

Dipterists Digest



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Cover illustration: *Ditomyia fasciata* (Meigen) (Ditomyiidae), photograph 30 October 2008 by Judy Webb. Reared from the bracket fungus *Trametes versicolor* collected at Cwm Coed y Cerrig NNR on the Dipterists Forum Autumn Field meeting in the Abergavenny area [see note by Keith Alexander and Judy Webb on page 13].

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Editor

Peter J. Chandler, 606B Berryfield Lane, Melksham, Wilts SN12 6EL
(E-mail: chandgnats@aol.com)

Editorial Panel

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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 European flies. All notes and papers submitted to **Dipterists Digest** are refereed.

The scope of **Dipterists Digest** is:

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

Articles must not have been accepted for publication elsewhere and should be written in clear and concise English. Items exceeding 3000 words may be serialised or printed in full, depending on competition for space. **Contributions should preferably be supplied either as E-mail attachments or on 3.5" computer disc or CD in Word or compatible formats and accompanied by hard copy.**

NEW INSTRUCTIONS: Articles should be supplied in A5 format with text in 9-point font, title 12 point and author's name 10.5 point, with 0.55" side margins. Figures should be supplied separately as jpg or eps files to fit in the above page format, or as hard copy.

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. References to journals should give the title of the journal in full. Scientific names should be italicised. Authors of scientific names should be given in full and nomenclature should follow the most recent checklist, unless reflecting subsequent changes. Figures should be drawn in clear black ink, about 1.5 times their printed size and lettered clearly. **Colour photographs will also be considered.** Descriptions of new species should include a statement of the museum or institution in which type material is being deposited.

Authors will be provided with twenty separates of papers of two or more pages in length.

Articles and notes for publication should be sent to the Editor at the address given above. Enquiries about subscriptions and information about the **Dipterists Forum** should be addressed to the Membership Secretary, Mick Parker, 9 East Wyld Road, Weymouth, Dorset DT4 0RP, UK

Notes on recording the Fen Flower Gnat *Asindulum nigrum* Latreille, 1805 (Diptera, Keroplatidae), a BAP Priority Fly

JOHN DOBSON

46 Elmwood Avenue, Kenton, Harrow, Middlesex HA3 8AH

Summary

Limited observations suggest that hand searching within dense grassland sward in suitable locations might be a more efficient method than sweeping for recording and monitoring *Asindulum nigrum* Latreille, 1805 (Keroplatidae). If confirmed this would also have implications for grassland management for the conservation of this species.

Introduction

During the 1990 Dipterists Forum Summer Meeting 1990 I collected on 10 July at Winnall Moor, Winchester (SU486297), a site which is now included within the River Itchen SAC. On that occasion I was fortunate in taking specimens of a fungus gnat subsequently identified by Peter Chandler as *Asindulum nigrum* Latreille (Keroplatidae) in a cattle-grazed area of this site. This was a new species record for Hampshire (Chandler 1991), and it is currently designated Near Threatened (Falk and Chandler 2005), records from only five of the 14 recorded British sites being post 1980. Subsequently this fly has been included in the UK BAP Priority species list.

In the following days attempts by a number of experienced dipterists to record this species from the site did not prove fruitful, although the species was subsequently recorded on 14 July 1990 from a lightly grazed field near Ovington (SU5631), also on the River Itchen corridor. On the latter occasion the insects were swept from fen vegetation by P.J. Chandler and A.E. Stubbs (Chandler 1991) and it was noted that these gnats tended to hang from the front legs when in the net (Peter Chandler *pers. comm.*). Subsequently one female was recorded on 21 July 1999 by Ivan Perry in a water meadow in another part of Winnall Moors (SU491314) (Peter Chandler *pers. comm.*).

I had thought that I had seen a number of these flies whilst recording at the site in 1990, and so was puzzled by others' apparent difficulty in finding the species. However, I had an insubstantial memory of collecting these flies with a pooter, rather than by sweeping. With this in mind, I revisited the site a year later, on 17 July 1991. Only a half hour visit was practicable but this proved adequate for my purpose.

Method

I located a relatively intact area of tall, dense grassland with a tall herb sward which showed only limited signs of grazing or trampling. On my hands and knees I worked inwards from the edge of the long grass, carefully parting the stems by hand. Using this method I was gratified to find several individuals of *A. nigrum* within a few minutes. They were sitting closely applied to the grass stems in the denser regions of the sward. Once seen, this species is distinctive, and due to its status as a known rarity of the site, I took no vouchers on that occasion and so cannot comment on the representation of the sexes in this situation. Further work would be required to reconcile this apparent daytime roosting with the known flower-visiting habit of this species, which is recorded feeding at umbels of *Angelica*, *Heracleum* and

Oenanthe fistulosa (Chandler 1991, Falk and Chandler 2005). Several individuals of a black-winged sciarid, probably *Sciara hemerobioides* (Scopoli), also a common visitor to umbels, were observed resting on grass stems amongst the long dense sward at the same time as *A. nigrum*, and care should be taken not to confuse this species with *A. nigrum* if field identification is being performed.

On both dates the daytime weather was warm (up to c. 20°C) and dry with light wind. There were extensive sunny periods on 10 July 1990, whilst it was predominantly overcast in the Winchester area on 17 July 1991 (data courtesy of the Meteorological Office Archive).

Discussion

According to ADAS (2001) the two predominant grassland types present at Winnall Moor are MG8 (*Cynosurus cristatus* - *Caltha palustris* grassland) and M22 (*Juncus subnodulosus* - *Cirsium palustre* fen-meadow). At the time of the ADAS report the M22 was cattle-grazed, whilst the MG8 was cut for hay each year at the end of July. If the persistence of long dense sward turns out to be a requirement for adults of this species, then grazing density and the timing of hay cutting are likely to be important factors in managing for it, for example if the latter was to impinge on the insect's flight period. The known flight period of *A. nigrum* is June till early August (Hutson *et al.* 1980, Falk and Chandler 2005), the latest date being at Upton, Norfolk on 3 August 1929 (J.E. Colin, Oxford University Museum collection). Feeding at *Angelica* flowers takes place in the latter part of this period, including the single Irish record on floating fen at Scragh Bog, Co. Westmeath on 27 July 1982 (M.C.D. Speight), the specimen from which the cover illustration of the checklist of Diptera of the British Isles (Chandler 1998) was drawn. The question of possible preferences of the species among NVC grassland types is not addressed here.

If these observations prove to be typical, and it can be confirmed that adults of this fly roost on grass stems within long dense swards during daytime, this may expedite future recording and monitoring of the species at new or known sites. It would also suggest that sweeping grassland is probably an inefficient method of recording *A. nigrum*, and that methodical hand searching within a long dense grass sward can be productive. In addition it highlights the danger that excessive sweeping could result in needless damage to one of this species' habitats.

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***Eriothrix rufomaculata* (De Geer, 1776) (Diptera, Tachinidae)
reared from *Chrysoteuchia culmella* (Linnaeus) (Lepidoptera,
Pyralidae) – a first British host record**

STUART PASTON and GRAHAM E. ROTHERAY*

25, Connaught Road, Norwich, Norfolk NR2 3BP

* National Museums Collection Centre, 242 West Granton Road, Edinburgh EH5 1JA

Summary

An account is given of the rearing of *Eriothrix rufomaculata* (DeGeer,1776) from *Chrysoteuchia culmella* (Linnaeus), a hitherto suspected but unconfirmed host in Britain. A description is provided of the puparium.

Introduction

A prominent feature of the wooded north-eastern section of Norwich Cemetery is a military plot known as Soldiers Field (TG214090), its well maintained lawn providing a marked contrast to the more lightly managed surrounds.

On 7 August 2002, during one of his regular visits to the general area, SP found his attention drawn to considerable numbers of *Eriothrix rufomaculata* (De Geer) scurrying with quivering wings over the sward on a sun bathed section of the lawn. It was clear that these were females intent on locating a lepidopteran host although the rapidity of their movements rendered it impossible to determine with any confidence precise instances of ovipositing.

We were aware that there was no confirmed British host for the species (Belshaw 1993), but there had since been a Danish host record relating to *Chrysoteuchia culmella* (Linnaeus) (Andersen 1995). Consequently a few days later SP returned to the site and removed several small sections of turf from near the edge of the lawn where it bordered a track in the close vicinity of the above observations. The turf was kept in plastic containers and from one of these an individual of *C. culmella* emerged in June 2003, providing confirmation of its presence and strengthening the possibility that it was the host of *E. rufomaculata* at this site.

Further observations of female *E. rufomaculata* were made by SP on the lawn in summer 2003 but it was not possible then to go further without sanctioned turf removal from the key area. However, in 2004, a highly fortunate development opened up the opportunity for rearing. One May morning SP arrived at the site to find a work team from the Commonwealth War Graves Commission in the early stages of removing the lawn as part of a renovation project. The likely breeding area of *E. rufomaculata* was still intact and it was then possible to remove a good quantity of the turf to investigate this.

The site and rearing details

The lawn was around 80 years old and mainly comprised creeping fescue *Festuca rubra* and meadow-grass *Poa* sp. However, a losing battle against weed encroachment over the decades had resulted in an extensive number of plant species becoming established, the more prominent being common mouse-ear *Ceratium fontanum*, lesser trefoil *Trifolium dubium*, dovesfoot cranesbill *Geranium molle*, self-heal *Prunella vulgaris*, germander speedwell

Veronica chamaedrys, ribwort plantain *Plantago lanceolata*, daisy *Bellis perennis* and yarrow *Achillea millefolium*.

Sections of turf were removed with a trowel to a depth of around 3cm and then trimmed to fit into plastic containers, the majority measuring 11 x 16.5 cm. About 30 such containers were filled, their modest size ensuring that in the event of a successful rearing a search for host material would not prove too difficult. They were mainly sited in SP's rear garden, although a few were kept indoors and hopes of success were raised when, in late June and early July, individuals of the suspected host emerged from separate containers.

On 24 July an inspection of a container on a west-facing windowsill revealed an active female individual of *E. rufomaculata*, following which a dead male was discovered. These were to prove the only parasitoids reared. A painstaking search of the turf brought to light two cocoons accompanied by larval skins and puparia.

Identification

The material was taken to Tony Irwin (Castle Museum, Norwich), who considered that the host was *C. culmella* after consulting a figure of the larvae by Carter (1984, Fig. 45). Confirmation of this was achieved by comparison with four larval specimens preserved in alcohol, kindly donated by Professor Doctor Ivar Hasenfuss, an authority on pyralid larvae, who had made the host determination for the Danish record.

The reared material along with three of the pickled *C. culmella* larvae has been donated to the Natural History Museum, London and to the National Museums of Scotland, Edinburgh. The remaining preserved larval specimen sent by Professor Hasenfuss has been retained at Norwich Castle Museum.

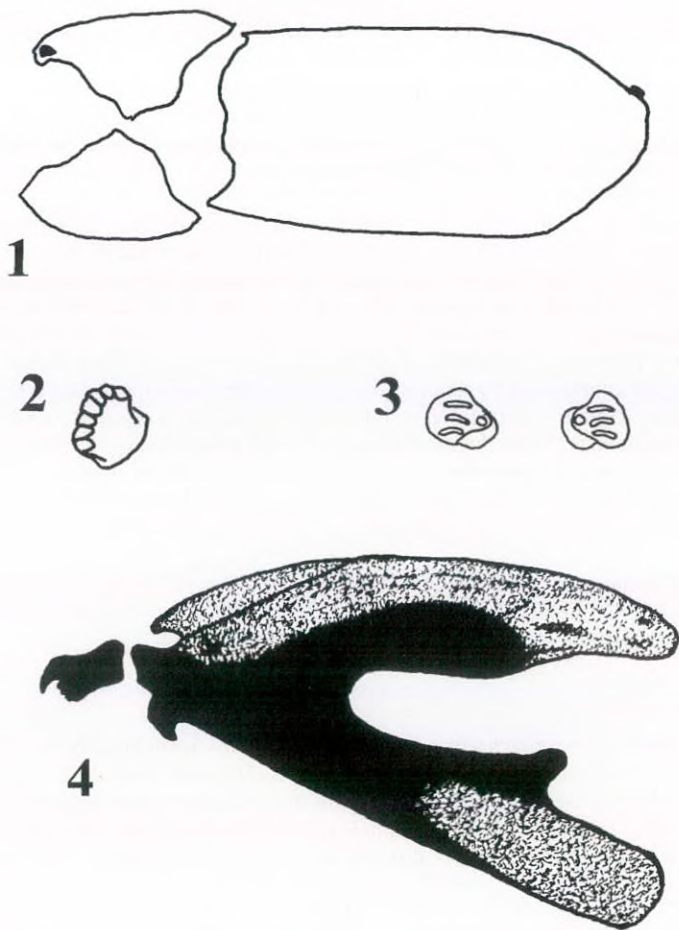
Description of puparium

Overall appearance: a pale, red brown lozenge-shaped puparium with a smooth integument and black anterior and posterior respiratory organs. Length: 6-8mm; width: 2-2.5mm; tapering anteriorly and posteriorly. Colour orange to brown darkening at posterior end. Integument smooth and mostly shining. Anterior two thirds of anal segment entirely matt, only inflated apical third shiny; anterior and posterior spiracles black.

