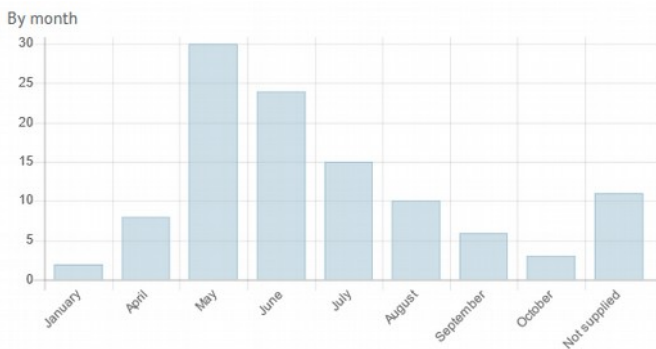


Liopiophila varipes (Meigen, 1830)



A small (2.5–4.5 mm) black fly with some yellow-orange on frons and face. Genae only one sixth eye height, and murky in colour. Colour variation in head. Legs mostly black with variable darkening of middle and hind tibia; middle and hind tarsi yellow apart from apex. Male with hairy abdominal sternites, the hairs longer than width of rear tibiae, almost equal to the width of the rear femur.

Common on carrion with a wide distribution. Found on fox, deer, vole, hedgehog, buzzard, fish heads and whale. April to October, peaking in May and June.



Mycetaulus bipunctatus (Fallén, 1823)



Small fly (2.3-3.5 mm) with infuscated wing tip and costal cell, the black abdomen contrasting with yellow or orange-brown body and head. Scarce but widely distributed (Suffolk, Buckinghamshire, Cambridge, Hertfordshire. Oxford, Durham, Scotland: Aviemore, Aberdeen, Dumfries) . Historical records on fungi; has also been bred from birds nests (dunnock, greenfinch); records from decaying wood may be pupation site only.

Rochefort *et al.*, (2015) says that this is a species complex. This is supported (not in that paper) by mitochondrial sequencing. Colour range from brown to yellow, strong thoracic stripes on photo of one.

A similar species *Mycetaulus latipennis* Ozerov & Bartak, 1993, has been recorded recently in the Netherlands (de Bree, 2024) – see “Other potential species from Europe” for distinguishing characters.

Parapiophila flavipes (Zetterstedt, 1847)



Small (2–3 mm) fly with all black head and thorax and abdomen.

Summary of comments from Stubbs & Chandler (2001): The coxae, trochanter and tibiae of the front leg vary from all yellow to darkened; this differs from the McAlpine key which has the apical segment of the fore tarsus contrasted yellow-white, the remainder dark, whereas in British material this is only obscurely different; male genitalia figured. The key implies that there is a postpronotal seta. Comments from Rochefort *et al.*, 2015: femora yellow but can be black, antenna, face, lunule, palp black but can be partly yellow.

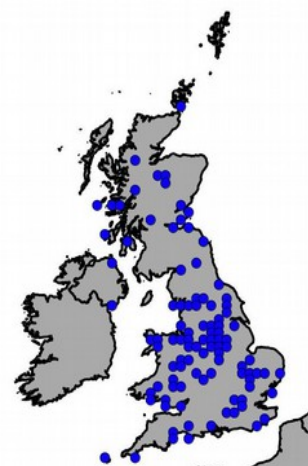
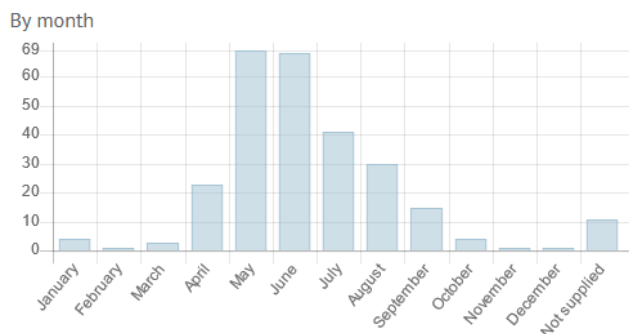
Rare, scattered distribution. Bred from nest of sparrow, blackbird, and collected from dead mole and dead bird. Inverness, Cambridge, Hampshire and Hereford. Most recently recorded in a forest in Cumbria (Gibbs, 2006).

