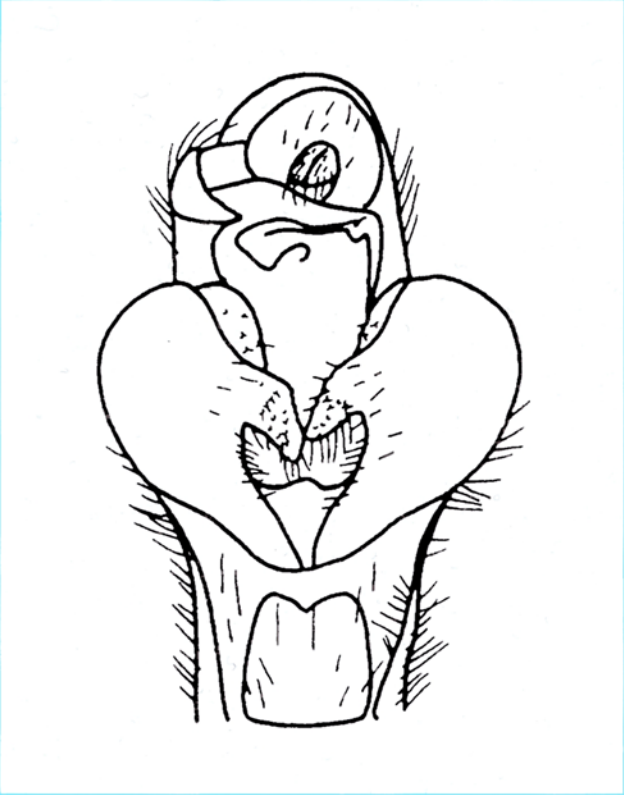
Dipterists Digest



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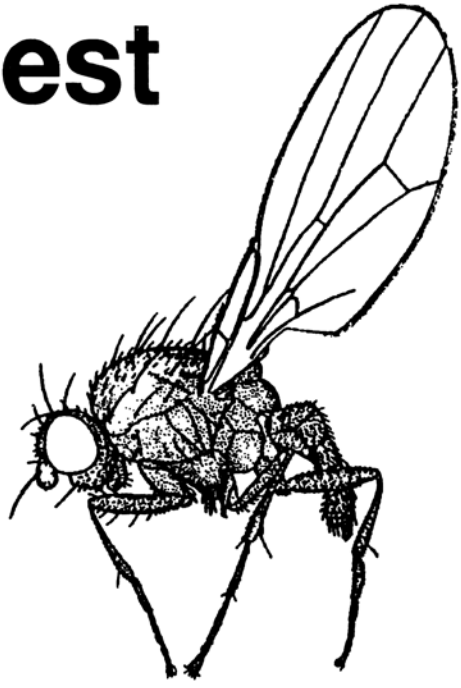

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Dipterists Digest is the journal of the **Dipterists Forum**. It is intended for amateur, semi-professional and professional field dipterists with interests in British and NW European flies. All notes and papers submitted to **Dipterists Digest** are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

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- descriptions of species new to science;
- notes on identification including deletions or amendments to standard key works and checklists.

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Style and format should follow articles published in the most recent issue. A short Summary (in the form of an Abstract) should be included at the beginning of each article and should be supplied with the article. References to journals should give the title of the journal in full. Scientific names should be underlined or, preferably, italicised. **If an article is to be supplied on disc, scientific names should always be italicised.** Authors of scientific names should be given in full (with parentheses if applicable) and nomenclature should follow the most recent check list, unless reflecting subsequent changes. Tables should be on separate sheets. Figures should be drawn in clear black ink, about 1.5 times their printed size and lettered clearly. Descriptions of new species should include a statement of the museum or institution in which type material is being deposited.

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Dipterists Digest 2003 **10**, 1-3

Some additions and corrections to "Hoverflies of Surrey" (Diptera, Syrphidae)

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Summary
Re-examination of voucher material has revealed a number of species of Syrphidae new to Surrey. In addition, new records of flower visits are listed.

As part of the process of checking the keys for the revised edition of Stubbs and Falk (2002) I examined voucher material in my collection that supports the data presented in *Hoverflies of Surrey* (Morris 1998). This revealed a number of new species added as a result of recent splits, but also a number of mis-identifications reported in the 1998 work. The following notes are therefore offered to bring our knowledge of the Surrey fauna up to date and to correct those aspects of the original text that arise as a result. Collins (2001) also provided further notes on recent additions and new records. With these amendments, the fauna now comprises 201 species recorded between 1980 and 1998.

BACCHINI

There are two recent segregates from *Platycheirus scutatus* (Meigen, 1822), both of which have been recorded in Surrey. A total of 36 male specimens formerly under *P. scutatus* revealed:

Platycheirus aurolateralis Stubbs, 2002.
Broadstreet Common (SU970512, 10.v.1987); Chaldon (TQ306555, 30.v.1987); Dormansland Golf Course (TQ391419, 20.viii.1994). With so few specimens it is not possible at this stage to detect any clear pattern to its distribution.

Platycheirus splendidus Rotheray, 1998.
Farnham Park (SU8348, 30.v.1994); Oaks Park (TQ273622, 12.v.1996); Battersea Park (TQ2777, 30.iv.1989); Mitcham Common (TQ2867, 11.v.1989); Chaldon (TQ306555, 30.v.1987). Again, there are few specimens and little can be discerned from their distribution. It is interesting to note, however, that many sites are parklands.

SYRPHINI

Epistrophe melanostoma (Zetterstedt, 1843)
This species was first recognised as British from material taken in Surrey, where it has since proved to occur widely. The earliest record was in 1986, some three years before *E. melanostoma* was first recognised (Beuk 1990). Re-examination of material under *E. nitidicollis* has now revealed a further pre-1989 specimen from Upper Gatton (TQ2652, 15.v.1988). This specimen was one that had just a couple of black hairs on the scutellum and as a consequence was mistakenly placed under *E. nitidicollis*. Differences in the yellow coloration, dusting and black markings on the frons confirm this separation and emphasises the need to use both the scutellar character (yellow hairs as opposed to black in *nitidicollis*) and the shape of dusting on the frons.

Eupeodes nitens (Zetterstedt, 1843)
Re-examination of specimens under *Eupeodes latilunulatus* (Collin, 1931) revealed an additional female specimen of *E. nitens* from Tilford Reeds (SU8643, 28.vi.1987) correcting a reported record of *E. latilunulatus* in Morris (1998 [page 84]).

Eupeodes nielseni Dušek & Laská, 1976
A specimen of *Eupeodes nielseni* was detected amongst the series of *E. luniger* and is an additional species to the Surrey list. The single female was recorded from Tilford Reeds (SU8643, 28.vi.1987), a conifer plantation on former heathland. This species may have been overlooked in other conifer plantations as, at first glance, it bears some resemblance to *Dasysyrphus pinastri*.

PIPIZINI
Triglyphus primus Loew, 1840
A male from Cartbridge (TQ0256, 22.vii.1989) was discovered amongst a series of *Heringia heringi* (Zetterstedt). This embarrassing mistake usefully illustrates the dangers of becoming over-familiar with one species and not bearing in mind rarer species!

XYLOTINI
Chalcosyrphus nemorum (Fabricius, 1805)
A number of individuals were noted in association with rotting black poplar *Populus nigra* timber lying in the open near Seven Islands Pond, Mitcham Common TQ2868 (10.viii.2002, RKAM). Each individual was noted where the trunk or branch had not only lost its bark, but had also rotted sufficiently to leave a pulp of decaying timber so typical of poplars. Although oviposition was not noted, there can be little doubt that this was a breeding site.

APPENDIX 2 - Flowers visited by hoverflies
At some stage it may be possible to combine the records of this scheme and others to provide a compendium of flower visits by British hoverflies. In the meantime, the following additions to the records for Surrey are reported.

***Cardaria draba*, hoary pepperwort**: *Chrysotoxum cautum, Epistrophe eligans, Epistrophe nitidicollis, Episyrphus balteatus, Eupeodes luniger, Sphaerophoria scripta, Syrphus ribesii, Eristalis tenax, Eristalis sepulchralis, Helophilus hybridus, Helophilus pendulus, Helophilus trivittatus, Myathropa florea, Syritta pipiens.*

***Descuriania sophia*, flixweed:** *Meliscaeva auricollis*

***Rumex acetosella*, sheep's sorrel:** *Meliscaeva auricollis*

***Geranium pyrenaicum* mountain cranesbill:** *Chrysotoxum cautum*

***Geum urbanum* wood avens:** *Platycheirus albimanus*

***Acer platanoides* Norway maple:** *Meliscaeva auricollis*

***Cornus sanguinea* dogwood:** *Volucella pellucens*. (n.b. I have found dogwood to be very attractive to hoverflies at Old Sulehay Forest in Northamptonshire).

Other corrections

There are two references quoted in the text of *Hoverflies of Surrey* that for some reason failed to appear in the reference list. These are Laurence (1948) and Parmenter (1948), which are listed below.

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Beuk, P.L.Th. 1990. A hoverfly of the genus *Epistrophe* (Dipt., Syrphidae) new to Britain. *Entomologist's monthly Magazine* **126,** 167-170

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Dolichopeza albipes Stroem (Diptera, Tipulidae) on Fair Isle, Shetland

- On 21st May 2002 PF and SP handed NR a distinctive tipulid which they had found inside the Fair Isle Bird Observatory minibus, parked in front of the observatory garage at North Haven, Fair Isle (HZ223724). The specimen was sent to BL who identified it from its white tarsi, tridentate genital tergite and other details as a male of *Dolichopeza albipes* Stroem. This species is new to the Northern Isles and, needless to say, the northernmost British record. The species is known to frequent "stream margins in woodland, also on open moorland, in dark overhangs along tiny streams" (Stubbs, A.E. 1992. *Provisional atlas of the long-palped craneflies (Diptera: Tipulinae) of Britain and Ireland*. NERC Institute of Terrestrial Ecology, Huntingdon). The only habitat meeting any of these criteria on Fair Isle is the last: the observatory minibus spends much of its parked time alongside extensive moorland, which is dissected by small streams and ditches with shady vertical banks and overhangs. The tipulid was alive and lively when found and may have recently sought the "shady overhang" qualities of the back of the minibus (which has no side windows). The minibus had been to Shetland mainland for a service and arrived back on the isle that same day. If the tipulid had entered the minibus in Shetland it would have originated even farther north, of course; and would have survived a voyage of nearly three hours through some of Britain's roughest waters. However, DS observed another individual showing the same characteristics (notably the white tarsi) a week later in Wirvie Burn (HZ218738), a shady ditch in the north of Fair Isle, suggesting that the species is resident on the isle. The specimen has been lodged at the National

Museums of Scotland in Edinburgh - **NICK RIDDIFORD,** Schoolton, Fair Isle, Shetland ZE2 9JU, **BRIAN LAURENCE,** 32 Low Greens, Berwick-upon-Tweed TD15 1LZ, **DERYK SHAW, SIMON PINDER** and **PAUL FRENCH,** Bird Observatory, Fair Isle, Shetland ZE2 9JU

Further recent observations of *Ctenophora flaveolata* (Fabricius) (Diptera, Tipulidae) - Several records of this uncommon cranefly from Epping Forest, Essex, in 1999 were reported by Dagley and Ismay (2000. *Dipterists Digest* (*Second Series*) **7,** 26.). I have found this species at two places in the last decade, as follows.

On the afternoon of 4 May 1996, a cool day with intermittent sun, two female *C. flaveolata* were found low on the sunny side of trunks of two ancient beech trees on Stinchcombe Hill, V.C. 34, ST745991. This steep north-facing wood on limestone contains several ancient coppice stools and less elderly standards of beech, and possibly some pollards. One *Ctenophora* was collected alive and when shown to Alan Stubbs four days later he commented it must have recently emerged as the wings were not quite fully expanded. On 31 May 1996 a male was seen flying low along a track through the same wood (ST743992).

I returned on the afternoon of 2 May 1997, a dry sunny day. After two hours a female *C. flaveolata* flew across the open woodland floor and investigated a broken beech branch about 10cm diameter and 4m above the ground. The branch was mostly alive but the last several centimetres were rotten and contained a hole. The *Ctenophora* entered the hole briefly three times but did not appear to be egg-laying. I kept watch for a further half hour but it did not return. At this point, about 4p.m., I saw a female *C. flaveolata* 20m away quartering the open woodland floor like a large wasp. It came to a fallen branch at the foot of a beech, flitted along the branch and back, then settled on a stump at the foot of the tree (tree 218 according to red paint on the trunk). The stump was about 15cm high and half as wide, with a cup-sized hollow in its top. Inside the hollow were firm dead heartwood and an accumulation of humus, probably mostly woodlouse and slug droppings. The *Ctenophora* probed the humus and the edge of the hollow with its ovipositor for about five minutes. Afterwards I could see no eggs in the hollow or in a sample of the humus. Dagley and Ismay (2000) also reported this probing behaviour.

There is an isolated North Wales record by Paul Whalley of a female *C. flaveolata* on 22 May 1950 from near an old lead mine close to Betws-y-Coed, V.C. 49, SH7758. As Coed Dolgarrog NNR, about 7 km away, contains old beech pollards, I decided it would be worth investigating. On 16 May 2002, a hot sunny day, I searched the trunks of about 20 beeches on the steep east-facing slope around SH772661, without success. I then sat down to keep watch upslope of a large beech pollard which, curiously, had a large dead barkless oak trunk intertwined with it. Within a few minutes, about 1p.m., a female *C. flaveolata* flew to a small scar or rot-hole on the top side of a branch of the beech, about 7m above the ground. Here it probed with its ovipositor for about a minute then flew away.

These observations reinforce the view that *C. flaveolata* is a saproxylic species associated with beech, and suggest rot-holes at various heights above the ground are potential egg-laying sites.

I thank the Countryside Council for Wales' warden of Coed Dolgarrog NNR, Duncan Brown, for showing me around the site and taking me to and from it. I also thank Dr Paul Whalley for additional details of his record - **JOHN H. BRATTON,** 18 New Street, Menai Bridge, Anglesey, LL59 5HN

Dipterists Digest 2003 **10**, 5-6

Thereva plebeja (Linnaeus) (Diptera, Therevidae), the commonest therevid at Dungeness, Kent

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Summary

The occurrence of four species of therevid at Dungeness and Rye Harbour is discussed. One, *Thereva plebeja* (Linnaeus) was found to be abundant and appears to be the typical species of vegetated shingle within the Dungeness to Rye Harbour shingle system.

In 1988 and 1989, the Nature Conservancy Council undertook surveys of the shingle structures at Dungeness, Rye Harbour and Orfordness. These surveys described in Morris and Parsons (1991), comprised quantitative sampling using runs of two water traps and five pitfall traps. A total of sixty-one trapping sites were investigated at Dungeness: twenty in 1988 and forty-one in 1989. Ten sites were also investigated at Rye Harbour and five sites at Orfordness in 1989 (where no therevids were recorded). Three therevid species were recorded in traps, but only one, *Thereva plebeja* (Linnaeus), proved to be widespread. This species and *T. bipunctata* Meigen were also taken by hand netting.

At Dungeness, the vegetation undergoes a succession of seral stages following the build-up of humus. The influence of broom *Sarothamnus scoparius*, and perhaps wood sage *Teucrium scorodonia* is crucial for humus build-up that leads to the development of a fragile, dry peaty acid soil in the shingle ridge-tops. These peaty soils are clearly the principal habitat of *T. plebeja*. Out of the thirty trapping locations from which *T. plebeja* was recorded over the summers of 1988 and 1989, just six (20%), yielding fourteen specimens (19%), did not conform to this soil type and hydrology. These six sites were either on alluvial bars or on the edges of small wetlands resulting from the accumulation of vegetation in small pools created by variations as the shingle ridges were created, adjacent to mature ridges with high humic levels. Unlike Dungeness, the shingle ridge structure at Rye Harbour is substantially destroyed by shingle winning and, because of differing morphological evolution the oldest ridges do not exhibit the same characteristics as those at Dungeness. At Rye Harbour *T. plebeja* was found on the oldest ridges adjacent to Camber Castle, which comprise largely sand with a much lower content of pebbles and support dry grassland that is more consistent with grey dunes and dune heath.

Out of a total of eighty-eight individuals of *T. plebeja* recorded by quantitative sampling at Dungeness and Rye Harbour in 1989, the proportions in water traps compared to pitfall traps were similar at both sites and no statistical differences are apparent between the two ($X^2 = 0.3$). At Dungeness thirty-four (57%) were taken in pitfall traps, against twenty-six (43%) in the water traps, whilst at Rye Harbour fifteen (54%) were in pitfall traps and thirteen (46%) were in water traps. These data are consistent with a species that spends much of its time on or close to the ground; hence the relatively high proportion taken in pitfall traps rather than water traps.

Therevid larvae are active soil-dwelling predators that occur in light soils especially sandy substrates such as sand dunes and heathlands and riverine shingle. At Dungeness and Rye Harbour, *T. plebeja* fits this picture, inhabiting the almost desert conditions of extreme temperature

fluctuation and low humidity in loose peaty soils. The single example of *Thereva nobilitata* (Fabricius) recorded during the trapping programme in 1989 was from one of the wetland sites at Dungeness (the Open Pits). This one record is insufficient to provide any clear separation between the requirements of this species and *T. plebeja*. However, *T. nobilitata* is nationally a considerably more widespread species that occurs in much lusher vegetation and might be expected to occur in the wetter parts of vegetated shingle systems such as at Dungeness. The other therevid recorded in traps during the survey was *Dialineura anilis* (Linnaeus), which was found only on the sandy parts of the ARC Pit (Dungeness) where shingle washing fines were deposited and created open sandy habitats typical of humus-poor unstable yellow dunes where this species more usually occurs. This open sandy area also yielded *Thereva bipunctata* (taken by hand netting on 28.vi.1989), which appears to be largely associated with sandy heathland and is not a wholly unsurprising record.

This survey strongly implies clear separations between these four therevids, relating to soil type, humus levels and hydrology. Observations from other vegetated shingle systems may throw more light on the therevid fauna of vegetated shingle, but *T. plebeja* is clearly the typical therevid of the bigger permanent shingle structures in Kent and East Sussex. Is this the case elsewhere?

Acknowledgements

When I first ran specimens through to *Thereva plebeja* it was unexpected. Alan Stubbs kindly checked some material and determined additional material during the course of this survey.

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Agathomyia elegantula (Fallén, 1815) (Diptera, Platypezidae), new to Norway

The platypezid fly *Agathomyia elegantula* (Fallén) is here recorded as new to Norway. One female was collected in a Malaise trap at Storeteigen, Venadokki in Ål community, Buskerud province (EIS 43) between 18 August and 18 September 2000 by John Skartveit, Mona Fremmersvik and Roger Ellingsen. Ål is situated in the central part of southern Norway at approximately 60 °37′N and 8° 37′E and the locality is about 500m above sea level. The Malaise trap was situated near forest surrounding a meadow. The material was determined by PC.

A. elegantula has twice been recorded from Denmark and there are scattered records from large areas in both Finland and Sweden, but it has not hitherto been recorded from Norway (Chandler, P. J. 2001. The Flat-footed Flies (Diptera: Opetiidae and Platypezidae) of Europe. *Fauna Entomologica Scandinavica* **36,** 1-276.). We would like to thank Dr John Skartveit (Ayr, Scotland), cand. scient. Mona Fremmersvik (Bergen) and cand. mag. Roger Ellingsen (Bergen) who collected the material and put it to our disposal - **LITA GREVE,** University of Bergen, Zoological Museum, P.O. 7800, N-5020 Bergen, Norway and **PETER CHANDLER,** 606B Berryfield Lane, Melksham, Wilts SN12 6EL

Dipterists Digest 2003 **10**, 7-12

The stem-living larva of *Platyparea discoidea* (Fabricius) (Diptera, Tephritidae)

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Summary
A male of the tephritid, *Platyparea discoidea* (Fabricius) was reared from a larva found low down in the stem of the giant bellflower *Campanula latifolia* Linnaeus (Campanulaceae) in Scotland. The early stages are described from a larva and a puparium.

Introduction

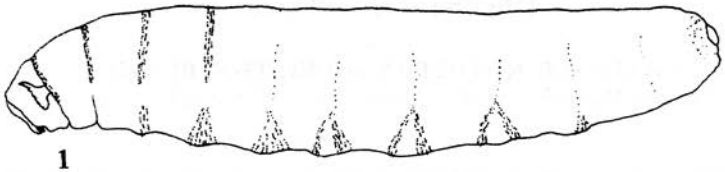
As is well known, almost all larvae of Tephritidae are primary invaders of plant tissues. Most species attack fruits and flowers with lesser numbers associated with other parts of plants such as stems and roots (Ferrar 1987, White and Elson-Harris 1992). *Platyparea* is a genus of three species of which only one, *discoidea* (Fabricius, 1787), occurs in Britain. Of the other species, *dorsata* (Zia, 1938) is known from China (Foote 1984) and *carpathica* Klasa, 2001 is known from Poland (Klasa 2001). A fourth species, *poeciloptera* (Schrank, 1776), was included in *Platyparea* by Foote (1984) but Korneyev (1987) moved this species to a new genus, *Plioreocepta* Korneyev, 1987.

Platyparea discoidea is a large, attractive, rare species known from northern and central Europe including Russia (Foote 1984). In the British Isles, it was given RDB2 "vulnerable" status by Falk (1991). According to White (1988) it is only known from Yorkshire in the British Isles but it was captured probably for the first time in Britain, in 1842 by Rev. W. Little at Raehills, Dumfriesshire, Scotland (Dale 1904). This captured specimen still exists and is in the C.W. Dale collection at the Hope Entomological Collection, Oxford University. However the species is more widespread than just Yorkshire and Scotland with records from Derbyshire, Nottinghamshire and Staffordshire (L. Clemons *pers. comm.*). In addition, in 1991 we recorded *P. discoidea* even further north, in Midlothian (Bland and Rotheray 1994). White (1988) noted that the foodplant is believed to be the giant bellflower, *Campanula latifolia* (Campanulaceae). Cheetham (1930) apparently observed oviposition in the stems of *C. latifolia* on 26.v.1930 at Austwick, Yorkshire and in the following October found larvae towards the base of stems. But it seems he did not rear these larvae to confirm their identity. We were able to confirm these observations by rearing a male *P. discoidea* from a larva found low down in the stem of this plant at Newbattle Abbey, Midlothian (Bland and Rotheray 1994) and by the discovery of a second larva in a stem of *C. latifolia* at another site nearby. In this paper we describe the larva and puparium of *P. discoidea*.

Description of the early stages of *Platyparea discoidea*

Overall appearance of final stage larva (Fig. 1)

An elongate (5x as long as wide) white to pale brown larva with spicules on the dorsal and lateral margins of the mesothorax, metathorax and first two abdominal segments. Locomotory organs on abdominal segments 3-5 with medial area lacking spicules. Anterior spiracles fan-like with 20+ apical spiracular openings. Posterior spiracles with oval-shaped margins and three pairs of almost parallel spiracular openings. Anus parallel to longitudinal axis of body.