Head skeleton: length 0.7mm, black and heavily sclerotised with ventral cornu slightly longer and narrower than dorsal cornu; anterior and posterior ends of dorsal cornu not as heavily sclerotised as middle section; ventral cornu with a triangular-shaped apodeme near posterior end; cibarial ridges (= ventral pharyngeal ridges) absent; intermediate sclerite fused with basal sclerite; mandibular sclerite longer than wide with a circular window; apex of mandibular sclerite with an apical hook about half as long as the sclerite and below a toothed margin; dorsally mandibular sclerites tapering base to apex; labial sclerites and plate apparently fused to form a conspicuous square shaped plate extending from the ventral bridge of the intermediate sclerite to just between the bases of the mandibular sclerites; dorsal bridge connecting the two halves of the basal sclerite present; parastomal bars not distinct.

Locomotory spicules consisting of evenly sized, triangular-shaped projections, small and inconspicuous in numerous rows or bars circumventing the anterior margin of the prothorax, mesothorax and the seventh abdominal and anal segments. On the anterior margins of the metathorax and abdominal segments 1-6, a narrow band of locomotory spicules on the dorsum and a broader band of several rows and bars on the ventrum. Spicules absent on the lateral margins of the metathorax and abdominal segments 1-6. Up to two spicule rows anterior and posterior to the anus.

Anterior spiracles: length 0.16mm; jet black, shining and widening towards apex, as apically broad as long; 6-8 openings across the curved apex. *Posterior spiracles*: length 0.08mm, width 0.13mm; separated by about the diameter of a spiracular plate; spiracular plates inclined towards inner margin with 3 straight spiracular openings.



Figs 1-4. Puparium of *Eriothrix rufomaculata*: Fig. 1, whole puparium, lateral view, head end to the left, length 8mm; Fig. 2, anterior spiracle, dorsolateral view of outer margin, length 0.16mm; Fig. 3, posterior spiracles, dorsal view, width of a spiracular plate 0.13mm; Fig. 4, head skeleton, lateral view, head to the left, length 0.7mm.

Discussion

Too few tachinid larvae have been described to make definitive interpretations but the head skeleton is similar to other tachinids figured in Ferrar (1987) i.e. basal sclerite with heavily sclerotised and less heavily sclerotised regions; prominent and well developed labial plate and lack of ventral pharyngeal ridges. It shares some characters with some tachinids but not with others, e.g. ventral cornu bears an apical dorsal apodeme; dorsal cornu not hugely enlarged relative to ventral cornu; intermediate sclerite fused to basal sclerite. The relative size and shape of the mandible appears to be unique to *E. rufomaculata* i.e. small apical hook and apical margin below hook with teeth. Both anterior and posterior spiracles are also distinctive but again, too few tachinid larvae have been described to be sure.

Both host and parasitoid are common species of unimproved grassland throughout most of Britain so it may appear surprising that the link has taken so long to be confirmed. The larva of *C. culmella* feeds on culms of various grasses and hibernates in a cocoon at ground level (Goater 1986). This subterranean life history renders the chance discovery of a parasitised larva extremely unlikely, effectively ruling out a frequent means by which parasitoids are reared. The Danish host record arose from the collection of a cocoon beneath meadow soil by a specialist in parasitic Hymenoptera and might therefore have involved a methodical search.

It cannot have helped either that most lepidopterists have overlooked the Pyralidae as a focus of study, as emphasised by Goater (*op. cit.*) in his preface; most research relating to *C. culmella* seems to have been stimulated by agro-economic concerns. This comparative neglect may well change with the easy accessibility of good quality on-line images and the growth of on-line forums promoting the exchange of information; it is hoped that this new parasitoid discovery will stimulate attempts to find out more about their life histories, perhaps to the benefit of our knowledge of tachinids.

Acknowledgements

We are most grateful to Dr Ivar Hasenfuss for his generosity in donating material and SP thanks Tony Irwin for much advice and helpful comment.

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Two Fungus Gnats (Diptera, Mycetophilidae) new to Britain

DAVID GIBBS

6 Stephen Street, Redfield, Bristol, BS5 9DY, david.usia@blueyonder.co.uk

Summary

The first records in Britain of two species of fungus gnats, each at a different Center Parc, *Exechiopsis seducta* (Plassmann, 1976) in Suffolk and *Mycetophila sigmoides* Loew, 1869 in Wiltshire, are reported. Further English records of *M. sigmoides* are listed and it is also newly recorded for France. Some illustrations to aid identification are provided.

Introduction

Annual monitoring of invertebrate quality at Center Parcs in England since 2005 has yielded a good diversity of fungus gnats (Bolitophilidae, Diadocidiidae, Ditomyiidae, Keroplatidae and Mycetophilidae). The year 2008 proved particularly productive with two species previously unrecorded in Britain being found: *Exechiopsis seducta* (Plassmann, 1976) at Elveden, Suffolk and *Mycetophila sigmoides* Loew, 1869 at Longleat, Wiltshire.

Exechiopsis seducta (Plassmann, 1976)

A single male of this species was swept from a conifer plantation with some deciduous trees along the northern margin of the holiday park on 30 August 2008. This is a small, dark brown species with yellow legs and abdominal markings, very like numerous other species in this and related genera. In the field it would not have stood out as anything unusual so the precise microhabitat in which it was taken and any associated fungi were not recorded.

Identification

This species was transferred from *Exechia* to *Exechiopsis* subgenus *Xenexechia* by Ševčík and Papp (2001) based on the structure of the male genitalia and in vein Sc ending in vein R₁. However, the Elveden specimen resembles *Exechia* in having Sc ending free (approaching R₁ but with a definite gap present) and yellow tergal spots situated basally, while resembling *Exechiopsis* in having crossvein r-m less than twice as long as stem of M fork, R₅ and M₁ slightly convergent apically and the propleuron with one bristle. Thus in the available keys it will be difficult to run it to genus.

In the key by Zaitzev (2003) this species best fits *Exechiopsis* (3 characters agreeing) but it was retained in *Exechia* (2 characters agreeing) with no reference to it in the key to *Exechiopsis*, although the genitalia were figured among the latter genus. In the key to *Exechia* it fails at couplet 3, having just one (rather than 2-4) propleural bristles; 2 propleural bristles are present according to the description of *E. seducta* by Zaitzev (2003). Having failed to key it successfully, and being unable to find any illustrations which seemed to fit, I passed the specimens to Peter Chandler who succeeded in running it down to *E. seducta*.

The illustration provided by Zaitzev (2003: Fig. 41, 5) is a ventral view and did not align well with my preparation. Only once the specimen had been named could I see that it was indeed the same species. By far the most diagnostic feature is the structure of the gonostylus in lateral view (Fig. 1).



Fig. 1. *Exechiopsis seducta*, internal view of right gonostylus.

Biology

The specimen from Suffolk was swept in an area of pine (*Pinus*) plantation with areas of open glades, birch (*Betula*), oak (*Quercus*) and sycamore (*Acer pseudoplatanus*). There do not seem to be any rearing records, so its fungal associations are unknown.

Distribution and Status in Britain

Exechiopsis seducta was described from Sweden (Plassmann 1976) and it has subsequently been recorded from Hungary (Ševčík and Papp 2001), the European part of Russia (Zaitzev 2003), Finland (Jakovlev *et al.* 2006) and France (Withers 2007).

Given the difficulty of identifying this species amongst the many similar species, it is certainly possible that *E. seducta* has been overlooked and is a rare resident. However, the history of the site includes some transportation of trees from the continent during the construction of the holiday village, so introduction cannot be ruled out.

Mycetophila sigmoides Loew, 1869

A single male of this species was swept from a conifer plantation in the southern part of the holiday park on 30 August 2008. As this species is very like *M. cingulum* Meigen, 1830, and many other *Mycetophila* species were collected in the same area, the specimen of *M. sigmoides* was not recognised as being of interest in the field. For this reason the precise microhabitat in which it was taken and any potentially associated fungi were not recorded.

Identification

This species is very similar to *M. cingulum*, but usually decidedly darker. *Mycetophila cingulum* is usually a largely orange yellow species with tip of abdomen more or less infuscated. In *M. sigmoides* mesonotum and pleura are variably infuscated, scutellum with dark lateral patches; males with abdomen largely blackish, the yellow patches on the basal tergites much reduced and obscure; female abdomen either entirely dark brown or with dark lateral markings occupying much of each tergite. In the key by Zaitzev (2003), the Longleat specimen ran readily to couplet 51 (*M. cingulum* and *M. sigmoides*), where identification is based on enlargement of fore-tarsal segments in *M. cingulum* and characters of the genitalia.

The male genitalia of the two species are similar but in ventral view the gonocoxites of *M. cingulum* are deeply concave, with the ventral lobe of the gonostylus approximately quadrate (Zaitzev 2003: Fig. 63, 8). In *M. sigmoides* the gonocoxites are shallowly concave ventrally, with the ventral lobe of the gonostylus of different form and transverse (Zaitzev 2003: Fig. 82, 3).

In males the fore-tarsal character is very subtle and most discernible when the two species are compared directly (Fig. 2). In males of *M. sigmoides* the middle tarsal segments are all equally slender, without sudden thickening basally, then parallel-sided or expanding slightly towards the tip of each tarsomere, which is thus thicker apically (Fig. 2a). In males of *M. cingulum* the middle segments, especially tarsomeres 2 and 3, are more abruptly expanded basally, then rather parallel-sided or convergent, thus thickest in the basal half (Fig. 2b).



Fig. 2. ♂ fore tarsi of a. *Mycetophila sigmoides* and b. *Mycetophila cingulum*.



Fig. 3. ♀ fore tarsi of a. *Mycetophila sigmoides* and b. *Mycetophila cingulum*.

The fore tarsal character is generally more readily seen in females (Fig. 3) although it does seem to be variable. In females of *M. sigmoides* all tarsal segments are equally slender (Fig. 3a), not really differing from the male; some females have a few tiny perpendicular setae on the middle tarsomeres. In females of *M. cingulum* the middle tarsomeres are clearly thickened, segments 3 and 4 thickest basally (Fig. 3b). The example in Fig. 3 has far less expanded fore tarsal segments than some specimens examined; more extreme specimens also have a dense brush of long setae below, which is only slightly developed in this female.

If the fore tarsal characters are ambiguous then there are small differences apparent in the female post-abdomen. The apical sternite is notched in both species; in *M. cingulum* there is a wider V-shaped notch, wider than the lateral corners; while in *M. sigmoides* the notch is smaller and more U-shaped, decidedly narrower than the adjacent rounded corners of the sternite. In lateral view the cercus of *M. cingulum* has a narrower basal segment and shorter, more ovoid, apical segment. The bristles on the apical corners of the last sternite are relatively long and strong, significantly longer than the apical segment of the cerci (Fig. 4).

