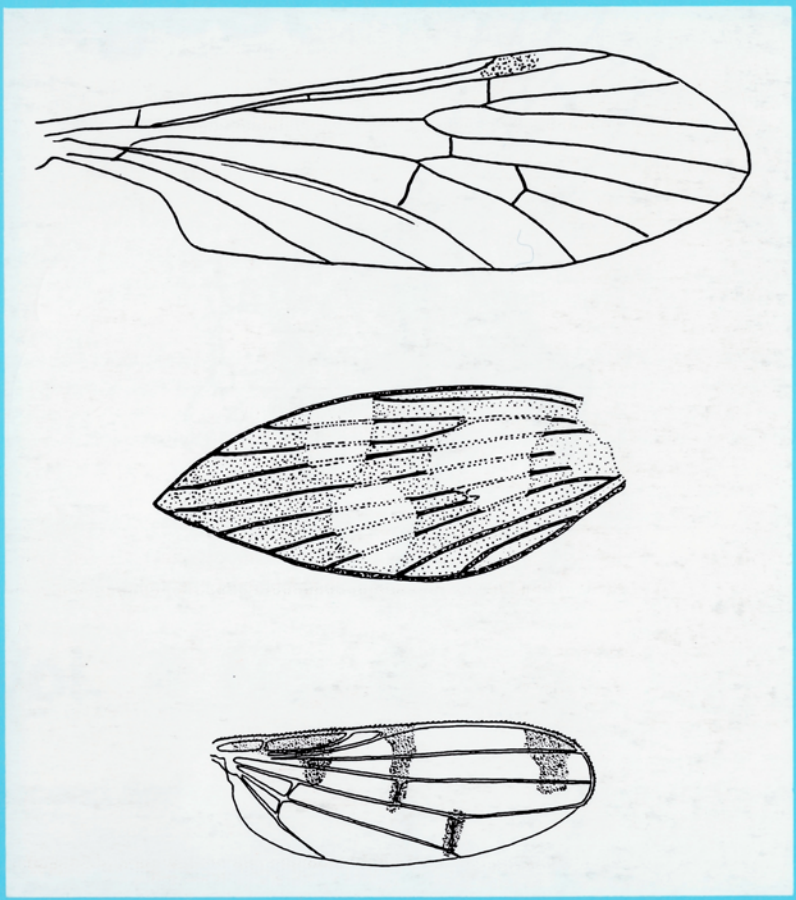
Dipterists Digest



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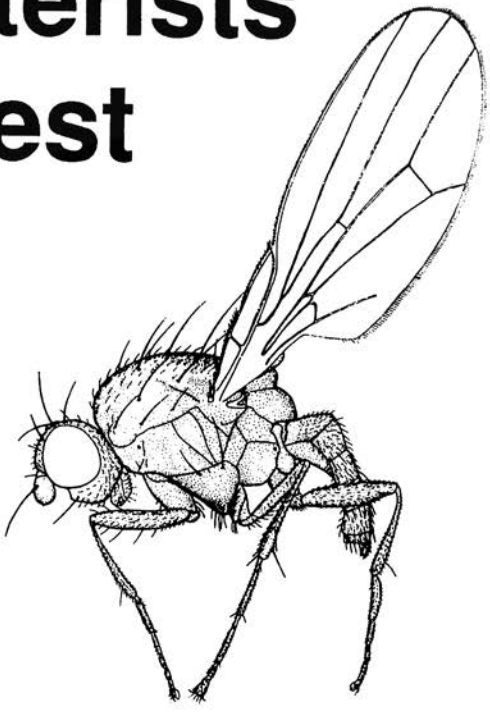

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Dipterists Digest is the journal of the **Dipterists Forum**. It is intended for amateur, semi-professional and professional field dipterists with interests in British and NW European flies. All notes and papers submitted to **Dipterists Digest** are refereed. The scope of **Dipterists Digest** is:

- the behaviour, ecology and natural history of flies;
- new and improved techniques (e.g. collecting, rearing etc);
- the conservation of flies;
- provisional and interim reports from the Diptera Recording Schemes, including maps;
- records and assessments of rare and scarce species including those new to regions, countries, districts etc;
- local faunal accounts and field meeting results specially if accompanied with good ecological/natural history interpretion;
- descriptions of species new to science, and
- notes on identification including deletions, ammendments to standard key works and checklists.

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Articles and notes for publication should be sent to the new editor, Peter J Chandler, 43 Eastfield Road, Burnham, Slough, Berks., SL1 7EL. Enquiries about subscriptions and information about the **Dipterists Forum** should be addressed to the Membership Secretary, Liz Howe, Ger-y-Parc, Marianglas, Tynygongl, Benllech, Gwynedd, LL74 8NS, UK.

Dipterists Digest 1997 **4**, 51-60

The genus *Pipizella* (Diptera, Syrphidae) on the Balkan Peninsula and description of *Pipizella zloti* sp.n.

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Nearly 20 species of the aphidophagous genus *Pipizella* Rondani were listed as European by Peck (1988). The papers of Lucas (1976) and Goeldlin de Tiefenau (1974) have helped to clarify the confusion in the genus and re-define the species based on the male genitalia. The determination of females is usually uncertain.

During the faunistic investigation of hoverflies on the Balkan Peninsula in the past few years much *Pipizella* material has been collected. This paper is an account of the species of *Pipizella* occurring on the Balkan Peninsula. The presence of 8 species is established. *P. zloti* sp.n., closely related to *P. siciliana* Nielsen et Pedersen, 1973 and *P. thapsiana* Kassebeer, 1995, are described and figured. The female of *P. bispina* Šimić, 1987 is described. *P. pennina* (Goeldlin de Tiefenau, 1974) is recorded for the first time on the Peninsula. Two new synonyms are proposed: *montana* Šimić, 1987 and *nigra* Šimić, 1987 = *Pipizella viduata* (Linnaeus, 1758).

Materials and methods

1155 specimens (897♂ and 258♀) were examined from the collections of the Institute of Biology, Novi Sad (Yugoslavia) and Bosnia and Herzegovina Museum, Sarajevo (SAR). Determination of males was based on the structure of the male genitalia. Identification of females was made on the basis of morphological characters and occurrence with males. 148 females were unidentifiable.

The locality records of the species are quoted with UTM designations. The sign (+) in the distribution data indicates the first record of the species.

Results and discussion

1. ***Pipizella annulata*** (Macquart, 1829)
Pipizella inversa of Šimić, 1987

Published records. Montenegro: Durmitor (Šimić, 1987: as *P. inversa*).
New records. Slovenia: Julijske Alpe (Bled-Bohinj, VM 23, 500m, 14.vi.1988, 1♂ 1♀, Savica, VM 02, 500m, 14.vi.1988, 3♂ 1♀, 2.vii.1989, 1♂ 2♀); Kamniške Alpe (Logarska dolina, VM 73, 1000m, 17.vi.1988, 1♂); **Bosnia and Herzegovina**: Banja Stijena, 1912, 1♂, leg. Winneguth (SAR); **Montenegro**: Durmitor (1100-1800m, 29.vi-29.viii, 22♂ 13♀); **Serbia**: Svrljiške planine (Cmi vrh EP 90, 1000m, 7.vii.1989, 1♂ 2♀); Dubašnica-Malinik (Klisura Lazareve reke, EP-77, 700-1000m, 3.vi-10.vii, 12♂ 13♀).

Distribution: Europe, West Siberia; **Europe**: large range, from Finland to south Portugal and through central Europe to Romania; **Balkan Peninsula**: Slovenia (+), Bosnia and Herzegovina (+), Montenegro, Serbia (+).

A montane species recorded on a few Balkan mountains at altitudes between 500 and 2000m. The populations of *P. annulata* were found in different type of woodlands, often in beech forests.

2. ***Pipizella bispina*** Šimić, 1987
Pipizella spec. of Van der Goot, 1981

Published records. Montenegro: Durmitor (Šimić, 1987: 1♂, holotype).
New records. Slovenia. Kamniške Alpe (Logarska dolina, VM 73, 17.vi.1988, 2♂, 1.vii.1989, 1♂, Matkov Kot, VM 64, 1400m, 2♂); **Montenegro**: Durmitor (Kanjon Sušice, CN 38, 1100m, 1♂); Prokletije (Krošnje, DN 00, 1800m, 1♂ 1♀ in cop.); **Serbia**: Kopaonik (Samokovska reka, DP 70, 1000m, 1♂ 1♀); Svrljiške planine, EP 90, 1000m, 7.vii.1989, 2♂); Šar-planina (Globočica, EM 16, 900m, 23.vii.1986, 1♂).

Distribution: Central Europe. **Europe**: Belgium, Switzerland. **Balkan Peninsula**: Slovenia (+), Montenegro, Serbia (+).

Šimić (1987) described the species from a single male from Durmitor mountain in Montenegro. The comparison of male genitalia drawings of *Pipizella* spec. in Van der Goot (1981: p.133, Fig. 255-256) and *P. bispina* (Fig. 3,4) has shown great similarity and indicates that these two taxa are one species. A male and female taken in copulation on the Prokletije mountains, makes possible the following description of the female. On the Balkan Peninsula *P. bispina* occupies high altitudes upwards to 900m, on a few mountains.

Female
Very similar to the male, except for normal sexual dimorphism, but without distinct hump on sternite 4, present in male.
Head: Frons with triangular dusted lateral spots. Head pale-haired, with many black hairs around antennae. Eyes with short, paler hairs on the lower half, and darker hairs on the upper half.
Legs: Top of femora, basal part of tibiae, and top of front and middle tibiae, pale. Basal three or four tarsal segments of front and middle legs yellowish; all tarsi of hind legs paler below. Wing with distinct dark cloud.
Abdomen: Tergites narrow, tergite 2 about 1.5-1.75 times as broad as long (in related species *P. divicoi* 2, 1-2,3 times); tergites pale haired, except for triangular areas covered with short black hairs on posterior margin of tergites 2 and 3, and anterior margin of tergite 4. Sternites predominantly pale haired, except for area of adpressed black hairs on posterior half of sternite 4 and some intermixed black hairs on tergite 5.

3. ***Pipizella divicoi*** (Goeldlin de Tiefenau, 1974)

Published records. Croatia, Greece: (paratypes, after Dirickx, 1994); **Montenegro**: Durmitor (Šimić, 1987)

New records. Slovenia: Julijske Alpe (Mojstrana-Vrata, VM 14, 900m, 23.v.1989, 3♂); **Croatia**: Plitvička jezera, WK 46, 600m, 12.vi.1988, 1♂, Gorski Kotar, VK 72, 1200m, 1♂, **Bosnia and Herzegovina**: Konjuh, CQ 00, 900m, 13.v.1989, 1♂, **Montenegro**:

Durmitor (1100-1800m, 1.vi-5.viii, 17♂ 8♀); **Serbia**: Deliblatska peščara (EQ 16, 100m, 19.iv-2.vi, 3♂); Kopaonik (700-1700m, 1.v-19.vii, 45♂ 12♀); Stara Planina (600-1500m, 6.v-21.vii, 28♂ 21♀); Dubašnica-Malinik (700-1200m, 29.iv-17.vii, 20♂ 5♀); Suva planina (Jelašnička klisura-Čukljenik, EN 89, 400-600m, 1-2v, 2♂ 1♀); Svrljiške planine (Zeleni vrh, EP 90, 1600m, 10.vii.1989, 1♂); Žljeb, DN 33, 1200m, 3.v.1991, 1♂, Vlasinsko jezero (Sastav reka-Tegošnica, FN 02, Vrla, FN 14, 600-900m, 11.iv.3.v, 6♂ 1♀); Šarplanina, 23.vii.1986, 2♂, **Macedonia**: Baba, EL 14, 500m, 20.iv.1990, 2♂, Galičica, 8.v.1990, 1♂, **Greece**: Olympos, FK 04, 700m, 14.v.1990, 1♂.

Distribution: Palaearctic. **Europe**: from Germany and Spain through central Europe to Russia in the north and Greece in the south. **Balkan Peninsula**: Slovenia (+), Croatia, Bosnia and Herzegovina (+), Montenegro, Serbia (+), Macedonia (+), Greece.

This species is found on many Balkan mountains in different types of woodland communities. The most numerous populations were recorded beside streams and rivers in beech forests.

4. ***Pipizella maculipennis*** (Meigen, 1822)

Published records. Croatia, Bosnia and Herzegovina, Serbia, Macedonia: (Glumac, 1972, Vujić & Glumac, 1994; Vujić & Šimić, 1994); **Montenegro**: Durmitor and Skadarsko jezero (Šimić, 1987). **New records. Croatia**: Rovinj, UK 99, 10m, 24-26.iv.1983, 7♂, **Bosnia and Herzegovina**: Neretva, YH 06, 20m, 14.iv.1991, 2♂, **Montenegro**: Boka Kotorska (Morinj, CN 00, 20m, 5-20.v, 35♂ 16♀); Durmitor (Kanjon Komarnice, CN 47, 700m, 31.vii.1994, 1♂); **Serbia**: Deliblatska peščara (2-9.vi, 4♂ 3♀); Potisje (Titelski breg, DR 40, 28.v.1985, 1♂ 1♀, Carska bara, DR 51, 3.vii.1985, 1♂); Žabalj, DR 22, 8.vi.1988, 1♂ 1♀, Sečanj, DR 82, 8.vi.1988, 1♂, Kopaonik (500-700m, 24.v-17.vi, 3♂ 1♀); Svrljiške planine (Svrljiška kula, EP 91, 400m, 9.vii.1989, 1♂); Bosilegrad, FN 20, 800m, 14.vii.1989, 1♂ 1♀ , Zaječar, FP 06, 200m, 1.vii-2.viii, 1♂ 3♀, Beljanica (Žagubica, EP 69, 500m, 14.vii.1993, 1♂); Malinik (Manastirište, EP 77, 500m, 29.iv.1995, 1♂); Suva planina (Jelašnička klisura, EN 89, 400m, 1.v.1994, 2♂, Sićevačka klisura, 10.vii.1994, 1♂); Šar-planina (Beli Drim, DM 67, 300m, 22.vii.1986, 1♂); **Macedonia**: Baba, EL 14, 500m, 20.iv-17.vi, 3♂ 2♀, **Greece**: Joanina-Neapoli, 700m, 22.iv.1990, 1♂, Trigono, 500m, 11.v.1990, 7♂.

Distribution: Palaearctic. **Europe**: from Norway to Spain and from Great Britain to Russia and Greece. **Balkan Peninsula**: Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Macedonia, Greece (+).

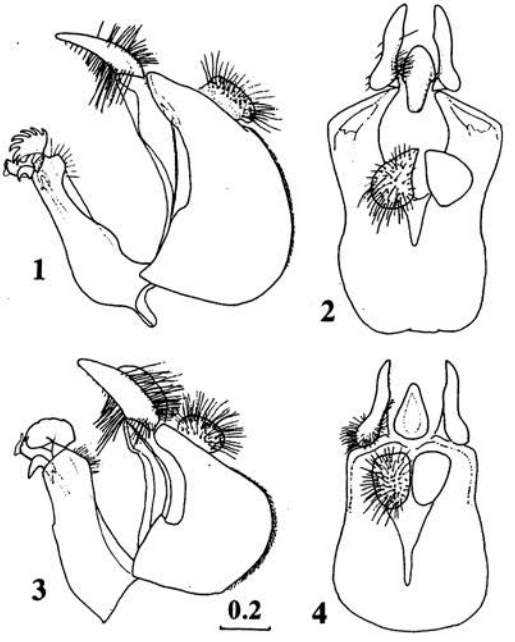
This is the most widely distributed species of the genus on the Balkan Peninsula. *P. maculipennis* occurs in different types of localities, but not as high altitudes. The populations of this species are not recorded at altitudes above 800m. In the Mediterranean maritime woodlands and maquis it is found in many localities, and it is the only *Pipizella* species along the Adriatic coast, besides *Pipizella zloti* sp.n.