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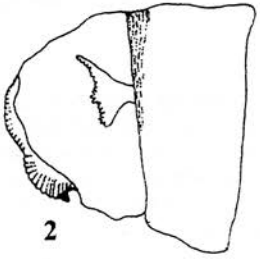

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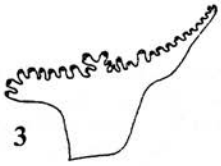

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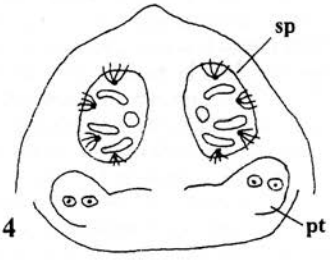

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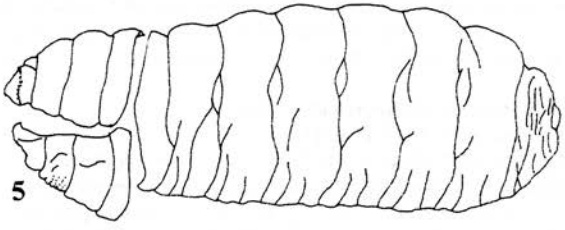

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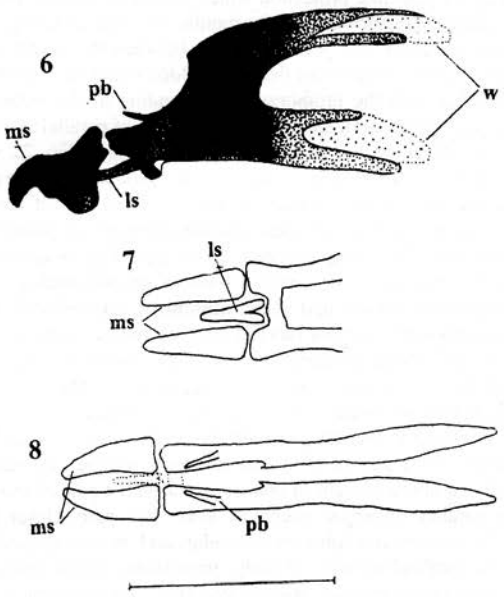
Diagnosis

Shape and dimensions: length 11mm and 2mm wide; subcyclindrical in cross-section, truncate anteriorly and posteriorly; **head:** antennae and maxillary organs at apex of fleshy lobe which partially overlies the mouth, a pair of black hooks on either side of the mouth; between the hooks is a fleshy, ventral lip forming a finger-like projection which covers the mouth; integumental features of the facial mask i.e. the integument surrounding the mouth, not clear under light microscopy but a pair of sensory pits appear to lie either side of the dorsal lip between the mouth and the lobe bearing the antennae and maxillary organs; integument deeply infolded either side of this fleshy lobe and this infolded region connecting with the prothorax and extending to the antero-dorsal margin of prothorax, so that the front end of the larva appears to have a pair of parallel infolded lines from top to bottom between which the integument is coated in transverse ridges (Fig. 2); ventrally the infold continues more deeply and forms the ventral margin of the prothorax; **thorax:** postero-ventral margins of the prothorax and mesothorax infolded so that the front part of the thorax is inclined downwards; prothorax coriaceous lacking spicules; anterior spiracles on postero-lateral margin of prothorax large and fan-like with 20+ spiracular openings at apex (Fig. 3); antero-dorsal and lateral margins of mesothorax and metathorax with a narrow band of spicules ending on the lower lateral margins, otherwise the integument smooth and shiny; **abdomen:** antero-dorsal and lateral margins of first two abdominal segments with a narrow band of spicules ending on the lower lateral margins; spicules absent on dorsal and lateral margins of remaining abdominal segments; oval-shaped locomotory organs slightly protruding and lying across segment boundaries of segments 1-6 and coated with numerous short bars of orange-brown spicules; locomotory organs on segments 3-5 differ in that spicules are confined to the margins with the medial area clear, lacking spicules (Fig. 1); anal segment coriaceous with a pair of protuberances each bearing two sensilla on the lower apical margin (Fig. 4); inclined apical margin of anal segment with a pair of oval-shaped spiracular plates each bearing three parallel spiracular openings, lower two pairs closer to each other than dorsal pair; four groups of setae between spiracular openings and an oval-shaped ecdysial scar (Fig. 4); anal opening parallel to longitudinal axis of body; **puparium:** length 6mm, width 3mm; pale yellow-brown; segmental boundaries distinct; anterior end split to permit emergence of adult down middle of first abdominal segment and along the lower lateral margins of the thorax below the anterior spiracles (Fig. 5); **head skeleton:** length 0.8mm; heavily sclerotised; intermediate sclerite apparently fused to pharyngeal sclerite; a pair of short parastomal bars present (Fig. 6); dorsal and ventral cornea of pharyngeal sclerite about equal in length and width with open windows (Fig. 6); dorsal bridge and ventral pharyngeal ridges apparently absent; ligulate/subhypostomal sclerites greatly produced and in lateral view (Fig. 6), extending in a curve outside the intermediate sclerite and articulating with, but not fused with, the posterior margin of the mandibular sclerite; ligulate/subhypostomal sclerites arrow-shaped in ventral view (Fig. 7); intermediate sclerite truncate anteriorly in lateral view (Fig. 6), broad in dorsal and ventral views (Figs. 7 and 8); mandibular sclerite with a single apical hook (Fig. 6), lacking accessory and dental hooks and separate, not fused (Figs. 7 and 8).

Figs 1-5. Larva and puparium of *Platyparea discoidea* (Fabricius). 1, whole larva, lateral view, head to the left, length 11mm; 2, head, prothorax and mesothorax, lateral view, length 1.8mm; 3, anterior spiracle, length across spiracular openings at apex 0.5mm; 4, apex of anal segment, drawn from puparium, height 1.5mm; sp = spiracular plate; pt = protuberance bearing sensilla; 5, whole puparium, lateral view, head to the left, length 6mm.



Figs 6-8. Head skeleton of *Platyparea discoidea* (Fabricius), extracted from puparium, scale bar 0.05mm; ls = ligulate/subhypostomal sclerite, ms = mandibular sclerite, pb = parastomal bar, w = open windows; 6, whole head skeleton, lateral view, 7, ligulate/subhypostomal sclerite, ventral view; 8, whole head skeleton, dorsal view.

Material examined

One puparium. SCOTLAND. Midlothian. Newbattle Abbey (NT3365), larva collected 22.viii.1991 in base of stem of *Campanula latifolia*, pupated 4.ix.1991, male emerged 13.vi.1992; one larva. SCOTLAND. Midlothian. Vogrie Country Park (NT3863), collected 15.ix.2002 in stem of *Campanula latifolia*.

Discussion

Tephritid larvae are variable in size, shape and detailed morphology but many are poorly or not described (Ferrar 1987; Smith 1989). Under these circumstances it is difficult to find a group of shared characters suitable for diagnosis. In the absence of a family level diagnosis of tephritid larvae against which to compare *P. discoidea*, it is not possible to determine how derived or unusual it is. However, using the information in Ferrar (1987) and Smith (1989) it is possible to compare

the larva of *P. discoidea* with a range of other tephritid larvae. Body shape apparently varies according to feeding habit with gall-inducing species being at one extreme with squat and barrel-shaped larvae compared with larvae that live in fruits which are elongate and cylindrical (Ferrar 1987). The larva of *P. discoidea* appears to represent another body shape in that it is long and narrow, more than 5x as long as wide, in which shape it is suited to living in narrow spaces like the stem of its foodplant. The stem of *C. latifolia* is not solid throughout its length. Mature stems have hollow regions and numerous lacunae so the extent to which the larva of *P. discoidea* creates its own tunnel or simply grazes the sides of existing hollow spaces is unclear.

The narrow, furrowed apex of the prothorax and its lack of spicules and inclined, downwardly directed orientation appear to be adaptations facilitating feeding in confined spaces. Such modifications probably enhance the manoeuvrability of the head and mouth hooks. The pattern of spicules on the mesothorax and metathorax and anterior part of the abdomen is probably an additional feature facilitating feeding, in anchoring the larva in position and preventing it from slipping. An ability to grip the sides of the stem during feeding is further enhanced by the pattern of spicules on the locomotory organs. The unusual feature of a medial area lacking spicules in the locomotory organs of abdominal segments 3-5 may represent a particular adaptation preventing slippage if they act like suckers. When the muscles at the centre of the locomotory organ on these segments are retracted, the marginal spicules would be forced into the substrate. Observation of actively feeding larvae would test these interpretations.

The morphology of the head skeleton in being heavily sclerotised with a single pair of large mouth hooks suggests that the larva of *P. discoidea* has the ability to feed on relatively firm plant tissues. Such an interpretation is supported by additional features of the head skeleton, such as the fusion of the intermediate with the pharyngeal sclerite and a well-developed ligulate/subhypostomal sclerite, both providing extra support to the mandibular sclerite.

The larvae of *P. carpathica* and *P. dorsata*, the congeneric species of *P. discoidea*, are unknown. However the larva of *Plioreocepta poeciloptera* which at one time was congeneric (Foote 1984), is described. This larva is sometimes an economic pest tunnelling the stems of asparagus (Smith 1989). Although the stem-living life style of *P. poeciloptera* and *P. discoidea* are similar, differences exist in the morphology of the larvae. In the head skeleton, the intermediate sclerite of *P. poeciloptera* is not fused to the pharyngeal sclerite and the anal segment of *P. poeciloptera* bears a hook-like projection, according to the figures in Smith (1989). These differences in larvae provide support to Korneyev (1987) who moved *P. poeciloptera* to another genus on the basis of adult characters alone.

By comparison with the figures in Ferrar (1987), a number of tephritid larvae apparently share the features of fused intermediate and pharyngeal sclerites and a well-developed ligulate/subhypostomal sclerite, as recorded here for the larva of *P. discoidea*. Of those illustrated, the larva of *Urophora stylata* (Fabricius) is perhaps the most similar in structure of the head skeleton. It also shares with the head skeleton of *P. discoidea* open windows in the pharyngeal sclerite (Ferrar 1987). The larva of *U. stylata* however, is a gall-inducer in flowerheads of *Cirsium* thistles (White 1988). Until more data are available on tephritid larvae it is impossible to assess the significance of such similarities.

Although questions remain about the detailed feeding habits of the larva of *P. discoidea*, such as the extent to which it actively tunnels through solid tissue and the role of the unusual locomotory organs on abdominal segments 3-5, the confirmation of the larval food plant and a stem-living way of life provide key pieces of data required to aid recovery of this vulnerable species should conservation ever be considered. The other key data required to build a recovery

programme concern distribution. *Platyparea discoidea* apparently has a very patchy distribution in the British Isles but knowledge of the larval foodplant should enable an investigation of status to be more targeted. Nonetheless, a further question remains to be answered and that is whether it overwinters inside the stems of the foodplant or in the surrounding soil. Cheetham (1930) found larvae towards the base of stems in October and suggested that this is due to the upper parts of stems being withered by October. Consterdine (1997. unpublished MSc thesis), who studied the location of larvae relative to larva size and stem width at two Yorkshire sites in July 1997, found small larvae throughout stems but large larvae mainly at the base. We consider a more likely alternative to Cheetham's explanation is that larvae move to the base in preparation to quit stems for overwintering in the soil. In autumnal surveys for this species at Newbattle, Raehills and Vogrie, we were unsuccessful in finding it in the numerous stems examined, indicating either that the larva moves out of the foodplant or that it exists at these sites in very low numbers.

Acknowledgements

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Phenology of Empididae and Hybotidae (Diptera) in Great Britain

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Summary
Individual adult phenologies of 192 species of Empididae and 157 species of Hybotidae are summarised from 28,294 records for the years 1900-2002 in Great Britain. Species diversity was greatest in early June when 157 species of Empididae and 131 species of Hybotidae were active. Geographical variations in peak emergence spanned 3.5 weeks overall and were mapped to illustrate regional variations in seasonality. Most species demonstrated a positively skewed emergence asymmetry that was greatest in autumnal species but was independent of geographically related variations in the timing of emergence. The timing of first adult emergence has advanced by 0.69 days / year between 1980 and 2002 and is interpreted as a response to climatic changes.

Introduction

Study of the phenology of Empididae and Hybotidae is important in developing our knowledge of their distribution and ecology and facilitates understanding of their diversity and adaptations to environmental challenges such as global climatic warming, which is having profound effects on many biological processes, including phenology (Kappelle *et al.* 1999, Walther *et al.* 2002). Although much useful phenological information is available, for example from regional (Chvála 1994) and local (Fischer *et al.* 1995, Meyer and Filipinski 1998) studies, a more detailed systematic survey of a national fauna is lacking. This paper collates a large body of data on the emergence of adult Empididae and Hybotidae to enable a better understanding of their flight times and emergence profiles as well as quantifying geographical variations within the British fauna and changes in the timing of phenological events which may be linked to climatic change.

Materials and Methods

Details of Empididae and Hybotidae collected in Britain between January 1900 and August 2002 obtained from literature reports, the field notes of AP and records submitted by members of the Dipterists Forum were collated and analysed using a commercial computer software package (Mapmate). Out of 34,801 records from 5257 localities, 6,507 records were excluded from the analysis as information relating to the date of capture was not exactly specified (e.g. Malaise trap or pan trap data for which only a date range was given). The residue of 28,294 records comprising 18,117 Empididae and 10,177 Hybotidae was used to investigate the timing and form of adult emergence in Britain. Statistical parameters and simple significance tests were performed with established methodology (Bailey 1981), using inbuilt functions of proprietary computer software (Microsoft Excel).

Results and Discussion

1. Geographical and temporal biases of the data

The geographical distribution of data was not uniform throughout the whole of Britain. The proportions of data for Scotland, Wales, East Anglia, northern, central, south-eastern and south-western England were approximately10.3%, 21.3%, 6.8%, 18.3%, 6.1%, 20.4% and 16.6% respectively. It is possible therefore that some of the parameters calculated for the 'national' data set could contain biases towards the well-recorded regions.

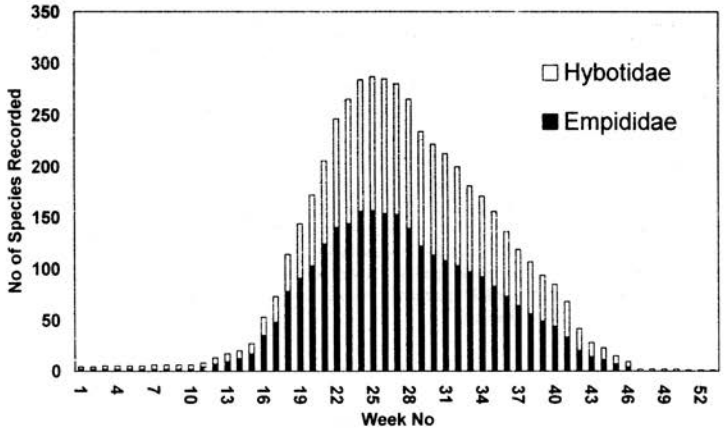


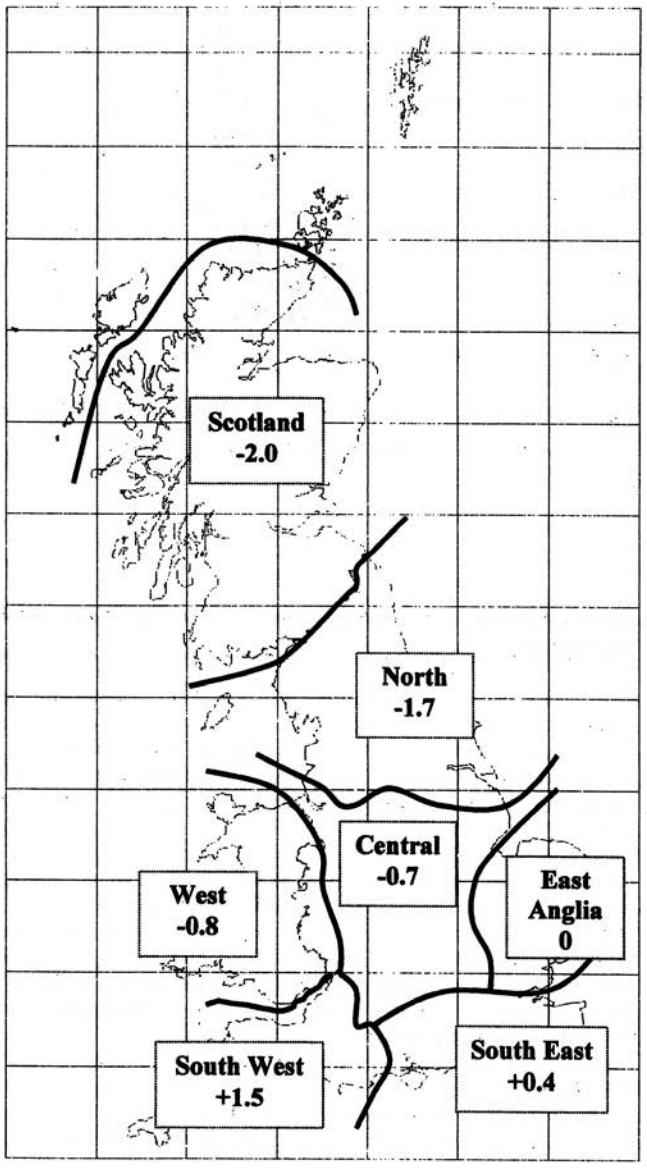
Fig. 1. Gross phenology of Empididae and Hybotidae in Britain. The number of species recorded (combined total of the two families) in each week of the year is shown.

All data between 1900 and 2002 were included in the analyses of emergence timing and profile unless stated otherwise, despite the demonstration of an underlying trend towards earlier emergence in recent years (Section 5), which could introduce errors in the analyses. However, since 94% of all the data related to the most recent 25 years, it was considered legitimate to ignore any long-term changes in phenology that might underlie the analyses as they would be 'swamped' by the preponderance of contemporary data relating to a relatively short time-span during which changes would have been small.

2. Gross Phenology of the British population

Changes in the number of species active at different times of year are reported in Fig. 1. Although some species could be found throughout the year, maximum species diversity occurred in early summer and tailed through the summer and autumn. Species diversity was greatest in early June when 157 species of Empididae and 131 species of Hybotidae were recorded. The individual adult phenologies of 192 species of Empididae and 157 species of Hybotidae are reported in Table 1. It is evident that the large genera *Empis* sensu lato, *Rhamphomyia* sensu lato, *Hilara* and *Platypalpus* all contribute significantly to the spring peak of species diversity.

Fig. 2. Geographical variations in the timing of emergence peaks of 20 species of Empididae and Hybotidae. See Section 3 for explanation.


Scotland
-2.0
North
-1.7
Central
-0.7
West
-0.8
East
Anglia
0
South West
+1.5
South East
+0.4

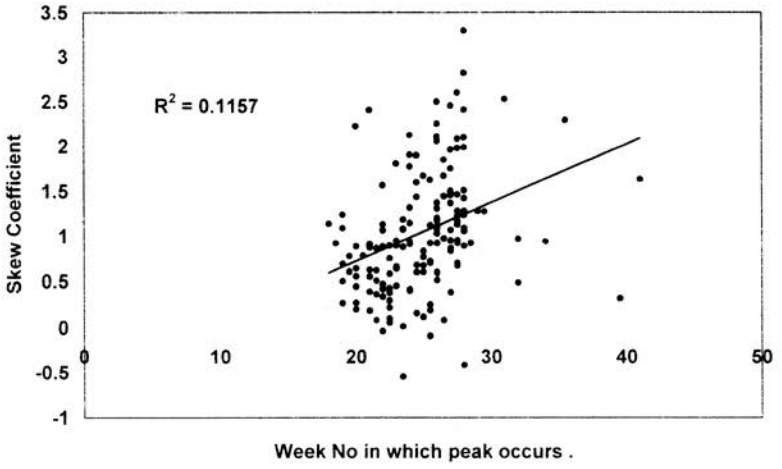


Fig. 3. Seasonal variations in emergence asymmetry for Empididae and Hybotidae. See Section 4 for explanation.

The mean emergence span (the duration between first and last recorded dates for a species) was similar for the two families: 14.0 weeks (s = 8.4, range = 1 – 43, n = 192) for Empididae and 14.3 weeks (s =9.5, range = 1-53, n = 157) for Hybotidae, but within both families, some taxonomic /ecological groups deviated considerably from the mean. The emergence span of Clinocerinae was significantly longer than that of Empididae as a whole when compared with simple t-tests (mean = 21.9 weeks; range = 1 – 43, t = 3.11, n = 192, 15; P<0.01). The aquatic habit of larval Clinocerinae (Smith 1989) provides a relatively stable environment, buffered substantially from short-term temperature fluctuations for a greater proportion of the year than are the terrestrial environments adopted, for example, by many Empidinae. A stable and more thermally uniform environment probably allows Clinocerinae to develop over a longer period and long emergence spans are possible. Interestingly, although many Hemerodromiinae also develop in aquatic environments, their emergence span was not significantly different from the rest of the Empididae although the comparative rarity of some British species, for which there is little data, may have resulted in underestimation of their emergence spans.

The Drapetini had significantly longer emergence periods than the rest of the Hybotidae (mean = 21.3 weeks; range = 1 – 53, t = 13.38, n = 157, 22; P<0.001). *Crossopalpus* species and *Stilpon* species had particularly long emergence spans that may be due to the adoption by many species of thermally buffered habitats such as dense grass tussocks or animal dung.

The climate of the coastal zone of Britain is ameliorated by the marine influence and one might expect that Diptera inhabiting this zone would have extended emergence spans. However, the emergence spans of littoral *Chersodromia* species, salt marsh inhabiting *Hilara lundbecki* Frey, and *Rhamphomyia simplex* Zetterstedt, and of coastally associated species such as *Rhamphomyia maculipennis* Zetterstedt, were apparently not extended.

3. Geographical variations in adult phenology

Variations in the timing of peak adult numbers were investigated in seven geographical regions of Britain using 9634 records of 20 species. The species selected are widely distributed throughout Britain and comprised:- *Empis tessellata* Fabricius, *E. livida* Linnaeus, *E. nigripes* Fabricius, *E. stercorea* Linnaeus, *E. aestiva* Loew, *E. nuntia* Meigen, *Rhamphomyia flava* (Fallén), *R. sulcata* (Meigen), *R. tarsata* Meigen, *R. crassirostris* (Fallén), *Hilara maura* (Fabricius), *H. litorea* (Fallén), *H. quadrivittata* Meigen, *Phyllodromia melanocephala* (Fabricius), *Trichopeza longicornis* (Meigen), *Hybos culiciformis* (Fabricius), *H. femoratus* (Müller), *Ocydromia glabricula* (Fallén), *Bicellaria vana* Collin and *Platypalpus pallidiventris* (Meigen). The mean advancement (+) or retardation (-) of emergence peaks within specific geographic regions relative to the timing of the mean emergence peak for the total British population was calculated and plotted in Fig. 2. Differences of the means were assessed with t-tests and were significant at the 10% level or greater in all cases.

Peak adult emergence was advanced in the south and west of England as compared with the British average and retarded in the north and Scotland. The difference between the most extreme populations was 3.5 weeks and can be interpreted as a response to latitudinal, topographic and maritime climatic influences. The south of Britain is more strongly influenced by continental weather patterns resulting in more consistently lower winter temperatures and higher summer temperatures. Although northern Britain experiences lower temperatures as a consequence of higher latitude, like the west of Britain the climate is ameliorated by a strong maritime influence which produces greater precipitation and a moderation of temperature fluctuations. However, the more mountainous nature of the west and north can result in altitudinal temperature gradients which superimpose the predominating latitudinal and longitudinal influences.