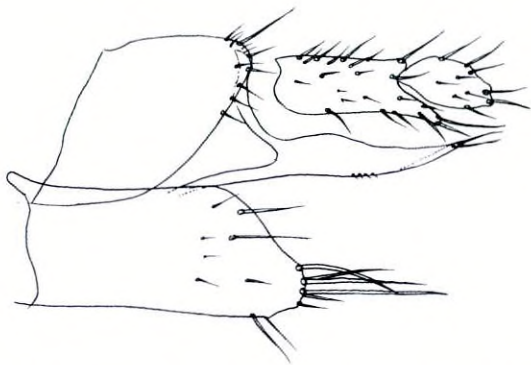


Fig. 4. *M. cingulum*, tip of ♀ abdomen, lateral view.

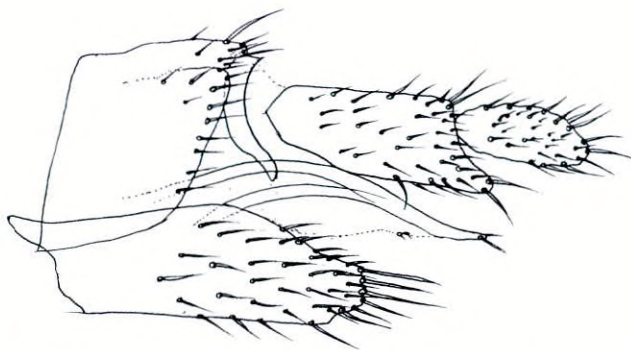


Fig. 5. *M. sigmoides*, tip of ♀ abdomen, lateral view.

In *M. sigmoides* the basal segment of the cerci is deeper while the apical segment is more elongate than in *M. cingulum*. The apico-lateral bristles of the last sternite are finer, more hair-like, and decidedly shorter than the apical segment of the cerci (Fig. 5).

Biology

Records so far are from a wide range of woodland habitats; the Longleat specimen was from mature coniferous plantation with scattered deciduous trees. Burnham Beeches is an ancient beech *Fagus* woodland, well known for its excellent dead-wood fauna. Burridge Common is a wet alder *Alnus* and willow *Salix* woodland in a valley bottom. Frome St Quintin SSSI is similar to the last, wet woodland and fen in a valley bottom. Poorton Vale is another wet alder woodland in a valley bottom with seepages and wet flushes. Thus it would seem that the type of woodland is unimportant so long as the favoured types of fungal fruiting bodies are present. Some of these, particularly *Trametes versicolor*, are abundant and widespread species, so *M. sigmoides* could potentially colonise widely. Known fungal associations are with the tough, woody brackets of *Fomitopsis*, *Daedaleopsis* and *Trametes* (Zaitzev 2003). This contrasts with *M. cingulum*, which is known to develop in the softer fruiting bodies of *Polyporus squamosus* (Zaitzev 2003) and more recently it has been reared from another soft polypore, *Grifola frondosa*, in the Czech Republic (Ševčík 2006).

Distribution and Status in Britain

Once the first male from Longleat Center Parcs was identified, examination of material from elsewhere quickly yielded further specimens. It is currently known from 23 sites in 15 counties, spread across southern England from Devon in the southwest to Yorkshire in the northeast, the earliest records being from central England in 1998.

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BERKSHIRE, California Country Park, SU7865, 12.xi.1999, 1♂, P.J. Chandler.
BERKSHIRE, Dinton Pastures Country Park, SU7772, by River Loddon, 6.xi.1999, 1♂, 1♀, P.J. Chandler.
BERKSHIRE, south-west of Theale, Sheffield Bottom, SU6469, 31.viii.2003, ♂, P.J. Chandler.
BUCKINGHAMSHIRE, Burnham Beeches, SU98, by ponds, 23.x.2001, 1♀, P.J. Chandler; Burnham Beeches, The Nile, SU9486, 10.vi.2006, 1♀, A.E. Stubbs.
CAMBRIDGESHIRE, Chippenham Fen, TL69, 11.x.2008, 2♀; 18.x.2008, 1♂, 1♀; 25.x.2008, 1♂, 2♀ (all swept in alder carr), I. Perry.
DEVON, Burridge Common, ST310059, Malaise trap, 28.viii-11.ix.2005, 1♂; 25.ix-8.x.2005, 1♀; 5-21.xi.2005, 2♂, C.M. Drake.
DORSET, Frome St Quintin SSSI, unit 6, ST580039, 8.x.2008, 2♀, C.M. Drake.
DORSET, Poorton Vale SSSI, unit 16, SY507970, 19.viii.2008, 1♂, C.M. Drake.
E. SUSSEX, Brede High Wood, TQ8020, 14.x.2004, 1♂, P.J. Chandler.
HERTFORDSHIRE, Ashridge Estate, SP9912, 8.x.1999, 1♀, P.J. Chandler.
HUNTINGDONSHIRE, Godmanchester, TL262723, 23.x.1998, 1♂, 2♀, J.H. Cole.
MIDDLESEX, Stanmore Common, TQ19, 20.ix.2007, 1♂, J. Dobson.
MIDDLESEX, Park Wood, Ruislip, TQ088887, 17.viii.2005, 1♂, R.K. and R.M. Merrifield.
OXFORDSHIRE, Sydling's Copse, SP5509, 15.x.1999, 2♀, P.J. Chandler; SP558097, v-ix.2007, Malaise trap, 1♀, S.J. Gregory.
OXFORDSHIRE, Lashford Lane Fen, SP4601, 16.x.1999, 1♂, P.J. Chandler.
OXFORDSHIRE, Whitecross Green Wood, SP6014, 17.x.1999, 1♂, P.J. Chandler.

SURREY, Richmond Park SSSI, NNR, SAC, south of hornbeam walk, TQ1872, flight interception trap on tree 855, 2-26.xi.2006, 12♂, 14♀; 14-26.xi.2006, 2♂, 6♀, via N. Reeves; Barn Wood and Storm Wood, TQ1974, flight interception trap on tree 457, 14-26.xi.2006, 1♀, via N. Reeves.

WARWICKSHIRE, Brandon Marsh, SP3875, 12.x.2001, 1♂, 1♀, P.J. Chandler *et al.*

WARWICKSHIRE, Kingsbury Water Park, SP2196, 13.x.2001, 1♂, J. Kramer.

WILTSHIRE, Longleat (Center Parcs), ST8342, 30.viii.2008, 1♂, D.J. Gibbs.

YORKSHIRE, Houghton Common, Barnsley, SE4208, 2.x.2002, J.D. Coldwell.

YORKSHIRE, Wortley Top Forge, Barnsley, SK2999, 24.x.2008 J.D. Coldwell.

M. sigmoides is a Holarctic species and was described from North America, where it is widespread (Laffoon 1956). Zaitzev (2003) only cited records from Siberia and the Far East of Russia, but it was first recognised in Europe in the Czech Republic in 1996 (Ševčík and Martinovský 1999), Hungary in 2002 (Ševčík and Papp 2003) and more recently in northern Italy (Chandler 2009). It would seem to be spreading, a probability supported by a recent record from France (Ain, Fondation Vérots, 22.x-4.xi.2007, 1♂, Malaise trap, collected by Phil Withers; P.J. Chandler *pers. comm.*). It is clear from the records listed above that the close similarity of this species with *M. cingulum* has allowed it to escape notice for 10 years. After the first records at two localities in 1998, it turned up at six localities in 1999. One or two specimens were found in most subsequent years with 2008 another good year for *M. sigmoides* as five new localities were added. It would seem that *M. sigmoides* may have first arrived in England in the 1990s but was already well established by the time the first specimens were collected and is now a widespread part of the English fungus gnat fauna.

Acknowledgements

I am very grateful to Peter Chandler for considerable help with identification and access to extra specimens, records and references, and also John Coldwell, Jon Cole, Martin Drake and Ivan Perry for providing details of their records. The specimens from Richmond Park were collected as part of a project to sample the saproxylic fauna of the Park; in 2008, the Diptera were passed on to John W and Barbara Ismay for identification, who passed the Mycetophilidae on to Peter Chandler, who thanks Dr Nigel Reeves, Community Ecologist, The Royal Parks, for the opportunity to examine this material and publish the results.

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***Ditomyia fasciata* (Meigen) (Diptera, Ditomyiidae) new to Wales from Monmouthshire, plus details of some previously unpublished Gloucestershire records**

— Four specimens of this distinctive fungus gnat were taken from the surface of fresh polypore fungal growth on the underside of a fallen beech trunk by KNAA within Coed Fedw-ddu, Cwm Clydach National Nature Reserve (SO2112), Monmouthshire, 12.x.2008. They were identified by Peter Chandler (PJC).

During the same field meeting JAW collected a sample of the bracket fungus *Trametes versicolor*, which was well bored by larvae of *Cis* beetles (Coleoptera, Ciidae), from dead wood at Cwm Coed y Cerrig National Nature Reserve, Monmouthshire (SO293211). From this fungus five specimens of *Ditomyia fasciata* were subsequently reared, the adults emerging 26-28.ix.2008. A photograph of one of these gnats is shown on the cover of this issue.

These appear to be the first reports from Wales (PJC and M. Howe *pers. comm.*).

This gnat has a southern and eastern distribution in Britain (Falk, S.J. and Chandler, P.J. 2005. A review of the scarce and threatened flies of Great Britain. Part 2: Nematocera and Aschiza not dealt with by Falk (1991). *Species Status* **2**, 1-189. Joint Nature Conservation Committee, Peterborough), although it has been found as far west as the Cotswold Hills in Gloucestershire. The records for the latter area have not been formally published and are therefore recorded here:

SO81 Cooper's Hill, reared from old bracket fungus, emerged April 2007, coll. G Meredith, det. PJC.

SO90 Hailey Wood, Cirencester Park, reared from *Inonotus dryadeus* bracket on oak trunk during 1990, coll. KNAA, det. PJC.

The Welsh records arose from the autumn field meeting of the Dipterists Forum and thanks are due to Roger Morris for organising the event, as well as Peter Chandler for identifying the material for KNAA - **KEITH N.A. ALEXANDER**, 59 Sweetbrier Lane, Heavitree, Exeter EX1 3AQ and **JUDITH A. WEBB**, 2 Dorchester Court, Blenheim Road, Kidlington, Oxon, OX5 2JT

***Atylotus rusticus* (Linnaeus, 1761) (Diptera, Tabanidae) new to East Kent** – Eric Philp left a storebox of unidentified English and French Tabanidae on my desk during the 2008 Dipterists Forum meeting based at Glenmore Lodge. Amongst the specimens was a female *Atylotus rusticus* (Linnaeus) taken at Wittersham, (TQ9027), East Kent (V.C. 15), 31.vii.2003, leg. E. G. Philp, det. A. Grayson, 29.vi.2008. The specimen was probably taken along a marsh dyke at the edge of damp grazing marshes (E. G. Philp *pers. comm.*) - **ANDREW GRAYSON**, 11 McMahon Drive, Clayton Heights, Queensbury, Bradford, BD13 1HD

***Tetanocera montana* Day, 1881 (Diptera, Sciomyzidae) new to Britain from Midland England** - This species was recently added to the Irish list (Speight, M.C.D. 2007. *Rhaphium nasutum* (Diptera: Dolichopodidae), *Pherbellia rozkosnyi* & *Tetanocera montana* (Dip.: Sciomyzidae), insects new to Ireland and *Geomyza balachowskyi* (Dip.: Opomyzidae), presence in Ireland confirmed. *Entomologist's Record & Journal of Variation* **119**, 85-91), but had not yet been reported as occurring in Great Britain.

On 9 June 2008 a male *Tetanocera* resembling *T. arrogans* Meigen, 1830 was found close to Bruern Abbey in the North Cotswolds whilst looking for spring and seepage habitats. A public footpath passed beside a spring shown on an Ordnance Survey map, at SP264203. This proved to be a pond within sheep grazed pasture, measuring about 30 by 10 metres, which was rectangular and had obviously been dug out at some time. It was rather silted; about half still contained shallow water with flote grass (*Glyceria fluitans* s.l.) but the margins and most silted parts were dominated by soft rush (*Juncus effusus*) although various other plants co-existed. *Tipula maxima* Poda, 1761 (Tipulidae) and a few other species of craneflies were common, the fly fauna overall appearing nothing special. Sciomyzids were sparse.