5. ***Pipizella pennina*** (Goeldlin de Tiefenau, 1974)

New records. Serbia: Kopaonik (Samokovska reka, DN 89, 1200m, 24.v.1992, 1♂)

Distribution: Europe. **Europe**: mountains in central and southern parts. **Balkan Peninsula**: Serbia (+).

P. pennina is a very rare species in the Balkans. The only specimen in the collection was captured on the mountain of Kopaonik. It can be easily distinguished from related species on the basis of two distinct bulges on sternite 4 and the male genitalia (Figs. 1&2). *P. pennina* is known from a few localities in central and southern Europe (Dirickx, 1994). This is the first record of the species from the Balkan Peninsula.



Figs. 1-4. Male genitalia. (1-2) *Pipizella pennina* (Kopaonik, Serbia); (3-4) *P. bispina* (Durmitor, Montenegro). (1,3) lateral view; (2,4) Epandrium, dorsal view. Scale in mm.

6. ***Pipizella viduata*** (Linnaeus, 1758)
syn. *Pipiz varipes* Meigen, 1822
Pipizella montana Šimić, 1987 **syn. n.**
Pipizella nigra Šimić, 1987 **syn. n.**

Published records. Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Macedonia: (Glumac, 1972: as *Heringia virens varipes*, Šimić, 1987: as *P. varipes*, *P. montana*, *P.*

nigra; Vujić & Glumac, 1994; Vujić & Šimić, 1994: as *P. varipes*); **Bulgaria**: (Bankowska, 1967: as *P. varipes*).
New records. Slovenia. Kamniške Alpe (800-1400m, 25.v-1.vii, 13♂ 3♀); Julijske Alpe (Bohinjska Bistrica, VM 12, 600m, 1♂); **Croatia**: Plitvička jezera, WK 46, 600m, 30.iv.1990, 2♂, **Bosnia and Herzegovina**: Konjuh, Prenj, Javor, Grimeč, Maglić, Volujak (many specimens); **Montenegro**: Durmitor, Proldetije (many specimens); **Serbia**: Fruška gora, Vršačke planine, Carska bara, Titelski breg, Ada, Deliblatska peščara, Vajska, Begej, Kopaonik, Stara Planina, Kučajske planine, Dubašnica, Malinik, Valjevo, Kokin Brod, Beljanica, Šar-planina (many specimens); **Macedonia**: Šar-planina (Popova Šapka-Lešnica, DM 96, 1700m, 27.vii.1986, 1♂); Baba, EL 14, 600m, 20.iv-8.v, 3♂, Kožuf, FL 15, 500m, 13.vii.1990, 2♂, **Greece**: Trigono, 500m, 11.v.1990, 1♂, Metsovo-Katara, 1500m, 13.v.1990, 1♂ 1♀.

Distribution: Palaearctic. **Europe**: all parts. **Balkan Peninsula**: Slovenia (+), Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Macedonia, Bulgaria, Greece (+).

P. viduata appears in recent literature under the name *P. varipes* (Glumac, 1972; Šimić, 1994). The morphological characters, including the male genitalia are somewhat variable and this suggests that it is a complex of more than one species. For example, the males in montane populations have a very differently shaped epandrium compared with those in lowland populations. However, separate species may not be involved, for the study of *P. montana* and *P. nigra* described from Durmitor (Šimić, 1987), has proved that these two taxa are only an aberrant form of *P. viduata*, and must be synonymised.

P. viduata is the most abundant *Pipizella* species in Europe, occurring in a wide range of biotopes, except Mediterranean woods and maquis. On the Balkan Peninsula it is frequently found in all forest communities from Pannonian to high Dinaric mountains.

7. ***Pipizella virens*** (Fabricius, 1805)

Published records. Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Macedonia: (Glumac, 1972: as *Heringia virens virens*, Šimić, 1987; Vujić & Glumac, 1994; Vujić & Šimić, 1994); **Bulgaria** (Bankowska, 1967).
New records. Croatia: Dilj (Petnja, BR 61, 300m, 21.v.1985, 1♂, **Montenegro**: Durmitor (Kanjon Tare-Kanjon Sušice, 750-1300m, 22.vi-22.vii, 9♂); **Serbia**: Deliblatska peščara (70m, 3.vi-7.viii, 3♂); Potisje (Titelski breg, DR 40, 60m, 28.v.1985, 1♂); Kopaonik (600-1300m, 27.v-17.vi, 3♂ 2♀); Stara Planina (Žarkova Čuka, FN 39, 900m, 11.vii.1991, 1♂); Dubašnica-Malinik (DP 77, 400-1200m, 1.v-19.vii, 107♂ 20♀); Kučajske planine (Sisevac, EP 46, 450m, 8-25.vii, 5♂ 4♀); Svrljiške planine (Crni vrh-Zeleni crh, EP 90, 100m, 7-11.vii.1989, 2♂ 3♀); Juhor (300m, 8-11.vii.1984, 1♂ 2♀); Beljanica (Žagubica, EP 69, 500m, 14.vii.1993, 1♂1♀); Klisura Peka 3.v.1993, 1♂, **Macedonia**: Kožuf, (Konsko, FL 15, 500m, 14.v-13.vii, 2♂ 1♀, Došnica, FL 06, 1000m, 3f); Baba, EL 14, 500m, 17.vi.1990, 4♂ 1♀, **Greece**: Olympos, FK 04, 700m, 14.v.1990, 2♂.

Distribution. Palaearctic. **Europe**: from Great Britain through central Europe to Romania; all parts of south Europe. **Balkan Peninsula**: Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Macedonia, Bulgaria, Greece (+).

The species is found in many Balkan localities, especially in mountainous and woodland areas. The populations of *P. virens* are usually frequent in deciduous forests, in clearings and meadows, visiting the flowers of Apiaceae and other plant species.

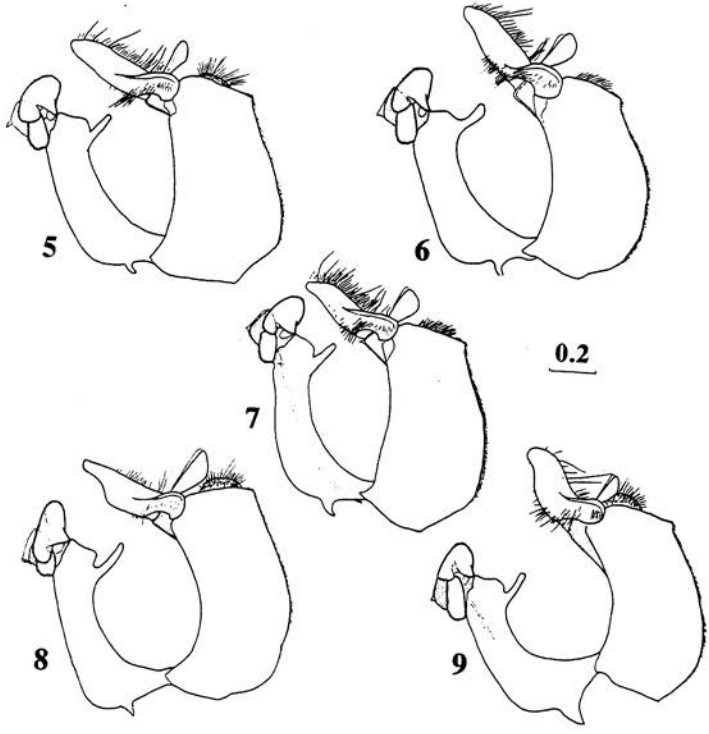


Fig. 5-9. Male genitalia, lateral view. (5-7) *Pipizella zloti* sp. n. (Dubašnica-Malinik, Serbia, paratype); (8) *P. siciliana* (paratype); (8) *P. thapsiana* (paratype). Scale in mm.

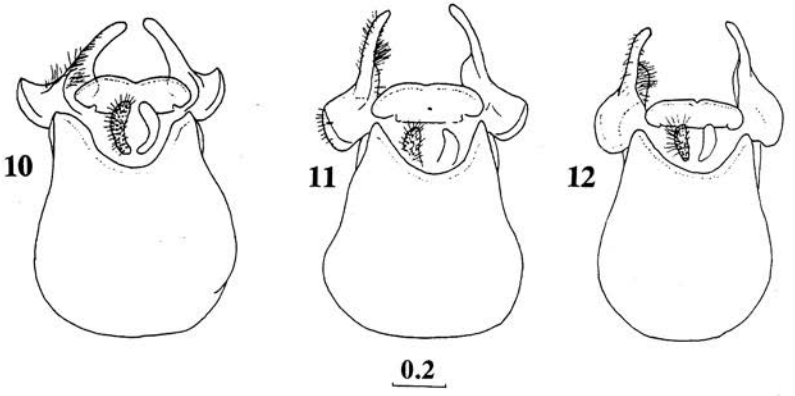


Fig. 10-12. Epandrium, dorsal view. (10) *Pipizella siciliana* (paratype); (11) *P. zloti* sp. n. (Dubašnica-Malinik, Serbia, paratype); (12) *P. thapsiana* (paratype). Scale in mm.

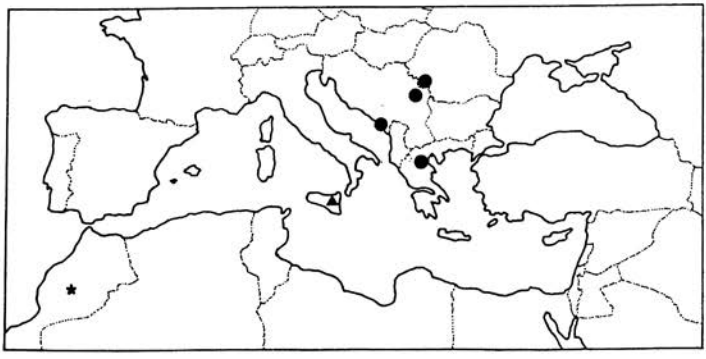


Fig. 13. Distribution of: *Pipizella zloti* sp. n. (●), *P. siciliana* (▲) and *P. thapsiana* (*) in the Mediterranean.

8. ***Pipizella zloti* sp. n.**
Pipizella siciliana of Brādescu, 1991

Holotype: 1♂, Serbia, Dubašnica, Demizlok, EP 77, 900m, 14.v.1994, leg. Vujić (Natural History Museum, Belgrade, BEO: coll. 595773: Inv. No. 21). **Paratypes: Montenegro**: Boka Kotorska (Morinj, CN 00, 20m, 12.v.1991, 1♂); **Serbia**: Malinik-Dubašnica: Malinik, EP 77, 700-1000m, 1.v-3.vi, 24♂ 1♀, Klisura Lazareve reke, EP 77, 700m, 29.iv-13.v, 5♂, Demizlok, EP 77, 800-1000m, 14.v-4.vi, 26♂ 3♀ (1♀ Allotype, same date as holotype, BEO: coll. 595773: Inv. No. 22): **Greece**: Verno: Trigono, EL 11, 600m, 11.v.1990, 1♂.

Diagnosis: In general appearance very similar to *Pipizella siciliana* (Nielsen and Torp, 1973) and *P. thapsiana* (Kassebeer, 1995), but separable by male genitalia structure: styli of *P. zloti* in lateral view (Fig. 5-7) with more or less parallel sides; *P. siciliana* with abrupted ventral edge of apical third of styli (Fig. 8); styli of *P. thapsiana* shorter and S-form (Fig. 9); epandrium of *P. zloti* in lateral view broader in basal part than apically (Fig. 5-7); *P. siciliana* with epandrium in basal part narrower (Fig. 8); styli in dorsal view (Fig. 10-*P. siciliana*; Fig. 11-*P. zloti*, Fig. 12-*P. thapsiana*) with slightly different shape of basolateral lobus.

Description: Size: body length 6.5-8.5mm; wing length 5-7.2mm; aeneous black species with yellow front and middle metatarsus, and yellowish and yellowish-grey pale body hairs.

Male (Figs. 5,6,7,11)
Head: Face shiny, covered with long, pale hairs. Frons slightly dusted laterally, covered with pale hairs, except some long black hairs above and at the sides of antennae. The eye-suture as long as distance between front and hind ocelli. Eyes with dark-brown to blackish hairs (in *P. siciliana* light yellowish-brown hairs). Antennae black; third antennal segment about 2 times as long as broad (in *P. siciliana* about 1 3/4 times).

Thorax covered with long pale hairs. Legs predominantly black; top of front and middle femora, basal 1/6 of front and middle tibiae, metatarsus on front and middle legs and apical part of second tarsal segment on middle legs yellow (dark in *P. siciliana*). Hind legs with pale knees and basal tarsal segments partly yellowish below. The legs hairs pale. Wing veins dark. Abdomen covered with pale hairs, except short black hairs on the middle of tergites 3 and 4. Tergites strongly punctured. Sternites shiny. Male genitalia with more or less parallel sides of styli in lateral view (Fig. 5-7) - in *P. siciliana* ventral edge on apical third of styli abrupted (Fig. 8); styli of *P. thapsiana* shorter and S-form (Fig. 9); epandrium in lateral view broader in basal part than apically (Fig. 5-7) - in *P. siciliana* epandrium in basal part narrower (Fig. 8); epandrium in dorsal view on Fig. 11.

Female. Similar to the male except for normal sexual dimorphism; all pile shorter. Frons with pale hairs, except black hairs around base of antennae and few long black hairs intermixed around ocellar triangle. Middle legs; basal two or three tarsal segments yellowish. Tergites pale haired, except short black hairs on posterior margin of tergites 2 and 3.

Etymology: The specific epithet is derived from the name village Zlot. A noun in the genitive case.

Distribution and biological data

The three species *Pipizella thapsiana*, *P. siciliana* and *P. zloti* form a distinct monophyletic group, well defined by genital morphology. The ancestral form of all three (or more) species presumably had a Mediterranean distribution in the pre-glacial period. Glaciations probably divided its range into separate parts and at present there are at least three species in restricted ranges; *P. thapsiana* in Morocco, *P. siciliana* in Sicily and *P. zloti* on the Balkan Peninsula. The range of *P. zloti* occupies parts of the Adriatic and Aegean coast (Boka Kotorska, slopes of Olympus) and low Carpathian gorges in south Romania (Brădescu, 1991: as *P. siciliana*), and eastern Serbia with refugial communities (Fig. 13).

The flowers visited by *P. zloti* are as follows: *Smimium perfoliatum* L. (*S. olusatrum* L. for *P. thapsiana*) and yellow Apiaceae. The period of maximum flight activity for *P. zloti* is in spring and beginning of summer (April-May).

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Parasyrphus nigritarsis (Diptera, Syrphidae) in Hampshire -

Hookheath Meadow (SU 646078) is a reserve just north of Portsdown Hill in South Hampshire managed by Hampshire Wildlife Trust. It is a delightful series of wet meadows adjacent to a stream, the upper reaches of the River Wallington, flanked by oak dominated ancient woodlands (Pinsley and Sawyer's Woods) and all formerly part of the Forest of Bere.

Over the past few years I have visited the reserve regularly to record Diptera, mainly hoverflies. On 14.v.1996, a sunny but rather cool and windy day, I was extremely surprised to capture a female *Parasyrphus nigritarsis* (Zetterstedt) sitting on a leaf of ramsons (*Allium ursinum*) below alder (*Alnus glutinosa*) and adjacent to the stream.

The specimen, now in the collections of Hampshire County Council Museums Service, was identified using Martin Speight's key to W. European *Parasyrphus* species (Speight, M.C.D. 1991. *Dipterists Digest* **8,** 3-5). It appears much more brightly coloured than other *Parasyrphus* species found in Britain and it is easy to understand how a female could be misidentified as *Eupeodes latifasciatus* (Macquart) (Falk, S.J. 1992. *Dipterists Digest* **11,** 40) or as a *Syrphus* species (Speight, M.C.D. 1986, *Irish Naturalists Journal* **22,** 149-152).