4. Emergence asymmetry

Seasonal emergence peaks were not symmetrical for most species. Generally, the number of records rose sharply to a peak and diminished rather gradually over time thereafter. This tendency towards asymmetry is expressed as a mean skew coefficient = 1.06 determined for 284 species of both families for which sufficient data were available (skew coefficients greater than zero imply a positively skewed distribution in which emergence tails after peaking; negative skew coefficients imply a gradual increase before the peak and a rapid decline thereafter). A positively skewed population sometimes results from bivoltine emergence, as was the case for *Chelifera precatoria* (Fallén), *Dolichocephala oblongoguttata* (Dale) and, in the south of its range at least, *Bicellaria vana*. It is also possible that, in some cases, profoundly skewed or apparently bivoltine emergence profiles could reflect the presence of cryptic or undisclosed species. For instance, *Hilara maura* has a discrete spring peak in emergence throughout its European range (Chvála 1996) and the late seasonal records in Table 1 could be due to misidentifications of closely related species that are not yet known to occur in Britain. Further investigation is needed. Positive skew is however, a common feature in the phenology of many organisms in which genetic predispositions ensure that physiological processes initiating development are effected rapidly while those completing

development are gradual (Kormondy 1969). For many insects, the developmental trigger is additive *physiological time* such as the accumulation of time during which larvae have been subjected to temperatures above a certain threshold.

If temperature is an important determinant of hybotid and empidid phenology, as suggested in previous sections, it would be instructive to investigate if temperature-related or at least geographical variations in emergence asymmetry occurred as well as peak retardation. However, no significant geographical variations (t-test) were found in the mean skew coefficient of the 20 species used in the preceding geographical analysis (Section 3). Similarly, plots of skew coefficient for each species, against retardation of the emergence peaks in the different geographical areas resulted in a wide scatter of points (data not shown). Emergence asymmetry was therefore constant within geographically disparate populations of a species.

Species active later in the year tended to have increasingly positive asymmetrical emergence peaks compared with those peaking earlier in the season (Fig. 3). It is not immediately apparent why this should be so as it might confer an adaptive disadvantage to late-season species, which could fail to complete their life cycles before the onset of winter.

5. Temporal changes in adult phenology

Data were analysed for temporal changes in phenology by examining the earliest and latest recorded dates in each season from 1960 to 2002. Plots of earliest and latest dates for which a species was recorded demonstrated apparent trends towards earlier first-emergence dates and later last-emergence dates in more recent years (e.g. Fig. 4 for *Empis livida*). It is necessary to exercise caution in interpreting these apparent trends as there are relatively few data for the earlier period (1960-1980) and the major increase in recording effort since 1980 will have increased the accuracy of determining first and last dates. This is well illustrated by the observation that negative extrapolations of first and last date trends tended to intersect at some point prior to 1970 (*cf.* Fig 4). The intersection point corresponds with the date at which first and last dates are identical (i.e. they refer to a single record in that year). Clearly recording effort is a significant factor shaping the reported trends in early and late dates. The precise form of the curves is uncertain as statistically relevant results were obtained by fitting the data to a range of linear and curvilinear regression models. In general, the early and late-date curves diverged greatly in earlier years, but later on (when more data were available), became almost parallel, only slightly divergent (suggesting that emergence span was more or less constant and any divergence was due to changes in observer effort), and with negative gradients (suggesting that there may have been an underlying trend towards earlier emergence in recent decades). Fig. 4 for *Empis livida* provides a good example of the typical forms taken by the early and late-date curves.

It is possible to make a correction for recording effort and derive an approximation of the underlying rate at which the timing of emergence was changing if one examines the more numerous data covering 1980 – 2002 when early and late date curves are consistently slightly divergent and of negative gradient. It is necessary to accept that emergence span remained constant between 1980 and 2002 and to assume that, in any one year, recording effort was the same for both early and late dates. If E_{obs} is the observed rate of change of early dates and L_{obs} is the observed rate of change of late dates, then E_c, the corrected approximation of the true rate of change for early dates, is given by:-

$$E_c = E_{obs} + (L_{obs} - E_{obs})/2$$

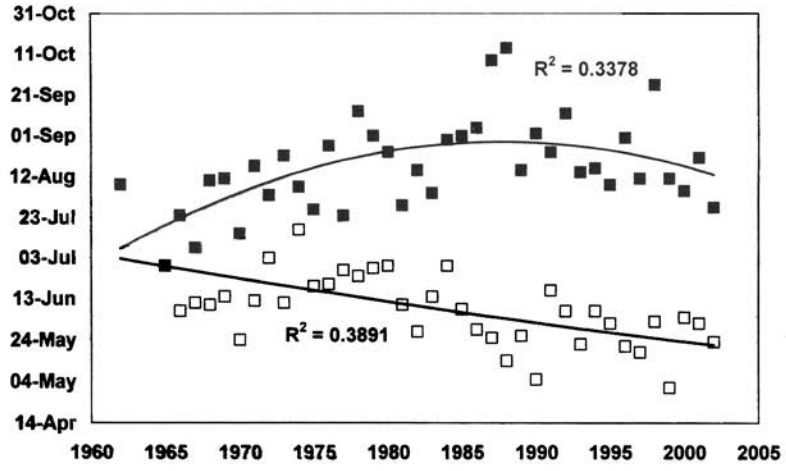


Fig. 4. Changes in earliest and latest recorded dates of *Empis livida* adults from 1960-2002. See Section 5 for interpretation.

E_{obs} and L_{obs} were determined by linear regression of the data points spanning the years 1980 to 2002 for each of the 20 common and widespread species used in the geographical analysis (Section 3) and E_c calculated for each species. The mean value of E_c was -0.69 days/year (range = -1.80 to +0.07, n = 20), suggesting that first emergence has occurred earlier in the season by rather more than half a day for each year over the last two decades. A gradual change in seasonal emergence could be interpreted as a response to climatic changes, allowing more rapid development in warmer conditions.

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I would like to thank the many people who have provided records of Empididae and Hybotidae without which this analysis would not have been possible.

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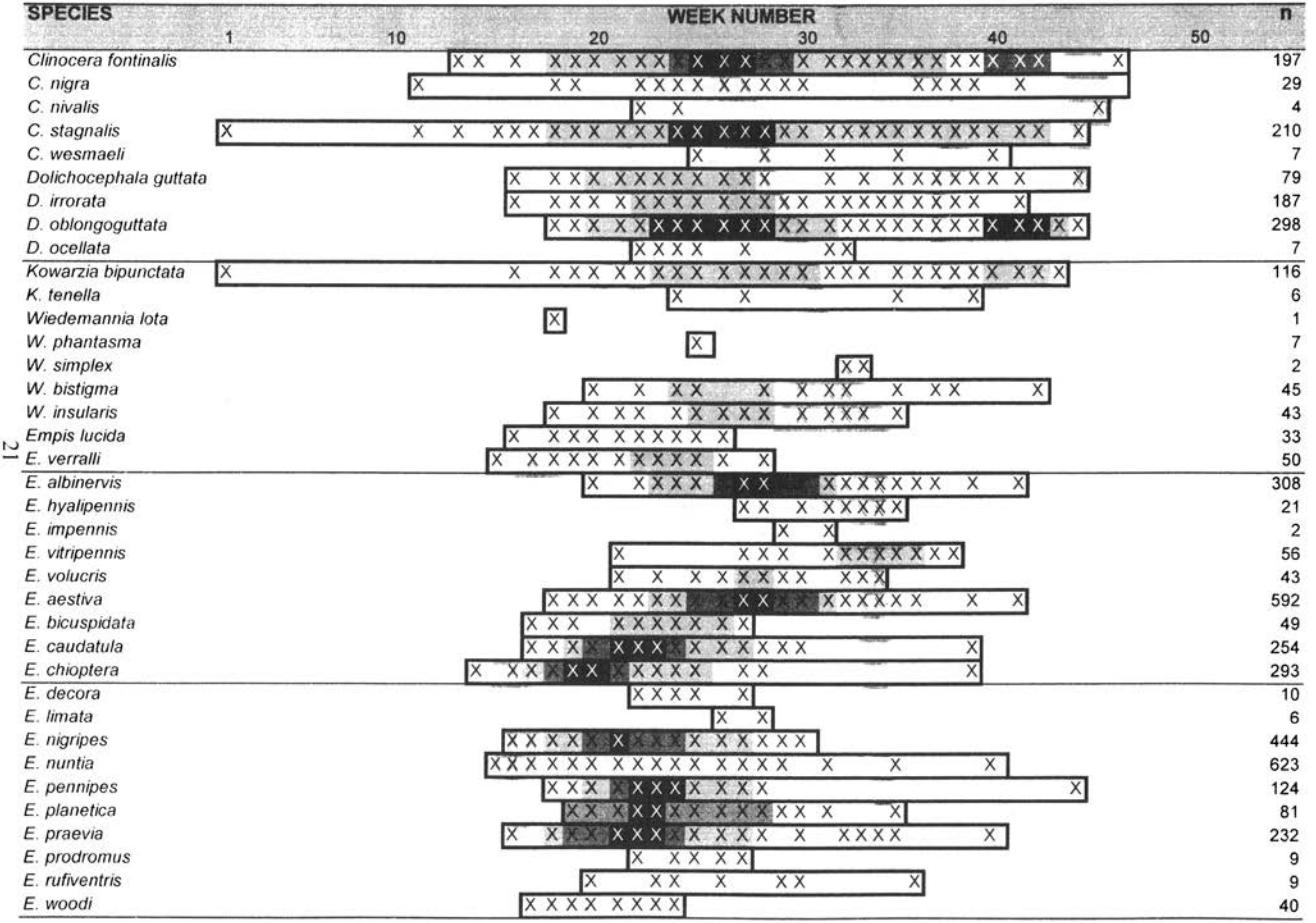
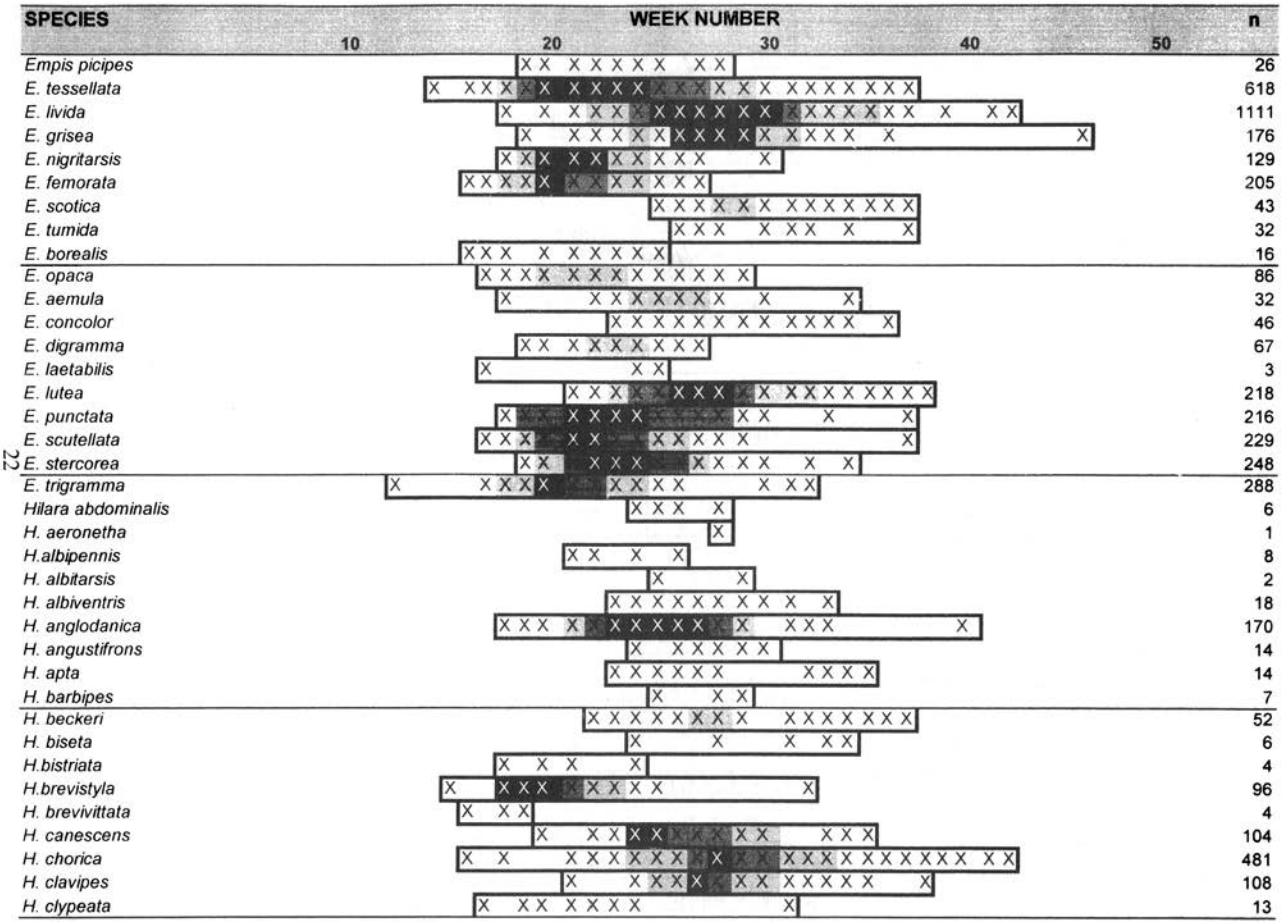
Table 1. Adult phenology of Empididae and Hybotidae. Weeks in which a species was recorded are indicated by X, Strength of shading is used to give a visual impression of peak emergence times and the total emergence span is encompassed within a box. Number of observations = n. Nomenclature follows Chandler (1998).


SPECIES
WEEK NUMBER
n
1
10
20
30
40
50
Clinocera fontinalis 197
C. nigra 29
C. nivalis 4
C. stagnalis 210
C. wesmaeli 7
Dolichocephala guttata 79
D. irrorata 187
D. oblongoguttata 298
D. ocellata 7
Kowarzia bipunctata 116
K. tenella 6
Wiedemannia lota 1
W. phantasma 7
W. simplex 2
W. bistigma 45
W. insularis 43
Empis lucida 33
E. verralli 50
E. albinervis 308
E. hyalipennis 21
E. impennis 2
E. vitripennis 56
E. volucris 43
E. aestiva 592
E. bicuspidata 49
E. caudatula 254
E. chioptera 293
E. decora 10
E. limata 6
E. nigripes 444
E. nuntia 623
E. pennipes 124
E. planetica 81
E. praevia 232
E. prodromus 9
E. rufiventris 9
E. woodi 40


SPECIES
WEEK NUMBER
10
20
30
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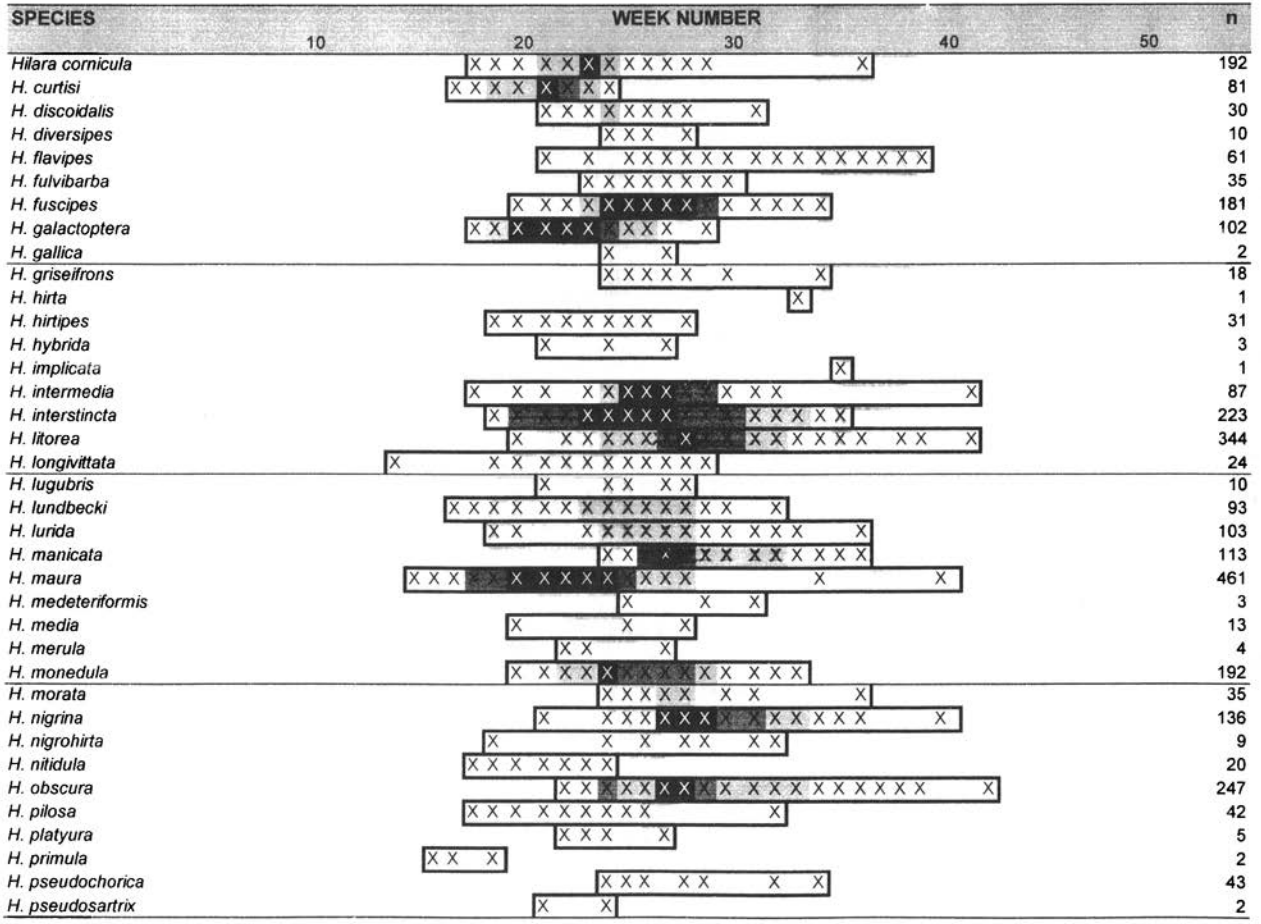
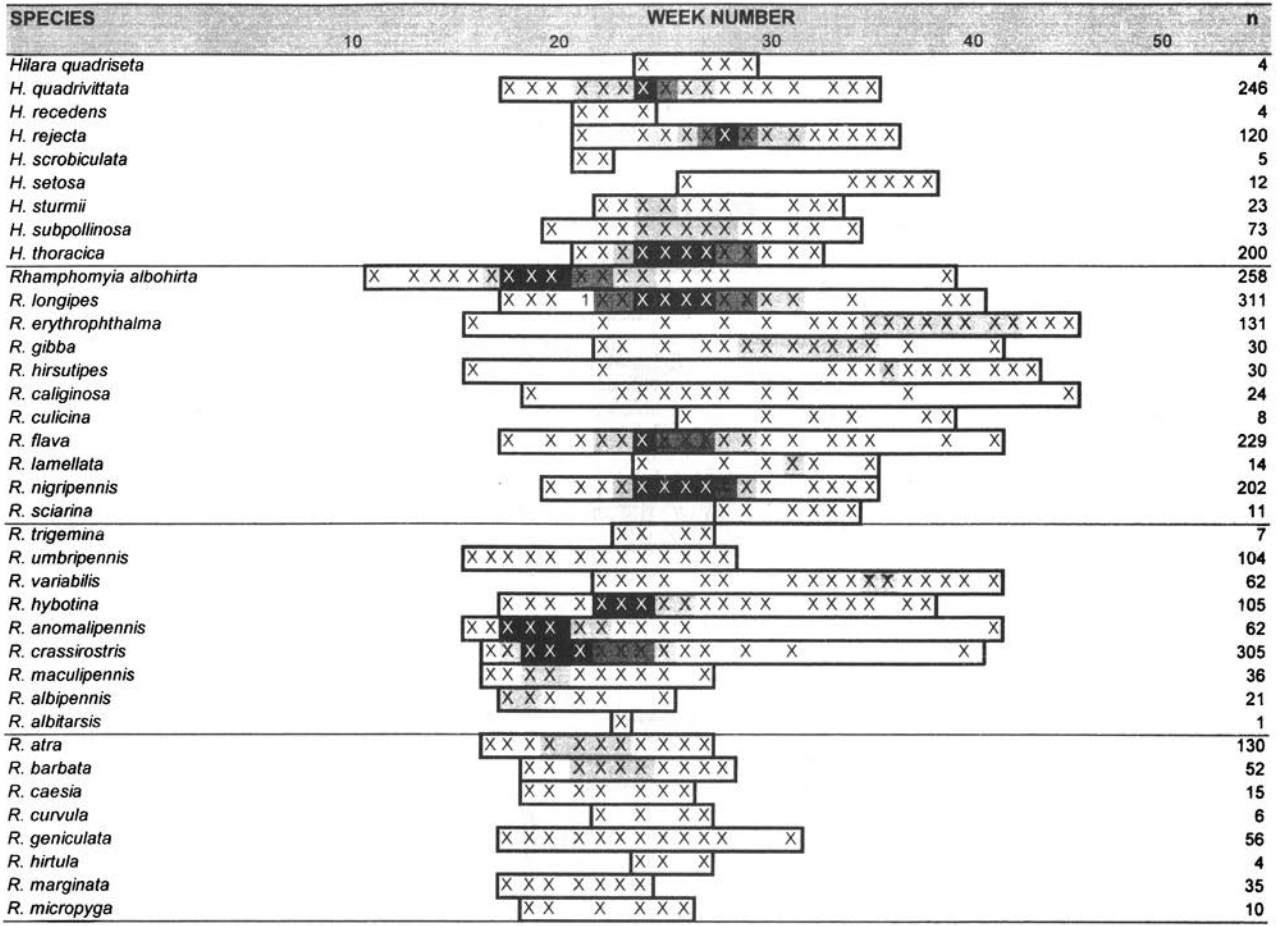
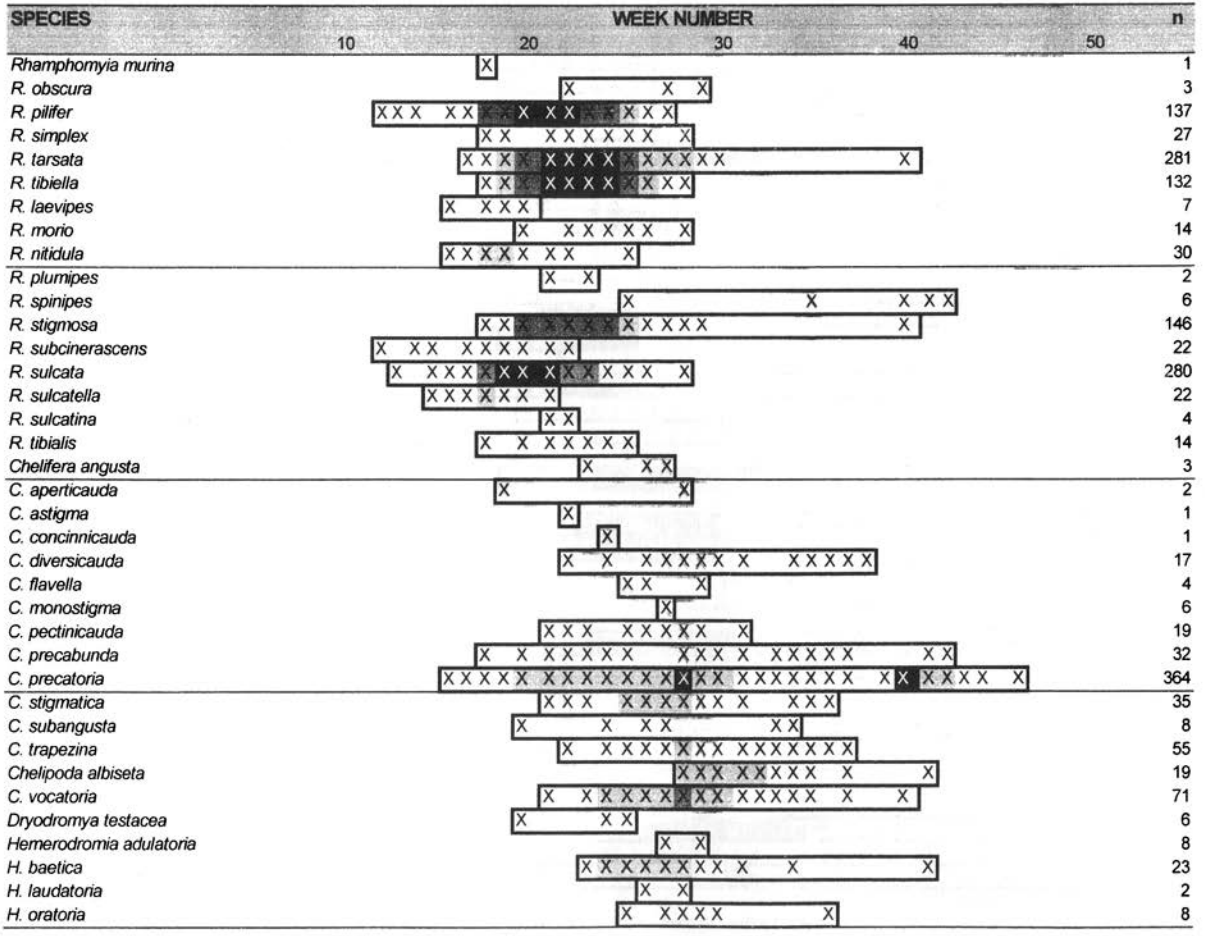
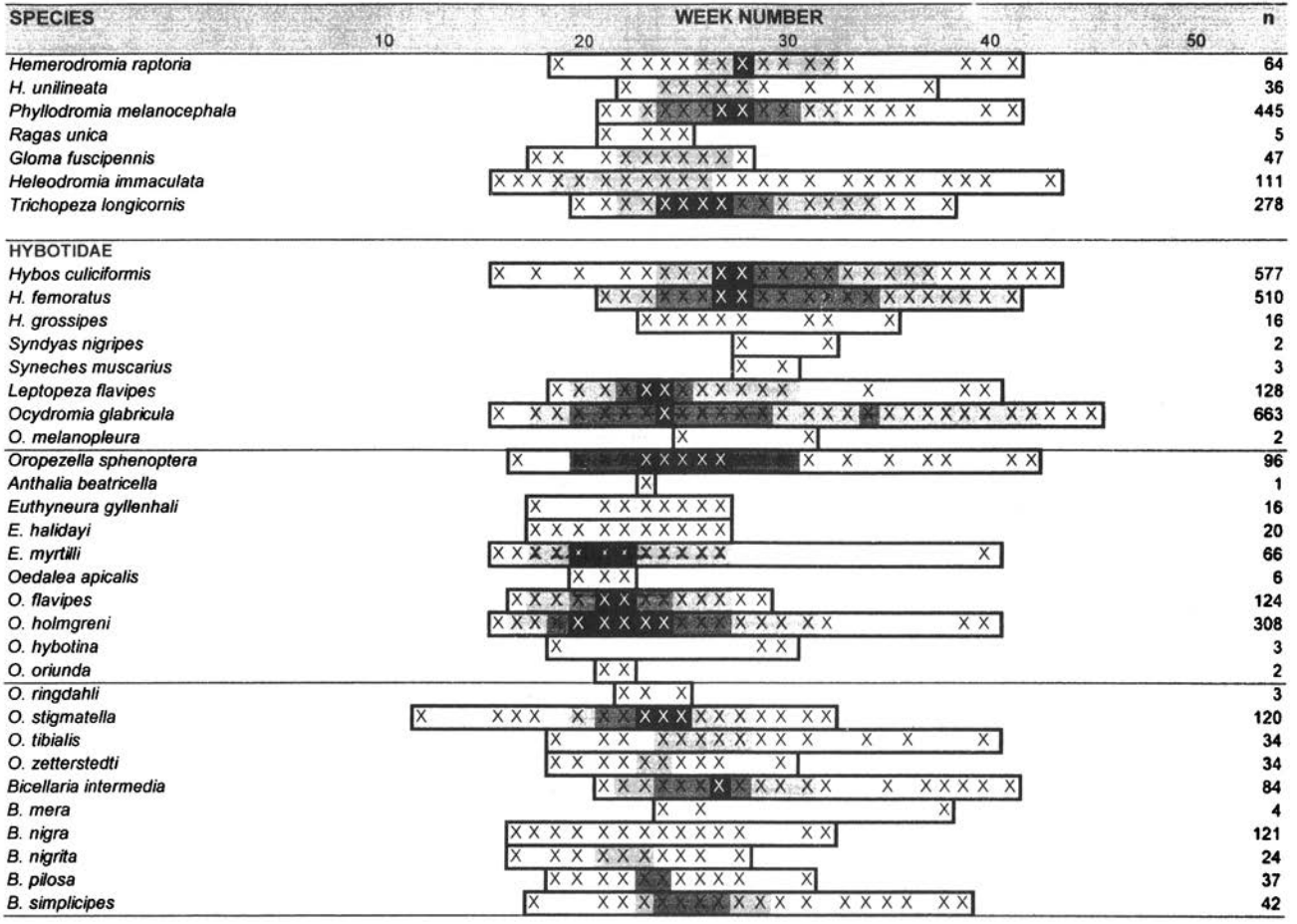
n
Empis picipes 26
E. tessellata 618
E. livida 1111
E. grisea 176
E. nigritarsis 129
E. femorata 205
E. scotica 43
E. tumida 32
E. borealis 16
E. opaca 86
E. aemula 32
E. concolor 46
E. digramma 67
E. laetabilis 3
E. lutea 218
E. punctata 216
E. scutellata 229
E. stercorea 248
E. trigramma 288
Hilara abdominalis 6
H. aeronetha 1
H.albipennis 8
H. albitarsis 2
H. albiventris 18
H. anglodanica 170
H. angustifrons 14
H. apta 14
H. barbipes 7
H. beckeri 52
H. biseta 6
H.bistriata 4
H.brevistyla 96
H. brevivittata 4
H. canescens 104
H. chorica 481
H. clavipes 108
H. clypeata 13