Parapiophila vulgaris (Fallén, 1820)



A small (2.5–3.5 mm) shiny black fly with orange frons and face. Extent of darkening on head can vary. Legs generally dark, but middle and hind tibia and tarsi can be yellow. Male with distinctively protruding tubular surstylus. In comparison with *Allopiophila luteata*, frons more sloping so that the antennae are placed nearer the middle of the eye, and prosternum bare.

The most common and widely distributed species, found as far north as Sule Skerry (Plant, 1995) and St Kilda (Rotheray & Hancock, 2012). Typically associated with carrion (fox, hedgehog, deer), but also reared from bird nests (rook, chaffinch, greenfinch, blackbird and unidentified seabird), snails and dung, and swept over the Essex strandline (Dipterists Digest 11 (first series): 4: 16 (1992)). Peaking in May and June but found throughout the year.



Piophilidae casei (Linnaeus, 1758) - “Cheese skipper”.



A small (2.5–4.5 mm) black fly, characteristically with three rows of setulae on the oily, textured mesonotum. Legs variable in colour. Head with clear yellow or orange-brown not restricted to the frons. Genae half the height of an eye or more.

Once a pest of cheese and meats in larders for records before 1960. Since then records in England (Ostojca-Starzewski, 2006), have been associated with imported goods, apart from a record in London near a refrigerator containing stilton cheese (Notton, 2005).

This species of fly can be a pest of cheese and cured meat production in Europe, and is part of the production process for the cheese *casu marzu* from Sardinia (and equivalents from elsewhere in Italy and Corsica) in which *pecorino* is liquified by larvae, the larvae sometimes being eaten with the cheese (Erica McAlister, 2017). Larvae surviving ingestion can cause internal bleeding of the gut; sale of the cheese is banned by the EU.

Skipper refers to ability of larvae to jump. Oldroyd (1964, p176) describes how larvae of *Piophilidae casei* (cheese skipper) can leap 2 or 3 inches. “This leap is achieved by bending the body into an arc until the mouth hooks can grip the posterior tip of the abdomen, where *Piophilidae* has two small papillae to catch hold of. The abdominal muscles contract, and when the grip is suddenly released, the larva is flung into the air.” This behaviour could help larvae to move to new food sources or to avoid predators.

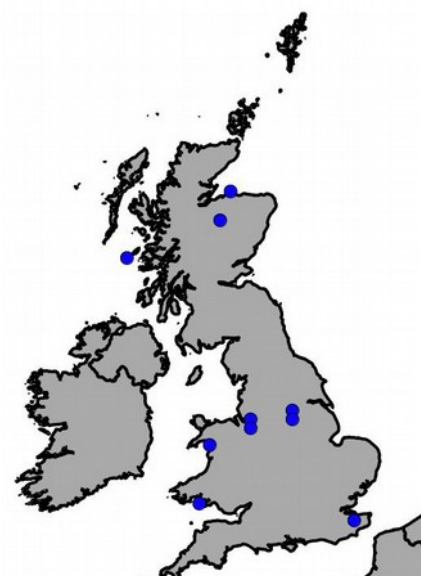
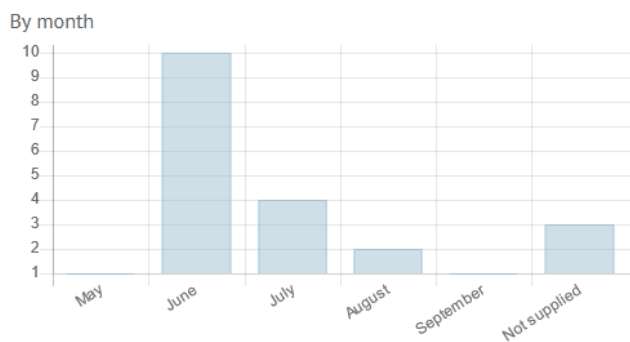
Prochyliza nigrimana (Meigen, 1826)



A small (3–4 mm), shiny black fly similar to *Liopiophila varipes* but with the frons usually almost entirely orange-yellow. Genae half the height of an eye or more, and anepimeron bare. Middle and hind legs usually yellow, but can be brownish. There is seasonal variation in the extent of darkening of the genae, legs and abdomen (Martin-Vega & Baz, 2011, Rochefort et al., 2015).