MacGowan and Watt (1994. *Dipterists Digest* **1,** 26-29) listed the few known records for *P. nigritarsis* in the British Isles which revealed a distribution confined to northern and western Britain. To find a specimen of this species in central southern England close to the coast is therefore somewhat surprising. It seems unlikely that the specimen is a migrant from continental Europe as the species is not known in N. France (Speight, M.C.D. 1988. *Diperists Digest* **1,** 2-35). However, it may indicate that Speight (1991, *op cit*) is right in his suggestion that the species is under-recorded possibly due to a canopy-dwelling habit. Perhaps this Hampshire specimen was only found resting at ground level because it was a very windy day! - **CHRIS PALMER**, Hampshire County Council Museums Service, Chilcomb House, Chilcomb Lane, Winchester, Hants SO23 8RD

Dipterists Digest 1997 **4**, 61-64

Tonnoiriella disneyi sp. n. and *Threticus balkaneoalpinus*, new to Britain (Diptera, Psychodidae)

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It has long been evident that species of the genus *Pericoma* Walker represent a polyphyletic assemblage, which Vaillant (1971) attempted to rationalise for the Palaearctic fauna by reference to larval, as well as adult, morphology. One highly distinctive segregate is the genus *Tonnoiriella* Vaillant, where all members have asymmetrical aedeagi. There are at least 10 species described from the Palaearctic, but many southern hemisphere pericomines share this feature.

In my experience, *Tonnoiriella* is rarely represented in the many collections seen over a number of years, and when present, is almost always in low numbers. Fortunately, the wing membrane has more or less evident brown markings, which feature only recurs in the genus *Clytocerus* Eaton (represented in Europe by the subgenus *Boreoclytocerus* Duckhouse). However, males of *Clytocerus* are distinctive by virtue of the large brush of hairs on the third apparent antennal segment. Thus it is relatively straightforward to scan large collections for the presence of specimens of this elusive genus. A small collection of psychodids donated by Peter Chandler was found to contain a specimen of an undescribed species of *Tonnoiriella*. Another collection, containing further specimens, originated from surveys of East Anglian fens performed by the Nature Conservancy Council (now English Nature).

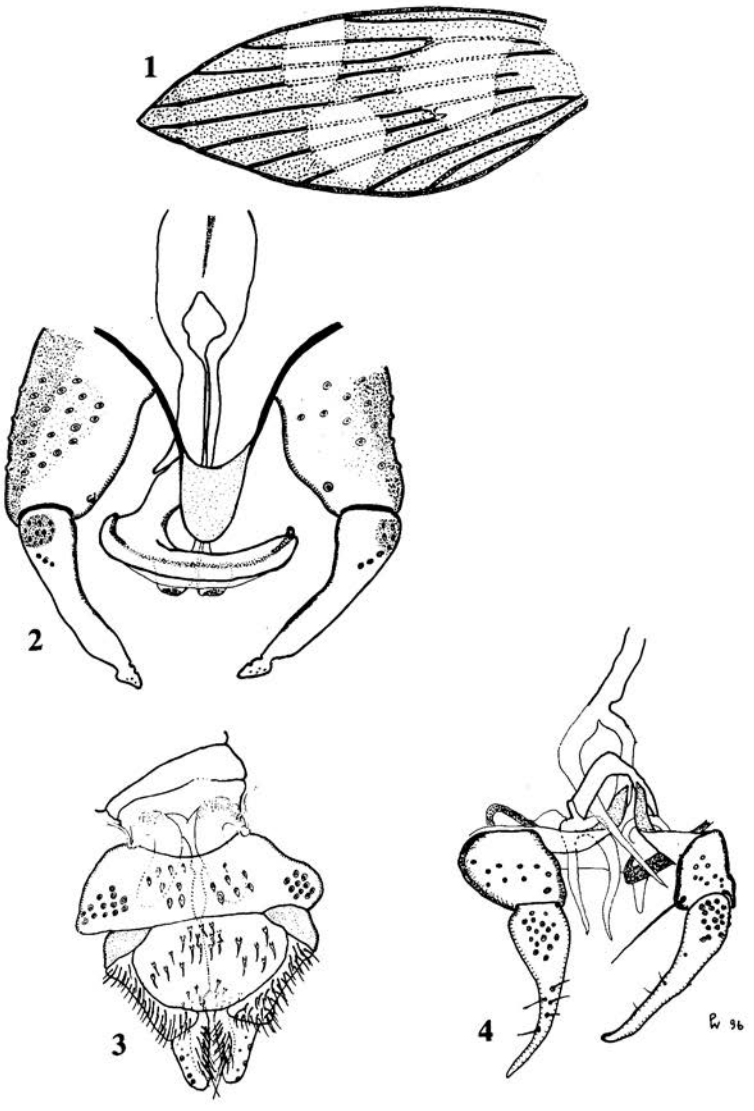
***Tonnoiriella disneyi* sp. n.**

Male: eyes separated by a distance of 7 facet diameters, eye bridge consisting of 3 rows of facets. Scape ovate, pedicel spherical. Relative length of flagellar segments: 30-30-30-30-32-35-27-25-25-20-15-10-10-12. Relative length of palpal segments: 40-35-50-80.

Wing: 2mm long, membrane and venation brown, except for three large pale areas, the venation in these areas weakly defined (Fig. 1).

Terminalia: gonostylus marginally longer and appreciably narrower than gonocoxite, with a characteristic subapical notch. Cercopod squat, with 3 feathery retinacula, one of which is three times as long as the other two. Sternal bridge with a prominent medially thickened mid region, slightly longer than wide. Aedeagus of characteristic shape, with two posterior protuberances, and a small apical hook. Base of aedeagal spatula inrolled, spatula with darkened "midrib" (Fig. 2).

Female: head and wing as in male. Terminalia as in Fig. 3.



Figs. 1-3 ***Tonnoirella disneyi*****, 1, wing; 2, male terminalia, posterior view; 3, female terminalia, posterior view; Fig. 4.** ***Threticus balkaneoalpinus*****, male terminalia, posterior view.**

Holotype male: Greywell Fen, Hampshire (SU 721511), 3.vii.91, leg. P. J. Chandler (Deposited in Natural History Museum, London).

Paratypes: 23 males, 4 females, Thompson Common, Norfolk, England (TL 936963), 13-27.ix.88; 2 male genitalia on slide mount with one wing, Caudlesprings, near Carbrooke, Norfolk, England (TF 941019), 2-16.ix.88, *ex* water trap, all specimens leg. A. Foster & D. Procter (1 male deposited in Musée National d'Histoire Naturelle, Paris, 1 male in coll. R. Wagner, 1 male in coll. D. Duckhouse, remainder in coll. author).

Etymology: named for my long-time friend and mentor, Dr Henry Disney, who encouraged my early interest in moth flies, and has been unstinting with advice since.

The species has no close European relatives. The extraordinary notched gonostyles are somewhat reminiscent of *T. filistylis* Vaillant & Moubayed, described in 1987 from Lebanon, but the "notch" in that species is more of a narrow apical prolongation, with 4 spines. Dr R. Wagner has examined drawings of the new species and compared them with all *Tonnoiriella* in his collection; he finds it close to *T. holmi* (Wagner, 1993) from Germany in the shape of the gonostyles, but that species has a very different aedeagus.

The puzzling fact that specimens of the same species of *Tonnoiriella* are to be found with the asymmetry of the aedeagus lying either to the left or right prompted me to originally suggest that the aedeagus may function in rotatory fashion, rather like a whisk. This appears not to be the case, however, as Dr Wagner has recently examined specimens of the genus mounted laterally. His interpretation suggests that a simple push/pull mechanism operates, precisely like that of other pericomine genera with more symmetrical aedeagi. It is hoped to return to this topic in a later paper.

It is most unfortunate to describe a new species and, at the same time have to suggest its likely extinction at one of its known localities. This is regrettably the situation, however. The Caudlesprings site was a calcareous fen in a river valley, with three large spring-fed ponds, the largest of which is very close to the 1988 trapping site. The pH of these ponds was 7.25. Dominant vegetation included *Juncus articulosus*, *J. inflexus*, *Carex flacca*, *C. hirta*, *Ranunculus acris* and *Dactylorchis incarnata*. Since the specimens were collected, a regional water authority borehole has been sunk, and presently extracts 300,000 gallons of water per day. This has had a dramatic effect on the vegetation at the site, the water table having dropped 3.7m, and *Phragmites* and *Filipendula ulmaria* have spread extensively. It is to be hoped that this damage is reversible, but since the known larval requirements of *Tonnoiriella* species appear somewhat precise (a fact reflected in their general rarity, at least in Britain), for *T. disneyi* at Caudlesprings it may already be too late. The situation at Thompson Common is not secure either, as recent water extraction activities are beginning to take their toll in this locality too.

***Threticus balkaneoalpinus* Krek**

Specimens of *Threticus* are never numerous in collections, and the taxonomy of this small genus is as yet imperfectly studied. I was more than a little surprised to discover a male of this distinctive species amongst material collected some while ago in Wheatfen Broad, Norfolk (TG 3306). The type specimens were collected (as the name suggests) in the Alps and Balkans, so it might have been assumed that this species was alpine/boreal in its distribution. A less alpine locality than Wheatfen Broad would be hard to imagine, and the

specific epithet is all the more regrettable, as I have also found this species in France in another lowland locality. Superficially like a *Psychoda*, the genus is notable for the three retinacula on the cercopod, and this species is unmistakable in the male sex when the terminalia are compared (Fig. 4). The specimen was captured by sweeping over a densely shaded, vegetation rich stream on 19.v.90.

Acknowledgements

Peter Chandler continues to provide interesting collections of moth flies, and his record of psychodid additions to the British fauna is peerless. My best thanks are also due to Andrew Foster and Deborah Procter, who passed on to me the moth flies collected during their three year survey of East Anglian fens, which included the additional specimens here described. Mr Geoff Nobes, owner of Caudlesprings, provided me with copious information on that site, and Dr Rüdiger Wagner checked the specimens against his extensive collection to ensure the status of the new taxon. The late Ted Ellis gave kind permission to collect at Wheatfen Broad.

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An early record of *Scaeva selenitica* (Meigen) (Syrphidae) from the Brent Reservoir, Middlesex - a female of *S. selenitica* was taken from an umbel flower growing in the shade of Willow in carr woodland at the East SSSI (TQ 2287), Brent Reservoir, Middx. (VC 21) on 2 April 1997.

Although this species is thought to be primarily a migrant, this record lends support to the possibility that individuals may overwinter in the UK (Stubbs, A. E. 1996. British Hoverflies, second supplement. *British Entomological and Natural History Society*). This possibility has been discussed in detail by S. J. Falk (1991, *Dipterists Digest* **8**: 36-37) in relation to a specimen taken in Warwickshire on 21 March 1990.

This record concurs with P. F. Entwistle's description cited by Stubbs (loc. cit.) in that the specimen was found on an umbel flower in shade. *S. seletica* is strongly associated with aphids on conifers (G. E. Rotheray, pers. comm.) and the current record is of additional interest, as (apart from occasional hedgerow Yew) Brent Reservoir is without coniferous trees. **JOHN R DOBSON**, 46 Elmwood Avenue, Kenton, Harrow, Middlesex, HA3 8AH

Dipterists Digest 1997 **4**, 65-67

The identity of *'Herina lugubris'* in Britain and its confusion with *H. longistylata* (Diptera, Ulidiidae)

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For some time, dipterists in Britain attempting to determine *Herina* species have struggled with the difficulty of the poor correlation between the genitalia illustration given by Hennig (1939) for *Herina lugubris* (Meigen) and the genitalia of specimens of this species in British collections. The supposition that two different species are involved was further supported by the recent publication of a well-illustrated review of the Swiss members of this genus by Merz (1996). Comparison of reliably determined specimens has subsequently confirmed that the species presently identified as *'Herina lugubris'* in Britain is in fact referable to *H. longistylata*, a species only recently described from Italy (Rivosecchi, 1992) and now recorded from southern France and Spain.

These two species are very similar in general morphology and share an identical wing pattern (Fig. 1). *Herina ghilianii* (Rondani), currently known only from Italy, is also very similar although this differs slightly in details of the wing pattern (Rivosecchi, 1992). The wing markings of *Herina* species are usually very constant and may be used to reliably distinguish the species in many cases. The *lugubris/longistylata* species pair is evidently an exception.

Males of these two species may be separated with ease by examination of the surstyli. When viewed from the rear, the surstylus of *longistylata* is rounded and rather broad, with an elongate, tooth-like projection on its inner-ventral apical edge, at the base of which lie two similar-sized spines (Fig. 2). In side view (Fig. 3), the surstylus is broad and reminiscent of a jaw-bone in shape. In rear view, the surstylus of *lugubris* is clearly bifurcated in the apical part, the inner lobe bearing a thick, coarse spine whilst the outer has a much smaller and thinner spine (Fig. 4). The surstylus is slender in side view, and the disproportionately-sized spines are conspicuous (Fig. 5).

Rivosecchi (1992) does not comment on differences between the females but the recent paper by Merz (1996) demonstrates that the ovipositors of *Herina* may be diagnostic of the species. *Herina longistylata* is not illustrated by Merz as it is presently unrecorded from the Swiss fauna, and we therefore illustrate the relevant parts of the ovipositors of the two species here.

The aculeus (outermost portion) of the ovipositor of *longistylata* is long and slim, with a length: width ratio of about 4.8. It tapers gradually from about the basal third to the tip and, when viewed from below, the ventral sheathing sclerites are narrow, elongated and apically-attenuated (Fig. 6). The aculeus of *lugubris* is short and thick by comparison, having a length: width ratio of about 3.4. It tapers abruptly at the tip and has short, broad, blunt ventral sheathing sclerites (Fig. 7). The arrangement of apical spines at the aculeus tip is more-or-less the same in both species.

All of these characteristics can be observed in dry material, provided that the genitalia are adequately reflexed in males and the outer section of the ovipositor has been extruded in females.

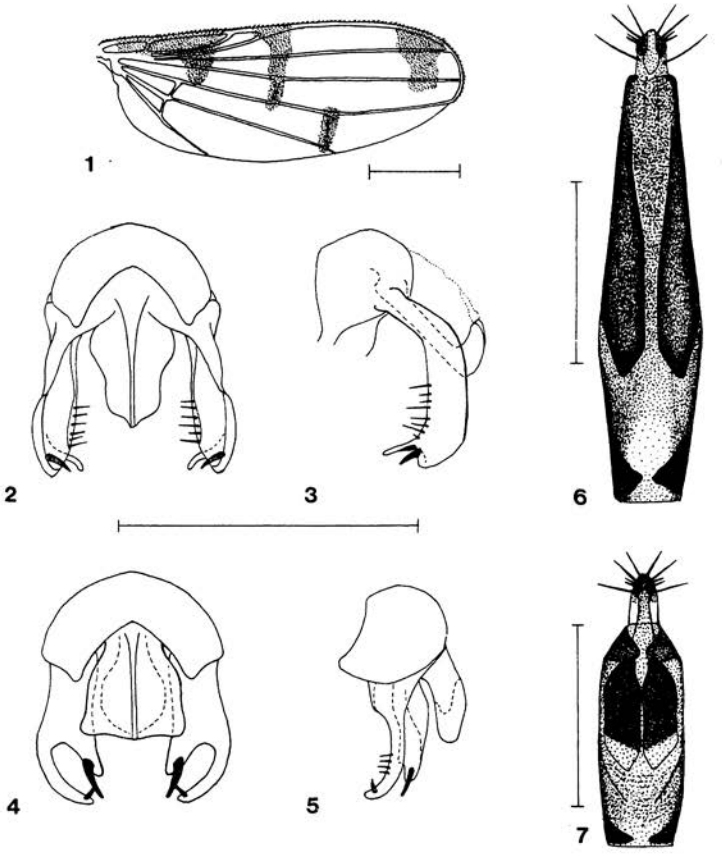

Fig. 1. Wing of *Herina longistylata*: that of *H. lugubris* is similar. Figs. 2-3. Male genitalia of *H. longistylata*; 2, rear view; 3, lateral view. Figs. 4-5. Male genitalia of *H. lugubris*; 4, rear view; 5, lateral view. Figs. 6-7. Aculeus of female ovipositor; 6, *H. longistylata*; 7, *H. lugubris*, both in ventral view. Scale bars = 1mm.