SPECIES
WEEK NUMBER
10
20
30
40
50
n
Hilara cornicula 192
H. curtisi 81
H. discoidalis 30
H. diversipes 10
H. flavipes 61
H. fulvibarba 35
H. fuscipes 181
H. galactoptera 102
H. gallica 2
H. griseifrons 18
H. hirta 1
H. hirtipes 31
H. hybrida 3
H. implicata 1
H. intermedia 87
H. interstincta 223
H. litorea 344
H. longivittata 24
H. lugubris 10
H. lundbecki 93
H. lurida 103
H. manicata 113
H. maura 461
H. medeteriformis 3
H. media 13
H. merula 4
H. monedula 192
H. morata 35
H. nigrina 136
H. nigrohirta 9
H. nitidula 20
H. obscura 247
H. pilosa 42
H. platyura 5
H. primula 2
H. pseudochorica 43
H. pseudosartrix 2


SPECIES
WEEK NUMBER
10
20
30
40
50
n
Hilara quadriseta 4
H. quadrivittata 246
H. recedens 4
H. rejecta 120
H. scrobiculata 5
H. setosa 12
H. sturmii 23
H. subpollinosa 73
H. thoracica 200
Rhamphomyia albohirta 258
R. longipes 311
R. erythrophthalma 131
R. gibba 30
R. hirsutipes 30
R. caliginosa 24
R. culicina 8
R. flava 229
R. lamellata 14
R. nigripennis 202
R. sciarina 11
R. trigemina 7
R. umbripennis 104
R. variabilis 62
R. hybotina 105
R. anomalipennis 62
R. crassirostris 305
R. maculipennis 36
R. albipennis 21
R. albitarsis 1
R. atra 130
R. barbata 52
R. caesia 15
R. curvula 6
R. geniculata 56
R. hirtula 4
R. marginata 35
R. micropyga 10


SPECIES
WEEK NUMBER
n
10
20
30
40
50
Rhamphomyia murina 1
R. obscura 3
R. pilifer 137
R. simplex 27
R. tarsata 281
R. tibiella 132
R. laevipes 7
R. morio 14
R. nitidula 30
R. plumipes 2
R. spinipes 6
R. stigmosa 146
R. subcinerascens 22
R. sulcata 280
R. sulcatella 22
R. sulcatina 4
R. tibialis 14
Chelifera angusta 3
C. aperticauda 2
C. astigma 1
C. concinnicauda 1
C. diversicauda 17
C. flavella 4
C. monostigma 6
C. pectinicauda 19
C. precabunda 32
C. precatoria 364
C. stigmatica 35
C. subangusta 8
C. trapezina 55
Chelipoda albiseta 19
C. vocatoria 71
Dryodromya testacea 6
Hemerodromia adulatoria 8
H. baetica 23
H. laudatoria 2
H. oratoria 8


SPECIES
WEEK NUMBER
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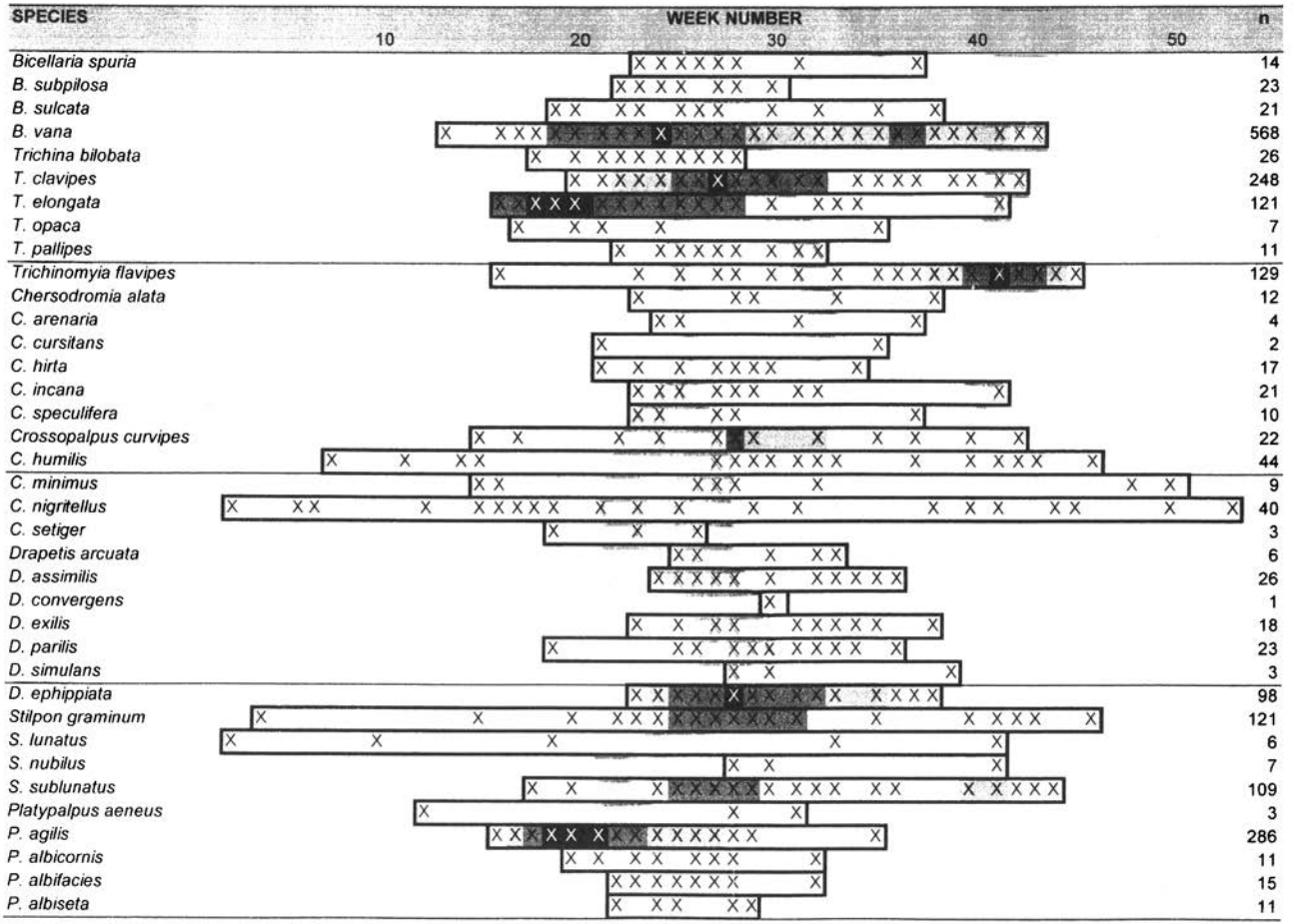
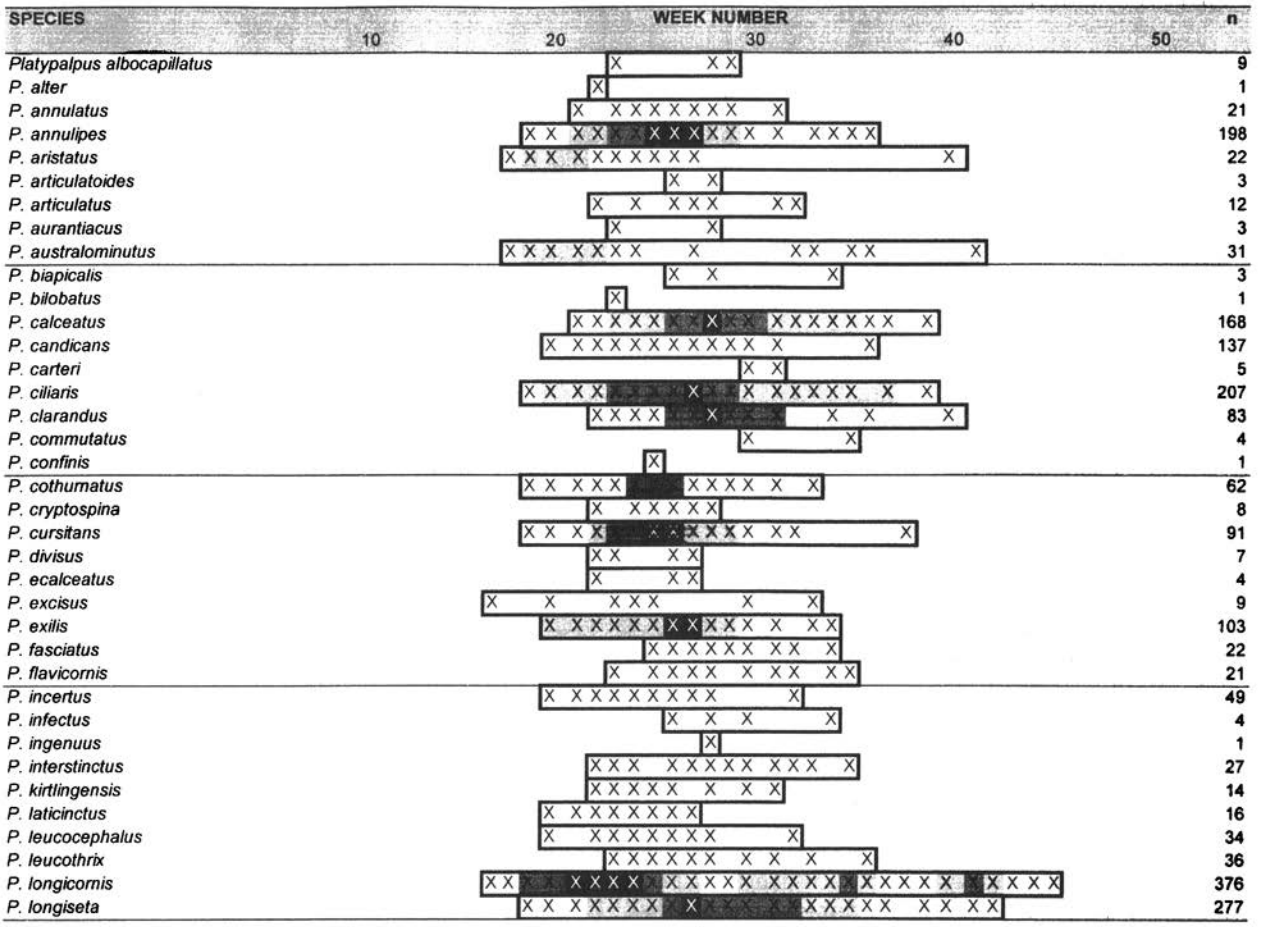
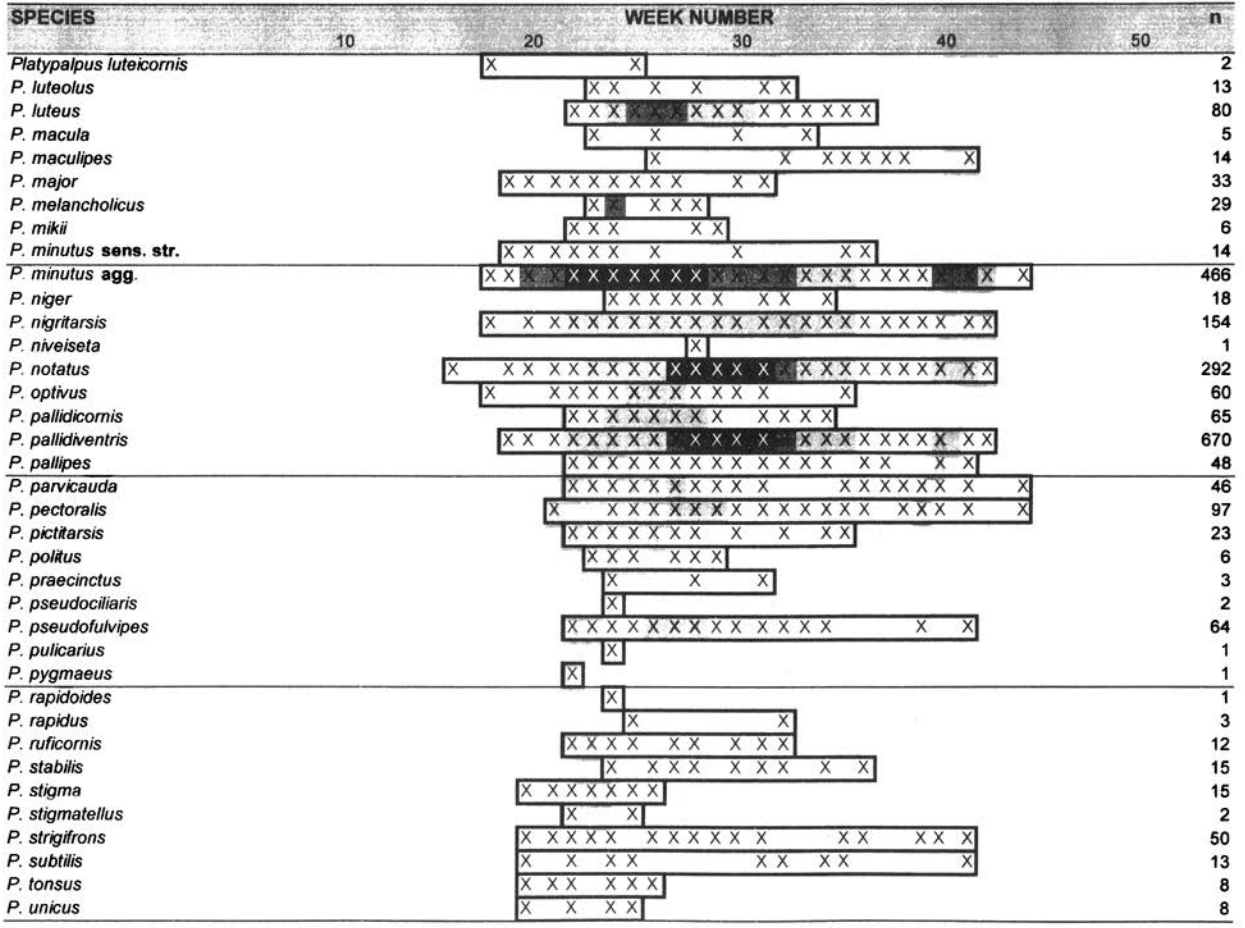
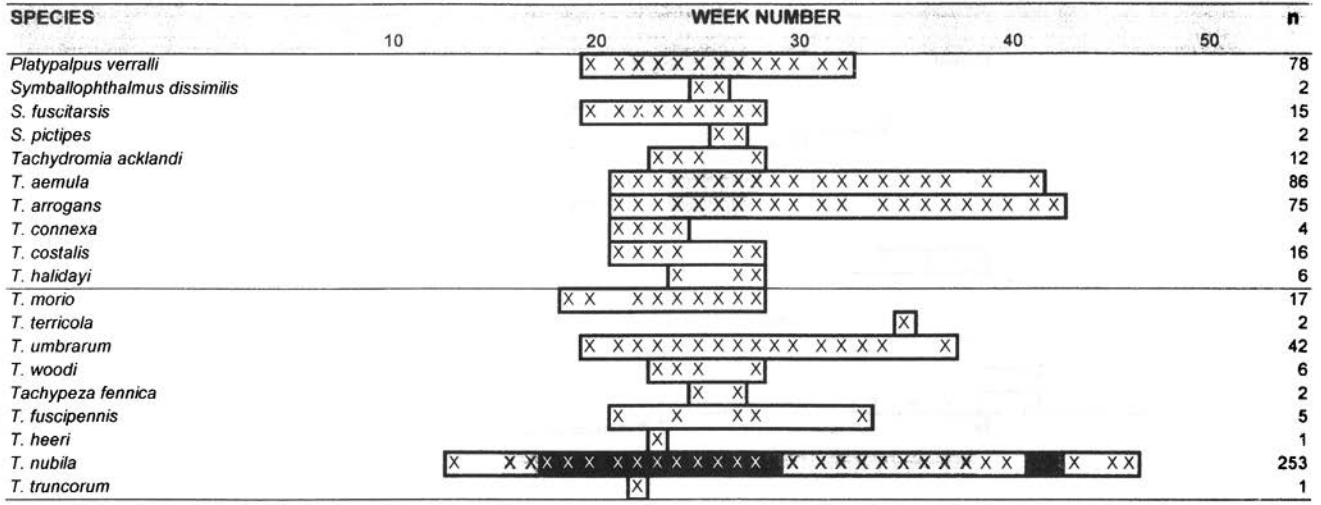
20
30
40
50
n
Hemerodromia raptoria 64
H. unilineata 36
Phyllodromia melanocephala 445
Ragas unica 5
Gloma fuscipennis 47
Heleodromia immaculata 111
Trichopeza longicornis 278
HYBOTIDAE
Hybos culiciformis 577
H. femoratus 510
H. grossipes 16
Syndyas nigripes 2
Syneches muscarius 3
Leptopeza flavipes 128
Ocydromia glabricula 663
O. melanopleura 2
Oropezella sphenoptera 96
Anthalia beatricella 1
Euthyneura gyllenhali 16
E. halidayi 20
E. myrtilli 66
Oedalea apicalis 6
O. flavipes 124
O. holmgreni 308
O. hybotina 3
O. oriunda 2
O. ringdahli 3
O. stigmatella 120
O. tibialis 34
O. zetterstedti 34
Bicellaria intermedia 84
B. mera 4
B. nigra 121
B. nigrita 24
B. pilosa 37
B. simplicipes 42