On checking the identity of this specimen of *Tetanocera*, it proved to be *T. montana* Day, 1881 rather than *T. arrogans*. It may be identified using the key and genitalia figures provided by R. Rozkošný (1984. The Sciomyzidae (Diptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* **14**, 224 pp. E.J. Brill/Scandinavian Science Press, Leiden and Copenhagen). For many years I have been using a *Tetanocera* key annotated with male genitalia illustrations from the literature since I have found that it is sensible not to rely totally on other key characters. Thus I am reasonably confident that my past determinations of *T. arrogans* were correct for this local species.

The pond may be spring, or at least seepage, fed but no firm evidence was apparent. It seems probable that overflow water is piped to a ditch head point beneath some large poplars within private grounds. The district has a river, a large flood plain pond marked on the map, and some shaded seepages.

The occurrence of *T. montana* at such a site suggests that it is a previously overlooked native rather than a recent introduction. It is a Holarctic species, first described from North America, but is widespread in Europe and elsewhere in the Palaearctic Region, so no obvious reason why it should not have been recorded in the British Isles until recently - **ALAN STUBBS**, 181 Broadway, Peterborough PE1 4DS

Notes on *Melanochaeta pubescens* (Thalhammer, 1898) (Diptera, Chloropidae) in Kent

LAURENCE CLEMONS

14 St. John's Avenue, Sittingbourne, Kent ME10 4NE

Summary

The known Kent distribution and phenology of *Melanochaeta pubescens* (Thalhammer) are summarised with the emphasis on recent 'inland' records. Attention is drawn to variation in colour.

Introduction

Melanochaeta pubescens was described, as *Elachiptera pubescens*, by Joannes Thalhammer from a male taken at Dunaföldvár, Comitatus Tolna, Hungary by Josephus Berky with additional material from Duino near Ragusam, Dalmatia and Hercegovina by Gabriel Strobl (Thalhammer 1898). Nartshuk (1984) gave the known Palaearctic distribution as Europe: Austria, southern Britain, Bulgaria, France, Greece, Hungary, Italy, Romania, Spain and Yugoslavia; USSR: Kazakh, South European Territory and Soviet Middle Asia; Asia: Afghanistan and Iran; North Africa: Algeria, the Azores, Madeira, Morocco and Tunisia. It is widespread in Europe south of the English Channel and appears to be at the limit of its range in southern Britain (J.W. Ismay *pers. comm.*).

The species was added to the British list by Collin (1911) on the basis of specimens taken at Studland, Dorset in August 1906 and at Christchurch, Hants in May 1908 by J.W. Yerbury. Later (Collin 1946) he stated "...appears to be confined to coastal districts in the south of England. I caught a number of specimens at Abbotsbury (Dorset) in May 1937, and Col. Yerbury had previously taken it at Studland (Dorset) and Christchurch (Hants)". Subsequent records in the British literature were by Ismay (1981), Cole (1982), Howe and Howe (2001), Howe, Parker and Howe (2001) and Schulten (2003). It should be noted that Kloet and Hincks (1976) and Chandler (1998) mis-spelled the authority as Thalhammar.

The data in the aforementioned British references (arranged in chronological order) are: viii.1906, Studland, Dorset, J.W. Yerbury (Collin 1911); v.1908, Christchurch, Hants, J.W. Yerbury (Collin 1911); v.1937, Abbotsbury, Dorset, J.E. Collin (Collin 1911); 15.viii.1951, Killoughter, Co. Wicklow, Ireland, 1♂, K.G.V. Smith (Ismay 1981); 23.iv.1962, Chudleigh Knighton Heath, Devon, 1♀, L.H. Woollatt (Ismay 1981); 28.vii.1973, Benfleet, Essex, 1♂, P.J. Chandler (Ismay 1981); 4.vii.1974, saltmarsh near Kidwelly, SN3707, Dyfed, 1♂, J.H. Cole (Cole 1982); 24.vii.1976, Queens Farm, Shorne, Kent, 1♂, 1♀, P.J. Chandler (Ismay 1981); 7.viii.1977, near Boyton, Suffolk, 1♂, J.W. Ismay (Ismay 1981); 30.v.1978, Branscombe Cliffs, South Devon, SY207882, 1♂, J.H. Cole (Cole 1982); 11.vii.1979, Arne, Dorset, in some numbers by sweeping *Phragmites* growing in brackish water, other specimens taken more rarely in saltmarsh and heath in the vicinity, J.W. Ismay (Ismay 1981); 25.viii.1981, Dawlish Warren, South Devon, SX9879, 1♀, J.H. Cole (Cole 1982); vi.1997, Pembrey Burrows SSSI, Carmarthenshire, SS4199, extensive dunes and saltmarsh (Howe and Howe 2001); late vi – early vii.1998, Morden Bog NNR, Dorset, ST9191, acid bog and wet heath (Howe, Parker and Howe 2001); 10.viii.2003, on a wet meadow beside the River Mimram near Tewin, Hertfordshire, TL278135, while sweeping over *Juncus*, *Carex* and various grasses, 1♂, B. Schulten (Schulten 2003); 5.ix.2003, Heron's Nest, Reading,

Berkshire, SU6670, 1♂ in an area of grassland and marsh vegetation adjoining gravel pits, just south of the M4 motorway adjacent to Theale Lake, P.J. Chandler (Schulten 2003); 5.ix.2003, Searles Farm East, Reading, Berkshire, SU6870 – 6970, 1♀ caught in a varied area of grassland and carr between the River Kennet and gravel pits north of the motorway, P.J. Chandler (Schulten 2003).

Falk (1991) gave the status as Notable i.e. estimated to occur within the range of sixteen to one hundred modern 10km squares. As the review was the result of a two year period appointment beginning in May 1985 the species must have been found in more localities than was evident from the literature.

Kent distribution

I first took numbers of the species on 16.vii.1983 from an area of saltmarsh at Murston, near Sittingbourne, known as "The Lillies" and in the following period to the end of 1999 found it on twenty-five dates at forty-two grid references within sixteen sites. All these were either saltmarsh or grazing marsh along the north Kent coast. Since the beginning of 2000 I have found the species on forty-five dates at forty-seven grid references within forty-five sites, of which the majority are from habitats other than coastal grazing marsh or saltmarsh. In the card file index at Maidstone Museum, compiled by E.G. Philp prior to his retirement in 1994, there is just one record for Kent and this from my recording at Stoke (TQ838751) on 1.viii.1987 (E.A. Jarzembowski *pers. comm.*). With the data for Queens Farm, Shorne given by Ismay (1981) there are ninety-one known county records and these have been plotted on a 1km square basis in the map (Fig. 1).

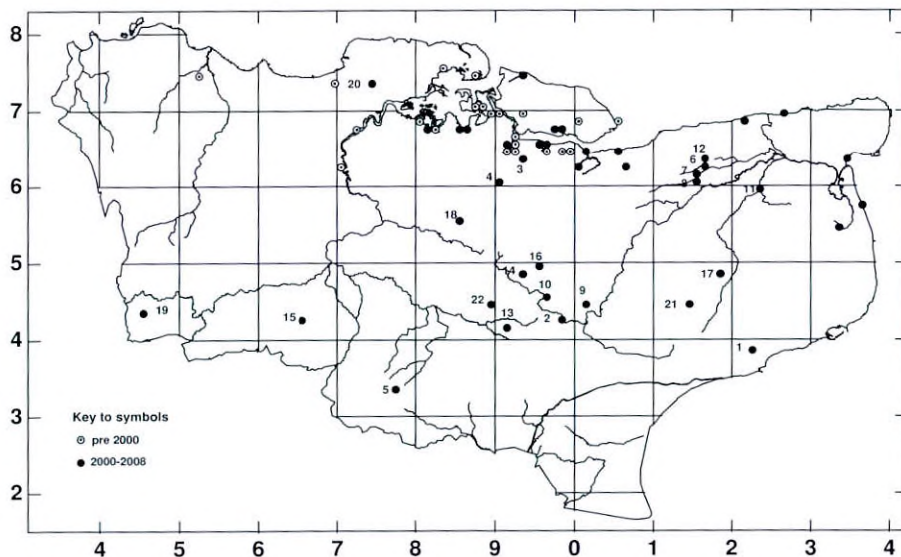


Fig. 1. Map showing known distribution of *Melanochaeta pubescens* in Watsonian Kent.

Recent habitat data

Details of records other than from grazing marsh or saltmarsh are given below. The numbers correspond to the 1km squares identified in the map.

- 1: 26.vii.2000. Holy Well near Folkestone (TR22153818). Shallow chalk stream on Coombe deposits.
- 2: 6.viii.2002. Buxford Meadow, Singleton near Ashford (TQ987421). Grassland and freshwater pond margin on alluvium.
- 3: 30.iii.2003 and 23.iv.2008. Tonge Mill near Sittingbourne (TQ932635). Margins of chalk stream on alluvium.
- 4: 2.iv.2007. Cromers Wood, Woodstock near Sittingbourne (TQ905605). Margin of shallow pond in sweet chestnut *Castanea sylvatica* coppice with oak *Quercus robur* standards on Thanet Beds.
- 5: 14.iv.2007. Swattenden near Cranbrook (TQ7733). Broad-leaved woodland on Wadhurst Clay and Ashdown Beds.
- 6: 2.viii.2007. Blaxland Farm (TR16186275). Flower-rich rank grassland on London Clay.
- 7: 28.viii.2007. Great Hall Wood (TR151613). Mature broad-leaved woodland on London Clay.
- 24.vi.2008. Alcroft Grange (TR154610). Damp flower-rich meadow on London Clay.
- 1.vii.2008. Little Hall Wood (TR155611). Mature broad-leaved woodland (mostly hornbeam *Carpinus betulus*) on London Clay.
- 8: 1.ix.2007 and 11.v.2008. Little Hall Pinetum (TR151606). Conifer arboretum and grassland on London Clay.
- 9: 3.v.2008. 75 Lower Vicarage Road, Kennington near Ashford (TR015449). Private garden with narrow stream on head brickearth.
- 10: 3.v.2008. Hothfield Heathlands Reserve near Ashford (TQ969459). Peat bog on Folkestone Beds sand.
- 11: 12.v.2008. Seaton gravel pits, Wickhambreaux (TR230590). Margin of the Little Stour on alluvium.
- 12: 10.vi.2008. Blaxland Farm (TR164633). Improved grassland on London Clay.
- 25.vii.2008. Blaxland Farm (TR161634). Improved grassland on London Clay.
- 13: 28.vi.2008. Monkerly Farm, Wissenden (TQ912418). Margin of small pond in barren field on Bethersden Marble within Weald Clay.
- 14: 20.vii.2008. Hurst Wood, Charing Heath (TQ934483). Conifer and broad-leaved (mostly hazel) woodland on Sandgate Beds sand.
- 15: 24.vii.2008. Cinderhill Wood, Matfield (TQ651425). 'Enriched vegetation mosaic' on Tunbridge Wells Sand.
- 16: 8.viii.2008. Wood Brook, Charing (TQ95704913). Damp flower-rich meadow on alluvium.
- 17: 15.viii.2008. Covert Wood (TR1848). Forestry Commission managed broad-leaved and conifer woodland on clay-with-flints.
- 18: 17.viii.2008. Hollingbourne Down (TQ852558). South-facing cattle-grazed chalk grassland.
- 19: 25.viii.2008. Cowden Pound Pastures (TQ45954330). Flower-rich meadow on Wadhurst Clay.
- 20: 14.ix.2008. Great Chattenden Wood (TQ7473). Broad-leaved woodland on London Clay.
- 21: 20.ix.2008. Park Wood, Lyminge Forest (TR1444). Forestry Commission managed broad-leaved and conifer woodland on clay-with-flints.

22: 27.ix.2008. Dering Wood near Pluckley (TQ896447). Broad-leaved woodland on Weald Clay.

While old records are confined to coastal areas, mostly with saline influence, these data compliment those given by Schulten (2003) in showing that the species now has a wider distribution in Britain and is moving into new habitats.

Phenology

The main flight period is from mid July to the end of August with another apparent peak in mid May (Fig. 2).