All of the British material examined to date has proved to be *longistylata*, but there remains a good probability that both species will eventually be found in Britain. *Herina lugubris* is widespread and relatively common on the continent, and the two species evidently fly together: for example, we have seen material of both species taken from the same site in Spain (Coto Nacional Cazorla, coll. M J Morgan) during the month of September, and also from France (Ardèche, Lussas, coll. B Merz), where both were collected on the same day.

Herina 'lugubris' in Britain is reportedly a species primarily of dry calcareous grasslands, including coastal cliff situations, but is also found in base-rich wetland situations such as wooded streamside vegetation, seepages, claypits and damp scrub (Clements, 1997). Critically examined specimens of *longistylata* have so far been identified from dry calcareous downland (Afton Down, Isle of Wight), calcareous undercliff (Headon Down, Isle of Wight), basic coastal seepages (Luccombe Chine and Totland Bay, Isle of Wight), coastal marsh (Lowland Point, Cornwall), disturbed calcareous marsh (Ufton Hill, Warks), limestone woodland edge meadow (Cheddar Wood, Somerset), woodland ride (Firestone Copse, Isle of Wight), base-rich seepages at the foot of a disused coal tip (Weetslade, Northumbs), acid marsh (Mattingly Bog, New Forest, Hants), scrub around claypits (Pinkneys Green, Berks) and lagoon edge vegetation (Abertawe, Glamorgan), indicating a fairly catholic range of habitats and a wide geographical distribution in Britain. Data from Switzerland indicates that *Herina lugubris* sensu stricto occurs in dry calcareous grassland (Dardagny, Genève), but it may also occur in other habitats.

Acknowledgements

We wish to thank Mrs M Joan Morgan, Jon H Cole and the National Museum of Wales in Cardiff for the loan and/or gift of specimens, and Peter Chandler for supplying additional data from checked British specimens.

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Dipterists Digest 1997 **4**, 68-71

Ormosia fascipennis a short-palped cranefly (Diptera, Limoniidae) new to the British Isles

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A small dark, short-palped cranefly, *Ormosia fascipennis* (Zetterstedt), has been identified recently from samples collected in the Cairngorms in 1986. This is a widespread species throughout the entire palaearctic and Britain is one of the few countries in the western part of the region in which it had not hitherto been found. *O. fascipennis* has now been identified from a sample collected in Scotland as part of a survey of upland Diptera by David Horsfield.

Description

In common with other members of the genus, *fascipennis* has hairy wing membranes and long body hair. The body colour is brownish black with slight greyish pruinosity on the thorax. The halteres are pale off-white, contrasting with the darker body colour. Using the key provided by Coe (1950), *fascipennis* would key out to the former subgenus *Scleroprocta* of *Ormosia* and not to *Ormosia* sensu stricto. This is because the wings of *fascipennis* (Fig. 1) have a closed discal cell (d) and the second anal vein (A_2) is only slightly sinuous and not prominently convergent with the first anal vein (A_1). To confuse the issue, some non-British representatives of another former subgenus, *Rhypholophus*, can have a closed discal cell although in the three British species it is open. This variability in venation presents difficulties also in using the key by Alexander (in Alexander & Byers, 1981) beyond the Nearctic region for which it was designed. Recently, both *Scleroprocta* and *Rhypholophus* have been given full generic status (Soos & Papp, 1992).

The male genitalia (Fig. 2) are of principal value in distinguishing *fascipennis* from other British species of the genus. The overall elongated shape of the gonocoxite (gc) is quite different from the others whose gonocoxites are not or only slightly longer than broad. In addition, the dististyles are also elongated, the outer one (od) with an expanded tip covered in short spines and the inner (id) with two recurved setae before a slightly hooked tip.

Six males and four females of *fascipennis* were caught in white water-bowl traps that were located on a south-facing slope in Coire Brochain, 1050m above sea level (asl), NGR: NN967998, on the Cairngorms, in the eastern Highlands. Coire Brochain cuts into the south-east side of Braeriach, at 1296m asl one of the highest summits in Scotland. The water-bowl traps were 20.5cm in diameter and were filled to within 3cm of the rim with 4% formalin mixed with a little detergent to reduce the surface tension and facilitate capture. The traps were in operation between 15/6-14/7/1986 and were located among damp, stony, tufted hair-grass (*Deschampsia cespitosa* L., Beauv.) grassland, which covers much of the south-facing slopes of the corrie. These grasslands are flushed by snow-melt from the extensive beds of snow which accumulate above them in the higher part of the corrie. The sample also included the long-palped craneflies (Tipulidae) *Tipula montana* Curtis, *T.*

subnodicornis Zett., *T. grisescens* Zett. and *T. rufina* Meigen, but no other limoniids.

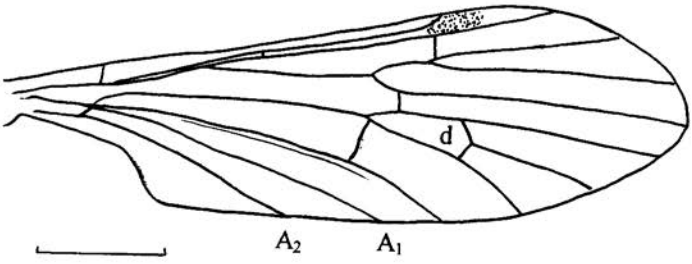

Fig. 1. Wing venation of *O. fascipennis* showing discal cell (d) and anal veins (A_1 and A_2). Scale bar 1mm.

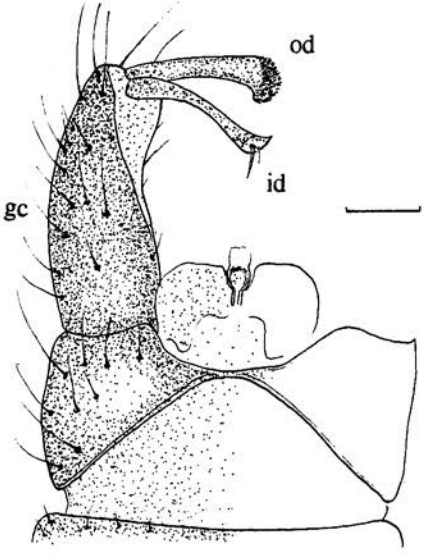

Fig. 2. Ventral view of male hypopygium showing gonocoxite (gc) and outer (od) and inner dististle (id). Scale bar 0.1mm.

Discussion

The genitalia appear not to have been figured before, at least in the well known elements of European tipulid literature. Diagrams ascribed to *fascipennis* (de Meijere, 1920; Pierre, 1924) are actually of *Scleroprocta pentagonalis* (Loew, 1873), which at one time was synonymised with it (eg., Czizek, 1931). The main hypopygial characters used to separate *Rhypholophus* species from other genera are a combination of the expanded outer dististyle, more or less bifid, and the apex of the aedeagus divided into two long filaments (Alexander & Byers, 1981), which *fascipennis* does not exhibit. The distinctions currently used to separate species into *Ormosia*, *Rhypholophus* or *Scleroprocta* have not been applied universally to all of them as many of the original descriptions do not include an appropriate analysis of the hypopygium. A critical examination of the type material of the world fauna is required. This may, for example, reveal the reason for the earlier confusion between *fascipennis* and *pentagonalis*, as referred to above.

The only previously published figure of the genitalia of *fascipennis* appears to be that of the species named as *Ormosia devota* Alexander from an unique male collected in North Korea, now synonymised (Soós & Papp, 1992) with *fascipennis*. Savchenko (1973) in describing *Ormosia subfascipennis* refers to the similarity between his new species and *fascipennis* in respect of the short and nearly straight anal vein and closed discal cell, indicating that these unusual features are shared between the two taxa whilst remaining in *Ormosia* sensu stricto.

The Scottish examples of *fascipennis* seem to be smaller than specimens from other parts of Europe that have been examined in the collections of the Natural History Museum, London. This may be a constant geographical variation as a result of isolation. It is possible that *fascipennis* may be found in other Scottish montane localities with suitable habitat.

Acknowledgements

Jon Chainey kindly assisted in access to the collections of the Natural History Museum, London.

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Epistrophe melanostoma (Diptera, Syrphidae) in Hampshire -

On 11.v.1993, during a visit to Bell's Copse (SU 705102) near Havant in South Hampshire, I caught a female *Epistrophe melanostoma* (Zetterstedt, 1843) feeding at hawthorn (*Crataegus*) blossom. At least two further Hampshire records exist, both from the north of the county. At Pamber Forest (SU 615610) on 1.v.1995 I took a female feeding at the flowers of wood spurge (*Euphorbia amygdaloides*) and Peter Clarkson captured another female on an unidentified white umbel at Queen Elizabeth Park, Farnborough (SU 870567), on 22.v.1995. The Bell's Copse and Pamber Forest specimens now reside in the collections of Hampshire County Council Museums Service (HCCMS).

All three specimens were identified by me using a recent review of the genus in Germany by D. Doczkal & U. Schmid (1994. *Stuttgarter Beitrage zur Naturkunde Serie A* **507,** 1-32). Although superficially similar to *Epistrophe nitidicollis* (Meigen) which occurs widely in Hampshire, *E. melanostoma* may be easily recognised by the yellow hairs (rather than black) on the dorsal surface of the scutellum. Also, the second basal wing cell is completely covered in microtrichia whereas, in *E. nitidicollis*, there is an extensive bare patch in the anterior part of this cell, usually occupying in excess of a quarter of the membrane's total area.

E. melanostoma was first recognised as a British species by P. Beuk (1990. *Entomologist's monthly Magazine* **126,** 167-170) who reported a male specimen taken in Surrey in 1989. Later the species was recorded from Dorset in 1990 by D.A. Levy *et. al.*, (1992. *Dorset Hoverflies*. Dorset Environmental Records Centre). It is, therefore, perhaps not surprising to find this species in Hampshire. However, *E. melanostoma* would appear to have colonised the county only recently since I have found no older misdetermined specimens in the collections of HCCMS or any other museum collection I have examined for Hampshire records of the Syrphidae - **CHRIS PALMER**, Hampshire County Council Museums Service, Chilcomb House, Chilcomb Lane, Winchester, Hants SO23 8RD.

Dipterists Digest 1997 **4**, 72-73

Aphrosylus mitis (Dolichopodidae) from St Mary's, Isles of Scilly

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On 6 September 1996 I swept from intertidal rocks on the shore of St Mary's Pool, St Mary's, Isles of Scilly several small *Aphrosylus* which on subsequent examination included a single female *A. ferox* and four female *A. mitis*. Previous searches of the littoral zone on the islands of St Mary's and Tresco had shown that *A. ferox* was widespread and occasionally abundant. Both *A. celtiber* and *A. raptor* were also recorded but in much smaller numbers. The distribution of *A. mitis* in Great Britain was reviewed by Dyte & Poulding (1992) and included fifteen recently reported new sites from West Cornwall (VC 1), the nearest mainland to Scilly. This new record is of particular interest as the locality is entirely marine unlike those from West Cornwall which are estuarine as are the majority of recorded *mitis* sites in western Europe.

St Mary's Pool lies on the western shore of St Mary's, the largest island of the Scilly archipelago approx 45km south-west of Land's End. The Pool is a bay stretching inland for about 0.75km, 1km at its widest point, and surrounded on three sides by low hills. It faces north-west but is sheltered from the extremes of north-westerly Atlantic gales by the islands of Samson, Bryer and Tresco less than 3km across a comparatively shallow channel. The intertidal rocks on which the *A. mitis* were found is part of a granite outcrop known as Carn Thomas lying between the sandy beaches of Town Beach and Porth Mellon, Hugh Town. This area of St Mary's Pool is further protected from violent wave movements by the harbour wall of The Quay to the west and the low lying rocks to the north known as Newford Island. The extreme tidal range of Scillies is 6.4m but 5.0m between low spring tide and high spring tide.

The precise site from which *A. mitis* was recovered is a series of tiered granite slabs interspersed with boulders and gullies in the midlittoral zone between mean low water neaps and mean high water springs. There was no visible evidence of fresh water springs or seepage through or over the granite. Over 75% of the site is covered in dense brown seaweed attached to the substratum with Serrated Wrack (*Fucus serratus*) and Bladder Wrack (*Fucus vesiculosus*) predominating but with smaller amounts of Knotted Wrack (*Ascophyllum nodosum*). In addition to these fucoid species, the green algae *Enteromorpha*, *Cladophora* and *Ulva* form dense mats in and around the shallow pools and gullies. Acorn barnacles (*Cirripedia*) are abundant on the exposed boulders and vertical sides of ledges and these appeared to be mainly *Chthalamus stellatus* but small colonies of *Elminius modestus* were found in gullies overhung by fucoids. Fine sand from the adjacent beach had settled in the colonies of *Enteromorpha* and *Cladophora* to form a firm additional substratum, and also on fronds of the fucoids at low water levels. Samples of sea water collected in June on the flood tide from the edge of the site and from the pools in the gullies showed a salinity of 34 parts per thousand (the range of salinity for ocean water is 33 to 38 parts per thousand with an average of 35). The pH of the same samples showed a slight alkalinity at pH 7.4 and 7.1 respectively consistent with the pH of sea water.

This *mitis* site in St Mary's Pool is clearly part of a marine ecosystem in a sheltered bay and not part of an estuarine system with brackish water, the most frequently reported

habitat for *A. mitis*. In fact there are no rivers or estuaries on Scillies only small springs entering the upper shore. The magnitude of exposure to wave action in almost certainly one of the factors determining the distribution of *A. mitis* on marine shores. An exposure scale of nine grades based on the biological components of the shore classifies the *mitis* site as Very sheltered - exposure grade 7 (Dalby *et al.*, 1978). The estuaries and creeks of the *mitis* sites in West Cornwall fall within the grades 6 to 9 i.e. Sheltered to Ultimate shelter. A biological component of most of these recently discovered *mitis* sites was the acorn barnacle *Elminius* which has a high tolerance of low salinity but a low resistance to mechanical damage from wave movements. These factors account for its preference for sheltered estuarine shores rather than exposed marine coasts. *A. mitis* similarly prefers sheltered sites and also can tolerate a range of salinities from marine to the short term, but rapidly changing, salinity of estuarine brackish water during tidal flows.

Although *E. modestus* and *A. mitis* are found together at similar coastal sites, it is unlikely that there is a specific association between the two species. This barnacle was scarce at the St Mary's Pool site in contrast to the high density of chthalamoid barnacles. A more probable association is that of *A. mitis* larvae with the mats of the delicate green algae *Enteromorpha* and *Cladophora* where fine sand, packed around the holdfasts to the granite, provide a firm substratum for the larvae of a number of invertebrates including chironomid larvae.

A further record of *A. mitis* from a marine environment has been sent to me by Charles David of Guernsey, Channel Islands where he found it at Portelet Bay in the south-west corner of Guernsey. He describes the beach as 'sheltered from everywhere, but the north-west and there are many offshore reefs to break the waves. The dominant seaweed just below where I caught them was *Ascophyllum nodosum* which is an indicator of a fairly sheltered shore in Guernsey'.