SPECIES
WEEK NUMBER
10
20
30
40
50
n
Bicellaria spuria 14
B. subpilosa 23
B. sulcata 21
B. vana 568
Trichina bilobata 26
T. clavipes 248
T. elongata 121
T. opaca 7
T. pallipes 11
Trichinomyia flavipes 129
Chersodromia alata 12
C. arenaria 4
C. cursitans 2
C. hirta 17
C. incana 21
C. speculifera 10
Crossopalpus curvipes 22
C. humilis 44
C. minimus 9
C. nigritellus 40
C. setiger 3
Drapetis arcuata 6
D. assimilis 26
D. convergens 1
D. exilis 18
D. parilis 23
D. simulans 3
D. ephippiata 98
Stilpon graminum 121
S. lunatus 6
S. nubilus 7
S. sublunatus 109
Platypalpus aeneus 3
P. agilis 286
P. albicornis 11
P. albifacies 15
P. albiseta 11


SPECIES
WEEK NUMBER
10
20
30
40
50
n
Platypalpus albocapillatus 9
P. alter 1
P. annulatus 21
P. annulipes 198
P. aristatus 22
P. articulatoides 3
P. articulatus 12
P. aurantiacus 3
P. australominutus 31
P. biapicalis 3
P. bilobatus 1
P. calceatus 168
P. candicans 137
P. carteri 5
P. ciliaris 207
P. clarandus 83
P. commutatus 4
P. confinis 1
P. cothurnatus 62
P. cryptospina 8
P. cursitans 91
P. divisus 7
P. ecalceatus 4
P. excisus 9
P. exilis 103
P. fasciatus 22
P. flavicornis 21
P. incertus 49
P. infectus 4
P. ingenuus 1
P. interstinctus 27
P. kirtlingensis 14
P. laticinctus 16
P. leucocephalus 34
P. leucothrix 36
P. longicornis 376
P. longiseta 277


SPECIES
WEEK NUMBER
n
10
20
30
40
50
Platypalpus luteicornis 2
P. luteolus 13
P. luteus 80
P. macula 5
P. maculipes 14
P. major 33
P. melancholicus 29
P. mikii 6
P. minutus sens. str. 14
P. minutus agg. 466
P. niger 18
P. nigritarsis 154
P. niveiseta 1
P. notatus 292
P. optivus 60
P. pallidicornis 65
P. pallidiventris 670
P. pallipes 48
P. parvicauda 46
P. pectoralis 97
P. pictitarsis 23
P. politus 6
P. praecinctus 3
P. pseudociliaris 2
P. pseudofulvipes 64
P. pulicarius 1
P. pygmaeus 1
P. rapidoides 1
P. rapidus 3
P. ruficornis 12
P. stabilis 15
P. stigma 15
P. stigmatellus 2
P. strigifrons 50
P. subtilis 13
P. tonsus 8
P. unicus 8


SPECIES
WEEK NUMBER
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10
20
30
40
50
Platypalpus verralli 78
Symballophthalmus dissimilis 2
S. fuscitarsis 15
S. pictipes 2
Tachydromia acklandi 12
T. aemula 86
T. arrogans 75
T. connexa 4
T. costalis 16
T. halidayi 6
T. morio 17
T. terricola 2
T. umbrarum 42
T. woodi 6
Tachypeza fennica 2
T. fuscipennis 5
T. heeri 1
T. nubila 253
T. truncorum 1

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Notes on some Fanniidae and Muscidae (Diptera) in the Curtis Collection, Melbourne Museum, Australia

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Summary
The species-group names in Fanniidae and Muscidae proposed by J. Curtis and A.H. Haliday are reviewed and their identities resolved, based on material in the Curtis collection of British Diptera in the Melbourne Museum, Australia.

Introduction

In the second edition of his *Guide to an Arrangement of British Insects*, John Curtis (1837) listed several names in Muscidae and Fanniidae which were his own manuscript names and which were never subsequently validated so that they remain in the literature as *nomina nuda*. He also mentioned a few Haliday names, some of which were already published (Haliday 1833, 1836) whilst others were not published and were not validated until the following year (Haliday 1838).

Curtis' collection of Diptera was acquired in 1865 by Professor Frederick McCoy for the then National Museum of Victoria (now: Melbourne Museum) and has rarely, if at all, been seen by British dipterists though individual types or sections have been borrowed: for example, the holotype of *Simulium trifasciatum* Curtis by Crosskey (1982), *Anthomyia varia* Meigen by Pont and Grainger (2000), and the entire family Sepsidae by myself (Pont 1979; Pont and Meier 2002).

During a visit to Australia to attend the 5th International Congress of Dipterology, I was able to visit the Melbourne Museum and through the kindness of Dr Ken Walker was able to study the Fanniidae and Muscidae of the Curtis collection. The results are presented here.

Abbreviations

The following abbreviations are used for the Museums and institutes mentioned below:

ASSP	Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia
BMNH	Natural History Museum, London, England
MZLS	Museo Zoologico La Specola, Florence, Italy
NMI	National Museum of Ireland, Dublin, Republic of Ireland
NMV	Melbourne Museum, Melbourne, Australia
ZMHU	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany

Results

In addition to Curtis' material of his own species, I had hoped to find some material of Haliday's species, perhaps even from Haliday himself, and this did indeed prove to be the case. It had also seemed possible that Curtis was in contact with his contemporaries J.F. Stephens and Francis Walker, and might have received material from these sources, but no material from these authors was found.

Study of the collection must take place in conjunction with Curtis' Notebook and his published *Guide*. The collection is arranged according to the *Guide*, with the genera and species numbered accordingly and with later additions and changes intercalated. The Notebook is arranged in the same

manner, with a numbered entry for each genus and species down the left-hand page. Under each species notes are given on the localities, dates, collectors, and often also behaviour and biology. Species added after the original compilation of the Notebook are also included and annotated, on the right-hand page. Name changes and new synonymies are entered under the relevant name on the left-hand page. There are a few pencil additions or comments, apparently based on information received from Haliday or perhaps even in Haliday's hand.

Curtis names

Ten names in Fanniidae and Muscidae, available and unavailable, are attributed to Curtis, as follows:

cadaverina Curtis, 1837: 264 (*Anthomyia (Ophyra)*). Nomen nudum; in list of species as "*cadaverina* Curt."

The name *cadaverina* is found in Curtis' Notebook as no. 136b, after "*Ophyra*" *leucostoma* and before *O. anthrax*. On the facing page there is an entry: "Larva in summer in field-soil & in pupa 2 or 3 weeks", but this may refer to *leucostoma*. In the collection there are no specimens or labels between *leucostoma* and *anthrax*. But standing over *anthrax* are 1♂, 1♀ above an additional handwritten label "9 July in Newcross / Abbey on plants & / amongst the Coffins". They belong to *Hydrotaea capensis* (Wiedemann). There is a further ♀ with white square label "13 July / Batters", which is also *Hydrotaea capensis* (Wiedemann).

The name *cadaverina* Curtis (nomen nudum), listed by Pont (1986b: 76) and Chandler (1998: 173) as a synonym of *Hydrotaea capensis* (Wiedemann, 1818), should therefore continue to be listed in the synonymy of this species.

caliginosa Curtis, 1837: 263 (*Anthomyia (Spilogaster)*). Nomen nudum; in list of species as "*caliginosa* Walk."

There are 4♂ over a drawer label: "caliginosa Walk." in Curtis' hand. 2♂, without data, are *Hebecnema vespertina* (Fallén). 1 ♂, labelled by Curtis "caliginosa Walk", and 1♂, without data, are *Hebecnema umbratica* (Meigen).

The name *caliginosa* Curtis (nomen nudum), listed by Pont (1986b: 152) and Chandler (1998: 176) as an unidentifiable name possibly belonging to *Helina* Robineau-Desvoidy, should therefore be listed in the synonymy of both *Hebecnema umbratica* (Meigen, 1826) and *Hebecnema vespertina* (Fallén, 1823).

dubia Curtis in Ross, 1835: lxxix (*Anthomyia*). Type-locality: not stated [from title: Arctic Canada; Boothia Peninsula, NWT, according to Huckett (1965: 915)].

Two syntypes of unstated sex were listed, but their location is unknown. They have not been seen since the original description, and are not in the Curtis collection. Dr Ken Walker has informed me (*pers. comm.*) that when the Curtis collection was purchased, the shipping order included two storeboxes of Nearctic specimens. Neither of these boxes was received and efforts to locate them were unsuccessful. It was presumed that the boxes were lost during transit to Australia.

The species *dubia* remains unrecognised (Huckett 1965: 915), and even its family assignment, whether Muscidae or Anthomyiidae, is uncertain.

The original description is as follows:

"Cinereous, eyes margined with white, thorax with three fuscous stripes ... Grey-ash colour, sparingly pilose; antennae with the basal joint minute, the second subtrigonate, third scarcely longer and oblong; eyes reddish-brown, face dull shining white, crown of head ash colour; thorax with three

fuscous stripes down the back, and an indistinct one on each side; wings rather broad, iridescent, the nervures and legs black."

The very short antennal flagellomere suggests a species either of *Drymeia* Meigen (Muscidae) or of several possible Anthomyiidae (e.g. *Egle* Schnabl).

duodecimpunctata Curtis, 1837: 279 (*Atomogaster*). Nomen nudum; in list of species as "*12-punctata* Hal."

The reference in Curtis anticipates the description of this species (under another name) by Haliday (1838). The entry in Curtis' Notebook reads: "139b. 12-punctata Hal. cilipes Hal. Ann. N. H. 2. 185." This comes after the entry for *triquetra* (Wiedemann). There are no specimens in the collection of either *12-punctata* or *cilipes* (Haliday).

The name *duodecimpunctata* Curtis (nomen nudum) should therefore continue to be listed in the synonymy of *Azelia cilipes* (Haliday, 1838), as already recorded by Pont (1986b: 62) and Chandler (1998: 173).

erythrops Curtis, 1837: 264 (*Anthomyia* (*Ophyra*)). Nomen nudum; in list of species as "*erythrops* Walk."

Over a drawer label in Curtis' hand "erythrops Walk", there is 1♂, with a white handwritten square "6 Oct / H. Court", and 1♂, with a white square with printed "118". Both are *Brontaea humilis* (Zetterstedt).

The name *erythrops* Curtis (nomen nudum), listed by Pont (1986b: 82) and Chandler (1998: 176) as an unidentifiable name possibly belonging to *Hydrotaea* Robineau-Desvoidy, should therefore be listed in the synonymy of *Brontaea humilis* (Zetterstedt, 1860).

geniculata Curtis, 1837: 263 (*Anthomyia (Spilogaster)*). Nomen nudum; in list of species as "*geniculata* Walker".

Curtis lists this in his Notebook as no. 18c, after *quadrum* (Fabricius). There is 1♀, labelled "geniculata Wa" by Curtis, which is *Coenosia tigrina* (Fabricius).

The name *geniculata* Curtis (nomen nudum), listed by Pont (1986b: 153) and Chandler (1998: 176) as an unidentifiable name possibly belonging to *Helina* Robineau-Desvoidy, should therefore be listed in the synonymy of *Coenosia tigrina* (Fabricius, 1775).

monilis Curtis, 1837: 279 (*Hydrotaea*). Nomen nudum; in list of species as "*monilis* Hal.".

The reference in Curtis anticipates the validation of this name by Haliday (1838). There are 3♂ standing over the label "100. manicata M.". 1♂, gummed to card, has a green label "monilis", and is a probable syntype of *monilis* Haliday. 1♂ is labelled by Curtis "Homalomyia / monilis". 1♂ is without data. All 3♂ are *Fannia monilis* (Haliday).

The name *monilis* Curtis (nomen nudum) should therefore continue to be listed in the synonymy of *Fannia monilis* (Haliday, 1838), as already recorded by Pont (1986a: 52) and Chandler (1998: 170).

quadripunctata Curtis, 1837: 264 (*Anthomyia (Limnophora)*). Nomen nudum; in list of species as "*4-punctata* Walk."

There is 1♀, over a drawer label in Curtis' hand "4-punctata Walk". It is a species of *Azelia* Robineau-Desvoidy with the anterior four tibiae yellow, and so appears to be *cilipes* (Haliday).

The name *quadripunctata* Curtis (nomen nudum), listed by Pont (1986b: 184) and Chandler (1998: 176) as an unidentifiable name possibly belonging to *Limnophora* Robineau-Desvoidy, should therefore be listed in the synonymy of *Azelia cilipes* (Haliday, 1838).

tibialis Curtis, 1837: 263 (*Anthomyia (Spilogaster)*). Nomen nudum; in list of species as "*tibialis* Curt."

Curtis lists this in his Notebook as no. 18b, after *quadrum* (Fabricius). There is 1♂, freshly emerged, labelled "tibialis Curt." by Curtis, which is *Coenosia tigrina* (Fabricius).

The name *tibialis* Curtis (nomen nudum), listed by Pont (1986b: 153) and Chandler (1998: 176) as an unidentifiable name possibly belonging to *Helina* Robineau-Desvoidy, should therefore be listed in the synonymy of *Coenosia tigrina* (Fabricius, 1775).

tuberosa Ruricola [= Curtis], 1845: 817, figs 1 (larva) and 2 (adult) (♂♀; *Anthomyia*). Type-locality: "I bred the following species from the same potato ... 58 of *Anthomyia tuberosa* ... about the middle of last August [1845]" [ENGLAND, London].

Curtis described this species under the name "Ruricola", a pseudonym he used when writing articles for the agricultural community. The entry in Curtis' Notebook reads: "104^{b}. tuberosa Curt. ... larva diff^{s}. to H. canicularis ... Aug: bred 33♂, 25♀ from a rotting Potato." In the collection, over Curtis' handwritten label "Homalomyia / tuberosa. Curt.", there are 2♂ 2♀ pinned and without data, and 2 puparia gummed to card, on the reverse of which is written "Pupa of / H. tuberosa / Curt". The adults are all *Fannia canicularis* (Linnaeus), and have been labelled by me as syntypes.

The name *tuberosa* Ruricola [Curtis] is thus confirmed as a junior synonym of *Fannia canicularis* (Linnaeus, 1761), as already recorded by Pont (1986a: 46) and Chandler (1998: 170).

Haliday names

Haliday described seven species-group names in Muscidae and Fanniidae, as follows:

adscita Haliday, 1833: 166 (♂♀; *Lispe*). Type-locality: not stated [from title: NORTHERN IRELAND, Holywood].

There is a label for this species in Curtis' collection, but there are no specimens. In his Notebook, under genus no. 1291 *Lispe*, Curtis lists species no. 5, *riparia* (Fallén), with the synonym *adscita* Haliday from Holywood.

No syntypes were found in NMI by Nash and Chandler (1978: 36). It is curious that there are no specimens under *adscita* or *riparia* (Fallén) in the Haliday collection in NMI, especially as *riparia* was later found abundantly at two Irish localities by Haliday (1857a: 33; 1857b: 195-196).

The name *adscita* Haliday is treated as a junior synonym of *Limnophora riparia* (Fallén, 1824) (e.g. Pont 1986b: 182).

aprica Haliday, 1836: 150 (♂♀; *Anthomyia (Fannia)*). Type-locality: "At Holywood; in sunny places; not common" [NORTHERN IRELAND, Co. Down].

In the Curtis collection there is a label for *Anthomyia mitis* Meigen, pinned upside down, which indicates that the identification was doubted by Curtis. Above this label are 1♂, with a label that may be in Haliday's hand "Homalomyia / aprica ♂ ♀", and 1♀, without data. Both of these are *Fannia lustrator* (Harris). These are probably not syntypes.

Six syntypes, including one labelled "aprica" on green paper (which probably indicates Irish provenance), were seen in NMI by Nash and Chandler (1978: 17). In addition, there are 1♂, 2 ♀

syntypes in ZMHU (Hennig 1955: 48), and 1♂ syntype in the Kowarz collection (Stein 1895: 22) and now in ASSP, all of which I have also seen.

The name *aprica* Haliday is treated as a junior synonym of *Fannia lustrator* (Harris, 1780) (e.g. Pont 1986a: 80).

chloris Haliday, 1833: 165 (?sex; *Musca*). Type-locality: "This is with us the most common of the *Muscae nobiles*, but seems to be undescribed" [NORTHERN IRELAND, Holywood].

There are several specimens in the Curtis collection, but none is an obvious syntype. 1♂ has a white square label, without writing, and is *Neomyia cornicina* (Fabricius). 1♂, with a green tag and a white label with "M. chloris" in what is probably Curtis' hand, is probably a syntype and is *N. cornicina*. 1♂ and 1♀, without data, are *Neomyia viridescens* (Robineau-Desvoidy).

Aubertin (1932: 140) stated that she had examined the types of this species, though she did not state where they were, but no syntypes were mentioned by Nash and Chandler (1978: 20-21) as present in the Haliday collection in NMI though there are many specimens of *N. cornicina*. There are 1♂, 1♀ syntypes in ZMHU, which I have seen and which are *Neomyia cornicina* (Fabricius); these are very probably the specimens seen by Aubertin.

The name *chloris* Haliday is treated as a junior synonym of *Neomyia cornicina* (Fabricius, 1781) (e.g. Pont 1986b: 97).

cilipes Haliday, 1838: 185 (♂♀; *Anthomyia*). Type-locality: "Very common about putrescent fungi" [NORTHERN IRELAND, Co. Down, probably Holywood].

See above under *duodecimpunctata* and *quadripunctata*. In describing this species, Haliday referred to the synonym "(A. 12-punctata, C. 1287. 139.[b] App. 279)"

There are no syntypes in the Haliday collection in NMI (Nash and Chandler 1978: 22). There were said to be ♂ syntypes in ZMHU, from the Loew collection (Loew 1874: 27), but these can no longer be found.

The name *cilipes* Haliday is the valid name for a species of *Azelia* Robineau-Desvoidy (e.g. Hennig 1956: 107-108). However, *Azelia cilipes* is not a species known to be attracted to putrescent fungi, and so there must be some doubt as to whether this name is being correctly interpreted. In the absence of any syntypes, however, the best course is to retain current usage.

importuna Haliday, 1836: 149 (♂; *Musca (Morellia)*). Type-locality: "This species is much more common than *M. hortorum*, about Holywood" [NORTHERN IRELAND, Co. Down].

In his Notebook, Curtis synonymises *importuna* with *M. hortorum* (Fallén), as Haliday did himself (1838: 185), and includes a note under *hortorum* "Holywood, common." Under *hortorum* in his collection, there is 1♂, labelled by Curtis "hortorum Fall. / importuna / Ent. Mag:" This is indeed *Morellia hortorum*, but there is no indication that it came from Haliday.

No syntypes were found in NMI by Nash and Chandler (1978: 21), though there are unlocalised specimens standing under *hortorum*. There are 2♂, 2 ♀ syntypes in ZMHU, which I have seen: 1♂ is *Morellia hortorum* (Fallén), whilst 1♂, 2♀ are *Morellia simplex* (Loew).

The name *importuna* Haliday is treated as a junior synonym of *Morellia hortorum* (Fallén, 1817) (e.g. Pont 1986b: 95).

mollissima Haliday in Westwood, 1840: 143, footnote (?sex; *Coelomyia*). Type-locality: not stated [NORTHERN IRELAND, Co. Down, Holywood].

No specimens were found in the Curtis collection.

It is reported that there are 7 syntypes in NMI (Graham in Lyneborg 1962: 317) with 1♂ labelled as *mollissima*, or 9♂, 1♀ without data (Nash and Chandler 1978: 17). One of the 2♂ not sent to Dr Graham is labelled "Ireland" (P. J. Chandler *pers. comm.*), and is probably a syntype. There is 1♂ syntype in ZMHU, which I have seen, and one syntype was also stated to be in MZLS, in the Rondani collection (Rondani 1866: 129; 1877: 53).

The name *mollissima* Haliday in Westwood is the valid name for a species of *Fannia* Robineau-Desvoidy (e.g. Hennig 1955: 95-96; Rozkošný *et al.* 1997: 20, 30, 42).

monilis Haliday, 1838: 185 (♂; *Anthomyia*). Type-locality: "Not common at Holywood" [NORTHERN IRELAND, Co. Down].

See above under *monilis* Curtis.

There are 3♂ syntypes in NMI (Nash and Chandler 1978: 17-18), and 1♂ in ZMHU (Stein 1895: 44; Hennig 1955: 63) which I have also seen.

The name *monilis* Haliday is the valid name for a species of *Fannia* Robineau-Desvoidy (e.g. Hennig 1955: 62-63; Rozkošný *et al.* 1997: 21, 34, 42-43).

Walker names

Walker (1853) described 28 species in *Anthomyia* Meigen from Britain, which are variously assigned to the Fanniidae, Muscidae and Anthomyiidae. No Walker specimens of these families were found in the Curtis collection, though there was a considerable amount of Walker material from other sources in NMV which is being discussed elsewhere (Pont in press).

Stephens names

In his lists of British insects, Stephens (1829a, 1829b) mentioned 22 manuscript names in the genera *Musca* Linnaeus, *Anthomyia* Meigen, *Drymeia* Meigen, *Eriphia* Meigen and *Coenosia* Meigen. Two of these were proposed in synonymy and have never been made available since then; 20 were *nomina nuda*.

A few specimens have survived in the remnants of the Stephens collection in the BMNH, and the names have been assigned accordingly (Pont 1986a, b). There are no specimens in the Curtis collection, but two of Stephens' names are mentioned:

aterrima Stephens, 1829a: 60; 1829b: 310 (?*Eriphia*). Nomen nudum; in catalogue list as "*aterrima* mihi." Locality: Great Britain.

E. aterrima Stephens is no. 1289.1 in the Curtis collection, and is represented by labels but no specimens. There is no material in the Stephens collection in the BMNH.

The name *Eriphia aterrima* Stephens (nomen nudum) is listed as an unidentifiable name in the genus *Drymeia* Meigen by Pont (1986b: 73) and Chandler (1998: 176).

hispida Stephens, 1829a:60; 1829b: 310 (?*Drymeia*). Nomen nudum; in catalogue list as "*hispida* mihi." Locality: Great Britain.

D. hispida Stephens is included in the Curtis collection under no. 1288.2, *obscura* Meigen. There is no material in the Stephens collection in the BMNH.

The name *Drymeia hispida* Stephens (nomen nudum) is listed as a junior synonym of *Drymeia hamata* (Fallén, 1823) by Pont (1986b: 71) and Chandler (1998: 173).

Nomenclatural Summary

FANNIIDAE

Fannia canicularis (Linnaeus, 1761)
    tuberosa Ruricola [Curtis], 1845
Fannia lustrator (Harris, 1780)
    aprica Haliday, 1836
Fannia mollissima (Haliday in Westwood, 1840)
Fannia monilis (Haliday, 1838)
    monilis Curtis, 1837, nomen nudum

MUSCIDAE

Azelia cilipes (Haliday, 1838)
    quadripunctata Curtis, 1837, nomen nudum
    duodecimpunctata Curtis, 1837, nomen nudum
Brontaea humilis (Zetterstedt, 1860)
    erythrops Curtis, 1837, nomen nudum
Coenosia tigrina (Fabricius, 1775)
    geniculata Curtis, 1837, nomen nudum
    tibialis Curtis, 1837, nomen nudum
Drymeia aterrima (Stephens, 1829), nomen nudum
Drymeia hamata (Fallén, 1823)
    hispida Stephens, 1829, nomen nudum
Hebecnema umbratica (Meigen, 1826)
    cadaverina Curtis, 1837, nomen nudum
Hebecnema vespertina (Fallén, 1823)
    cadaverina Curtis, 1837, nomen nudum
Hydrotaea capensis (Wiedemann, 1818)
    cadaverina Curtis, 1837, nomen nudum
Limnophora riparia (Fallén, 1824)
    adscita Haliday, 1833
Morellia hortorum (Fallén, 1817)
    importuna Haliday, 1836
Neomyia cornicina (Fabricius, 1781)
    chloris Haliday, 1833

MUSCOIDEA incertae sedis

Anthomyia dubia Curtis in Ross, 1835

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I am especially grateful to Dr Ken Walker (NMV) for the privilege of studying the Curtis Diptera collection in Melbourne, and to the Royal Society, London, for supporting my attendance at the 5th International Congress of Dipterology, Brisbane, without which it would not have been possible to visit Melbourne. Earlier visits to St Petersburg and Berlin were supported by the Royal Society and the British Council, respectively. This manuscript has been reviewed by Ken Walker, Peter Chandler and Jim O'Connor (NMI), and I am grateful for their comments.