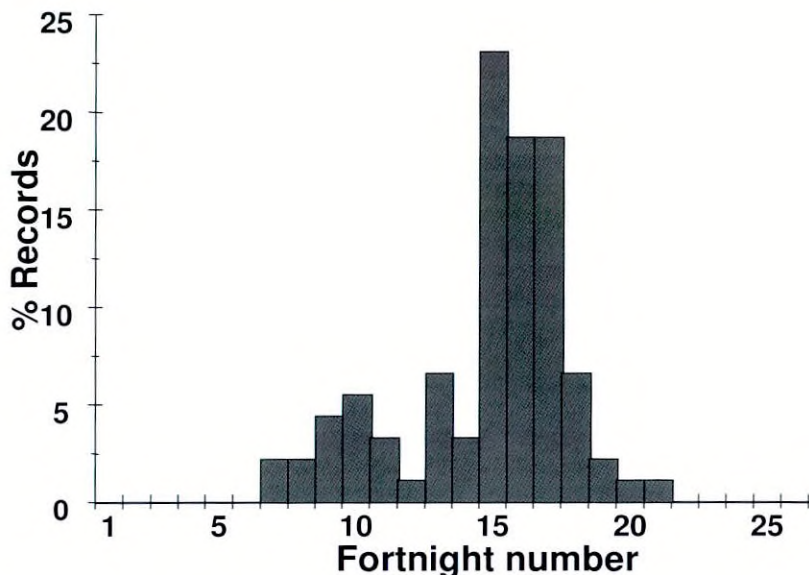


Fig. 2. Percentage of records by fortnight number
(1 = 1 to 14 January, 26 = 17-31 December)

Variation

The type description (Thalhammer, 1898), based on a male, reads '*Epistomate verticali, flavo, setis oralibus duabus instructo, proboscide brevi, nigra, palpis flavis, ad apicem paulisper incrassatis, pilis exilibus nigris. Fronte flava, pilis minusculis nigris vestita, linea mediana leniter impressa distincta, triangulo verticali subaequali, paulo ultra mediam frontem producto, nigro, nitido, apice paulisper impresso, antennis flavis, articulo tertio superne nigrobrunnescente, seta dorsali biarticulata, usque ad apicem incrassata, dense nigropubescente, occipite superna griseonigrescente, subtus flavo, oculis dense albopilosis, thorace setis dorsocentralibus singulis in unoquoque laterale pilis fulvescentibus minutis dense obducto, nigro, humeris flavis, scutello setis duabus fortioribus subapicalibus et duabus exilibus lateralibus brevissimis munito, integro, nigro, dense minutatim punctulato lateribus pubescentibus, pleuris flavis, sub callis humeralibus argenteomicantibus, coxis mediis nigro-*

nitidis, pedibus totis flavis, tarsis paulisper infuscatis, tibiis posticus parce incurvatis, nudis, metanoto nigro, nitido, genitalibus vix prominentibus, nigris. Alis hyalinis, vena quarta a transversa posteriore recte ad apicem producta, cum tertia parallela, quinta usque ad marginem producta. – Longitudo corporis 1.4 mm., alarum fere 2 mm'.

Duda (1932-3) and Séguy (1934) also referred to the extensive yellow coloration, although Collin (1911) mentioned only the yellow palpi and later (Collin 1946) stated 'thorax black without yellow patches'. The Kent specimens examined show apparently continuous variation in the colour of the thorax from entirely black to extensively pale on the postpronotal lobe, proepisternum, notopleuron and anepisternum. Some individuals have the anterior part of the anepimeron pale but the katepisternum is always dark. The darkest specimens have all been from the north Kent marshes and the palest specimens were from the inland site at Monkery Farm, Wisenden. However, some of the coastal specimens also have lighter pleura indicating that, as yet, there is no distinct geographical form of the species. The existence of one would clearly repay further study.

Acknowledgements

The distribution map was prepared using DMAP for Windows version 6.5f developed by Dr. Alan Morton using a digitised boundary created by Laurence Clemons and David Mitchell. Richard Moysé assisted with habitat data.

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Thalhammer, J. *Elachiptera pubescens* n. sp. *Dipterorum, Természetráji Füzetek* **21**, 164.

ADDENDUM

Since writing the above paper the following data, which extend the phenology and/or Kent distribution, have been obtained from personal fieldwork, of which the first is the earliest known date and suggests that the species may overwinter in the adult stage. 21.ii.2009, Conyer (TQ959651), saltmarsh. 21.iii.2009, Hothfield Heathlands Reserve near Ashford (TQ969459), peat bog on Folkestone Beds sand. 21.iii.2009, Hothfield Heathlands Reserve near Ashford (TQ962460), a new extension to the Reserve, currently bare soil on alluvium. 11.iv.2009, Conyer old brickworks (TQ962653), shaded track on Blackheath and Oldhaven beds sand a short distance from the saltmarsh. 11.iv.2009, Conyer (TQ959651), more specimens from saltmarsh, some with paler pleura. 15.iv.2009, Kiln Wood, Lenham (TQ8851), deciduous woodland on Gault Clay. 19.iv.2009, Lower Halstow near Rainham (TQ858676), mainly sallow *Salix* scrub on site of former brickworks on Woolwich Beds. 26.iv.2009, Knole Park, Sevenoaks (TQ5353), open grassland and scrub on Tunbridge Wells sand.

***Melanochaeta pubescens* (Thalhammer) (Diptera, Chloropidae)**

new to Buckinghamshire and Oxfordshire

- On 3rd May 2008 we visited Littleworth Common, Buckinghamshire (SU936863) on a meeting of the Buckinghamshire Invertebrate Group. One female of *Melanochaeta pubescens* (Thalhammer) was caught over the edge of a small pond, with grasses, *Juncus* and *Calluna*. A further specimen was found in samples from within the city of Oxford, collected on 27 August 2007 and sent to us for identification by M. Townsend. The exact site cannot be revealed but it is in grid square SP50. This species was formerly almost entirely associated with the coast, but has recently been recorded from Hertfordshire and Berkshire by B. Schulten (2004). Inland records for *Melanochaeta pubescens* (Thalhammer) (Diptera, Chloropidae). *Dipterists Digest (Second Series)* **10**, 118). These records indicate that the species is continuing to spread inland, possibly as a result of climate change - **J.W. and B. ISMAY**, 67 Giffard Way, Long Crendon, Aylesbury, Buckinghamshire HP18 9DN, e-mail: schultmay@insectsrus.co.uk

Chymomyza amoena (Loew, 1862) (Diptera, Drosophilidae) new to Britain

LAURENCE CLEMONS

14 St. John's Avenue, Sittingbourne, Kent ME10 4NE

Summary

Chymomyza amoena (Loew, 1862) is reported as new to Britain from south-east Kent, increasing the number of British species of the genus to five. Its known Holarctic distribution and biology are summarised.

Introduction

There are some sixty known species of *Chymomyza* Czerny distributed throughout the Holarctic, Oriental and Neotropical regions (Bächli *et al.* 2004). Wheeler (1965) listed eight species from North America and Bächli and Rocha Pité (1984) gave ten Palaearctic species, of which *Chymomyza amoena* (Loew, 1862), *C. caudatula* Oldenberg, 1914 and *C. procnemis* (Williston, 1896) were common to both accounts. Since then Gibbs (1992, 1994) added the Nearctic *Chymomyza wirthi* Wheeler, 1954 to the Palaearctic list on the basis of a male taken at Canvey Point, Essex, England on 5 September 1988 and Papp (1992) added *C. procnemoides* Wheeler, 1952 from a male taken near Budapest, Hungary on 22 May 1990.

The checklist of the Diptera of the British Isles (Chandler 1998) listed four species of *Chymomyza* – *Chymomyza costata* (Zetterstedt, 1838), *C. distincta* (Egger, 1862) *C. fuscimana* (Zetterstedt, 1838) and *C. wirthi* Wheeler, 1954, the first three of which were keyed by Assis-Fonseca (1965). *Chymomyza costata* and *C. fuscimana* were added to the British list by Collin (1911). For *C. costata* he stated 'Col. Yerbury found a male at Nairn in July, 1905; I took a female at Chippenham (Cambs) in September, 1908, and Mr. C.G. Lamb has found it in the New Forest (Hants)'. The entry for *C. fuscimana* reads 'Col. Yerbury took four males at Tarrington, Herefordshire, in July, 1902. *Drosophila distincta*, Egger, must be a synonym'. Later (Collin 1952) he referred to only *C. fuscimana* and stated 'At present the only fairly certain name for our British species is *distincta* Egg., not *fuscimana* Zett.'

The nomenclatural confusion between Collin's *C. distincta* and *C. fuscimana* was partly resolved by Basden (1961) and Hackman *et al.* (1970) and clarified by Chandler (1978), who found seventeen males and one female on 26 and 27 June and several males on 4 July 1977 of *C. distincta* (Egger, 1862) at Windsor Forest, Berkshire. Until recently this was the only confirmed British locality for the species but on 22 and 23 September 2007 David Gibbs found specimens on cut ends of *Pinus* logs at Edwinstowe, Nottinghamshire (Gibbs 2008). Falk (1991) listed *Chymomyza costata* as Notable i.e. estimated to occur within the range of sixteen to one hundred modern 10km squares in Great Britain and *Chymomyza distincta* as RDBK i.e. suspected to fall within the RDB categories but with too little information to allow confident assignment to any of the recognised categories. *Chymomyza costata* is widespread in Scotland (Basden 1952, 1954), with sporadic records from England (J.W. Ismay *pers. comm.*).

On 27 September 2008 I made an *ad hoc* visit to Dering Wood, an area of broad-leaved woodland near Pluckley, Kent (TQ894444) and recorded Diptera along a shaded ride between 13.15 and 13.45 hrs. Among the material retained was a female drosophilid with banded

wings and reference to Bächli *et. al.* (2004) showed it to be *Chymomyza amoena*; the identity was confirmed by Peter Chandler.

Identification

Chymomyza amoena was first described by Hermann Loew as *Drosophila amoena* from a male and female collected by C.R. Osten-Sacken in the District of Columbia, USA (Loew, 1862). The type description on page 230 reads '*Rufescens, abdomine atro, pectore pedibusque dilutissime flavicantibus, alis subhyalinis, maculis duabus transversis fuscis, altera discoidali majore, altera subapicali minore, apice ipso albo.* – Long. corp. 1¼ lin., Long. al. 1½ lin.'. Bächli *et. al.* (2004) provided a full description of the adult morphology and Schumann (1987) illustrated the egg. The banding of the wing is unique among known Holarctic *Drosophilidae* (Fig. 1.).

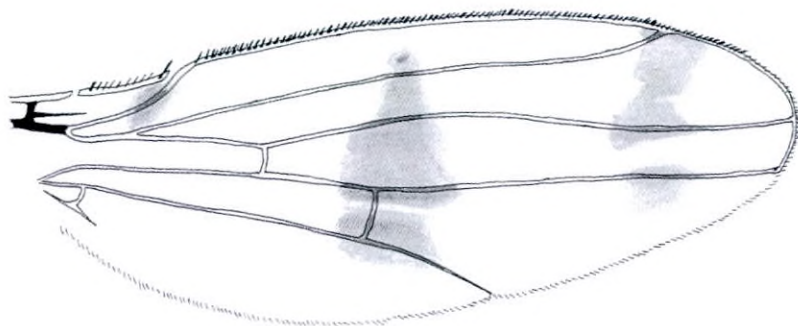


Fig. 1. Right wing of female *Chymomyza amoena* (Loew), del. L. Clemons.

Holarctic distribution

Wheeler (1965) recorded the known North American distribution for *Chymomyza amoena* as Minnesota to Ontario, south to Nebraska, Texas and Florida, also Arizona, Utah and Mexico. The species was first found in Europe at Pukarec, southern Bohemia in 1975 and Máca and Bächli (1994) gave a chronological list of the western Palearctic countries and regions in which it had been found i.e. Czech Republic (1975), Hungary (1980), Serbia (1980), Slovakia (1983), Poland (1984), Germany (1986), Romania (1987), Crna Gora (1988), Switzerland (1988), Russia (1989), Austria (1990) and Dagestan (1992). To this may be added France (1994) (Withers and Allemand, 1998), Lithuania (2000) (Escher *et. al.* 2004) and The Netherlands (2002) (de Jong and van Zuijlen 2003). Schumann (1987) stated that it is also known from Japan. The widespread European distribution is attributed to the species entering a vacant niche (Band, Bächli and Band 2005).