Acknowledgements

I am indebted to The Isles of Scilly Environmental Trust for permission to take specimens of Dolichopodidae, and to Dr C.T. David for details of *A. mitis* on Guernsey.

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Dipterists Digest 1997 **4**, 74-77

Re-instatement of *Dolichocephala oblongoguttata* (Diptera, Empididae) as a valid species

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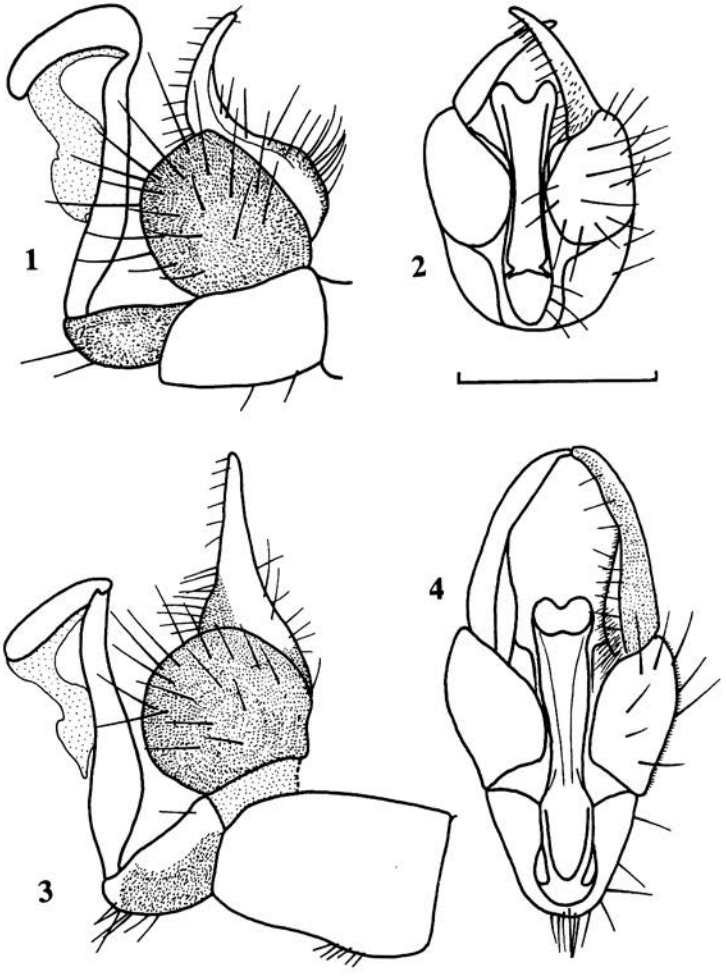
The genus of tiny hemerodromine empidids *Dolichocephala* Macquart includes five species known from Britain. Collin (1961) discussed three species which are amply distinct from one another, and MacGowan (1996) added *thomasi* Wagner. A fifth European species was introduced by Vaillant as *engeli* for a species that closely resembles *guttata* (Haliday), this species being figured by Engel (1939-40). Vaillant did not publish a description but a manuscript (or at least figures of wings and genitalia) has circulated among European dipterists, thus allowing them to recognise *engeli*. Wagner (1983) used the name as a *nomen nudum* and later Niesiołowski (1990, 1992) published figures and a very brief description. This description has to be recognised as valid under ICZN rules, thus *engeli* became a valid name.

Three other names have been applied to this pair of species. Haliday (1833) originally described two species, *guttata* and *exoleta*. The latter was described from a male caught together with his original *guttata*, and differed from them in having very pale wing markings and an 'opaque' black thorax, presumably meaning matt black rather than shining as in *guttata*. However, in the same paper, he conceded that it may be only a variety of *guttata* (he corrects his mistake of comparing it with *irrorata* Fallén at the end of this paper). Dale (1878) described *oblongoguttata* as a species of *Ardoptera* from a series of specimens from Dorset, collected by himself and his father. Finally, Strobl (1898) described *nigrohalterata* from specimens with black halteres, which are characteristic of *guttata* and its sibling species, and differ from the pale brown halteres of *irrorata*.

Haliday's specimens of *guttata* in the National Museum, Dublin, comprise two males and eight females with green 'Ireland' labels and one male without such a label, all gummed to card. The males are *guttata* as illustrated by Collin (1961). Genitalia preparations were made by PJC of the two 'Ireland' males and one has been selected as the lectotype. None of the specimens fit Haliday's description of *exoleta* and he himself synonymised the species with *guttata* as '*exoleta* v. Hal.' in Walker (Haliday, 1851).

Dale's specimens in the Hope Museum of Oxford University are seven females and two males gummed to card. One female was collected by J. C. Dale (the father) in July 1862 at Mullet's Copse and the remaining specimens were collected on 28 May 1873 at Glanville's Wootton by C. W. Dale (Dale, 1878). The males are clearly the same as Vaillant's *engeli* which therefore becomes a junior synonym. One has been selected as the lectotype for *oblongoguttata*. Although it is satisfying to have clarified the identity of these two species, it is unfortunate that Dale has bequeathed us such an awkward name for so small a species.



Figs. 1-4. ***Dolichocephala*** **genitalia, 1,** ***D. oblongoguttata*****, lateral view; 2,** ***D. oblongoguttata*****, posterior view; 3,** ***D. guttata*****, lateral view; 4,** ***D. guttata*****, posterior view. Scale line = 0.25mm.**

Synonymy:

Dolichocephala Macquart, 1823
Ardoptera Macquart, 1827
Leptosceles Haliday, 1833
guttata (Haliday, 1833)
exoleta (Haliday, 1833)
nigrohalterata (Strobl, 1898)
oblongoguttata (Dale, 1878)
engeli Niesiołowski, 1990

There appear to be no differences between *oblongoguttata* and *guttata* apart from the genitalia among the 21 males of *guttata* and 44 males of *oblongoguttata* in CMD's collection. The venation and wing markings are variable and show no consistent differences; the differences in the wing shown by Niesiołowski (1990, 1992) are not diagnostic. *D. guttata* often has slightly more contrast between the hyaline spots and the darker background but this is not consistent nor of use in separating the species. Females cannot be separated but no attempt has been made to associate males with females from the same locality. The description in Collin (1961) may refer to either species because, although he figures the genitalia of *guttata*, the genitalia in his figure of the whole fly appear to be those of *oblongoguttata*. However, as there are no obvious differences, his description is valid for both species so there is no point in providing a full description here. Dale's (1878) brief Latin description conveys no further information than given by Collin. The simplest distinguishing features are that the parameres of *guttata* are more-or-less straight in strictly lateral view, but are gracefully curved in posterior view, whereas the reverse is true for *oblongoguttata* whose parameres are also distinctly shorter.

Dolichocephala oblongoguttata was first recognised in Britain when both sibling species were found at the same site in 1982. These specimens were forwarded to Kenneth Smith and hence to Rüdiger Wagner who confirmed that one was *engeli*. Now that the true identity of *engeli* has been settled, the species can be added formally to the British list, although, of course, it has been long recognised here.

Neither species is uncommon but they are easily missed if their microhabitat is not searched. Both species may be frequently found by sweeping low over wet, shaded mud, often in or beside damp woodlands, although no further habitat specificity can be recognised. *Dolichocephala oblongoguttata* has a wide distribution over much of Britain and Ireland, where it has been recorded by the authors northwards from Devon and Kent to Ayrshire, including south Wales. Irish records include County Down, Sligo and Offaly. *Dolichocephala guttata* is, in Britain, a more northern species whose southern limit appears to be in north Lincolnshire (the most southerly county recorded by the authors) and whose distribution extends to Inverness and Ross (collected by C. E. Dyte). In Ireland, it has been recorded from several counties scattered across the country and appears not to show any difference in distribution from that of *oblongoguttata*.

Acknowledgements

We are grateful to Dr G. McGavin and Mr I. Lansbury of the Hope Department, Oxford, and Dr J. P. O'Connor of the National Museum, Dublin, for the loan of type specimens. Ken Smith and Dr Rüdiger Wagner are thanked for their help in establishing the identity of specimens.

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Dipterists Digest 1997 **4**, 78-92

Flies from ancient coppiced woodland in Suffolk

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Bradfield Woods in Suffolk, between Bury St. Edmunds and Stowmarket (TL 935581) are well known for their history since the 13th century of growing mature trees as standards with cut and regenerating coppice as an underwood below (Rackham, 1980; 1986). Most of the standard trees are oak (*Quercus*), as ash (*Fraxinus*), birch (*Betula*) and alder (*Alnus*) but the woods are rich in other plant species. Some 42 native trees and shrubs, over 370 species of ground flora, and some 450 species of fungi have been recorded from the woods. The woods were managed for coppice and standards up to the 1960's; then were bought as a nature reserve in 1970; and since have been managed by the Suffolk Wildlife Trust from 1983 (Gibbons, 1991). Every spring a part of the wood is cleared and the underwood, mainly hazel (*Corylus*), is left to regenerate and the coppice formed in this way is used for making rakes, fencing, poles and firewood. Older statutes defined the spacing of the remaining standard trees, which form the canopy of the wood, as 12 per acre (30 per hectare) of the cleared woodland (Tansley, 1939). The original length of the coppice rotation was 10-11 years, although parts of the woods have not been touched for nearly 40 years. Coppicing is maintained as a routine by the Trust and the years in which parts of the woods were coppiced is recorded back to 1953. The present survey of Diptera in relation to the age of coppice growth was carried out in July and October, 1990, and in May and August, 1991.

Survey methods

Water traps (plastic yellow bowls containing water and a few drops of domestic detergent) were placed on wooden stands one metre above the ground, and pitfall traps (plastic cups containing a small amount of industrial alcohol) were placed in the soil, close by the positions of the water traps. These positions in the woodland were maintained throughout the investigation at 32 sites in 1990 and at four replacement sites in older woodland in 1991, due to four 1990 sites being cut for coppice in the spring, making 36 sites in total in 1991, 18 in woodland coppiced from 1984 and 18 in woodland coppiced before 1984. The traps were placed deep into the blocks of woodland, two sites for each age of coppice, well away from the woodland rides, and as widely distributed as possible, within the wood known as Felsham Hall Wood.

These blocks of woodland were of known age of maturity, from recent coppice clearance in 1990 and 1991, coppice in each year 1-10 years old, 14-17 years old, 23-24 years old, 28-29 years old, 34-35 years old and 37-38 years old. Trapping was carried out between July 11-16, 1990, October 9-16, 1990, May 23-30, 1991, and August 16-22, 1991. The water traps were filtered through muslin and the catch collected in alcohol; the pitfall traps collected directly from the ground. No traps were interfered with over these days, although two stands were knocked over during the winter, presumably by deer. Growth of vegetation in the field layer and from the cut stumps of the new coppice was rapid and one trap in the new coppice from the spring of 1990 was very difficult to locate by August, 1991. Some of the more recent coppice, up to 5 years old, was cut back by the grazing of deer (*Capreolus*) but the new coppice in 1990 and 1991 was fenced. Coppice which was 5-8

years old was denser with brambles (*Rubus*) and honeysuckle (*Lonicera*) and the densest, darkest part of the wood (as measured on a sunny day in August by light meter) was coppice 9-15 years old. Coppice of this age was difficult to penetrate to collect from the traps. Older coppice, from 17 years old, was more open with an established canopy and bare ground flora, still dark but with more dappled light beneath the standard trees.

Results and Discussion

Habitat selection and coppice age

One of the surprises from this survey was that some species penetrated throughout the blocks of woodland irrespective of the years since the last coppice (Appendix 1). Even in the darkest, most overgrown, parts of the wood, 9-15 years post-coppice, 31-58 species of Diptera were recorded in each of the blocks of woodland (mean 45 species), compared to 43-114 species in 0-8 year-old coppice (mean 75 species) and 19-44 species (mean 31) in the more mature woodland, 16-38 years post-coppice. The recent coppice at 0 years, with the maximum of 114 species, contained both the adventitious species invading the now opened area of woodland and the flies emerging from the soil of what was mature woodland (10-24 years post-coppice) the season before. A female *Empis tessellata* was trapped in the new coppice still with the pupal skin attached to her legs, in woodland which was 9 years post coppice the season before.

One problem here is that, with a few exceptions, most species were captured in relatively small numbers in each trap, with totals of less than 100 specimens per species. Consequently, it is difficult to show clear quantitative associations between the number of each species captured and the age of the coppice in the wood. The exceptional species are the empid *E. tessellata*, the syrphids (mainly *Episyrphus balteatus*), the heliomyzid *Suilla affinis*, *Drosophila deflexa*, and the various Sarcophagidae and Calliphoridae. During 1991, there were 18 water traps in coppice more than 7 years old and 18 water traps in woodland coppiced from 1984. Of 457 sarcophagids in these traps, 98.9% were collected in woodland coppiced since 1983; of 1395 calliphorids, 97.9% were collected in the more recent coppice; of 576 syrphids, 71.9% were collected in coppice since 1983; of 685 *E. tessellata*, 69.1% were collected in coppice since 1983. The preference of the syrphids and sarcophagids for the more recently cleared woodland is shown in Fig. 1. No surprise, perhaps, to anyone who has collected these flies in rides or open spaces in woodland, although *S. balteatus* was found even in the darkest part of the wood, coppiced 9-15 years before. The situation with *E. tessellata* was more complex. There was a marked decrease in numbers trapped in 7-17 year coppice, followed by a rise in number in the more mature woodland. Two-thirds of this species were trapped in the more recent coppice, 0-7 years old (48.6% ♂♂). In the more mature woodland, 8-38 years old, females were more abundant than males (25% ♂♂); 24% of these females had undeveloped ovaries, compared to 9% in the younger coppice, suggesting that they had either emerged recently or had oviposited locally in the older woodland.

In contrast, only 48.0% of 173 *S. affinis* and 38.5% of 264 drosophilids (mainly *D. deflexa*) were found in pitfall traps in the younger coppice (0-7 years old) and these species were found to be more evenly distributed throughout the woodland (Fig. 1).

Some of the less frequent species appeared to be associated with the more mature woodland. A more qualitative approach is possible by adding up all the years of coppice age in which a species has been trapped and estimating the mean coppice age for each species.

This heavily weights the older blocks of woodland up to 38 years post coppice, but this is balanced by same number of traps in coppice aged 0-7 years as in coppice aged 8-38 years. For the species of syrphids, sarcophagids and calliphorids discussed already, most mean coppice ages were less than 5 years, for *E. tessellata* 11.6 years, for drosophilids 11.9 years and for *S. affinis* 13.6 years. Scores of 6 years or less would indicate an early, more open woodland species; scores between 7 and 14 years would indicate penetration into the older woodland; and scores above 14 years would indicate an association mainly with the older, more mature woodland. Species that were found in fewer than 4 blocks of woodland are ignored in this analysis but detail can be found in the main list of species.