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On the behaviour of the sheep nostril fly, *Oestrus ovis* Linnaeus (Diptera, Oestridae) at Rye Harbour, East Sussex - On 17 July 2002 one of the authors of this note (BY) noticed a fly in a shallow crevice on the west wall of his house on the Rye Harbour Nature Reserve (TQ932178), of which he is manager. It was very similar to one seen there during the previous July. The insect was identified (by PR) as *Oestrus ovis* Linnaeus (Oestridae), a provisional RDB3 species that appears not to have been recorded from Sussex in recent years.

The house in question is a former coastguard cottage built on a shingle ridge called Nook Beach 600m from the sea. To the north lies a water-filled gravel pit 2.2km long and 300m wide. The walls of the house are of pebble-dash, covered with a weather-resistant white masonry paint and the fly was resting in one of the gaps between the small stones used to surface the walls.

On 19 July a second example of *Oestrus ovis* was discovered on the south wall of the house resting, like the first example, in a crevice between the white painted stones at about chest height. Both these insects showed no inclination to fly off on close approach and the second example was easy to photograph. This second insect was observed every day until 29 July when it disappeared. During this period it was seen in only three locations, moving only 30cm and then 80cm along the wall, staying a few days at each. We are as certain as it is possible to be without having marked it that it was the same insect throughout.

There are two aspects of this behaviour that are particularly noteworthy. First, Nook Beach and its immediate area are not sheep country and have had no large grazing animals present for very many years. The nearest sheep were at least 300m away in pasture to the north of the water-filled gravel pit. They are managed by an experienced sheep farmer and, so far as is known, have not been affected by sheep-nostril fly.

Secondly, the south wall of the house at Nook Beach would, for any prolonged period of time, seem to be a hostile environment with its exposure to full sun and constant wind for an insect the size of *Oestrus ovis*. With vestigial mouthparts the flies do not feed as adults and it is remarkable that they do not quickly suffer from fatal desiccation in a situation like this. C. N. Colyer and C. O. Hammond (1951. *Flies of the British Isles.* Frederick Warne & Co. Ltd., London & New York) say: "Adult life is short" and "the flies are to be found on walls and in shady places in sheep-raising localities".

We suspect that these flies had flown once across the water-filled gravel pit, or from other relatively close sheep pasture, to the house at Nook Beach. One suggestion was that they thought the house, with its bobbly white walls, might have been a sheep. Though this was not a serious idea, it is conceivable that the flies are attracted to distant pale objects that might be sheep and, in this case, decided to settle rather than fly on. Resting for a long time in one place is perhaps simply a way of conserving energy until a sheep happens to walk past, though how the flies avoid desiccation is worth further study - **PATRICK ROPER,** South View, Churchland Lane, Sedlescombe, East Sussex TN33 0PF and **BARRY YATES,** 2 Watch Cottages, Nook Beach, Winchelsea, East Sussex TN36 4LU

Dipterists Digest 2003 **10**, 41-44

Dipterists Day Exhibits 2002 - compiled by Editor from exhibitors' notes

Again only those exhibits are included here, which did not also appear at the Exhibition of the British Entomological and Natural History Society; details of the exhibits by P.J. Chandler, D.J. Gibbs, A.J. Halstead, R.D. Hawkins, R. Morris and S. Ball, M. Parker, I. Perry and M.N. Smith will be included in the BENHS Exhibition Report.

BALL, S. A "cheap and cheerful" way to get digital microscope images. Because mounting systems available to attach a digital camera to a microscope are expensive, something cheaper was sought for the purposes of (1) easily capturing images of characters such as wing venation or head profiles, from which illustrations could be traced; (2) providing an image that could be projected to demonstrate key features at workshops and courses. This was achieved using a relatively cheap web-cam (although this gives a fairly low resolution and has to be attached directly to a computer), mounted on a microscope using the centre of a toilet roll, cut to the correct length and fitted over the eyepiece tube, to which the camera is mounted using two elastic bands. With some effort to set up such that the camera is exactly in the right spot and angled correctly, a 640x480 full colour image was obtained, moving at around 20-30fps depending on the lighting. Still pictures can be captured directly into image editing software via the supplied driver. Publication quality pictures were not obtained but the exhibitor considered that it achieved his two objectives at a low cost.

BLOXHAM, M.G. (1) Three species from Park Limepits (SP030999) in Walsall: *Triogma trisulcata* (Schummel) (Cylindrotomidae), *Lejogaster tarsata* (Megerle in Meigen) (Syrphidae) and *Spanochaeta dorsalis* (von Roser) (Muscidae); this isolated small site lies in the midst of cultivation on a large working farm and is ideally situated for ecological studies on the Diptera it hosts. Studies by water biologists will be ongoing during 2003 to discover more about the fauna of the ponds, streams and flushes therein.

(2) *Volucella inanis* (Linnaeus) and *Callicera aurata* (Rossi) (Syrphidae), both taken on the flowers of overwintering leeks on an allotment in Birmingham (SP083819). The *Callicera* record is the second for Birmingham and the Black Country; the first was in Wolverhampton (SO898996), 17.viii.1988, recorded by Guy Knight.

(3) *Catharosia pygmaea* (Fallén) (Tachinidae) from Ray Hall in the Sandwell Valley (SP027946), one of Britain's largest automatic Sewage farms lying at the junction of the M5 and M6 motorways (determined by Peter Chandler). First added to the British list by S.J. Falk (1998. *British Journal of Entomology and Natural History* **11**, 1-5) from Coventry records, it seems that this tiny but highly characteristic fly may have been present in the Midlands for some time, because the specimens from Ray Hall (Malaise trap 18 August 1995) pre-date the Coventry ones.

CROSSLEY, R. (1) Significant records from Fen Bog Yorkshire Wildlife Trust Reserve (North York Moors) in 2002: *Phylidorea abdominalis* (Staeger) (Limoniidae), only two previous Yorkshire records, both from the Austwick area in 2001; *Dicranomyia aquosa* Verrall (Limoniidae); *Tipula yerburyi* Edwards (Tipulidae), specimens seen flying along a shaded beck side, only three reported Yorkshire localities since 1946; *Tipula grisescens* Zetterstedt (Tipulidae), the first record for V.C. 62, found in a rushy flush on the hillside above the fen in late April; *Phalacrocera replicata* (Linnaeus) (Cylindrotomidae), the second record for V.C. 62; *Dicranota*

guerini Zetterstedt (Pediciidae), widespread but local in Yorkshire, all records being from the northern half of the county; *Tachytrechus consobrinus* (Haliday) (Dolichopodidae), the first Yorkshire record.

(2) Three species taken in Yorkshire in 2002, that were of more than usual interest to the exhibitor: *Symplecta chosenensis* (Alexander) (Limoniidae), from wet slippages on clay sea-cliffs at Reighton, East Yorkshire, with a note on preliminary findings on the status of this species (now superseded by the paper on this species in the present issue); *Empis borealis* Linnaeus (Empididae), from Wheeldale Plantation, North York Moors (see note by D. Sumner and N. Birkett 2002. *Dipterists Digest* (*Second Series*) **9**, 70); *Didea intermedia* Loew (Syrphidae), also from Wheeldale Plantation and probably the first authentic record for the county.

(3) *Sericomyia lappona* (Linnaeus) (Syrphidae), two females, one typically marked and the other melanic, the latter taken at Wheeldale Plantation in June 2002.

DRAKE, C.M. Uncommon flies recorded in 2002: *Nephrotoma lunulicornis* (Schummel) (Tipulidae) and *Arctoconopa melampodia* (Loew) (Limoniidae) on a vegetated sandy river bank, Northwich, Cheshire, SJ6774, 19.v; *Diogma glabrata* (Meigen) (Cylindrotomidae) swept from an ephemeral pond at Moccas Park, Herefordshire, SO345426, 27.vii; *Ellipteroides alboscutellatus* (von Roser) (Limoniidae), frequent at a tufa-depositing seepage at Moccas Park, Herefordshire, SO334428, 25.vi and 27.vii; *Platypalpus luteolus* (Collin) (Hybotidae), in a water trap at a reedy woodland margin at Woolhampton Reed Bed SSSI, Berkshire, SU575666, 28.vii; *Empis limata* Collin (Empididae), at a small stream in pasture and by an ephemeral pond at Moccas Park, Herefordshire, SO345421 and SO346426, 25.vi, and by drainage ditches at The Meres next to Moccas Park, SO349425, 26 vi; *E. woodi* Collin at hawthorn blossom by a tiny stream at Moccas Park, Herefordshire, SO338428, 3.v; *Dolichopus arbustorum* Stannius (Dolichopodidae), in a water trap in tall reed at Woolhampton Reed Bed SSSI, Berkshire, SU580665, 28.vii; *Hercostomus nigrilamellatus* (Macquart) (Dolichopodidae), by a tiny stream at Moccas Park, Herefordshire, SO339428, 25.vi; *H. angustifrons* (Staeger) (Dolichopodidae), at Lawn Pool in Moccas Park, Herefordshire, SO343429, 25.vi; *Rhaphium elegantulum* (Meigen) (Dolichopodidae), by Lawn Pool at Moccas Park, Herefordshire, SO346428, swept 25.vi and in Malaise from 3.v – 25.vi; *Rhaphium penicillatum* Loew and *R. rivale* (Loew) (Dolichopodidae) on a vegetated sandy river bank, Northwich, Cheshire, SJ6774, 19.v; *Eristalis cryptarum* (Fabricius) (Syrphidae) being eaten by the crab spider *Xysticus cristatus* (Clerck) at Challacombe Farm, Dartmoor, Devon SX694793, 16.v; *Neria femoralis* (Meigen) (Micropezidae), new to Britain (see paper in present issue), from a vegetated sandy river bank, Northwich, Cheshire, SJ6774, 19.v; *Tanypeza longimana* Fallén (Tanypezidae), in secondary willow woodland some distance from the old trees at The Meres, next to Moccas Park, Herefordshire, SO348425, 26.vi; *Homoneura interstincta* (Fallén) (Lauxaniidae), at ditches in a water meadow, Lower Woodford SSSI, Wiltshire, SU125346, 1 and 18.vi; *Pherbellia annulipes* (Zetterstedt) (Sciomyzidae) at tiny streams in deciduous woodland at Moccas Park, Herefordshire, SO341426 and at a stream in coniferous woodland at Moccas Park, SO346419, 25.vi; *Psacadina zernyi* (Mayer) (Sciomyzidae), swept from an ephemeral pond, 25.vi, and caught in a Malaise trap, 3.v to 25.vi at Lawn Pool in Moccas Park, SO345426; *Geomyza majuscula* (Loew) (Opomyzidae), in reedbed and mixed fen vegetation in pitfall traps and water traps at Woolhampton Reed Bed SSSI, Berkshire, SU576666, 28.vii; *G. nartshukae* Carles-Tolrá, from a wet ditch at Britford Water Meadow SSSI, Wiltshire, 18.vii; *Pelina aenescens* (Stenhammar) (Ephydridae), swept from an unshaded tiny stream at Moccas Park, Herefordshire, SO339428, 3.v; *P. nitens* Loew (Ephydridae), swept from a tiny stream and a seepage at Moccas Park, SO342419 and SO334428, 25.vi; *Cordilura aemula* Collin (Scathophagidae) and *C. picipes* Meigen common

in sweep net and Malaise samples from Lawn Pool at Moccas Park, Herefordshire, SO4542, 3.v – 27.vii. The exhibitor thanks English Nature (for Britford, Lower Woodford, Moccas Park and Woolhampton Reedbeds) and Cheshire County Council (for Northwich) for permission to publish these results obtained in surveys that they funded.

GODFREY, A. Miscellaneous Diptera recorded in 2002:

(1) *Orimarga attenuata* (Walker) (Limoniidae), Sand Dale, North Yorkshire, 8.vii, one female swept, previously recorded from one site in Ireland, where it was discovered by a visiting German tipulid specialist, H. Mendl; although widespread in Europe, this is the first record for mainland Britain.

(2) *Atrichopogon muelleri* (Kieffer) (Ceratopogonidae) (see section of this issue on checklist changes), of which larvae were taken from lime-rich streams in the Cotswolds; the only *Atrichopogon* species associated with rheophilic/cold streams. The larvae are identical to published figures of this species given by A. Nilsson (1997. *Aquatic Insects of North Europe*. Volume 2).

(3) *Myolepta potens* (Harris) (Syrphidae), Moccas Park, Herefordshire in May-June; this species, last recorded in Britain in 1961, was reared from rotholes and taken in both emergence traps and small water traps placed either over or within rotholes in ancient parkland. A total of 55 specimens were procured by the above means from eight trees, although a much larger number of trees were sampled.

(4) *Nephrocerus flavicornis* Zetterstedt (Pipunculidae), Pot Ridings Wood, Doncaster, South Yorkshire, 29.vi, swept from woodland edge; this species was formerly regarded as a great rarity but it has been increasingly recorded in the last 20 years or so. However, this Yorkshire specimen suggests a significant increase in range northwards.

(5) *Acinia corniculata* (Zetterstedt) (Tephritidae), Bewl Reservoir, West Sussex, swept from the margins in September. A very local species, but apparently on the increase.

(6) *Parochthiphila coronata* (Loew) (Chamaemyiidae), specimens swept from Woodhouse Colliery, Bolsover, Derbyshire on 30.vi. For several decades this species was only known from a couple of coastal dune sites in East Anglia, but the exhibitor had now recorded it from several brownfield sites in Yorkshire and the East Midlands.

(7) ? *Parochthiphila nigripes* (Strobl) (Chamaemyiidae). New to Britain, swept from the same brownfield site as *P. coronata* above. One male only was found and its identity is subject to confirmation (pending this it is not included among additions to the checklist in the present issue).

MERRIFIELD, R.K and R.M. Some photographs of dipterists taken during meals on the Summer 2001 (Cornwall), Summer 2002 (Scotland) and Autumn 2002 (Norfolk) Field Meetings.

SPILLING, C. Photographs of mating *Bombylius minor* Linnaeus (Bombyliidae) on Morden Heath – Dorset on 1 August 2002. Whilst surveying a number of Dorset Heaths during this summer on behalf of the Heathland Flies - UK Biodiversity Action Plan Project, the exhibitor came across a mating pair (end to end) of *Bombylius minor*. This pair were on a sparsely vegetated patch of sand near the entrance to a main horse-riding track. It was possible to approach quite closely to take the pictures exhibited, using a Canon EOS D30 digital camera with 100mm macro lens. There was not time to set up flash equipment so it was necessary to rely on natural sunlight. Even so the pictures came out remarkably well, given the exposures of 1/45th and 1/60th at f11 although this was assisted by the stable support of a bean bag at ground level.

SMART, M.J. and BLOXHAM, M.G. An exhibit presenting a review of the records of Stratiomyidae in the Urban West Midlands and discussing their distribution in relation to the presence of limestone outcrops on the sites and the pH of the water present. It was suggested that some apparently anomalous occurrences of species normally associated with basic streams and

flushes could be related to the presence of cement/concrete rubble from demolished buildings or to industrial waste contamination that had modified the pH of the surface water. It was proposed to carry out additional surveys and water pH measurements to clarify this hypothesis. Specimens, photographs and local distribution maps of the 22 species of Stratiomyidae found in the region were exhibited. The recorded occurrence of these species was plotted against twelve localities, for which habitat descriptions were provided, highlighting the correlation between sites with limestone outcrops and those species known to have a larval requirement for base rich or brackish water. Saltwells local nature reserve was identified as a particularly rich site, despite past pollution but evidently benefiting from a limestone spring, with seven of the eight species recorded in the region with aquatic larvae: *Oplodontha viridula* (Fabricius), *Oxycera nigricornis* Olivier, *O. pygmaea* (Fallén), *O. rara* (Scopoli), *O. trilineata* (Linnaeus), *Vanoyia tenuicornis* (Macquart) and *Stratiomys potamida* Meigen. The only other aquatic species recorded was *Oxycera morrisii* Curtis, found at Sandwell Valley and Pelsall North Common. The seasonal occurrence of the 22 species in the Urban West Midlands was also tabulated. It was noted that, despite the quite broad flight periods quoted by A.E. Stubbs and C.M. Drake (2001. *British Soldierflies and their allies*. British Entomological and Natural History Society), in the experience of the exhibitors the flight period of many of the species was effectively limited to the first three weeks of July and it was expected that additional species would be found at some of the sites if further surveys were carried out during that period.

The family Campichoetidae (Diptera) newly recorded for Norway –

During the preparation of a contribution to the Fauna Europaea project by one of us (PC) it became apparent that there were no published records of Campichoetidae for Norway. It was ascertained that some Norwegian specimens of this family were, however, present in the collections of the Zoological Museum in Bergen. Hugo Andersson had previously determined one specimen correctly as *Campichoeta basalis* (Meigen), a synonym of *C. punctum* (Meigen). Other hitherto undetermined material of *punctum* and of *C. griseola* (Zetterstedt) was also present in the collection. These species may be determined using the key by P.J. Chandler (1987. The families Diastatidae and Campichoetidae (Diptera, Drosophiloidea) with a revision of Palaearctic and Nepalese species of *Diastata* Meigen. *Entomologica scandinavica* **18,** 1-50). Both species are widespread in Europe and *griseola* has been recorded from Sweden and Finland.

The data associated with this material (all collected using Malaise traps) is as follows:

C. punctum (Meigen). BØ, Hurum, Tofte, 1.vi-1.viii.1984, 3 males, 2 females; same locality, 8.viii-1.ix.1985, 1 male (the specimen determined by H. Andersson).

C. griseola (Zetterstedt). AK, Baerum, Ostøya, 30.v-10.vi.1984, 1 female; AK, Frogn, Håøya, 16-27.vi.1984, 4 males; BØ, Hurum, Tofte, 1.vi-1.viii.1984, 2 males, 1 female; VAY, Flekkefjord, Gyland, Store Eikås, 14-28.viii.1982, 1 male, 1 female.

All specimens were collected by F. Midtgaard except for those from VAY, Flekkefjord, which were collected by A.-J. Nilsen. We are indebted to these collectors for providing this material - **LITA GREVE,** University of Bergen, Zoological Museum, P.O. 7800, N-5020 Bergen, Norway and **PETER CHANDLER,** 606B Berryfield Lane, Melksham, Wilts SN12 6EL

Dipterists Digest 2003 **10**, 45-46

A record of *Parasyrphus nigritarsis* (Zetterstedt, 1843) (Diptera, Syrphidae) in North Scotland

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Summary
A single male of *Parasyrphus nigritarsis* was found at a site in the Highland Region of Scotland. The habitat is described.

On 11 May 2002 I noticed a small syrphid torpid on an inflorescence of dandelion *Taraxacum* species on an island in the River Conon near Moy Bridge, Ross & Cromarty, Highland (NH487545). The weather had been mild and sunny, but a sudden heavy shower had left the insect inactive in the open. At first casual sight I thought it might be an unusually small specimen of *Syrphus ribesii* (Linnaeus), and collected it. Detailed examination showed it to belong to *Parasyrphus*, while the yellow face and black front tarsus identified it as a male *P. nigritarsis* (Zetterstedt). In view of the rarity of this species, RDB1 Endangered (Shirt 1987, Falk 1991), I sent it to Kenneth Watt who confirmed its identity. The specimen will be placed in the National Museums of Scotland .

MacGowan and Watt (1994) listed the records of the species in Scotland - five only, the most recent in 1991. It feeds as a larva on aphids and larvae of various chrysomelid beetles, these associated with the common tree species sallow *Salix* species, aspen *Populus tremula* and alder *Alnus glutinosa*. The site at Moy Bridge, an island separated from the main riverbank by a narrow channel, has a diversity of habitat structure: open spaces, both wet and dry; scrub; and taller trees. The open spaces hold abundant meadowsweet *Filipendula ulmaria* and valerian *Valeriana officinalis* with frequent melancholy thistle *Cirsium heterophyllum*. Gorse *Ulex europaeus*, broom *Cytisus scoparius* and rose *Rosa* species are frequent and often dense, with some hawthorn *Crataegus monogyna* and guelder rose *Viburnum opulus*. The trees are predominantly small alder *Alnus glutinosa* and bird cherry *Prunus padus*, with some moderately large sycamore *Acer pseudoplatanus* at the west end. Other scarcer trees are ash *Fraxinus excelsior*, rowan *Sorbus aucuparia*, sallows *Salix* species, and silver birch *Betula pendula*. This habitat and vegetation is widespread in the vicinity on the north bank of the river, so it is unlikely that *Parasyrphus nigritarsis* is restricted in the area to the site where it was found.

The site is part of an SSSI, and the presence of this rare syrphid will be considered in future management plans.

Acknowledgements
I am grateful to Kenn Watt for confirming the identity of the specimen, and for help in preparing this note.

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The distribution, ecology and behaviour of *Empis* (*Lissempis*) *nigritarsis* Meigen, 1804 (Diptera, Empididae) - In his monograph of the Scandinavian species of *Empis* Linnaeus, M. Chvála (1994. *The Empidoidea (Diptera) of Fennoscandia and Denmark. III. Fauna Entomologica Scandinavica* **29**, 192 pp. Brill, Leiden) noted that nothing was known about the feeding habits and mating behaviour of species of *Lissempis* Bezzi, 1909 because of their rather rare occurrence. In Britain the sole representative of the subgenus, *E.* (*L.*) *nigritarsis* Meigen is quite common and it seems worthwhile recording what is known of its habits.

Although occurring as far north as Yorkshire and Anglesey, this is a southern species in Britain, with most of the 118 10km square records being south of a line connecting the Wash with the southern half of Wales. It is essentially a woodland species, apparently preferring well-drained soils but it can sometimes be found along ancient hedgerows, particularly those delimiting the edges of former woodland plots. Adults are on the wing from late April until the end of July with a pronounced peak in the middle of May. Chvála (*op. cit.*) hypothesised on account of the structure of the eyes, in which both sexes are narrowly dichoptic with equally small ommatidia, that *Lissempis* does not swarm and has transferred its epigamic behaviour to the ground. In this he was partly correct as large swarming aggregations have not been observed. However, they do engage in aerial epigamic activity either singly or in small aggregations of up to five individuals. Typically one or two males adopt an almost stationary hovering flight in shade beneath the lower branches of trees, often toward the tips of the branches and usually no more than 1.5m above the ground. When hovering, the fore legs are elevated above the head (apparently a 'hunting' or perhaps 'mate receptive' attitude for many Empidinae) but the hind legs with their conspicuously dilated and darkened tibiae and tarsi are held extended downwards below the body. Females also occasionally adopt a similar hovering flight. Mating is initiated in the air and pairs remain flying *in copula* but may alight on a leaf some distance from where the initial contact took place.