Biology

Chymomyza amoena is a secondary invader in a wide range of fruits damaged by other insects, mainly Coleoptera and Lepidoptera, where the larvae feed on frass. In North America the species was originally thought to be associated with decaying nuts of butternut *Juglans regia*, black walnut *Juglans nigra* and oaks *Quercus* spp., although there is evidence that as early as 1869 it was developing in domestic apples *Malus domestica* occupied by codling moth *Cydia pomonella* Linnaeus (Lepidoptera, Tortricidae) (Band 1994).

It has now been recorded abundantly from crab apple *Malus coronaria* (Band 1988a, 1988b), Northern red oak *Quercus rubra* (Band 1991), Oriental chestnut *Castanea mollissima* (Band 1996), ornamental crab apple (*Malus* vars. Strathmore and Radiantia) (Band 1988a), pear *Pyrus communis* (Band 1988b), plum *Prunus domestica* (Band 1988a, 1988b), Virginia apple *Malus pumila* (Band 1988a, 1988b) and white oak *Quercus alba* (Band 1991). Band (1996) also referred to small numbers of unpublished, and *pers. comm.*, records from skunk cabbage *Lysichiton americanus*, tomato *Lycopersicon esculentum* and the fungi *Psathyrella candolleana* and *Conopholis americana*.

In Europe the fly has been reared from acorns *Quercus robur* (Burla and Bächli 1992; Band, Band and Bächli 1998; Band, Bächli and Band 1999), domestic apple *Malus domestica* (Burla and Bächli 1992; Band, Band and Bächli 1998; Band, Bächli and Band 1999; Band, Band and Bächli 2003), English walnut *Juglans regia* (Band, Band and Bächli 2003), hazelnut *Corylus avellana* (Band, Band and Bächli 1998), plum *Prunus domestica* (Band, Bächli and Band 1999), sweet chestnut *Castanea sativa* (Burla and Bächli 1992; Band, Bächli and Band 1999; Band, Band and Bächli 2003), wild apple *Malus sylvestris* (Band, Band and Bächli 1998) and wild cherry *Prunus avium* (Burla and Bächli 1992; Band, Band and Bächli 1998). Máca and Bächli (1994) referred to an unpublished record from spruce *Picea* sp. cones. Like other species of the genus *C. amoena* adults are attracted to exposed wood (Band 1996) and bait e.g. banana (Band, Band and Bächli 2006).

Acknowledgements

In the preparation of this paper I wish to acknowledge Gerhard Bächli, Henretta Band, Peter Chandler, Stefan Escher and Phil Withers for providing copies of much of the literature cited.

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***Phortica variegata* (Fallén, 1823) (Diptera, Drosophilidae) in Kent**

- *Phortica variegata* was added to the British list by David Sharp (Sharp, D. 1903. *Phortica variegata*, Fall.: a drosophilid fly new to Britain. *Entomologist's monthly Magazine* **39**, 248-249) on the basis of a specimen captured by his daughter on 26 June 1903 near Brockenhurst, Hampshire. Ten days later C.G. Lamb found a second specimen several miles from where the first was discovered. David Gibbs (2003. *Amiota variegata* (Diptera, Drosophilidae) new for Gloucestershire. *Dipterists Digest (Second Series)* **10**, 113) summarised the known records.

On 1 July 2008 I swept three specimens of the species from a densely-shaded ride at Little Hall Wood, Hackington north of Canterbury (TR155611). They were collected between 16.15 and 18.15 during warm and sunny conditions. The site is part of the extensive Blean complex, which contains several local nature reserves and one national nature reserve, and consists largely of hornbeam *Carpinus betulus* on London Clay.

The initial identification was made using Assis-Fonseca 1965 (Assis-Fonseca, E.C.M. d' 1965. A short key to the British Drosophilidae (Diptera) including a new species of *Amiota*. *Transactions of the Society for British Entomology* **16**, 233-244) and checked using the more extensive description in Bächli *et al.* 2004 (Bächli, G., Vilela, C.R., Escher, S.A. and Saura, A., 2004. The Drosophilidae (Diptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* **39**, 362pp.) as there is another similar species known from north-west Europe -

LAURENCE CLEMONS, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE

The genus *Macronychia* Rondani, 1859 (Diptera, Sarcophagidae) in Kent

LAURENCE CLEMONS

14 St. John's Avenue, Sittingbourne, Kent ME10 4NE

Summary

Kent records of the three British species of *Macronychia* Rondani, 1859 are summarised.

Introduction

There are nineteen known species of *Macronychia* Rondani within three subgenera – *Macronychia* s. str., *Moschusa* Robineau-Desvoidy, 1863 and *Thomaspapeia* Verves & Khrokalo, 2006 (Verves and Khrokalo 2006). Three of these are currently known from the British Isles i.e. *Macronychia* (*Macronychia*) *striginervis* (Zetterstedt, 1838), *M. (Moschusa) griseola* (Fallén, 1820) and *M. (Moschusa) polyodon* (Meigen, 1824) and were keyed by Wainwright (1928), Day (1948) and van Emden (1954). Two additional species i.e. *Macronychia* (*Moschusa*) *agrestis* (Fallén, 1810) and *M. (Moschusa) alpestris* (Rondani, 1865) are widespread in western Europe (Pape 1996) and the species referred to as *M. kanoi* Kurahashi, 1972 from Croatia, Italy and Switzerland in that work is a misidentification of *M. (Macronychia) dolini* Verves & Khrokalo, 2006 which is also known from the Czech Republic and Poland (Verves and Khrokalo 2006.).

In his first checklist G.H. Verrall (Verrall 1888) gave '*Macronychia cylindrica*, Fln.' as a species requiring confirmation and '*Macronychia agrestis*, Fln.' as a reputed British species. In the second edition (Verrall 1901) this was changed to include '*Macronychia agrestis*, Fln.' as definite and '*Macronychia polyodon*, Mg.' as to be confirmed. Meanwhile R.H. Meade (Meade 1892) recorded '*Macronychia agrestis*, Fln.' as "... very variable in size, is rare; Mr. Dale has one in his collection" and continued "*T. cylindrica*, Fln., has been recorded as a British species; I have not seen a specimen, and, from Zetterstedt's description, I do not think it will belong to this genus.". The '*agrestis*' and '*cylindrica*' of Meade and Verrall are now regarded as misidentifications or synonyms of *Macronychia striginervis* (Zetterstedt, 1838) and *Oebalia cylindrica* (Fallén, 1810) respectively.

Kent records of *Macronychia* Rondani

The following account summarises the data known to me for the Watsonian county of Kent (vice counties 15 (East Kent) and 16 (West Kent)). Grid references in square brackets [] were not stated by the original recorder but should serve as an approximation of the site.

Macronychia griseola (Fallén)

In the Natural History Museum, London there is 1 ♀ taken by J.P. Dear at Bickley [TQ4269] on 4.vii.1980. On 3.vii.1999 I took 1 ♂ at Chestnut Street Heath, Borden near Sittingbourne (TQ868637). This species has been recorded as a parasitoid of *Oxybelus uniglumis* (Linnaeus) (Hymenoptera, Sphecidae) by O'Toole (1978) and Pape (1987), and this wasp was abundant at the latter site.

Macronychia polyodon (Meigen)

The larvae of this species are parasitoids of the larvae of a range of aculeate Hymenoptera. O'Toole (1978) gave *Crossocerus elongatulus* (Vander Linden), *C. capitatus* (Shuckard), *Ectemnius lapidarius* (Panzer), *E. rubicola* (Dufour & Perris) (Sphecidae) and *Bombus terrestris* (Linnaeus) (Apidae) while Pape (1987) included the additional sphecid genera *Oxybelus* Latreille and *Pemphredon* Latreille. In the Natural History Museum, London there is 1 ♀ taken by J.P. Dear at Bickley [TQ4269] on 30.vii.1977. I have taken males at Denge Wood Woodland Trust Reserve, near Garlinge Green (TR106528) on 16.vii.1996, Cinderhill Wood, Matfield (TQ648424) on 8.vi and 24.vii.2008 and Little Hall Wood, Hackington, Canterbury (TR155611) on 1.vii.2008. Incidental aculeates taken at Cinderhill Wood on 8.vi.2008 were *Crossocerus wesmaeli* (Vander Linden) and *Pemphredon lugubris* (Fabricius).

Macronychia striginervis (Zetterstedt)

Day (1948), van Emden (1954) and Wainwright (1928) gave the hymenopterous host as *Ectemnius cavifrons* (Thomson) (Sphecidae). J.W. Yerbury wrote the section on Diptera for the Victoria History of the Counties of England series (Yerbury 1908) and recorded *Macronychia agrestis* Fallén from Blackheath [TQ3976]. This entry was presumably based on specimens taken by Alfred Beaumont on 9 and 11 June 1897 - two of which are preserved in the Natural History Museum, London with a label stating they were "bred from old apple-stump" (Nigel Wyatt *pers. comm.*). Also in the Natural History Museum collection are 1 ♂ and 3 ♀ taken by E.C.M. d'Assis-Fonseca at St. Margaret's [TR34] between 1 and 7.viii.1953.

My records are: 21.vii.1983, Oare Gravel Pits, near Faversham (TR003623), 1 ♂ taken from mud beside puddle; 3.viii.1996, Birchett Wood, Orlestone (TQ987359), 3 ♂♂ feeding from hogweed *Heracleum sphondylium* flowers in the company of males of *Ectemnius cavifrons* (Thomson); 3.viii.1996, Faggs Wood, Orlestone (TQ9834), 1 ♂; 4.viii.2001, Swanscombe NNR (TQ59887410), 1 ♂ swept from a flowery strip by the path leading from Swanscombe Community Centre with wild carrot *Daucus carota*, mallow *Malva sylvestris*, ragwort *Senecio jacobaea*, mugwort *Artemisia vulgaris* and hawkweed oxtongue *Picris hieracioides*; 4.vii.2004, Little Culand Pit, near Burham (TQ7361), 1 ♂ feeding on hogweed *Heracleum sphondylium* flowers. Alan Stubbs (*pers. comm.*) encountered the species on 8.viii.2008 at Denge Wood Woodland Trust Reserve, near Garlinge Green (TR106528).

Day (1948) noted that the species visits flowers of ragwort *Senecio jacobaea*.

As all the *Macronychia* species are associated with aculeate Hymenoptera it is somewhat surprising that so few records have been ascertained for an area which has one of the better-known bee and wasp faunas in the British Isles.

Acknowledgements

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A record of *Fannia lineata* (Stein, 1895) (Diptera, Fanniidae) from

Kent - *Fannia lineata* (Stein) was re-instated to the British list in 1983 (Pont, A.C. 1983. *Fannia lineata* (Stein, 1895), new to Britain (Diptera, Fanniidae). *Entomologist's monthly Magazine* **119**, 229-231) on the basis of 1 male and 3 females reared in January 1935 from the nest of a heron, collected on 21 December 1934 from Sidmouth Plantation, Richmond Park, Surrey by C.L. Collenette. In that paper Adrian Pont produced an amendment to the Royal Entomological Society Handbook to Muscidae (Assis-Fonseca, E.C.M. d' 1968. Diptera Cyclorrhapha Calyptrata Section (b) Muscidae. *Handbooks for the Identification of British Insects* **10 (4b)**, 119 pp.) but did not figure the male genitalia.

Among a sample of Fanniidae, which included *Fannia armata* (Meigen) and *F. sociella* (Zetterstedt), taken at Angley Wood, Cranbrook (TQ7636) on 14 July 1996 was a single male possessing genitalia quite unlike any figured by d'Assis-Fonseca and, as I had neglected to make the necessary changes to the text in my copy of the Handbook, the specimen was put aside.