The following species were trapped regularly and there are some interesting comparisons between the distributions of species in the same family or genus:

Species associated with the younger, more open coppice, and more rarely found in the older woodland: *Psychoda albipennis, Bryophaenocladius vernalis, Bibio lepidus, B. leucopterus, Lycoriella auripila, Swammerdamella brevicornis, Drapetis exilis, Platypalpus longiseta, Chrysotus gramineus, Lonchoptera lutea, Syrphus vitripennis, Scaeva pyrastri, Melanostoma mellinum, Xylota segnis, Eristalis arbustorum, E. pertinax, E. tenax, Myathropa florea, Calliopum simillimum, Sepsis fulgens, Crumomyia roserii, Pteremis fenestralis, Spelobia pseudonivalis, Lonchaea* sp., *Opomyza florum, Scaptomyza pallida, Heteronychia dissimilis, H. vagans, Parasarcophaga scoparia, Sarcophaga carnaria, S. subvicina, Thyrsocnema incisolobata, Lucilia caesar, Delia antiqua, Dasyphora cyanella, Morellia aenescens, Musca autumnalis, Muscina assimilis, Phaonia trimaculata.*

Species that were found in younger coppice but were also found in more mature woodland: *Smittia aterrima, Gymnometriocnemus brumalis, Sylvicola* sp., *Epidapus atomarius, Bradysia confinis, B. nitidicollis, Apiloscatopse picea, Platypalpus luteus, P. pallidiventris, Empis aestiva, E. livida, E. tessellata, Opetia nigra, Orthovena furcata, Syrphus ribesii, Episyrphus balteatus, Platycheirus albimanus, Portevinia maculata, Helophilus pendulus, Suilla affinis, S. fuscicornis, S. humilis, S. notata, S. pallida, Spelobia parapusio, Drosophila deflexa, D. phalerata, Cinochira atra, Calliphora vicina, C. vomitoria, Bellardia viarum, Lucilia ampullacea, Pollenia rudis, Scathophaga stercoraria, Mycophaga testacea, Phaonia pallida, P. palpata, P. populi, P. rufipalpis, P. variegata, P. viarum, Helina depuncta, H. impuncta, H. laetifica.*

Finally, **species which were associated mainly with the older coppice and more mature woodland and rarely found in the newly cleared coppice:** *Trichocera annulata, T. regelationis, Limonia flavipes, L. lutea/mitis, L. nigropunctata, L. tripunctata, Tasiocera fuscescens, Pericoma compta, Macrorrhyncha flava, Hyperlasion wasmanni, Scatopsciara multispina, Drapetis pusilla, Trichinomyia flavipes, Oedalea holmgreni, O. stigmatella, O. tibialis, Xanthempis trigramma, Empis lutea, Melanostoma scalare, Lyciella rorida, Tricholauxania praeusta, Suilla laevifrons, S. variegata, Crumomyia fimetaria, Apteromyia claviventris, Spelobia palmata, S. talparum, Phaonia basalis, P. errans, P. siebecki, P. signata, Mydaea maculiventris.*

Although difficult to demonstrate quantitatively, the scoring system shows up apparent differences in the woodland range of species of Scatopsidae, Empididae, Sphaeroceridae, *Suilla*, *Lucilia*, and *Phaonia*, as well as the well known increase in species diversity by

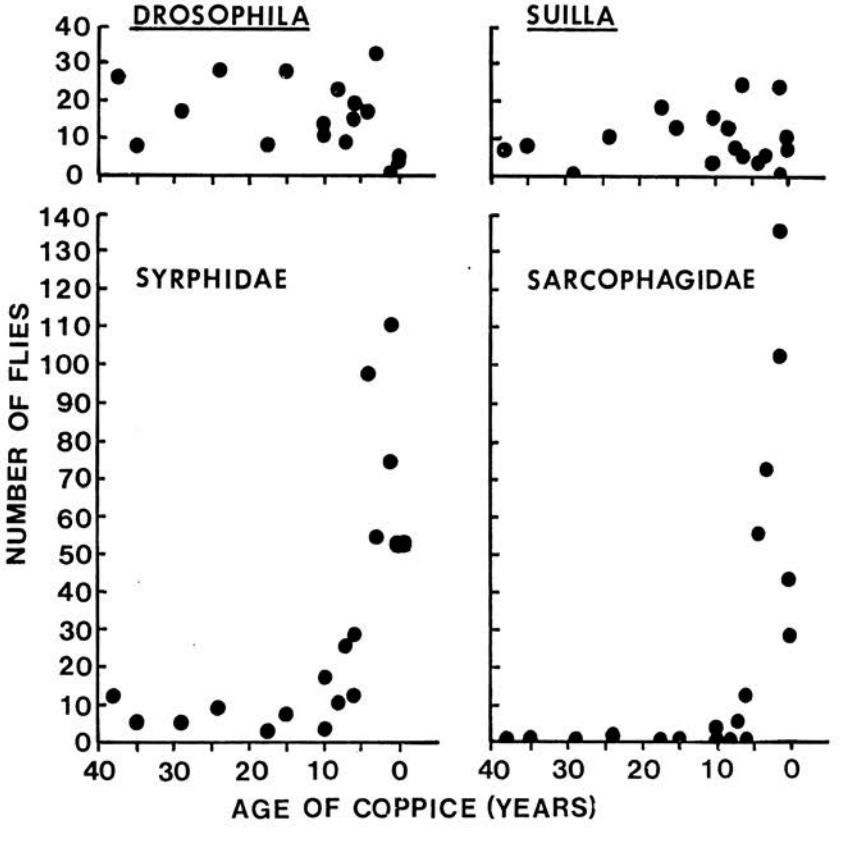

Fig. 1. Number of flies collected in two traps per block of woodland (August, 1991) in relation to the age of the coppice. Above: pitfall traps (*Drosophila*, mostly *D. deflexa*, and *Suilla affinis*), below: water traps (all Syrphidae and Sarcophagidae).

opening up woodland by clearings and woodland rides, and the presence of "shade-loving" species (Chandler, 1978). The second group of species is more diverse (scores of 7-14 years). Some were found throughout the wood but others mainly within the early coppice ages and then in the later mature woodland (but see the list of species for individual distributions of coppice age). Studies on the distribution of birds in coppiced woodland have shown similar habitat occupation, with warblers (Sylviidae) and finches (Fringillidae and Emberizidae) occupying the earlier stages of coppice growth, and thrushes (Turdidae) and tits (Paridae) the later stages (Fuller & Moreton, 1987). There is no shortage of Diptera as food throughout all ages of coppice within the wood.

Trapping bias

The results recorded here are of species captured only by trapping, in water traps and in pitfall traps. Sweep netting could produce quite different results. In May, 1991, *Bibio marci* was abundant along the woodland rides in Felsham Hall Wood, many killed by the dominant empid *E. tessellata*, but the bibionid was found only once in a water trap. The water traps were assumed to have no influence on fly behaviour, although in the cleared woodland they made alternative stands to bushes and may have formed sentinel posts for some species. To test this, two additional water traps were placed on the ground immediately below the standard, one metre high, water trap in two areas of newly cleared coppice (age 0). There were little differences between the traps at one metre and at ground level, except for the ground bowls acting as markers for the chironomid midge *Gymnometriocnemus brumalis*. At one site 5♂♂ were captured at the height of one metre and 232♂♂ in the bowl placed immediately below on the ground. At the second site 31♂♂ were captured at one metre and 269♂♂ immediately below at ground level. One can only observe that these things happen, although other species appeared to be unaffected.

The pitfall traps contained a small volume of alcohol. They caught the majority of *Portevinia maculata*, *Brachyopa scutellaris*, most of the species of *Suilla*, *Drosophila* and the Sphaeroceridae. Some of these species may have been attracted by the odour of the pitfall although some species, notably *Spelobia pseudonivalis*, would rarely leave the ground above one metre and land in a water trap. The majority of the females of *Phaonia variegata* were caught in the pitfall traps, whereas in the water traps the males were predominant. The distribution of males and females throughout the wood was the same for this species when measured by the two types of trap, so perhaps the odour of the pitfall was not significant here, and the two traps show a difference in behaviour between the sexes.

Lastly, if one plots the regression of the number of species identified against the number of flies collected, irrespective of the age of coppice or season, pitfall or water trap, one finds that a doubling of sample size increases the number of species identified by some 50%. This relationship appears to hold for other habitats where the fly population has been investigated by trapping. This implies that the total number of species in a habitat cannot be estimated solely by the use of some kind of trap.

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Appendix 1. Diptera trapped from Felsham Hall Wood, Suffolk

In the following list of species, the month of collection is given first and the age of the coppice (years since last coppice) in which the species was found is given second. Where a species has been recorded in woodland of several coppice ages, this is indicated where appropriate. Some flies were not identified beyond family (Cecidomyiidae, Phoridae, Aulacigastridae, Agromyzidae) and, as can be seen from the list, in other families (Ephydridae, Chloropidae, Tachinidae, Anthomyiidae) only species with clear characters were given specific names. Wherever relevant, the male genitalia were prepared and examined.

Trichoceridae
Trichocera annulata Mg. x, 0-3, 5, 7, 9, 28, 34.
T. hiemalis Deg. x, 0, 3.
T. regelationis L. x, 2, 5, 9, 28, 34.

Tipulidae
Nephrotoma analis Schumm. vii, 9, 28
N. appendiculata Pierre v, 10.
N. quadrifaria Mg. vii, 28, 34.
Tipula fascipennis Mg. v, 1, 6.
Limonia flavipes Fab. v, 5-8, 10, 24, 29, 35.
L. lutea Mg./*mitis* Mg. v, 6, 10, 15, 24, 35.
L. nigropunctata Schumm. v, 6, 8, 10, 29, 35.
L. tripunctata Fav. v, 0, 1, 3, 5-8, 10, 15, 24, 29, 35, 38.
Epiphragma ocellaris L. vii, 37.
Limnophila nemoralis Mg. viii, 29.
Ormosia nodulosa Macq. v, 29.
O. varia Mg. x, 7, 16, 28.
Tasiocera fuscescens Lack. v, 10, 29.
Molophilus ochraceus Mg. x, 14.

Psychodidae

Pericoma compta Eaton x, 6, 7, 23, 28.
Philosepedon humeralis Mg. x, 0.
Psychoda albipennis Zett. x, 0, 3, 4, 7.
P. setigera Tonn. viii, 24.
P. minuta Banks viii, 0.

Culicidae
Aedes geniculatus Oliv. viii, 35.

Ceratopogonidae
Culicoides obsoletus Mg. group vii, x, 0, 6, 23.
C. pulicaris L. v, 24.
Forcipomyia spp. vii, x, 0, 3, 5, 28.
Dasyhelea sp. viii, 0, 3, 4, 8.

Chironomidae
Bryophaenocladius tuberculatus Edw. v, 8, 10.
B. vernalis Goet. x, 0, 2, 9.
Camptocladius stercorarius Deg. viii, 24.
Gymnometriocnemus brumalis Edw. x, 0, 2, 3, 5-7, 9, 16, 23, 28, 34.
Orthosmittia albipennis Goet. v, 0.
Smittia aterrima Mg. x, 0, 6, 9, 14.

Anisopodidae
Sylvicola cinctus Fab./*fenestralis* Scop. (♀♀ only) v, vii, viii, 1, 3, 5-7, 10, 15, 17.
S. punctatus Fab. viii, 7, 10.

Bibionidae
Bibio lepidus Loew x, 4-6.
B. leucopterus Mg. v, 0, 4.
B. marci L. v, 4.
B. reticulatus Loew v, 0.
Dilophus febrilis L. v, viii, 1, 10.

Mycetophilidae
Bolitophila sandersi Curtis vii, 6.
Diadocidia ferruginosa Mg. viii, 6.
Macrocera angulata Mg. v. 6.
Macrorrhyncha flava Winn. vii, 2, 5-7, 9, 14, 23, 28, 34, 37.
Orfelia semirufa Mg. vii, 6.
O. flava Macq. vii, 6, 34.
Mycomya nitida Zett. v, 6.
M. annulata Mg. vii, 6.
M. wankowiczii Dzied. vii, 34.
Sciophila lutea Macq. vii, 34.
Acnemia nitidicollis Mg. viii, 7.
Ectrepesthoneura hirta Winn. v, 6, 38.

Sciaridae
Trichosia pilosa Staeg. v, vii, viii, 10, 29, 34.
Schwenkfeldina carbonaria Mg. v, 8.
Epidapus atomarius Deg. v, viii, 0, 3, 7, 8, 10, 17, 29.
E. edwardsi Freeman v, x, 0, 17.
Hyperlasion wasmanni Schmitz vii, viii, 3, 4, 7, 8, 23, 34, 35.
Corynoptera curvispinosa Freeman v, viii, 6, 15.
C. globula Freeman x, 0, 2.
C. nigrosetosa Freeman v, 0, 10, 38.
C. recurvispina Freeman viii, 6.
Lycoriella auripila Winn. v, vii, viii, 0, 3.
L. leucotricha Tuom. v, vii, x, 2.
Ctenosciara hyalipennis Mg. x, 34.
Bradysia confinis Winn. v, viii, x, 1, 3, 24, 37.
B. fimbricauda Tuom. viii, 0.
B. nitidicollis Mg. v, vii, viii, x, 0, 3-5, 34.
Scatopsciara multispina Bukow. & Lengers. v, vii, 5, 8, 9, 34.
S. pusilla Mg. viii, 3, 6.
S. vivida Winn. viii. 0, 10, 38.

Scatopsidae
Colobostema triste Zett. vii, 28.
Cookella albitarsis Zett. viii, 4.
Apiloscatopse picea Mg. 0, 2, 3, 5-7, 9, 16, 23, 28.
Swammerdamella brevicornis Mg. viii, x, 0, 4, 6, 8.
Anapausis soluta Loew x, 6.

Stratiomyidae
Chloromyia formosa Scop. vii, 0.
Sargus iridatus Scop. vii, 2, 5.

Rhagionidae
Rhagio lineola Fab. viii, 8.
R. scolopacea L. v, 4.
R. tringarius L. viii, 1.

Asilidae
Neoitamus cyanurus Loew viii, 1.
Laphria marginata L. viii, 1.

Empididae
Drapetis assimilis Fall. v, vii, 0, 7, 15.
D. exilis Mg. vii, viii, 1, 3, 9, 10.
D. parilis Collin viii, 4, 15.
D. pusilla Loew vii, viii, 0, 1, 14, 28, 34. 38.
D. simulans Collin viii, 4, 10, 38.
Crossopalpus nigritella Zett. x, 0.

Sicodus arrogans L. vii, 6, 14.
Platypalpus aeneus Macq. vii, 14.
P. agilis Mg. v, 6, 15.
P. albifacies Collin v, 0.
P. candicans Fall. v, 0.
P. ciliaris Fall. vii, 5, 6, 9.
P. cothurnatus Macq. v, vii, 24.
P. longicornis Mg. x, 0.
P. longiseta Zett. vii, viii, 0, 2, 6, 14.
P. luteus Mg. v, vii, 0, 7, 9, 28.
P. pallidiventris Mg. vii, viii, 0, 3, 6, 7, 9, 17, 24.
Symballophthalmus fuscitarsis Zett. v, 6, 24.
Bicellaria pilosa Lundb. v, 3.
Trichinomyia flavipes Mg. x, 5, 9, 16, 37.
Oedalea holmgreni Zett. v, vii, 5, 9, 28, 34, 37.
O. stigmatella Zett. vii, 5, 14, 23, 28, 34, 37.
O. tibialis Macq. vii, 5, 9, 14, 23, 28, 34, 37.
Microphorus crassipes Macq. vii, 7, 28, 34.
M. holosericeus Mg. v, 0, 7, 15.
Rhamphomyia albohirta Collin v, 29.
R. flava Fall. vii, 5.
R. longipes Mg. vii, 2, 7.
R. sulcata Mg. v, 0, 1.
Xanthempis aemula Loew v, 0, 6.
X. trigramma Mg. v, 5-8, 10 (just emerged), 29, 35, 38.
Empis aestiva Loew vii, 2, 3, 5, 9, 37.
E. albinervis Mg. viii, 0.
E. livida L. vii, viii, 1, 3-7, 10, 14, 15, 17, 24, 29, 38.
E. lutea Mg. vii, viii, 3, 4, 6, 9, 23, 34, 37.
E. tessellata Fab. v, 0, 1 3-8, 10, 15, 24, 29, 35, 38.
Hilara intersticta Fall. v. 15.
H. lugubris Zett. v, 3, 8.

Dolichopodidae
Sciapus platypterus Fab. vii, 6, 9.
S. wiedemanni Fall. vii, 0.
Dolichopus festivus Hal. viii, 3.
D. picipes Mg. vii, 3.
D. popularis Wied. vii, 9, 28.
D. wahlbergi Zett. viii, 6.
Hercostomus parvilamellatus Macq. v, 0, 15.
Medetera truncorum Mg. vii, viii, 3.
Chrysotus gramineus Fall. group vii, viii, 2, 6, 7, 9.
Chrysotimus concinnus Zett. vii, viii, 3, 6.
Xanthochlorus ornatus Hal. vii, 6.