Widely distributed but infrequent, peaking in June.

A similar species, *Prochyliza georgekaplani* Martin-Vega, 2014, has recently been recorded in the Spain (Martín-Vega 2014), Netherlands (de Bree 2014a) and France (de Bree 2014b), distinguished from light forms of *P. nigrimana* by the dark front coxae and middle and hind legs. Males have abdominal sternites with the anterior edge emarginate, and in both sexes, sternites are quadrangular rather than rounded.



Protophila latipes (Meigen, 1838)



A small (2–3.5 mm) black fly, distinguished by both sexes having flattened front tarsi. Head black, mid and hind legs almost entirely yellow. Anepisternum hairless; anepisternum, anepimeron and katepisternum entirely glossy. Posthumeral lobe with a seta. Four pairs of dorsocentral setae, although the anterior pair can be weak.

Infrequent with records mostly from the south of England and Wales; on roe deer (Jones 2020) and fox carcasses in Shropshire.



Pseudoseps signata (Fallén, 1820)



Image: Roháček et al., (2016)

A small (3.5 mm), shiny black fly with weakly infuscated vein tips and divergent R_{3+4} and M_1 .

According to Roháček et al., (2016) the legs are completely yellow in the male, while the female has blackish brown to brown subapical rings on the fore and hind femora, the fore tarsus entirely dark except for the terminal segment.

Summary of description from Cogan & Dear (1975): Two pairs of reclinate frontal-orbitals, inner and outer verticals, one pair of dorsocentrals, basal and apical scutellars, mesopleuron with scattered long white hairs. Third (R_{3+4}) and fourth (M_1) veins divergent apically. (includes figures of head and wing). Head darkened on vertex, ocellar prominence and occiput; other regions yellow. Thorax sub-shining black, bristles yellow, notum with a fine white tomentum. Legs yellow, including coxae and ventral face of sternopleuron (katepisternum). Halteres white. Scutellum shining black. Abdomen sub-shining blackish-brown with long white mentum and a narrow, pale median stripe on each tergite, broadening posteriorly to cover the dorsal aspect of the penultimate segment. Genital capsule shining pale brown in male, pale yellow in female.

The Hackston key mentions that the vertical bristles and four bristles on scutellum are yellow in males but black in females, that the female palps are broad and that the first segment of the male hind tarsus rather thickened compared with the second segment.

Scarce: most records from the Highlands of Scotland; also Cumbria (Underwood & Chandler, 2015) and Somerset (Gibbs, 2013). May and June. Where details are given, specimens have been obtained by sweeping vegetation. European records are largely from Fenno-Scandinavia.

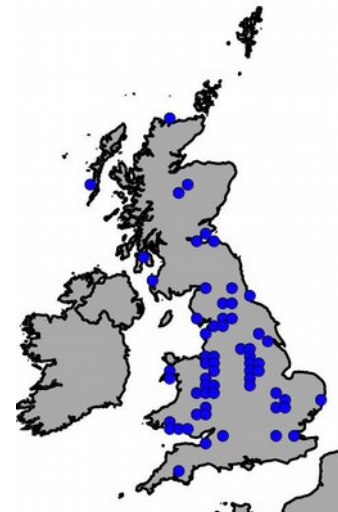
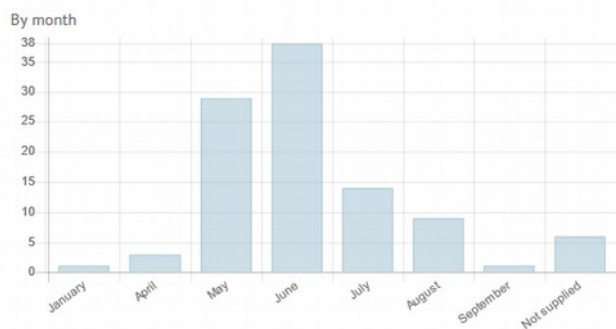
Stearibia nigriceps Lioy, 1864



Image: Donald Smith

The third commonest small (2.5–4 mm) black shiny fly of carrion. The anepisternum is distinctively shining and hairless, and the head is entirely black with undusted genae. Some specimens have orange-brown pospronotal lobes and scutellum. Legs black apart from the middle and hind tarsi which are yellowish except apically. The middle and hind tibia are variably darkened. Genae about a third of eye height. Male genitalia are small; the tip of the abdomen is rounded and asymmetric, while that of the female is slightly conical.