Recently the specimen was re-examined using the keys by R. Roskošný, F. Gregor and A.C. Pont (1997. The European Fanniidae. *Acta scientiarum naturalium Academiae Bohemicae – Brno* **31(2)**, 80pp.), and determined to be *Fannia lineata*.

Angley Wood is a large tract of mainly deciduous woodland, but with some coniferised areas, containing *Sphagnum* bog, *Calluna* heath and some streams and ghylls, just inside the West Kent (V.C. 16) boundary. Although it is not possible to determine exactly where the specimen was taken, much of the collecting that day took place in damp sallow *Salix* scrub -

LAURENCE CLEMONS, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE

***Forcipomyia paludis* (Macfie, 1936) (Diptera, Ceratopogonidae), the dragonfly biting midge: first British records since 1936**

MARK G. TELFER

10, Northall Road, Eaton Bray, Dunstable, Bedfordshire, LU6 2DQ

Summary

It is confirmed that *Forcipomyia* (*Pterobosca*) *paludis* (Macfie, 1936) still occurs at Wicken Fen, its only recorded locality in Britain.

On 20 June 1999, during a coleopterists' field meeting at Wicken Fen National Trust reserve, Cambridgeshire (TL5570, V.C. 29), I found two resting teneral ruddy darter dragonflies *Sympetrum sanguineum* (Müller) (Odonata). I noticed that both had small biting midges on the bases of their wings, two on one darter and one on the other. This seemed a very unusual observation but it was not long before I was able to read about the associations of Ceratopogonidae and Odonata in Corbet's (1999) global review of dragonfly behaviour and ecology. Here I learnt that "midges (Diptera: Ceratopogonidae), mainly, and perhaps exclusively, species of *Forcipomyia* and *Pterobosca* ... are frequently encountered on adult Odonata", and let the matter rest.

It was not until reading Martens and Wildermuth (2008) that I learnt that the only ceratopogonid species known to parasitise adult dragonflies in Europe is *Forcipomyia* (subgenus *Pterobosca*) *paludis* (Macfie, 1936), that all known British records are from the type locality, Wicken Fen, and that *F. paludis* was last recorded there in June 1936 (Edwards 1937). John Cowley was the first to collect *F. paludis*, on *Coenagrion pulchellum* (van der Linden) and *Lestes dryas* Kirby (both Odonata) at Wicken Fen on 2 July 1935 (Macfie 1936). A further record of *F. paludis* was made on 7 July 2008, when Henry Curry took a photograph of an immature male southern hawker dragonfly *Aeshna cyanea* (Müller) (Odonata) near the Wicken Fen tea room (TL562705) with three biting midges clearly visible on the base of its left fore-wing. These records confirm the belief of Martens and Wildermuth (*op. cit.*) that the species is not extinct in Britain. This species was an accidental omission from the list of the Diptera of Wicken Fen (Perry and Langton 2000) (Ivan Perry *pers. comm.*). As Macfie (*op. cit.*) pointed out, Michelmores (1929) had referred in the introduction to his list of the Diptera of Wicken Fen to minute black flies on the wings of *Aeshna grandis* Linnaeus (Odonata), and it was this observation that led John Cowley to look for such midges there.

Forcipomyia paludis has been recorded from France, Germany, Switzerland, Austria, Sweden, Croatia, Georgia and Romania (Martens *et al.* 2008) and in Fauna Europaea (Szadziewski 2005) it is additionally recorded from the Near East. Wirth (1956) cited a record from Uganda but Szadziewski (*op. cit.*) queried its occurrence in Africa.

For those wishing to search for this species, Martens *et al.* (2008) contains much useful information. It should be looked for from mid-May to the beginning of August, peaking in mid-June. It may be found on a wide range of hosts: 55 species of Odonata have been recorded with no clear preference for Zygoptera (22 species) or Anisoptera (33 species), but Martens *et al.* (*op. cit.*) indicated that they occurred mainly on the underside of the wing in Zygoptera but on the upper side in Anisoptera, which they considered to be related to the posture of the dragonfly while settled. The midges predominantly attach themselves to the

main veins at the bases of the wings; only in *Calopteryx* species did they occur mainly near the tips, which are pigmented and have denser venation in this genus. That *F. paludis* is a true parasite of dragonflies, sucking haemolymph from the wing-veins, and not merely phoretic was established by Wildermuth and Martens (2007).

The subgenus *Pterobosca* is particularly associated with dragonflies and, as Macfie (*op. cit.*) related, it was already well known that some Oriental species of *Pterobosca* had this habit. In the same paper he described another new species that John Cowley had found on a dragonfly in Assam. Wirth (1956) summarised what was then known on the biology of the subgenus and gave records of a number of species from dragonflies in North and South America and Africa, including a widespread American species *F.(P.) fusicornis* (Coquillett, 1905) that is closely related to *F. paludis*.

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Novel courtship in *Choerades marginatus* (Linnaeus, 1758) (Diptera, Asilidae): the female Robber fly as coquette

IAN W. RABARTS

Cranwich Hall, Cranwich, Norfolk, IP26 5JL; ian@rabarts.com

Summary

Reversal of the normal asilid male role has been observed in the remarkable female-initiated courtship of *Choerades marginatus* (Linnaeus, 1758) which is described for the first time. A complex 6-stage courtship is proposed and compared with published records for other asilids: *C. gilvus* (Linnaeus, 1758) females also exhibit courtship behaviour now re-interpreted as female-initiated and comparably involved. Amongst the Asilidae only two other species, *Damalis longipennis* Loew, 1858 and *Grypoctonus daimyo* Speiser, 1928 are known to demonstrate any form of role-reversed behaviour, although not approaching the complexity seen in the genus *Choerades*.

Introduction

Since 2005 regular observations have been made on the behaviour of various insects in a garden in West Norfolk (TL7894), which contains resident populations of four woodland and five grassland species of asilid (Table 1). The grassland species are considerably more abundant while the woodlanders are rarely seen, most having a short flight period apart from *Choerades marginatus* which is on the wing from early June to as late as mid September in favourable years. No courtship had been observed in this species until 2006.

It should be noted that all references to *C. marginatus* in this paper relate to the species referred to by this name in the British literature. Nomenclatural problems surrounding the application of the correct name to this species are discussed by Smart (2009).

Skidmore (1966) found *Choerades marginatus* larvae in beetle burrows in decaying *Quercus* (oak) branches. *Fagus sylvatica* (beech) is more numerous than oak in West Norfolk, with many over-mature trees, rotting branches and rot-holes: *C. marginatus* is normally sighted near them, some distance from the nearest oak. A similar ratio of beech : oak is seen at the site in Thetford Forest mentioned below. Careful examination of a dying over-mature *Quercus robur* (oak; bole diameter 1m) brought down in a gale here in 2008 failed to reveal any discarded pupal exuviae of *Choerades*. Most of the wood in the dead 'antlered' branches (punctured with beetle exit holes of various sizes) still remained very hard with soft material confined to frass in the burrows.

At the time of writing it was still unclear to the author whether *Choerades* larvae normally feed on beetle larvae or fungus-infested dead wood, but it has become evident from the work of Krivosheina and Mamaev (1975) that the larvae of species of *Choerades* develop in the galleries of arborivorous insects in beech (*Fagus* sp.), elm (*Ulmus* sp.), and oak (*Quercus* sp.) and that it is probably safe to assume that *Choerades* larvae feed on beetle larvae (Lavigne *pers. comm.*). The low population density of the asilid suggests that the prey species is also likely to be scarce.

Courtship behaviour in *Choerades marginatus*

At about 11:00 on the sunny morning of 23 June 2007, following a week of unsettled weather, two *C. marginatus* appeared on a 2m tall clump of *Reynoutria japonica* (Japanese knotweed)

at the edge of a small grassy glade smothered in flowering *Ajuga reptans* (bugle) and extending for some 15sq m between clumps of knotweed, garden shrubs and fruit trees. This particular knotweed clump, lying adjacent to woodland and at the foot of some mature beeches, has also proved attractive to the asilids *Machimus atricapillus* (Fallén, 1814), *Neoitamus cyanurus* (Loew, 1849), *Dioctria oelandica* (Linnaeus, 1758) and the syrphids *Xylota segnis* (Linnaeus, 1758), *X. sylvarum* (Linnaeus, 1758) and *X. xanthocnema* Collin, 1939. At first the two *C. marginatus* sunned themselves on foliage about 1.5m above the ground, 70cm apart on the large (15cm) leaves, pressing close to the leaf surface, head downwards on the inclined leaf, body in line with, and facing towards, the sun (unlike *M. atricapillus* for example, which assumes a position at right angles to the sun, exposing one flank at a time). The female had stationed herself to the south of the male. After some 5 or 6 minutes each began to take a more active interest in their surroundings, turning their periscope-like heads to follow the flight of passing insects or moving to peer down over the edge of the leaf. Their raised stance now showed that one with short pale gold hairs fringing the posterior margin of the tergites (cf. Form B in Stubbs and Drake 2001) had the enlarged terminalia of a male, while the other, somewhat larger and with more extensive, longer ginger hairs (cf. Form A in Stubbs and Drake 2001) had the tapered abdomen of a female. Based on experience the previous year where the author disturbed the asilids, the author moved 3m away and continued to observe.

Taxa	Flight period	Number of sightings	With prey	<i>in copula</i>	Ovipositing
WOODLAND SPECIES					
<i>Neoitamus cyanurus</i>	5.vi – 21.vi	8 [1]	0	0	0
<i>Choerades marginatus</i>	5.vi – 14.vii	8 [3]	3	1	0
(<i>Dioctria linearis</i>)	(18.vii.2006)	(2 [1])	(0)	(0)	(0)
(<i>D. oelandica</i>)	(25.v.2006)	(1)	(0)	(0)	(0)
GRASSLAND SPECIES					
<i>Eutolmus rufibarbis</i>	19.vi – 9.viii	47 [4]	7	1	2
<i>Machimus atricapillus</i>	8.vii – 27.viii	48 [5]	0	2	5
<i>Leptogaster guttiventris</i>	5.vi – 12.vii	45 [5]	1	1	0
<i>Dioctria atricapilla</i>	24.v – 22.vi	9 [1]	2	0	0
<i>D. rufipes</i>	19.v – 3.vii	11 [1]	2	0	0
TOTAL 7 (+2) spp.	24.v – 27.viii	176	15	5	7

Table 1. Asilid species frequencies for 2007 with additional records for the 2 species of *Dioctria* seen only in 2006. Note: in the column for ‘Number of sightings’ the figure in square brackets gives the maximum count on any one day. Observations were confined to 1.5m strips each side of the pathways and up to 3m in height. Woodland and grassland each with an area of about 0.7 ha.



Fig. 1. *Choerades marginatus* male feeding on aphid prey.



Fig. 2. *Choerades marginatus* female with *Byturus tomentosus* prey.

Both asilids began to make selective short capture darts of 20 – 50cm at small passing potential prey (moth flies: Diptera, Psychodidae), while watching but not flying at other insects, and each returning to the same or a closely adjacent leaf after each sortie. During the next 25 minutes the female made 3 successful attacks, the male only 2; they were obviously aware of each other's presence (at 0.5-1m apart), watching each other's activities but displaying no territoriality (3 males were seen at the same spot in the previous year on 29.viii.2006, amicably sunning 20-30 cm apart and also showing no aggression).



Fig. 3. *Choerades marginatus* female in raised, active stance at leaf edge. Lateral shimmer strips are visible below reflections on the thoracic dorsum. The pale face-band can be seen between the eyes and proboscis.



Fig. 4. Mated pair of *Choerades marginatus* in tail-to-tail position on beech leaves, Thetford Forest.