Lonchopteridae

Lonchoptera lutea Panz. v, vii, x, 3, 5, 6, 9, 10.

Platypezidae
Opetia nigra Mg. vii, x, 0, 1, 3-5, 23, 28, 34.
Platypeza consobrina Zett. x, 0, 5, 16.
Orthovena furcata Fall. v, 1, 3, 6, 8, 10, 24, 35, 38.
Verrallia aucta Fall. vii, 6.
Nephrocerus flavicornis Zett. vii, 23.

Syrphidae
Syrphus ribesii L. v, vii, viii, 0-7, 15, 28, 34.
S. vitripennis Mg. viii, 1, 4, 6.
Metasyrphus corollae Fab. viii, 0, 3, 15.
M. latifasciatus Macq. vii, viii, 2, 3.
M. luniger Mg. viii, 1, 6.
Scaeva pyrastri L. viii, 1.
Episyrphus blateatus Deg. vii, viii, x, 0-10, 14, 15, 17, 24, 28, 29, 34, 35, 37, 38.
Sphaerophoria scripta L. viii, 1.
Melanostoma mellinum L. viii, 1, 4, 6.
M. scalare Fab. v, viii, 1, 17, 38.
Platycheirus albimanus Fab. vii, viii, 0, 7, 9, 14, 28.
P. scutatus Mg. vii, 34.
Portevinia maculata Fall. v, 1, 4-6, 8, 17.
Brachyopa scutellaris Rob.-Des. v, 1, 24.
Eumerus strigatus Fall. viii, 0, 6.
Xylota segnis L. v, vii, viii, 0, 1, 3, 5.
Helophilus pendulus L. viii, 1, 3, 4, 24, 38.
Eristalis arbustorum L. viii, 0, 1, 3, 4.
E. horticola Deg. viii, 1.
E. intricarius L. viii, 0, 4.
E. pertinax Scop. viii, 0, 1, 4.
E. tenax L. viii, 0, 1, 3, 4.
Myathropa florea L. viii, 0, 1, 4.

Conopidae
Conops quadrifasciata Deg. viii, 1.
Myopa testacea L. v. 1.

Platystomatidae
Platystoma seminationis L. viii, 1.

Psilidae
Loxocera albiseta Schrank viii, 6.
Psila nigra Fall. v, viii, 6, 24.
Chyliza scutellata Fab. vii, 37.

Dryomyzidae

Dryomyza anilis Fall. viii, x, 0, 5, 6.

Lauxaniidae
Lyciella affinis Zett. v, viii, 3, 8, 29.
L. rorida Fall. vii, viii, x, 0, 5-7, 9, 10, 14-16, 23, 28, 37.
Tricholauxania praeusta Fall. v, vii, viii, x, 3, 5, 6, 8, 10, 14, 24, 28, 29, 34.
Calliopum simillimum Collin v, viii, x, 0-2, 6-10.

Heleomyzidae
Suilla affinis Mg. v, vii, viii, x, 0, 1, 3-10, 14, 15, 17, 23, 24, 28, 29, 34, 35, 37, 38.
S. atricornis Mg. x, 9.
S. bicolor Zett. x, 16.
S. dawnae Withers viii, x, 1, 9, 28.
S. fuscicornis Zett. viii, x, 5-7, 16, 34.
S. humilis Mg. viii, x, 0-3, 5-10, 14, 16, 23, 28, 29, 34, 35.
S. laevifrons Loew vii, viii, x, 0, 1, 3, 7-10, 28, 29, 34, 35, 38.
S. notata Mg. x, 0, 3, 6, 7, 23.
s. pallida Fall. viii, x, 0, 2, 3, 5-9, 14, 16, 23, 28, 34.
S. variegata Loew viii, x, 0, 1, 7-10, 15-17, 23, 24, 28, 29, 34, 35, 38.
Tephrochlamys rufiventris Mg. vii, x, 0, 5, 9.

Sepsidae
Sepsis fulgens Mg. viii, x, 1-3, 5-7.

Sciomyzidae
Pelidnoptera fuscipennis Mg. v, 5, 10, 24.
Pherbellia dubia Fall. v, 6.

Sphaeroceridae
Copromyza equina Fall. v, 35.
Crumomyia fimetaria Mg. v, vii, x, 5-9, 16, 24, 28, 29, 34.
Cr. nitida Mg. x, 3.
Cr. roserii Rond. x, 3, 6, 7.
Lotophila atra Mg. x, 3.
Ischiolepta pusilla Fall. viii, 6.
Apteromyia claviventris Strobl vii, viii, 0, 3, 6-8, 10, 15, 17, 24, 28, 29, 35, 38.
Chaetopodella scutellaris Hal. x, 2, 3.
Coproica lugubris Hal, viii, 1.
Leptocera fontinalis Fall. x, 3, 10, 29.
Minilimosina parvula Stenh. vii, 4.
M. v-atrum Vill. viii, 10.
M. vitripennis Zett. viii, x, 3.
Pteremis fenestralis Fall. v, vii, viii, x, 0-8, 10, 38.
Pullilimosina heteroneura Hal, viii, 1.
P. moesta Vill. vii, viii, 3, 6, 34.
Spelobia ochripes Mg. x, 2.
S. palmata Rich. vii, viii, 0, 6, 7, 10, 15, 20, 34, 35, 38.

S. parapusio Dahl viii, 1, 4, 6 (just emerged), 10, 29.
S. pseudonivalis Dahl vii, viii, x, 2, 3, 7, 8, 10.
S. talparum Rich. vii, x, 0, 4, 28, 29.
Opacifrons humida Hal. vii, 3.
O. septentrionalis Stenh. vii, 5.

Pallopteridae
Palloptera trimacula Mg. viii, 4.
P. umbellatarum Fab. vii, 6, 9, 23.

Lonchaeidae

Lonchaea spp. (♀♀ only) vii, 0-4, 7.

Opomyzidae
Opomyxa florum Fab. vii, viii, x, 0, 1, 3, 5, 6, 9.
O. germinationis L. x, 0, 2, 10.

Clusiidae
Clusia flava Mg. vii, 7.

Ephydridae
Phyligria sexmaculata Becker viii, 1.

Drosophilidae
Scaptomyza pallida Zett. vii, viii, x, 0-6, 15, 29.
Drosophila andalusiaca Strobl viii, 1.
D. cameraria Hal. vii, 34.
D. confusa Staeg. viii, 8.
D. deflexa Duda v, vii, viii, 0, 1, 3-10, 14-17, 24, 29, 35, 38.
D. helvetica Burla viii, 4.
D. phalerata Mg. viii, 6, 15, 17.

Chloropidae
Camarota curvipennis Latr. x, 3.
Platycephala umbraculata Fab. viii, 0.

Tachinidae
Cinochira atra Zett. viii, 4, 6, 8, 10, 15, 17, 29.
Siphona geniculata Deg. x, 7.

Sarcophagidae
Blaesoxipha plumicornis Zett. v, viii, 4.
Discachaeta pumila Mg. viii, 0, 1.
Helicophagella agnata Rond. vii, viii, 3.
Heteronychia dissimilis Mg. vii, viii, 0, 4, 5.
Het. haemorrhoa Mg. viii, 1.

Het. vagans Mg. v, vii, viii, 0, 1, 3-6.
Parasarcophaga aratrix Pand. viii, 1, 4.
P. caerulescens Zett. viii, 0, 1, 3, 4.
Pierretia sexpunctata Fab. v, 1, 5.
Ravinia pernix Harris viii, 3.
Sarcophaga carnaria L. v, vii, viii, 0-4, 6.
S. subvicina Rohd. v, vii, viii, x, 0-7, 10, 15, 24, 29.
Thyrsocnema incisolobata Pand. viii, 1, 3, 4.

Calliphoridae
Calliphora vicina Rob.-Des. v, vii, viii, x, 0-6, 8, 10, 14, 15, 23, 24, 28.
C. vomitoria L. viii, x, 0, 1, 4, 8, 15, 17, 24.
Melinda gentilis Rob.-Des. v, 17.
M. viridicyanea Rob.-Des. viii, 35.
Bellardia viarum Rob,-Des. v, vii, viii, x, 0, 1, 4, 10, 15, 17, 24, 35.
Lucilia ampullacea Vill. vii, viii, 0, 1, 3, 4, 6-10, 14, 15, 17, 24, 29, 34, 35, 38.
L. bufonivora Mon. v, 7.
L. caesar L. viii, 0, 1, 3, 4, 6-8, 14.
L. illustris Mg. viii, 4.
L. richardsi Collin viii, 0, 4.
L. sericata Mg. viii, 4, 6, 9.
L. silvarum Mg. vii, viii, 1.
Pollenia rudis Fab. vii, viii, 0-5, 7, 9, 10, 14, 29, 35.

Scathophagidae
Parallelomma albipes Fall. v, 6.
Scathophaga furcata Say viii, 17.
S. stercoraria L. viii, x, 2, 8, 10, 15, 17, 24.

Anthomyiidae
Anthomyia pluvialis L. vii, viii, 6.
A. procellaris Rond. vii, 5.
Eustalomyia festiva Zett. viii, 6.
Delia antiqua Mg. v, vii, viii, x, 0, 3, 6.
Mycophaga testacea Gimm. viii, x, 0, 5-10, 14-16, 23, 28, 34.

Fanniidae
Fannia canicularis L. viii, 4.
F. coracina Loew viii, 0.
F. difficilis Stein viii, 38.
F. hamata Macq. v, 38.
F. speciosa Vill. viii, 0, 1.

Muscidae
Polietes lardarius Fab. x, 0, 28, 34.
Dasyphora cyanella Mg. x, 0-2, 5, 6.
Orthellia cornicina Fab. x, 37.

Orthellia viridis Wied. x, 0, 3.
Morellia aenescens Rob.-Des. viii, 0, 1, 3, 4.
Musca autumnalis Deg. v, vii, viii, 0, 1, 4, 5.
Alloeostylis simplex Wied. viii, 0.
Hydrotaea palaestrica Mg. viii, 1.
Muscina assimilis Fall. v, viii, 0, 1, 3, 4, 6.
M. pabulorum Fall. viii, 0, 1, 3.
Phaonia basalis Zett. vii, viii, 1, 28, 34, 37.
P. bitincta Rond. v, 6.
P. errans Mg. v, vii, viii, 3, 6, 8-10, 28, 37, 38.
P. pallida Fab. vii, viii, 0-3, 5-10, 14, 15, 17, 23, 24, 28, 29, 34, 37, 38.
P. palpata Stein v, viii, x, 0, 1, 3-7, 10, 38.
P. populi Mg. v, vii, viii, 7, 8, 10, 28.
P. rufipalpis Macq. vii, viii, 3, 5-7, 9.
P. scutellata Zett. x, 0, 2, 6.
P. siebecki Schnabl & Dzied. v, vii, 1, 3, 5, 6, 8, 10, 15, 24, 29, 35, 37, 38.
P. signata Mg. vii, viii, x, 7, 14-17, 24, 28, 37.
P. trimaculata Bouché v, viii, x, 0, 1, 3, 4, 7, 10, 15, 28.
P. vagans Fall. v, viii, 6, 15.
P. variegata Mg. v, vii, viii, x, 0-10, 14-17, 24, 28, 29, 34, 35, 38.
P. viarum Rob.-Des. viii, 1, 3, 4, 6, 14, 38.
Helina depuncta Fall. viii, 0-10, 14-16, 24, 29, 35, 38.
H. duplicata Mg. x, 0, 5, 23.
H. impuncta Fall. x, 0, 2, 3, 5, 6, 14, 15, 34, 37.
H. laetifica Rob.-Des. 0, 2, 3, 5, 6, 16, 37.
Hebecnema affinis Malloch x, 6.
H. vespertina Fall. x, 5, 37.
Mydaea maculiventris Zett. vii, viii, 9, 10, 14, 29, 34, 37.
M. scutellaris Rob.-Des. vii, 5.
M. setifemur Ringdahl vii, 5.
M. urbana Mg. viii, x, 7, 14, 15.
Myiospila meditabunda Fab. x, 2.
Graphomyia maculata Scop. viii, 0, 4.
Coenosia tigrina Fab. vii, 0.

Hippoboscidae
Lipoptena cervi L. x, 23.

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JW Yerbury's contribution to the study of Scottish Diptera

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Lt.-Col. John William Yerbury (1847-1927) better known simply as, "Col. Yerbury", is a familiar name among Dipterists even if the personality behind the name is less well understood. Col. Yerbury was a contemporary of GH Verrall, the "father" of British Dipterology and his nephew, the "doyen" of Diptera, JE Collin. Throughout the publications of these gentlemen Yerbury is acknowledged as a source of information and specimens. As a Dipterist Yerbury was active during the period 1895-1913, a period when great advances were made in the study of British Diptera.

Apart from references in the correspondence and published papers of Verrall and Collin, information about Yerbury can be had from data labels associated with his specimens now in various museums, his own publications albeit few in number, and his diaries. Unfortunately little of Yerbury's correspondence apparently survives.

Yerbury's diaries cover the period 1882-1926 but there are gaps and diaries are missing for some years. Most of the entries are in pencil with a few in blue crayon or ink. Thus he could have made quick entries and ammended them later. However, there is no obvious evidence of this in the diaries - crossings out and inserts were occasionally present suggesting that the entries are original. The diaries mostly deal with field trips taken in spring and summer combined with some personal and family information eg notes of expenditure, visits to relatives etc. In the 1880's there are details of trips overseas. At this time Yerbury was working on the fauna of Aden having been stationed there for several years previously as a member of the Royal Artillery. He retired from the army in 1892 aged 45, finished the Aden work by 1895, and thence developed his interests in Diptera. Apart from Scotland he also visited Ireland, Wales, the New Forest, Devon, Worcestershire/ Herefordshire, London/Surrey and East Anglia, but he made more trips and spent longer in Scotland than elsewhere.

Yerbury made seven trips to Scotland over a 15 year period starting when he was 51 and ending when he was 66:

1.	1898	12 June - 29 August	078 days
2.	1899	03 July - 28 August	056 days
3.	1900	10 June - 29 August	080 days
4.	1904	09 May - 27 May	018 days
5.	1905	14 May - 31 August	109 days
6.	1911	25 May - ?* August	?97 days
7.	1913	21 May - 24 June	034 days

* no diary entry recording when he left Scotland

Just why Yerbury decided to collect in Scotland is unclear. He may have been influenced by Verrall who had been there several times from 1870 onwards. Yerbury usually travelled alone departing by train from one of the London stations:

25 May 1911: "left Euston at 8pm - sleeper comfortable but

cold after Wigan"
26 May 1911: "arrived Inverness started for Dingwall immediately."

Apparently travelling alone he was, nonetheless, in regular contact by telegram and letter with family, friends and fellow entomologists including Verrall, Collin, P Grimshaw, CG Lamb, JJFX King and D Sharp. Sometimes he met friends from the train with the purpose of undertaking fieldwork together:

14 June 1905: "walked down the Nethy to junction with the Spey and then went to the Broomhill Station to meet Lamb - a fair lot of odds and ends." [meaning insects he caught on the way]
24 June 1905: "went to Ballindalloch by 9.30 train and returned by the 4.30 - bright and fine did no good except that Lamb got Perscelis at a decaying beech."
1 July 1905: "Lamb left by the 9.15 train from Broomhill - I went to Grantown to look for Hammerschmidtia ferruginea, not much except Psairoptera." [= Homalocephala]

He was visited by non-entomological friends such as 'Sister Dora' who came to Nethy Bridge and collected with him! An entry on 1 June 1914 records her death without further comment and no other information is given about her.