Widespread. Collected or bred from carcasses of deer, hedgehog, buzzard. Large numbers were found on a well-rotted cetacean on the Wirrall, Cheshire (1st June 2021). Peak in May and June.



Centrophlebomyia furcata (Fabricius, 1794) “Bone skipper”



Image Nikita Vikhrev from Diptera.info

“Bone skipper”. Largish (body length 6–7 mm) hairy, grey-dusted fly, the males with the long scutellum bearing two long upwardly curved setae. Costal vein with spines. Stubbs & Chandler (2001) describe the species as resembling *Scathophaga* and remark that *Thyreophora* is similar but lacks costal spines.

On carrion at late stage of decay. Extinct in the UK. Last recorded on carrion in Chippenham Fen in 1908, and before that in South Wales and Cornwall, one of these records on a dead donkey, as detailed in Chandler (2014). These records and the etymology of the species name are also described in Tony Irwin's article in Discover Wildlife <https://www.discoverwildlife.com/animal-facts/dead-donkey-fly-and-reindeer-bot-fly>. After long absences, the species has been rediscovered in Spain (Gómez-Gómez *et al.*, 2008), Italy (Mei *et al.*, 2013) and France (Beaumont *et al.*, 2023).

Other potential species from Europe

Two species recently reported in the Netherlands are *Mycetaulus latipennis* Ozerov & Bartak, 1993, and *Prochyliza georgekaplani* Martín-Vega, 2014 (de Bree, 2024a). The first of these species is similar to *Mycetaulus bipunctatus* but has a black mesonotum, a postsutural intra-alar seta, an anterior dorsocentral that is closer to the posterior dorsocentral than to the suture, and the spot on M₁ does not reach the costa. The second species is close to dark forms of *Prochyliza nigrimana*, and otherwise known only from Spain (Martín-Vega, 2014) and France (de Bree, 2024b). In both sexes the abdominal sternites are quadrangular rather than the rounded (illustrated in de Bree, 2024a), and in the male the sternites are emarginated on the anterior side (illustrated in Martín-Vega, 2014)

Several other piophilid species are found in Fenno-Scandinavia, or northern Russia (Shtakel'berg, 1988) and could conceivably be found in Scotland. Several of these are small black flies with entirely black frons and genae: *Allopiophila arctica* (Holmgren, 1883) [High arctic, Legs black, tarsi brownish, veins brown, face with white spot], *Allopiophila calceata* (Duda, 1924) [Northern Finland and Sweden, yellow tibia, male genitalia figured in Shtakel'berg (1988)], *Allopiophila pectiniventris* (Duda, 1924) [Sweden, male sternites with long posterior marginal hairs], *Allopiophila dudai* (Frey, 1930) [Sweden, male genitalia figured in Shtakel'berg (1988)], *Allopiophila fulviceps* (Holmgren, 1883) [found in the high Arctic is like *Parapiophilophila vulgaris*, but with the postpedicel blackish-brown and the coxae and femora black]. *Amphipogon flavus* (Zetterstedt, 1838), recorded from Norway and Finland, has an orange-brown thorax with 3 dark stripes.

Piophila megastigmata McAlpine 1978. Details from Ebejer (2012). From South Africa, but also recorded in Spain, Portugal and Gibraltar. Adult *P. megastigmata* can be separated from *P. casei* by the ocellar setae extending to the anterior margin of the frons or beyond, the more extensively yellow head with anterior margin of frons more protruding and genae more receding, the wholly yellow anterior femora, the absence of long, fine, shaggy hairs on the anteromedial aspect of the hind coxae in the male and the longer and slightly denser setulae on the abdomen. The large abdominal spiracles that give the species its name cannot easily be observed in dry specimens.

Thyreophora cynophila (Panzer, 1794) France, Spain (Bone skipper, once thought to be extinct, rediscovered in 2009) has a striking red head, contrasting with a dark body and abdomen.

Centrophlebomyia anthropophaga (Robineau-Desvoidy, 1830) (Mei et al., 2013), also once thought to be extinct, has been recorded in France at vulture feeding stations (Vaslin et al., 2024).

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