Both males and females have been observed with dipteran prey and I have seen one male pursue and catch a small dipteran in flight. It is not clear if a nuptial transfer of prey occurs but males and sometimes females have been seen carrying prey whilst hovering. Both sexes visit flowers with blooms of wood spurge (*Euphorbia amygdaloides*) and herb robert (*Geranium robertianum*) being particularly favoured, while Mike Paskin (*pers. comm.*) has recorded them at spindle (*Euonymus europaeus*) and various umbellifers (Apiaceae).

I would like to thank the many people who have made available their records without which the distribution analysis would not have been possible - **ADRIAN PLANT**, 9 High Street, Bishops Lydeard, Taunton, Somerset, TA4 3AX

Dipterists Digest 2003 **10**, 47-48

Soldierflies (Diptera, Stratiomyidae) from the Conservation Area at the Royal Botanic Gardens, Kew, Surrey

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Summary
Kew Gardens has a rich insect fauna including 19 species of soldierflies (Stratiomyidae); a list is given of species of this family recorded in the Conservation Area during 2001 and 2002, including two species new to Surrey.

During 2001 and 2002 I was surveying Kew Gardens for aculeate Hymenoptera. One area that was rich in aculeate species is the Conservation Area in the south-west corner of the Gardens, consisting of about 5 hectares of old woodland with open flowery glades, which has not been under cultivation for at least 250 years (Bernard Verdcourt *pers. comm.*). The site borders the Thames, which is tidal at this point. As the site is closed to the public I was able to operate a Malaise trap (from 30 July to 3 September 2001 and from 20 May to 17 September 2002) in an open glade beside a very small gravel pit, only about 20m across, that is permanently damp and muddy at the bottom. This is possibly below the level of the Thames at high water and therefore slightly saline. It has a few scattered reedmace *Typha latifolia* growing at the bottom and much yellow loosestrife *Lysimachia vulgaris* on the sides.

Surrey is not noted for its aquatic soldierfly fauna, as the county has no coast and is deficient in fens and calcareous seepages. It was therefore a surprise to find in such a small area no less than eight aquatic species, two of which, *Nemotelus nigrinus* Fallén (D. Baldock in 2002) and *Oxycera morrisii* Curtis (G.A. Collins in 2001) are apparently new to Surrey (V.C. 17). This is possibly due to the saline influence of the Thames, although some of the species may have flown over the Thames from the extensive tidal marshes of Syon House that are directly opposite. These marshes have never been properly surveyed for soldierflies but would certainly merit further investigation. It is also possible that some may have been strays from the nearby Lake in Kew Gardens, which is regularly topped-up with water from the Thames at high tide, or even from the marshes in the Thames estuary. However, the only species normally associated with brackish conditions was *Stratiomys singularior* (Harris), which had previously been recorded from three sites in Surrey, namely Mitcham Common, Beddington Sewage Farm and Bookham Common, none of which are brackish (Morris 2000). The Kew site also had a good selection of twelve terrestrial species of soldierflies, some of which are rare or scarce in Surrey.

The only other list of soldierflies from a Surrey site that I have been able to locate is that by Parmenter (1950) for Bookham Common, a damp clay common with many ponds. This list gives twelve species, including four aquatic species (*Odontomyia argentata* Fabricius, *O. tigrina* (Fabricius), *Oplodontha viridula* (Fabricius) and *Stratiomys singularior*), and one further terrestrial species was added by him later (Parmenter 1966). Only about nine further species of soldierflies have ever been recorded from Surrey and most of these are very rare; the only aquatic species are *Oxycera nigricornis* Olivier, found at various sites; *Nemotelus pantherinus* (Linnaeus), which has been found by the River Wandle at Morden and by the River Wey and *Odontomyia ornata* (Meigen), with a single modern record from Chiddingfold Forest.

A full list of all species of soldierflies recorded at the Kew site is given below:

Aquatic species

Nemotelus nigrinus Fallén	New for Surrey. One in trap 2002.
Oxycera morrisii Curtis	New for Surrey. Two in trap on 2 dates 2001, one 2002.
Oxycera rara (Scopoli)	One netted in gravel pit 2002.
Oxycera trilineata (Linnaeus)	Rare in Surrey. Two in trap in 2001. One on reed-mace in gravel pit in 2002
Odontomyia tigrina (Fabricius)	**Nationally Scarce.** One in trap 2002.
Oplodontha viridula (Fabricius)	Very local in Surrey. Abundant on hogweed and thistle flowers in 2002.
Stratiomys potamida Meigen	**Nationally Scarce.** One in trap 2001.
Stratiomys singularior (Harris)	**Nationally Scarce.** Rare in Surrey. One netted in 2001 (Denton and Baldock 2002; Verdcourt 2002).

Terrestrial species

Beris chalybata (Forster)	Common in trap.
Beris clavipes (Linnaeus)	**Nationally Scarce.** Very scarce in Surrey, mainly in west. One in trap.
Beris fuscipes Meigen	**Nationally Scarce.** One in trap 2002. Only two other Surrey records.
Beris morrisii Dale	Not common in Surrey. One in trap
Beris vallata (Forster)	Common in trap.
Chorisops nagatomii Rozkošný	**Nationally Scarce.** Two in trap 2002.
Chorisops tibialis (Meigen)	Common in trap.
Pachygaster atra (Panzer)	Fairly common in trap.
Pachygaster leachii Stephens in Curtis	Fairly common in trap.
Chloromyia formosa (Scopoli)	Very common.
Microchrysa polita (Linnaeus)	Few in trap.
Sargus bipunctatus (Scopoli)	One netted in 2001. Four in trap 2002.

Acknowledgements

I would like to thank the staff at the Royal Botanic Gardens, Kew for their help, and for permission to operate a Malaise trap, and Graham Collins for determining some of the Malaise trap material and confirming my determinations.

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Dipterists Digest 2003 **10**, 49-54

Symplecta chosenensis (Alexander, 1940) (Diptera, Limoniidae) new to Britain, with comments on the status of *S. scotica* (Edwards, 1938)

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Summary
Symplecta (sensu stricto) *chosenensis* (Alexander, 1940) (Diptera, Limoniidae) is added to the British list. Its separation from *S. scotica* (Edwards, 1938) and the status of that species are discussed

Edwards (1938) described *Symplecta scotica* from two females collected by J.J.F.X. King at Dingwall, East Ross on 30 August 1909 (given in error as 1902 in his text) and figured the wing. He stated "type in the British Museum" (= Natural History Museum, London), where the holotype female is the only specimen under this name; the second specimen was evidently retained by its collector and is in the Glasgow University Museum collection (G. Hancock *pers. comm*). No details were given of the precise location of the find or its habitat and the relevant page is unfortunately missing from King's notebook. Edwards compared *scotica* with *S. novaezemblae* Alexander, 1922, described from the Russian Arctic island of Novaya Zemlya and suggested that it might be conspecific although noting some differences. Subsequently, Theowald (1991) established this synonymy, treating material identified as *novaezemblae* from Greenland, Finland and the Kola peninsula of Russia, as subspecies *scotica* and since then *scotica* has been placed as a subspecies of *S. novaezemblae*.

No other British records of *scotica* were known to Falk (1991), who accorded this species RDB1 (Endangered) status and speculated that it might be extinct. However, in recent years specimens of both sexes, thought to be *scotica*, have been found at seepages on Boulder clay coastal cliff sites in Yorkshire by RC and by Alan Stubbs, and at similar sites in North Wales and Cumbria by Mike Howe. Doubt about the identity of these specimens was, however, raised when RC found that the genitalia of his male specimens differed significantly from the figures of *S. novaezemblae* given by Theowald (1991). Examples of both sexes were forwarded to Jaroslav Starý (Olomouc, Czech Republic) who identified them as *S. chosenensis* Alexander, 1940. This species was described by Alexander (1940) from North Korea and subsequently under the name *Helobia mongolica* by Lackschewitz (1964) from parts of the former USSR and Mongolia. It has since been recorded from central Europe including Romania (Erhan-Dinca 1986), Slovakia (Starý 1986), the Czech Republic (Starý 1993, 1997), Poland (Wiedenska 1996) and Lithuania (Podenas and Pakalniskis 2000). The European records are from various habitats, including by brooks in hilly districts and in lowland boggy meadows (J. Starý *pers. comm.*). In these situations it has been found together with *S. hybrida* (Meigen), although more rarely, while in the far east of Russia these species also occur together but with *chosenensis* by far the commoner species (Savchenko 1983). *S. hybrida* was also found with it on 1.viii.2001 by RC, but *chosenensis* was more numerous.

Our initial assumption was that *scotica* would prove to be a senior synonym of *S. chosenensis* and the holotype female (in BMNH) was examined with this expectation in mind. They were clearly similar in some respects although the type of *scotica* was distinctly larger and had vein Sc_2 in a more basal position, not far beyond the base of Rs, as described by Edwards

(1938). Jaroslav Starý had drawn attention to some distinctive features of the female ovipositor structure in *chosenensis* and it was consequently necessary to compare these features. The *scotica* specimen was loaned and its abdomen, which had at some time previously been separated and stored in a glass vial attached to the pin, was macerated in NaOH and mounted in DMHF (dimethyl hydantoin formaldehyde) by PC. It was then possible to establish that it differed significantly in the internal structure of the female postabdomen from the females of *chosenensis* examined.

It can therefore be stated that *S. chosenensis* is not synonymous with *S. scotica* and it is here added to the British list.

Recognition of *S. chosenensis*

S. chosenensis is apparently a smaller species (wing length 4.8-5.7mm in specimens of *chosenensis* examined compared to 6.8mm in the holotype female of *scotica*). On external characters these species are very similar, including the distribution of the wing markings but *chosenensis* differs in the more basal position of crossvein Sc_2 (= sc-r), such that the spot over this vein is distinctly separate from that over the base of Rs (Fig. 2) while these markings are practically confluent in the type of *scotica* (Fig. 3). There is some variation in this character in *chosenensis*, some specimens having Sc_2 closer to the base of Rs than shown in the figure, but always more distinctly separated from it than in *scotica*. In this aspect of the venation, *chosenensis* is thus more like *S. hybrida* (Meigen). However, *S. hybrida* is lighter grey with more distinct dark thoracic stripes and its wings are relatively broader with less distinct and smaller markings and vein A2 is more strongly sinuous with the apical loop broader. In both *chosenensis* and *scotica* this loop is less undulating and closer to the wing margin. The structure of the male genitalia in *S. hybrida* also differs in that the outer lobe of the gonostylus is simply truncated apically without any teeth.

The male genitalia of *chosenensis* (Fig. 1) have previously been figured by both Alexander and Lackschewitz. Alexander (1940) commented that their structure was very different from all known species of *Symplecta*. The outer lobe of the gonostylus is widely bifurcated apically. The simple inner lobe is shown as more expanded apically in Alexander's figure, but more slender as in British specimens in the figure by Lackschewitz. In the typical form of *S. novaezemblae* (figured by Theowald 1991) the apical teeth are shorter and a third median tooth is apparent, giving a trifid appearance. Theowald also figured the male of what he identified as subspecies *scotica* as similar to this, but with the three teeth in a subapical position before a rounded apical lobe. The paramere in *chosenensis* is slender and pointed apically with a small inward pointing tooth beyond the middle; this tooth varies in prominence in the Yorkshire material examined by RC. In *novaezemblae* the paramere is much broader with a slender pointed apical portion medially.

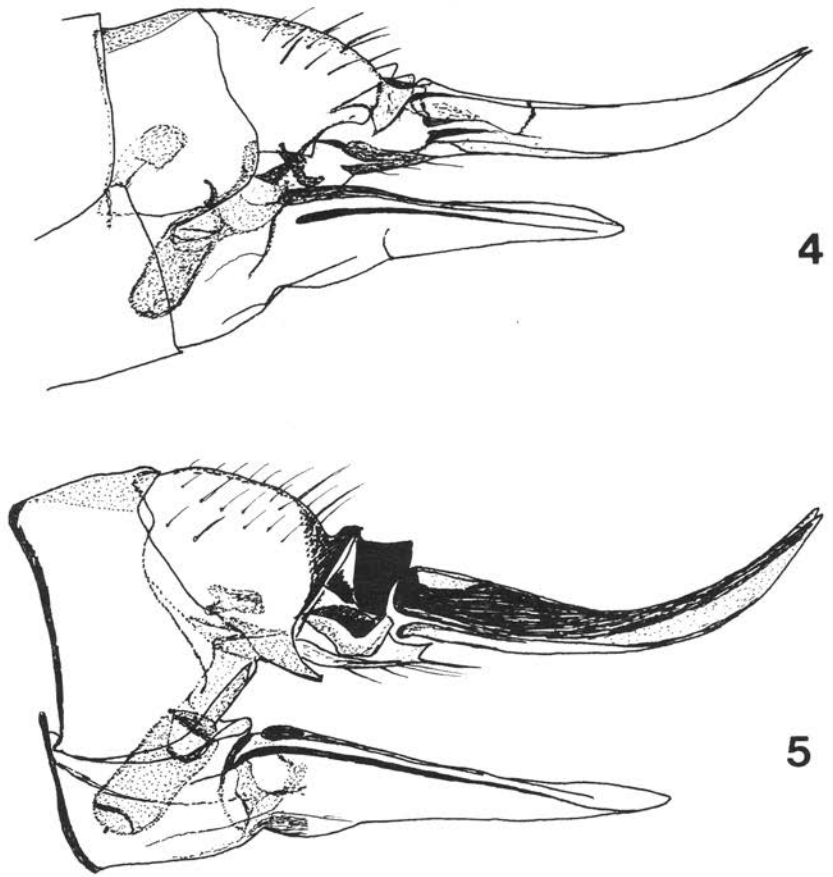
The female genitalia of *chosenensis* (Figs 4 and 6) possess a pair of sclerotised ventral hooks on the vaginal apodeme, which are not apparent in the female type of *scotica* or in females of *hybrida* and *S.* (subgenus *Psiloconopa*) *stictica* (Meigen) that have been examined for comparison. *S. scotica* also has the ovipositor (Figs 5 and 7) more strongly sclerotised than is the case in *chosenensis*. Comparison of the Scottish specimens with the European populations identified as *scotica* by Theowald and the discovery of Scottish males would be desirable to confirm the identity of *scotica* with the subspecies of *novaezemblae* recognised by Theowald.

Fig. 1. Dorsal view of male genitalia of *Symplecta chosenensis* (Alexander). Figs 2-3. Radial sector of wing of *Symplecta* species, to show position of crossvein Sc_2: 2, *S. chosenensis* (Alexander); 3, *S. scotica* (Edwards).

1

2

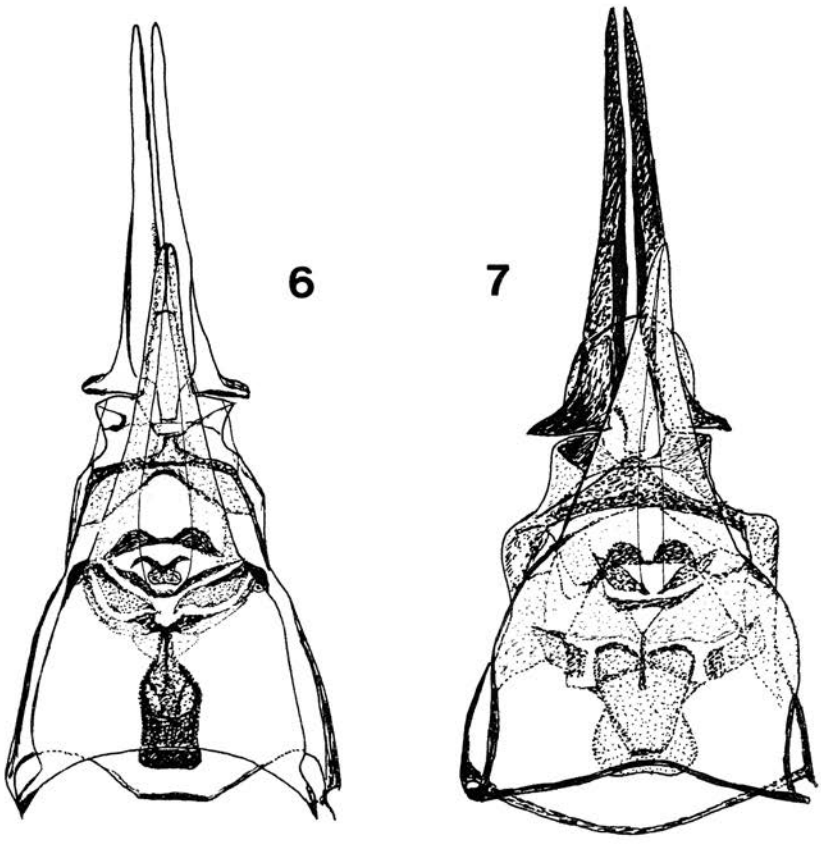
3



Figs 4-5. Lateral view of female genitalia of *Symplecta* species: 4, *S. chosenensis* (Alexander); 5, *S. scotica* (Edwards).

British material of *S. chosenensis* and *S. scotica*

***Symplecta* (*Symplecta*) *chosenensis* (Alexander, 1940)**
Erioptera (*Symplecta*) *chosenensis* Alexander, 1940: 67.
Helobia mongolica Lackschewitz, 1964: 718.



Figs 6-7. Ventral view of female genitalia of *Symplecta* species: 6, *S. chosenensis* (Alexander); 7, *S. scotica* (Edwards).

ENGLAND, CUMBRIA: Gutterby Cliffs, V.C. 70, SD097847, 16.vi.1999, male (M. Howe); YORKSHIRE: Reighton (= Speeton) Cliffs, V.C. 61 (TA1476), 17.viii.1988 (A.E. Stubbs), 20.vii and 1.viii.2001, 26.vii.2002 (R. Crossley), numerous examples of both sexes; Sewerby Cliffs, V.C. 61 (TA1468), 8.vii.1997, 1 female (R. Crossley).
WALES, GWYNEDD: Porth Ceiriad, V.C. 49, SH313248, 24.vi.1999, male; Porth Pistyll, V.C. 49, SH323422, 19.vi.2002, 2 males, 3 females; DYFED: Traeth y Mwnt, V.C. 46, SN194519, V.C. 46, 20.vii.2002, 4 males, 1 female (all M. Howe)

***Symplecta* (*Symplecta*) (? *novaezemblae* subspecies) *scotica* (Edwards, 1938)**

Erioptera (*Symplecta*) *scotica* Edwards, 1938: 127.

Holotype female, SCOTLAND, ROSS: Dingwall, V.C. 106, 30.viii.1909, J.J.F.X. King (BMNH collection); female without type status, same data (Glasgow University Museum).

Acknowledgements

We are indebted to Jaroslav Starý for determining specimens, for useful comments on this paper and other information. Alan Stubbs and Mike Howe kindly enabled us to incorporate their records into this account. Geoff Hancock provided information on the King collection.

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Dipterists Digest 2003 **10**, 55-57

Neria femoralis (Meigen, 1826) (Diptera, Micropezidae) new to Britain

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Summary
Neria femoralis (Meigen) was recorded as new to the British fauna from a sandy floodplain in Cheshire, and the male abdomens of *femoralis*, *cibaria* and *commutata* are illustrated.

The most recent species to be added to this small family of nine species was the large and rare *Rainieria calceata* (Fallén) in 1930 (Collin 1945). These quirky flies are sufficiently bizarre and just scarce enough that many recorders will have collected them, so it was most unexpected that another species should be newly found in Britain.

Insects were being recorded at a site within the town boundary at Northwich, Cheshire next to a small river (SJ6774) on 19 May 2002. The site was a narrow floodplain up to about 50m wide on sand, and almost entirely covered in the non-native Himalayan Balsam (*Impatiens glandulifera*) and nettles (*Urtica dioica*). On slightly drier ground away from the river there was great willow-herb (*Epilobium hirsutum*) and brambles (*Rubus fruticosus* agg.). Large crack willows (*Salix fragilis*) cast some shade. The site evidently flooded in winter but the soil was only damp at the time of the visit. The actual river banks were mostly inaccessible because they were steep and vegetated. The survey was conducted for Cheshire County Council, which requested that precise details of the location are not published.

Individuals of *Neria* were frequently seen among the dense balsam but it was assumed they were one of the two common species so not many specimens were collected. *Calobata petronella* (Linnaeus) was frequent and one specimen of *Micropeza corrigiolata* (Linnaeus) was collected. The *Neria* included several *cibaria* (Linnaeus) and five males of *N. femoralis* (Meigen) that were identified from their characteristic globose genitalia illustrated by Soós (1980). Further illustrations and a key in English to the central European species were given by Roháček and Barták (1990). *Neria femoralis* is superficially similar in appearance and size to the two common species, *cibaria* and *commutata* (Czerny) (but all three are amply distinct from *ephippium* (Fabricius), the other British *Neria*, which has a broadly yellow thorax). It keys to *cibaria* using Collin (1945) since both species have an orange frons, but the males differ in the sternal appendages being egg-shaped in side and ventral views (Fig. 1a-b), rather than being fat curved arms as in *cibaria* (Fig. 1c-d) and *commutata* (Fig. 1e-f). None of the females collected unambiguously fitted the key characters used by Roháček and Barták (1990) for *femoralis* although two specimens with somewhat shrunken abdomens may be this species.

Neria femoralis is an uncommon but widespread species, mainly recorded from central and eastern Europe (Austria, Czech Republic, Germany, Hungary, Poland, Russia, Slovakia, Switzerland) but it has also been recorded from Belgium (Gosseries 1991) and the Netherlands (Beuk and van der Goot 2002). It has a short early flight period in May and June in the Czech Republic and Slovakia, where it has been found along lowland rivers and brooks (Roháček and Barták 1990) and in Switzerland (Merz 1997).

Other scarce flies recorded at this sandy floodplain at Northwich were the craneflies *Arctoconopa melampodia* (Loew) (Limoniidae) and *Nephrotoma lunulicornis* (Schummel) (Tipulidae), and the dolichopodids *Rhaphium penicillatum* Loew and *R. rivale* (Loew).

Acknowledgements

Darwyn Sumner sent me useful literature on European micropezids (aided by Bernhard Merz) and confirmed my identification of *N. femoralis*. The fly was collected during a survey financed by Cheshire County Council, and I am grateful to the Council for permission to publish this note.

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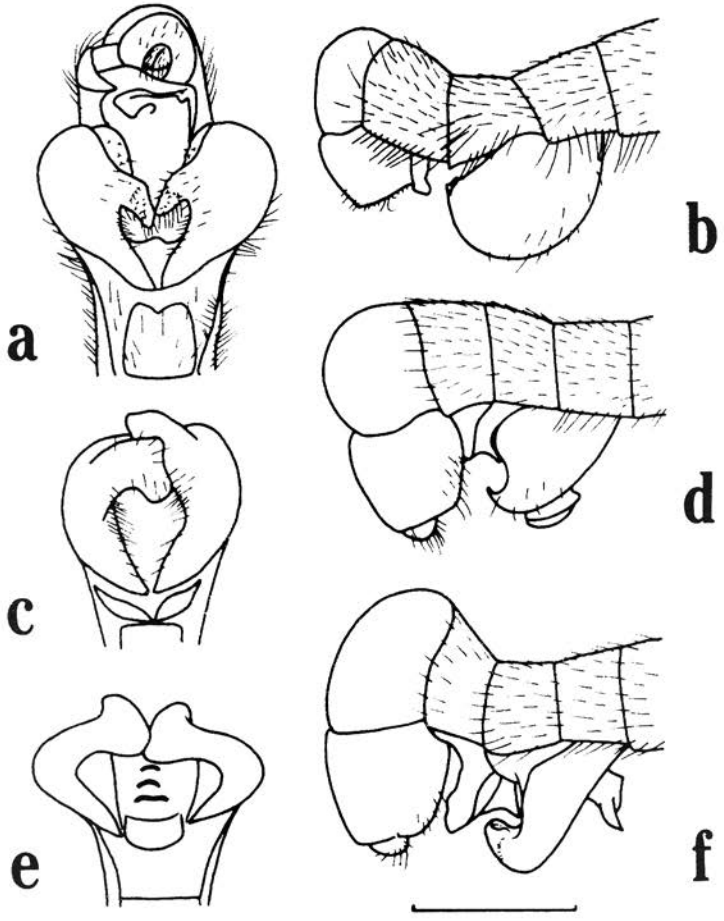
Soós, Á. 1980. Csupaszlegyek - Laposfejlegíek. Psilidae - Platystomatidae. *Fauna Hungariae* **143,** 100pp. Akadémiai Kiadó, Budapest.