On one occasion, 5 July 1905, he collected beetles under birch bark and sent them to Sharp in response to a written request. He also mentions two visits to Grimshaw at the Science and Art Museum, Edinburgh [now part of the National Museums of Scotland] on his way out of Scotland when he donated Diptera to the collections:

27 August 1900: "handed insects over to him".

In the registers of the National Museums of Scotland there are several entries relating to Yerbury. The first is 1898.125 and described as a collection of 625 British Diptera presented by Col. JW Yerbury, Army and Navy Club, Pall Mall, London. A second donation was made in 1904 (1904.85) of 33 Scottish Diptera but this time Yerbury's address is, 8 Duke Street, St. James, London. Other register entries exist but these relate to Yerbury material acquired as part of another collection. Grimshaw probably dealt with Yerbury's donations but did not register all the material. For example, Yerbury sent Grimshaw examples of the empid, *Gloma fuscipennis* for confirmation, as referred to in his 1912 *Scottish Naturalist* paper dealing with the Diptera of Wester Ross. Grimshaw kept four of these specimens and they exist today in the collections as unregistered specimens.

Most of Yerbury's time was spent in Strathspey staying at Broomhill Hotel, just north of the junction where the Nethy joins the Spey near Nethy Bridge [now a private house currently owned by a Miss Aspen] but he also stayed at several places in and around the Moray Firth and Wester Ross. He also visited Thurso, Loch Lomond and Rannoch (recording a boat trip up Loch Rannoch with Captain Neale RN). In some years he went back and forth between Nethy Bridge and Golspie/Dingwall/Nairn. On at least three occasions he fell ill recording in his diary "lame", "gout", "Doctor called", "sick list". The diaries also give brief mention of his experiences of Scottish towns and museums:

Edinburgh
23 August 1898: "Edinburgh a very clean beautiful city."
24 August 1898: "went to the Science and Art Museum and saw Grimshaw and Eagle Clark - went round the Natural History Galleries - good collection of British birds but generally not good - appear to be too skinhounded." [meaning perhaps, too many specimens and not enough interpretation]
25 August 1898: "took Diptera to the Museum...."

Aberdeen
14 May 1905: "left for Scotland by 11.30 pm train from Kings Cross."
15 May 1905: "arrived Aberdeen 11.30 am stayed at Palace Hotel, Aberdeen a handsome city built entirely of granite, went in afternoon to Bridge of Don to look at the Brig of Balgowrie, evening went to Music Hall Palace to see Robinson Crusoe - rot." [often goes to theatre when in town and records 'rot' as his comment on the show]
16 May 1905: "went by train to Bridge of Dee and walked up the river, afternoon went to look at the museum - a few pictures and not much else, general impression - a very bad show."
17 May 1905: "left Aberdeen and arrived Nairn...."

Perth
11 June 1900: "arrived at Perth about 8.30 am, went to Salutation Hotel - nasty, dirty place - visited Natural History Museum and walked about town."

Yerbury relied heavily on trains for moving about, but also mentions borrowing or hiring "chaises" and bicycles from which to scout out places to visit later by foot. His daily routine seems to have been setting flies in the early morning and going out mid-morning until late-afternoon collecting. Evenings were spent walking, cycling, dining and socialising.

There is little information concerning equipment he used to collect and prepare flies. The only clues being the occasional mention of a butterfly net or tube and:

4 July 1905, "wrote to Collin, Grant, Hedges and Watkins and Doncaster"
1 July 1905, "I went to Grantown to look for Hammerschmidtia ferruginea, saw one female which got out of my box...."

Yerbury gives poor-to-good descriptions of collecting sites in his diaries and papers but place names on data labels are more generalised. For example in the diaries the famous, 'Nethy Bridge' seems to refer to the area between the point where the Nethy joins the Spey in the North and some point beyond Nethy village towards Forest Lodge in the south, but data labels on specimens just say "Nethy Bridge". A favoured collecting ground was the stretch of river between the Nethy joining the Spey and Nethy village:

16 June 1900: "went up the Nethy - fine at first cloudy afternoon, Cynorrhina fallax [=Blera, and known to Yerbury via Verrall], Clidogaster nigritus? the pick of the basket [a common phrase Yerbury uses to describe his captures] - must pay another visit to the mountain ash blossom."
17 June 1900: "went up the Nethy as far as Lyngarrie - not much C. fallax in same place as yesterday."
18 June 1900: "went up the Nethy to Forest Lodge and back by the road - drew the banks of the Nethy near hotel on way home, L. flava sitting on stone between Lyngarrie and Forest Lodge, 2 C. fallax and Microdon devius? on the banks of the Nethy near hotel."
19 June 1900: "wet and dull did not go out wrote various letters."
20 June 1900: "went along banks of Nethy near hotel - 2 C. fallax."

Yerbury was aware of the value of recently felled pines and often mentions them in his diaries:

3 July 1905: "walked along the road to Tulloch - T. solstitialis male hovering along the road caught 3 - Xylota florum [=coeruleiventris] at all the stumps seems to have ousted C. fallax - not much else - fair day cloudy with sunny intervals."

3 August 1911: "walked along the Loch Garten road to the recent felling - a few Xylota at the pine stumps - nothing else."

Apart from where and how Yerbury caught specimens there is also the question of how and when he identified them. This is his entry for the first time he mentions *Callicera rufa*:

3 August 1904: "went out towards Dyack Burn - fine and hot Xylota florum fairly abundant at the stumps of felled pines, 2 red insects seen on this day around the pine stumps were probably Callicera rufa of which a specimen was caught on the 8th."

Yerbury identifies the *Callicera* species as *rufa*. He realised the significance of this find and wrote a long letter (see p99) to Verrall enclosing the specimens. Furthermore this entry shows that he sometimes wrote in his diary days after the event. Verrall thought the *Callicera* was a new species, and wrote a short note giving the bare outlines of a description naming it 'yerburyi' and submitting it, on September 14th, to the *Entomologist's monthly Magazine*. The note appeared in the October issue - about 8 weeks after first being taken in the field!

This is his entry for the first time he caught *Hammerschmidtia ferruginea* and *Homalocephala albitarsis*. He was with Lamb:

> 27 June 1905: "took train to Grantown and walked along the banks of the Spey towards Nethy Bridge - bright and fine - found Hammerschmidtia ferruginea and Psairoptera albitarsis on aspen stumps near the station and therefore stayed in the neighbourhood and came back by train."

If Lamb and Yerbury didn't identify these species in the field, they clearly recognised their significance as something new. Dr Charles George Lamb was 38 at the time he joined Yerbury at Nethy Bridge and a lecturer in electrical engineering at Cambridge University. According to his obituary, Lamb was outgoing and versatile with wide, diverse interests from music to medicine, and a particular interest in Diptera. According to Yerbury's obituary written by Collin, Yerbury was too reserved to make many friends. From the range of contacts hinted at in Yerbury's diaries and papers this particular judgement doesn't ring entirely true and certainly, one can readily imagine the excitment the two must have felt on encountering *Hammerschmidtia* for the first time!

All the more so as the following entries for the subsequent days show:

> 28 June: "went to Spey Bridge to look for Hammerschmidtia."
> 29 June: "walked to Grantown to look for H. ferruginea, not much except Psairoptera."
> 1 July: "Lamb left by the 9.15 train from Broomhill - I went to Grantown to look for H. ferruginea."
> 5 July: "dull and cold took train to Grantown....saw H. ferruginea 3 times - twice on log 3rd time on vertical aspen - very shy."

After 1905 there was a six year gap before Yerbury visited Scotland again and when he did, what did he do but look for *H. ferruginea*:

> 31 July 1911: "took 9.39 train to Grantown and walked up stream from Speybridge found a beautiful fallen aspen, must have been a good hunting ground 6 weeks ago - 20 Psairoptera albitarsis but no Hammerschmidtia - X. tarda males in some numbers...."
> 8 August 1911: "went to Spey Bridge with King - bright fair day no flies - King got a female Psairoptera albitarsis at the aspen log."

Hammerschmidtia seems to have been important to Yerbury, more so apparently than the 7+ other species he discovered new to Britain. Perhaps here we see the enthusiasm and influence of his young, companion, the more extrovert Charles Lamb.

Insofar as identification goes, throughout Yerbury's papers, rather than the diaries, there are many points where he demonstrates a close reading of various continental systematic publications. Such publications probably supplied Yerbury with the means to

identify many of his specimens which were often passed on to Austen (at the British Museum), Verrall, Collin or Grimshaw for confirmation.

JW Yerbury's papers relating to his Scottish trips

1. 1900. Notes on certain Diptera observed in Scotland during the years 1898-99. *Entomologist's monthly Magazine* 11, 53-57, 84-87.
This was Yerbury's first paper dealing with Scottish Diptera. Perhaps Verrall urged him to write it after seeing specimens at autumn meetings of the Royal Entomological Society. It deals with 13 rare, large species such as *Laphria flava* and *Blera fallax*. For each species Yerbury gives an account of previous British records, adds his own and gives a discussion of habits and habitats. He gives a record of *B. fallax* noting that this is the second one for Britain following Verrall's 1873 record and discusses an association with wild raspberry flowers. He also records *Xylota confinis* (=*tarda*) in association with aspen. Perhaps most interesting is that he apparently recognises a problem with *Xylota florum* stating that English and Scottish forms exist, but refers to the English form as *abiens*. Thus he seems to have pre-dated Alan Stubbs who "re-discovered" and resolved the problem more than 80 years later when he introduced *coeruleiventris* to the British list (Stubbs, A.E. and Falk, S.J. 1983 *British Hoverflies*. BENHS).

2. 1900. Some notes on the British species of the genus *Norellia*. *Entomologist's monthly Magazine* 11, 199-202.
This is his most 'scientific' contribution discussing the possibility that some species described in this genus are no more than seasonal colour morphs. There is one delightful sentence that I cannot resist quoting. He writes,

"I think there can be but little doubt that Meigen made a mistake - when he united a British female with an Italian male - to form the species *N. striolata*"

3. 1904. *Laphria flava* in some numbers near Nairn. *Entomologist's monthly Magazine* 15, 211-212.
This short note was written while staying at Nethy Bridge Hotel. Most of his other papers were written from London.

4. 1905. [Exhibition Report]. *Transactions of the Royal Entomological Society* xlvi-vii.
This is where *Hammerschmidtia ferruginea* is reported as new to Britain. Other journals also carried reports of Royal Entomological Society indoor meetings and included this particular finding, thus spreading the news. Several other species new to Britain collected by Yerbury were also reported in 1905 by Verrall in Entomologist's monthly Magazine. Curiously however, *Psairoptera albitarsis* is not mentioned. It fell to Collin to introduce this species five years later in the 1910 volume of Entomologist's monthly Magazine. Yerbury and Lamb passed some of their specimens to Collin, as their presence in the Verrall-Collin collection at Oxford shows. Collin often "sat" on new findings while he accumulated data, and as his 1910 paper introduces several species new to Britain including *Psairoptera albitarsis*, this seems to be what he did in this case.

5&6. 1905. *Microdon latifrons* and other Diptera at Nethy Bridge. *Annals of Scottish Natural History* p 185-6 and, **1911. Northern records of Diptera. *Annals of Scottish Natural History* p 185.**
These are short notes giving details of his records.

7. 1912 & 1913. A list of the Diptera met with in Wester Ross, with notes on other species known to occur in the neighbouring areas. *The Scottish Naturalist* 1912 pp 226-232; 271-275; 1913 pp 13-17; 85-91; 109-114; 136-140; 173-177.
This was Yerbury's longest paper dealing with Scottish insects. It ran across several issues of Scottish Naturalist from 1912 to 1913. The paper is an annotated list of 608 species right across the Order Diptera. It includes numerous unpublished captures from Verrall as well as his own. He used an Ordance Survey map to help find his way about, during June and July 1911 when he carried out most of the fieldwork. Again there are a few statements worth quoting:

"*Syntormon zelleri*: not uncommon sitting on boulders...but almost impossible to catch either by striking or by sweeping...if an attempt be made to put a tube over the insect, I know of no other fly more alive to the psychological moment at which to move off; however the mickle made muckle and I gleaned about 14 specimens..."

"*Hydrotaea irritans*: one of the greatest pests of the district...8 males and 82 females were caught in two sweeps of the net round my head. In company with these flocks a considerable number of *Similium reptans* also fly and the two species appear to carry out a division of labour - *H. irritans* does the annoying, while *S. reptans* does the biting..."

8. 1913. Distribution of *Norellia spinigera* in the British Isles. *The Scottish Naturalist* p70.
Another short, one paragraph note.

9. 1913. Recent captures of *Callicera yerburyi*. *The Scottish Naturalist* p142.
It is perhaps fitting that Yerbury's sequence of papers on Scottish Diptera should close with this one dealing with a species named after him by Verrall following his first capture of it at Nethy Bridge in 1904.

Yerbury died in 1927 aged 79. There is a rather touching entry in his diary for 1926 in imperfect hand-writing, clearly he was having difficulty. He reminds himself that if his eyesight has not improved by October he will go for help. It is therefore particularly sad that he died as a result of being knocked over by a motor vehicle - perhaps he never saw it coming.

In Scotland, Yerbury will be remembered for three particular contributions. His discoveries as British, of two of the big-three, saproxylic, Scottish, RDB1 hoverflies, *H. ferruginea* and *C. yerburyi (=rufa)* (the third of course, being *B. fallax*). Neither of which, however, he introduced himself to the British list by formal publication. The third contribution he will be remembered for is Nethy Bridge. His record of work there, and in Strathspey generally, did a great deal to encourage other entomologists to visit the area and to make its significance better appreciated as one of Britain's premier wildlife sites, a process

which continues today.

Although little of Yerbury's correspondence apparently survives, it is perhaps fitting to end with Verrall's description of Yerbury's capture of *Callicera rufa* taken from his letter (1913. *Transactions of the Royal Entomological Society*):

"Four females specimens of this beautiful fly were taken by Col Yerbury near Nethy Bridge in Inverness, from August 8th to 21st 1904. Altogether he saw about ten specimens, but found them very difficult to follow with the eye when they were on the wing; he saw the first specimen on August 3rd, but only as a strange reddish insect paying fleeting visits to the pine stumps; this insect, however, attracted him so much that he made special search for it, and on August 8th after a long day's work he was returning home, and while hesitating about taking shelter from a shower under a big pine-tree he became aware that a *Eristalis*-like fly was flying up and down the trunk; after one abortive attempt at capturing it, the fly returned and was boxed while sitting on the trunk; on August 16th he missed two specimens which appeared to be yellower in colour and which might have been males, but he took another female. He mentions in a letter to me an interesting chain, "hunting for the headquarters of *Laphria flava* showed me where *Xylota florum* occurred in numbers, hunting for *X. florum* showed me where *Callicera* paid fleeting visits, hunting for *Callicera* showed me where *Palloptera usta* occurred in some numbers, while catching *P. usta* put me on the track of a *Drosophila* which sat on the stumps and flicked its wings about almost exactly like *Palloptera.*" [A chain of progress not unfamiliar to many field dipterists working today!]

Acknowledgements

This account was compiled following a visit to the University Museum, Oxford during the week 10-14 February 1997 where many Yerbury specimens and the diaries are maintained. I am very grateful to Dr George McGavin, Dr John Ismay and Stella Brecknell for access to the collections and archives and generally for their help during my visit.

Erratum

Conops vitellinus **(Diptera, Conopidae): a possible British species** - David Clements, *Dipterists Digest* 1997 **3,** 49-53.

Due to an unfortunate error, the column headings of Table 1 (p. 50) of the above paper were accidentally transposed. The left-hand column of this table in fact refers to *C. quadrifasciatus*, whilst the right-hand column refers to *C. vitellinus*. We apologise for any confusion this may have caused.

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