Fig. 1. Male abdomen in ventral and lateral view of *Neria* species: a, b, *femoralis* (Meigen); c, d, *N. cibaria* (Linnaeus); e, f, *N. commutata* (Czerny). Only the sternal appendages are shown for *cibaria* and *commutata* in ventral view. Scale line = 1mm.


a
b
c
d
e
f

Dipterists Digest 2003 **10,** 58-60

Corrections and changes to the Diptera Checklist (9) - Editor

It is intended to publish here any corrections to the text of the latest Diptera checklist (publication date was 13 November 1998; the final 'cut-off' date for included information was 17 June 1998) and to draw attention to any subsequent changes. All readers are therefore asked to inform me of any errors or changes and I would like to thank all those who have already brought these to my attention.

The 2000-2001 volume (entitled 2001) of Zoological Record has belatedly appeared in print, having previously been available only on CD-ROM, so has now been consulted.

In the notes below where names of genera and species are given as in the Checklist, authorship is not stated here. Corrections are listed under the relevant page numbers; none have been notified since the previous issue. Changes are listed under families; names new to the British list are given in bold type.

The notes below refer to the loss of no names due to synonymy and addition of 14 species, resulting in a new total of 6766 species.

Changes

Limoniidae. The following is added in the present issue:
Symplecta (sensu stricto) ***chosenensis*** (Alexander, 1940 – *Erioptera*)

A. GODFREY (2001. *English Nature Research Reports* **410,** 1-47) confirmed the following new synonymy, which had been suggested by E.N. Savchenko, P. Oosterbroek and J. Starý (1992. Family Limoniidae. **In** Soós, Á. and Papp, L. (Eds) *Catalogue of Palaearctic Diptera* **1,** 183-269. Akadémiai Kiadó, Budapest):
Lipsothrix ***nobilis*** Loew, 1873 = *nigristigma* Edwards, 1938

Sciaridae. H. HIPPA, P. VILKAMAA and V. MOHRIG (2003. Phylogeny of *Corynoptera* Winnertz and related genera, with the description of *Claustropyga* gen. nov. (Diptera, Sciaridae). *Studia dipterologica* **9,** 469-511) proposed the genus **CLAUSTROPYGA** for 17 species, including the following British species:
Claustropyga abblanda (Freeman, 1983 – *Corynoptera*)
Claustropyga ***brevichaeta*** (Mohrig & Antonova, 1978 – *Corynoptera*) = *acanthostyla*: Freeman, 1987, misident.
Claustropyga heteroclausa (Rudzinski, 1991 – *Corynoptera*)

Cecidomyiidae. Two genera (both in Tribe Cecidomyiini) and six species were added to the British list, from the Isle of Man, by K.M. HARRIS and F.D. BENNETT (2003. Records of gall midges (Dipt.: Cecidomyiidae) from the Isle of Man. *Entomologist's Record and Journal of Variation* **115,** 109-115):
Aprionus ***insignis*** Mamaev, 1963
Aphidoletes ***thompsoni*** Möhn, 1954
COQUILLETTOMYIA Felt, 1908 and *C.* ***lobata*** Felt, 1907
MAMAEVIA Skuhravá, 1967 and *M.* ***vysineki*** Skuhravá, 1986

Mycodiplosis ***sphaerothecae*** (Rübsaamen, 1889 – *Diplosis*)
Mycodiplosis ***pucciniae*** (Rübsaamen, 1889 – *Diplosis*)

Ceratopogonidae. It was overlooked in the checklist that the following change had resulted from R. SZADZIEWSKI, E. KACZOROWSKA and J. KRZYWINSKI (1996. Redescriptions of some European species of *Atrichopogon* (Diptera: Ceratopogonidae). *Polskie Pismo Entomologiczne* **65,** 297-318):
Atrichopogon (subgenus *Psammopogon*) ***muelleri*** (Kieffer in Müller, 1905 – *Ceratopogon*) = *trifasciatus*: authors, misident. [= *flavolineatus* of the British list; true *flavolineatus*, of which *trifasciatus* is a synonym, is absent from western Europe]

The following new synonymies result from R. SZADZIEWSKI and J. KNOZ (2002. New synonyms of European biting midges (Diptera: Ceratopogonidae). *Annales Zoologici, Warszawa* **52,** 249-151):
Alluaudomyia ***riparia*** Clastrier, 1978 = *bohemiae* Boorman, 1997
Culicoides ***tbilisicus*** Dhafarov, 1964 = *dendriticus* Boorman, 1976

Chironomidae. The following species were added from Ireland by P.H. LANGTON (2002. A preliminary survey of the non-biting midges (Diptera: Chironomidae) of Northern Ireland. *Bulletin of the Irish biogeographical Society* **26,** 14-28) (all as yet unrecorded in Britain):
++*Parakiefferiella* ***scandica*** Brundin, 1956
++*Cryptochironomus* ***defectus*** (Kieffer, 1913 – *Chironomus*)
++*Polypedilum* (subgenus *Tripodura*) ***aegyptium*** Kieffer, 1925

Asilidae. *Zoological Record* for 2001 reports the synonymising of *Dioctria baumhaueri* with *D. hyalipennis* (Fabricius, 1794) by P.A. LEHR (2001. Robber Flies of the subfamily Dioctriinae stat. n. (Diptera, Asilidae) from Asia: 1. Taxonomy, Ecology and Phylogeny. *Entomological Review* **81,** 59-70; translation of paper in Russian in *Entomologicheskoe Obozrenie* **80,** 194-208). This possible synonymy was mentioned in Note 7 in the checklist and was first proposed by V.S. VAN DER GOOT (1961. Synonymy and occurrence in the Netherlands of some *Dioctria* species (Diptera, Asilidae). *Entomologische Berichten. Nederlandse Entomologische Vereniging* **21,** 25-27). Later authors differed in their treatment, some accepting this synonymy but others regarding these species as distinct. Lehr was evidently unaware of the synonymy by van der Goot and referred, as the authority for recognising this synonym, to F. PEUS (1954. Zur Kenntnis der Raubfliegen Deutschlands (Dipt., Asilidae). *Deutsche entomologische Zeitschrift* **1**(3-5), 125-137) who regarded them as possibly varieties of one species. This synonymy may be correct as they are separated primarily on leg colour, *hyalipennis* having mainly yellow legs, sometimes with a dark patch above the apex of the anterior femora. British material has darker legs and fits *baumhaueri* in this respect. M. WEINBERG and G. BÄCHLI (1995. *Insecta Helvetica (Fauna). 11. Diptera Asilidae*. Schweizerische Entomologische Gesellschaft, Geneva), who treat these species as separate, also distinguish them on the shape of the posterior metatarsus but this has not proved reliable and further work is considered necessary to establish whether this synonymy is correct (Malcolm Smart *pers. comm.*) so it is not adopted here.

In the same paper the tribe Dioctriini is raised to subfamily rank as Dioctriinae, but it is uncertain whether this will meet with wider acceptance.

Dolichopodidae. I. GRICHANOV (2002. A Check list of Swedish Dolichopodidae (Diptera). *Entomologisk Tidskrift* **123,** 119-130) proposed several new synonymies of which one (*Medetera petrophiloides* with *M. petrophila*) affects the British list. However, this synonymy is clearly wrong as the male genitalia of these species are very different and it is concluded that the author had not seen authentic material of *M. petrophiloides* (Peter Dyte *pers. comm.*).

Syrphidae. The following species, added in the first issue for 2002, was inadvertently omitted from the relevant checklist supplement (7) in that issue:
Platycheirus ***aurolateralis*** Stubbs, 2002

The following species was added from Ireland by M.C.D. SPEIGHT (2002. Two controversial additions to the Irish insect list: *Microdon myrmicae* Schönrogge et al. and *Pipiza festiva* Meigen (Diptera: Syrphidae). *Bulletin of the Irish biogeographical Society* **26,** 143-153) (as yet unrecorded in Britain):
++*Pipiza* ***festiva*** Meigen, 1822

Micropezidae. The following is added in the present issue:
Neria ***femoralis*** (Meigen, 1826 – *Calobata*)

Lonchaeidae. A note by A.A. ALLEN (2003. *Lonchaea iona* MacGowan, not *L. hirticeps* Zett. (Dipt., Lonchaeidae) at Blackheath, south-east London. *Entomologist's Record and Journal of Variation* **115,** 18) records the misidentification in the British literature of *L. hirticeps*, which should therefore be replaced by *L. iona* on the British list:
Lonchaea ***iona*** MacGowan, 2001 = *hirticeps*: Collin, 1953, misident.

Sciomyzidae. *Pherbellia stylifera*, noted as new to Britain in comments on exhibits in volume 9, has been formally added to the British list by J.H. COLE (2003. *Pherbellia stylifera* Rozkošný, a member of the snail-killing family Sciomyzidae (Diptera) new to Britain from Cambridgeshire. *British Journal of Entomology and Natural History* **16,** 10-12).

Agromyzidae. The following is added in the present issue:
Cerodontha (subgenus *Dizygomyza*) ***silvatica*** (Groschke, 1957 – *Phytobia* (*Dizygomyza*))

The introduced species *Liriomyza trifolii* was marked ++ as occurring in Ireland only, but it was also recorded from Britain by P.W. BARTLETT and D.F. POWELL (1981. Introduction of American serpentine leafminer, *Liriomyza trifolii*, into England and Wales and its eradication from commercial nurseries, 1977-1981. *Plant Pathology* **30,** 185-193).

Milichiidae. I. BRAKE (2000. Phylogenetic systematics of the Milichiidae (Diptera, Schizophora). *Entomologica Scandinavica Supplement* No. **57,** 1-120) proposed the new subfamily PHYLLOMYZINAE for several genera including (in the British Isles) *Phyllomyza* and *Neophyllomyza*.

Muscidae. Some Curtis names listed under nomina dubia in the checklist are assigned to synonymy of particular species in the present issue. No nomenclatural changes result from this.

Dipterists Digest 2003 **10**, 61-65

Cerodontha silvatica (Groschke, 1957) (Diptera, Agromyzidae) new to Britain

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Summary
The discovery is reported of *Cerodontha silvatica* (Groschke, 1957) found in South Gloucestershire in 2002, associated with *Luzula sylvatica*. The puparium and mine are described.

Introduction

In December 2000 I found numerous linear agromyzid mines in the leaves of greater wood-rush *Luzula sylvatica* in Hencliff Woods, South Gloucestershire (ST6371). At the time only one British species was known to mine this plant, *Cerodontha (Dizygomyza) luzulae* (Groschke, 1957) added to the British list by Bland (1993). The mines seemed to fit the description in Bland (1993) well so it seemed likely that they were the same species. Unfortunately, none of the larvae taken in December 2000 successfully pupated so I was unable to confirm this. In March 2002 I returned to the site and again found mines in a large proportion of the plants. This time they had already pupated and of the half dozen collected two adults emerged, one male and one female. A further two females were swept from *Luzula sylvatica* at the same site in early June. In March 2003 I visited the Frome valley near Snuff Mills in Bristol (ST6276), where I knew *Luzula sylvatica* grew in abundance. At this site mines were even more abundant, many plants with a large number of leaves infested.

Identification

In Spencer (1972) both sexes run to *C. iridis* (Hendel, 1927) the female cleanly as the abdomen is entirely shiny black, the male less readily as the abdomen is duller and browner. However, it seemed highly unlikely that *C. iridis* would occur in *L. sylvatica*. Once the male was dissected it was apparent that it could not be *C. iridis*; the distal curve of the distiphallus is larger relative to the proximal curve, the mesophallus is relatively shorter and thicker and the basiphallus is far more complex (Fig. 1). The genitalia are much more similar to *C. luzulae* but differed sufficiently for me to be unsure of the identity of my specimens. Compared to *C. luzulae* the distal curve of the distiphallus is tighter; the mesophallus is shorter, thicker and more club-shaped and the basiphallus differed in many small ways. Spencer (1990) listed only two species known to mine *Luzula sylvatica* and illustrated the posterior spiracles of the puparium of *C. luzulae*, which certainly did not fit my specimens. In Nowakowski (1973) my specimens ran to *C. silvatica* and this was readily confirmed by the illustrations of the genitalia, which fitted them very closely.

As a further check I visited the Natural History Museum, London and compared my specimens with paratypes of *C. silvatica* reared by Groschke. No significant differences, either externally or in the genitalia, could be found. The puparia were also similar (Fig. 3), but notably different from those from which paratypes of *C. luzulae* were reared (Fig. 5). In lateral view the posterior spiracles of the puparium of *C. silvatica* are relatively slender, project more or less straight out of the rear and are slightly curved towards the anal opening (Fig. 3b). Viewed thus the posterior

spiracles of *C. luzulae* are on much more robust protuberances, point away from the anal opening and are tipped with a conspicuous thorn-like spine (Fig. 5a). This difference becomes even more apparent from a caudal viewpoint; the posterior spiracles of *C. silvatica* are well separated on a relatively low protuberance (Fig. 3d), while those of *C. luzulae* are contiguous basally and on a much larger protrusion (Fig 5b). This finding, while in accord with the illustration in Spencer (1990), is at odds with the drawing of the puparium of *C. luzulae* in Hering (1957 - Band III p. 139). It seems possible that this is an error and that Hering has illustrated the puparium of *C. silvatica*.

Fig. 1. *Cerodontha silvatica* (Groschke), Hencliff Woods. Aedeagus – lateral view.

Biology

The mines from Hencliff Wood (Fig. 6) started in the apical half, usually several centimetres from the tip and continued towards the base on the upper side of the leaf. The beginning of the mine, or at least that part which is visible, is about 1mm wide, and towards the base it widens out to about 3mm. In many mines the larvae have doubled back, thus increasing the apparent width of the mine, sometimes this happens several times leading to a relatively short, wide mine. Mines that do not double back might be 40cm long, while the shortest mines are a third this length. In fresh material the mine shows up as a yellowish-green stripe contrasting with the dark green of the leaf blade; many mines are stained with purple, particularly in the first half. The puparia are placed very close to the end of the mine that in every case but one has been close to the base, often right down in the leaf axil. In the single exception seen the puparium was at the apical part of the mine, close to where the mine had started. Mines from Snuff Mills were rather more variable with a greater tendency to be branched and widened by doubling back. Also some of the puparia were placed more centrally, away from the base of the leaf. In part this may be due to there being more than one

mine in a leaf, but in these cases only one larva had succeeded in pupating. The larvae mine through the winter, most having pupated by March but several larvae were still feeding at the end of March 2003. When taken indoors adults emerged on 24 April and in the field females were found on 1 June.

Fig. 2. ***Cerodontha silvatica*** **(Groschke), Hencliff Woods. Hypandrium – A caudal view, B – internal view.**

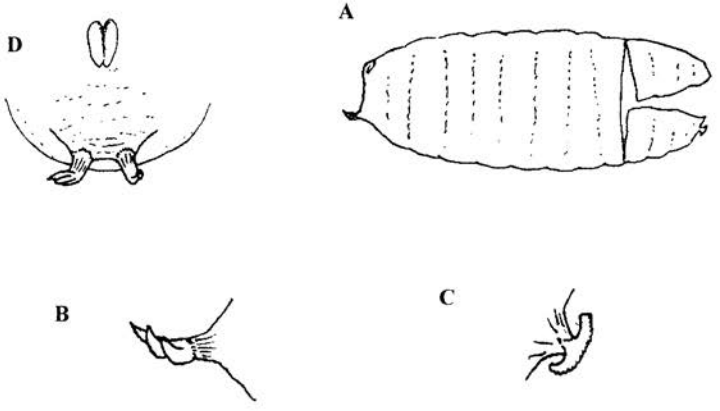

Fig. 3. ***Cerodontha silvatica*** **(Groschke), Hencliff Woods. A, puparium – lateral. B, posterior spiracle – lateral. C, anterior spiracle – lateral. D, posterior spiracle – caudal.**

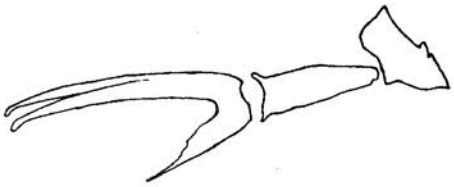

Fig. 4. ***Cerodontha silvatica*** **(Groschke), Hencliff Woods. Cephalopharangaeal skeleton.**

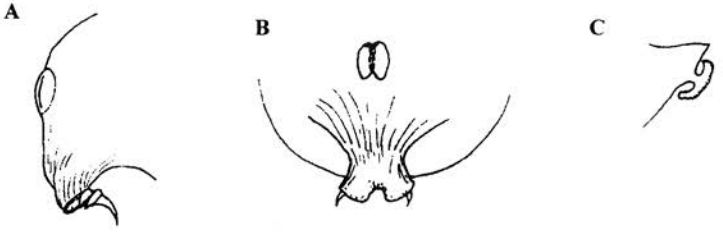

Fig. 5. ***Cerodontha luzulae*** **(Groschke), paratype, Stuttgart. Puparium. A, posterior spiracle, lateral. B, posterior spiracle - caudal. C, anterior spiracle - lateral.**

Hencliff Woods is a deciduous woodland dominated by oak (*Quercus*) on the steep west-facing slope of the valley of the River Avon. *Luzula sylvatica* covers large areas of the floor of the wood, particularly where the understorey of shrubs is largely absent. The woodland along the Frome valley is very similar in character, oak woodland on steep, rocky valley sides. Here all the *Luzula sylvatica* is growing on the north and west facing slopes. On the continent *C. silvatica* is not uncommon in northern and central Europe, from Finland to Bulgaria (Spencer 1990).

Acknowledgements

I am very grateful to John Ismay and Barbara Schulten for help in understanding the German of Nowakowski's key and to John Chainey for facilitating my visit to the Natural History Museum.

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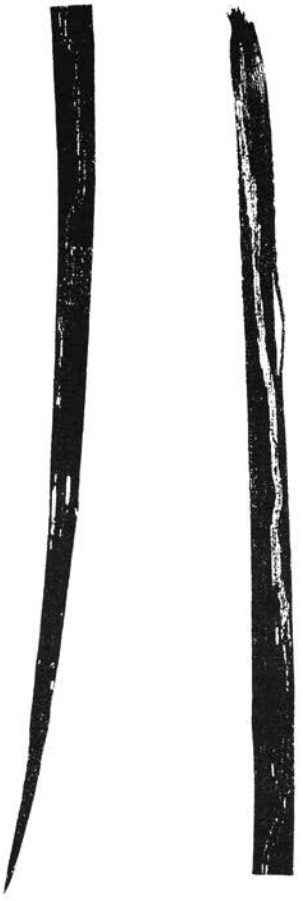

Fig. 6. ***Cerodontha silvatica*** **(Groschke), Hencliff Woods. Mine in** ***Luzula sylvatica*** **leaf.**

Hering, E.M. 1957. *Bestimmungstabellen der Blattminen von Europa.* Vols 1 and 3. Dr W. Junk, s-Gravenhage.

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***Syntormon macula* Parent (Diptera, Dolichopodidae) and other Diptera new to Wiltshire -** During the second half of 2002 a series of visits was made to record Diptera at Lackham Park, Wiltshire. This is a mainly agricultural estate, the site of the Wiltshire Agricultural College, situated in a loop of the River Avon south of Chippenham, and includes several small broad-leaved woodlands with a rich flora. At the eastern end adjacent to the river is Lackham Wood (ST9269), where on 13 September two males of *Syntormon macula* Parent (Dolichopodidae) were swept from low vegetation. They were found in an area adjacent to an avenue of mature limes *Tilia europaea* that runs close to the riverbank at this point. Females of *S. denticulatum* Zetterstedt were swept on the nearby riverside walk. A return visit to the same area was made on 20 September but no further examples of *S. macula* could be found.

S. macula is a rarely recorded mainly south-western species, with the exception of a 1964 record from Kent and has been recorded from Devon, Somerset, Gloucestershire and Herefordshire in England and Gwent and Breconshire in Wales. Most of the sites are wet woodland and it has been found near the Rivers Monnow (Herefordshire) and Wye (Breconshire). The distribution is summarised by S. Falk and R. Crossley (in preparation. *A review of the scarce and threatened flies of Great Britain: Empidoidea*. JNCC, Peterborough) and details of the Welsh records were given by M.A. Howe and E.A. Howe (2000. A review of the Dipterists Forum summer field meeting at Abergavenny, 1997. *Dipterists Digest* (*Second Series*) **8,** 31-48) and M.A. Howe (2002. *A provisional checklist of the invertebrates recorded in Wales. 3. Brachyceran flies (Diptera: Xylophagidae to Dolichopodidae).* 81 pp. Countryside Council for Wales).

Most British records of *S. macula*, of which both sexes may be recognised by the presence of a small spot on the apical part of the discal vein, relate to females so the finding of males at Lackham Park was of particular interest.

Also in Lackham Park is Plucking Grove Wood (ST9170), a strip of mixed woodland on a north-facing slope to the River Avon. On 2 July *Rhipidia uniseriata* Schiner (Limoniidae), *Diazosma hirtipenne* (Siebke) (Trichoceridae) and *Eutrichota praepotens* (Wiedemann) (Anthomyiidae) were found in this area. There are scattered records for *D. hirtipenne* from south-east England to the north of Scotland (Falk, S. and Chandler, P.J. in preparation. *A review of the scarce and threatened flies of Great Britain: Nematocera and Aschiza not covered by Falk (1991).* JNCC, Peterborough) but this is the most south-westerly record so far. On the following day 3 July, it was found at Rotherfield Park, Hampshire, also a new county record. In the same woodland on 5 August *Macrocera maculata* Meigen (Keroplatidae) and on 4 November *Trichonta fragilis* Gagné (Mycetophilidae) were recorded.

At Rake Pond Wood (ST91-9269) on 2 July a male of *Phronia electa* Dziedzicki (Mycetophilidae) was recorded. Twelve sites widely scattered in Britain were previously known for this species (Falk, S. and Chandler, P.J. *op. cit.*), including records from Harptree Combe, Somerset in 1985 and Mark Ash Wood in the New Forest, Hampshire in 1988 so this new county record fills a gap in its distribution. The adjacent Alder Carr (ST9169) produced *Rymosia signatipes* (van der Wulp) (Mycetophilidae) on 24 October. In the "wildlife corridor" (ST9269), a strip of woodland with some old trees, *Achalcus melanotrichus* Mik (Dolichopodidae) was found on 2 July.

Other records from Lackham Wood were of *Atypophthalmus inustus* (Meigen) (Limoniidae) (2 July, 18 October) and *Mycetophila hetschkoi* Landrock (Mycetophilidae) on 18 October.

I am grateful to Peter Dyte for kindly confirming the identification of *S. macula* and Roger Martindale for permission to visit Lackham Park – **PETER CHANDLER,** 606B Berryfield Lane, Melksham, Wilts SN12 6EL

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