After ejecting the corpse of her third psychodid the female stood prominently at the edge of her leaf in the body raised, active stance, looking intently at the male for many seconds (Fig. 3), then turned and flew off south directly *away* from him, in slow level flight completely unlike the rapid 20 – 50 cm capture darts at psychodids. This flight turned into an

anticlockwise circle of about 2.5m diameter, she flying close past the observer just below eye height, then close (30–40cm) past the male and finally back to her original hunting post. The male had watched throughout, turning head and then also body to follow her progress, but made no other move himself. They both made a few further unsuccessful capture darts when the female again took off in the slow circular flight. This time, when she was diametrically opposite and about 2.5m away, the male rapidly flew directly at her in a flight path which curved so as to follow her progress, finally reaching her at the point where she had completed nearly $\frac{3}{4}$ of her circle, but now approaching her directly from behind. They grappled and fell to the ground, but the mating was patently unsuccessful since they quickly disengaged and flew back to their hunting posts. Here they both watched passing insects for a short while, making no attempt at capture, and then the female launched herself again for a third time in her slow, circular flight. At the same point in the orbit (i.e. when her flank and shimmer spots were clearly showing) the male flew rapidly at her in his direct but curving flight, they engaged and fell to the ground, lost to sight in the grass. After 1.5 – 2 minutes they re-emerged *in copula* and in tandem with the male trailing behind and facing away from the female. With heavy buzzing flight they flew up 4m into a *Prunus domestica* (plum) tree, becoming lost to sight. The pair was not seen again, although another individual was photographed on a *Rubus fruticosus* (bramble) leaf close by while waiting for them.

Once before, on 17 July 2006 at 19:11 in Thetford Forest (TL8292), a copulating pair of *C. marginatus* was found only 1m from the ground, resting on the leaves of a beech tree in full sunshine (Fig. 4), but rapidly moving up into the higher branches when disturbed by the photographer. Later in the year, on 6 September 2006 from 10:27 – 10:59, a male and female *C. marginatus* were seen at their hunting posts, close to each other, at the same knotweed clump as first described, this time taking flying aphids (Hemiptera, Aphididae; Fig. 1), but also flying off together, without mating, after enduring half an hour of photography. It is notable that on both occasions that an unpaired male and female were seen together they amicably hunted in close proximity for about half an hour.

Discussion

Sexual behaviour for the majority of asilids consists of a simple variation of the attack mode initiated by the male (Lavigne 2003). In *M. atricapillus*, which is abundant here at the edges of taller grassland, the male rushes at the quiescent female with no apparent warning and copulates as they grapple together. Similarly, in *Leptogaster guttiventris* Zetterstedt, 1842, frequent in their 'forests' of *Urtica dioica* (nettle) or *Centaurea nigra* (knapweed), males approach resting females with a slow, helicoptering flight and pounce at the last moment.

While all insects must display a basic minimum of sexual behaviour (approach, identification, copulation) as illustrated above, some species exhibit behaviour that far surpasses this, namely courtship display, which while being conspicuous and bringing considerable danger to the participants (from rivals, predators, etc.) also confers great selective advantage (in the maintenance of a species successfully adapted to its selected habitat) and has sporadically evolved throughout the phylum Arthropoda (Lavigne 2003). Amongst the asilids here in Norfolk it is only in the species *Dioctria atricapilla* Meigen, 1804 and *D. rufipes* (De Geer, 1776) that males have been seen to perform an elaborate courtship ritual preceding copulation (involving a hovering 'dance' in front of the female).

Choerades marginatus clearly exhibits a very different pattern of courtship behaviour from any of the above. It is a Nationally Scarce species in Britain and this is reflected in the paucity of sightings, both in its stronghold in the ancient oak forests of the southern counties and scattered sites north of the River Thames (Stubbs and Drake 2001), and more recently

from other sites in Norfolk and Suffolk (Paston 2007; Crellin 2008). This in itself may account for its courtship behaviour being previously unrecorded. The phenology suggests that it is unlikely for adults to have a synchronous mass emergence: even among the grassland species there is a flight period of up to three weeks between first emergence and the appearance of copulating pairs (during which time numbers of potential mates increase and egg masses are brooded). In *Eutolmus rufibarbis* a female has been observed here to start ovipositing almost immediately after the termination of copulation, indicating that her egg mass was mature *before* mating. However, at least one species, *Machimus gonotistus* Zeller, has been reported to apparently mate immediately upon the imago's emergence from the pupal case (Lehr 1958c in Lavigne 2003).

Territoriality and aggression between males, seen in the closely related genus *Laphria*, where males of *Laphria fernaldi* (Back) actively defend the area around the pine log selected as their personal hunting post (Lavigne and Bullington 2002), has not been observed in *C. marginatus* – in fact the males associate together quite amicably. This might perhaps be explained partly by the supposition that widely dispersed *C. marginatus* adults coming down to the forest margin are able to exploit a more numerous and much smaller-sized food resource (aphids, pollen beetles, psychodids), eliminating both inter- and intra-specific competition. Most asilids have legs well armed with stout bristles which facilitate mid-air capture of prey which is then carried back to the hunting post in the close-meshed basket formed by the front two (or all three) pairs of bristly legs. The prey may be immobilised mid-air, supposedly instantly, by a proteolytic enzyme injected through the asilid's proboscis but the author has seen the prey of *M. atricapillus* and *E. rufibarbis* still struggling at the hunting post, suggesting that either the coup-de-grâce is administered here or that the enzyme is not in fact fast-acting. The leg spines in the genus *Choerades* are much reduced, almost hair-like, and mostly entirely missing on the medial surfaces of the legs. The development of a laterally compressed proboscis (diagnostic for the tribe Laphriini) may have allowed this species to take small beetles such as *Byturus tomentosus* (Coleoptera, Byturidae) more successfully from behind in flight, pinning the prey securely by preventing rotation (like a kebab skewer) and paralysing it instantly by injection between the raised elytra into the exposed abdomen, so preventing the struggling beetle from slipping away. *Choerades marginatus*-captured beetle prey has always been seen with the wings extended, suggesting that death is very rapid, although the elytra may close against the proboscis (Fig. 2). Pollen beetles captured in flight by the author closed their elytra, rapidly folded their wings and were most difficult to secure between finger and thumb.

This choice of smaller prey leading to reduction in competition would permit the evolution of a more efficient reproductive strategy suited to the low population densities created by limitations in the larval food supply, allowing a *Choerades* female to concentrate on rapid gonadotrophic development and maturation during the immediate post-emergence period and become ready to actively elicit insemination from the first acceptable, but rarely met, male.

Stubbs and Drake (2001) suggested that “the white face-band may have a function in courtship”, to which one must add the prominent lateral stripe of yellow hairs on each abdominal segment, together with the bright yellow halteres. This combination of characters immediately separates *C. marginatus* from all other British asilid species and would provide a visual cue at some distance. The situation is more difficult in Europe as, apart from the forms *marginatus* and *femoratus* (Meigen, 1804) discussed by Smart (2009), there are several other very similar species currently recognised. These include *C. castellanii* (Hradsky, 1962), *C. dioctriaeformis* (Meigen, 1820), *C. fimbriatus* (Meigen, 1820) and *C. fulvus* (Meigen, 1804)

which are distinguished by subtle differences between species and sexes both in the colour of the facial hairs and also the colour and disposition of hairs on the thorax and abdomen, these all being potentially discernible laterally and hence available for inspection from the ground at close range.

Lavigne (2003), discussing the role of specific signal systems in sexual behaviour, observed that there is “widespread development in the Asilidae of markings on males which serve to emphasize and enhance the associated movements, e.g. the stripes of orange setae on the abdomen of *Cyrtopogon auratus* Cole (Lavigne 1970a), the enlarged black setal brushes on the mid tibia of *Heteropogon wilcoxi* (James) (Lavigne and Holland 1969), the expanded, flattened bristles on the hind tarsi of *Promachus latitarsatus* (Macquart) (Geller-Grimm and Geisthardt 1996) and the white patches of setae on the fore tarsi of many unrelated species, such as *Ablautus rufotibialis* Back (Lavigne 1972) and *Cyrtopogon willistoni* Curran (Lavigne and Holland 1969; O’Neill 1995). Certainly, the patch of white setae dorsally on the genitalia of many species of *Promachus*, serves as a visual signal.” The same must apply to the markings of the dominatrix *C. marginatus* female. The subsequent slow flaunting circuit of the female may be, by role inversion, a logical extension to the ‘hovering in front of the mate’ stage of courtship seen in *Dioctria* (Lavigne (2003) noted that additional components such as “circling” or “strafing” flights are probably a recent evolutionary component.) It is also another reinforcing mechanism achieved by firstly rejecting (flying away from) and then accepting (flying close to, possibly with pheromone emission) the waiting male. On the next circuit the male’s attack response is triggered as mate/prey become indistinguishable until he closes on her, when engagement takes place in mid-air. Copulation is probably initiated on the ground.

Although seen only once in the nearly complete form and not subsequently verified (only one solitary female was seen in 2008), it is most unlikely that such a complex series of behavioural events would have taken place spontaneously. The preliminary sociable hunting stage had been observed in 2006 and the author, picking up on intangible clues in 2007, instinctively moved discreetly aside and was able to observe the ensuing proceedings. Given the field observations and the conclusions adduced from the widely reported different behaviours in the Asilidae he feels it reasonable to propose that the courtship in *C. marginatus* appears to take place in six discrete stages, with either partner being able to terminate at any one stage: -

- 1) The initial encounter, with species/sex-specific signals.
- 2) Approximately half an hour of amicable, jointly observed hunting performance provides time for familiarisation and assessment for mate selection, perhaps equating to the function of the elaborate courtship displays seen in *Dioctria*.
- 3) The female stops hunting and stands motionless, looking directly at the male, signalling her acceptance of him as a mate and providing the releasing stimulus (from actual hunting) to enable the next stage of courtship to begin.
- 4) The slow flaunting circuit of the female, possibly also releasing pheromones when in close proximity to him, may emulate “prey” when seen at a distance and invites an attack by the male. Failure at this point results in a return to stage two followed by omission of stage three.
- 5) The male, now habituated during the previous 30 minutes to the presence of an active capture-darting female, makes the attack when he perceives her (flickering) thoracic shimmer spots at 2.5m, she now flying *slowly* at an angular velocity and apparent size similar to, for example, a pollen beetle of only 3-4mm on the wing at 50-70cm distance (the normal length of capture dart observed by the author for this particular prey).

6) The attack is converted terminally into copulation, as seen in other genera. The pair assume the tail-to-tail "opposed" position. Failure at this stage results in a return to their hunting stations and a re-start of stage four.

In the occasionally British domiciled and much larger *C. gilvus* (Linnaeus, 1758), a woodland species whose larvae feed on those of beetles in pine stumps, Schmid (1969) reported that the female is knocked to the ground by the male as she hovers 5cm above the ground seeking an oviposition site. Given that a female on an ovipositing flight does not waste time at an unsuitable spot, if one postulates that she must be able to discriminate between ground and stump, and that she was in fact only *apparently* looking for an oviposition site, we have a slow-moving (hovering) virgin female physiologically ready to lay eggs, aware of the presence of a male and signalling, by atypical behaviour, her readiness to copulate.

However one interprets the observations, it is noteworthy that in both these *Choerades* species, unlike any other asilid genus, it is the female (deliberately) presenting herself in an abnormally slow, but not static, behavioural mode that attracts the amorous attentions of a non-aggressive, non-territorial and otherwise potentially disinterested male.

It might be supposed that *C. marginatus* and *C. gilvus* are unique in this development of a female-initiated courtship strategy. Given the *caveat* from Lavigne (2003) who stated that "so far as is known, courtship does not occur in the subfamilies Laphriinae, Megapodinae and Leptogastrinae", this role reversal is known in only two other species. Cuthbertson (1938) reported that in *Lolphurodamalis* [= *Damalis*] *longipennis* (Loew) (Diptera, Asilidae, Trigonominae) from Zimbabwe "the female appears to take the initiative in mating, approaching the male as he rests on the support of the stems of tall grass or outstanding twigs or shrubs" without indicating whether the female hovers in front of the male (Lavigne 2003). In the Stenopogoninae, during the courtship of *Grypocetus daimyo* Speiser from eastern Asia, a landed male (previously courting) is sometimes approached by the female who places her fore tarsi on his legs or head in the manner of a male (Lehr 1966 in Lavigne 2003).

Neither of these latter two cases, nor actions by members of any other genus, approaches the remarkable ordered complexity of the ritual seen here in *Choerades marginatus*.

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A note on the status of *Choerades femoratus* (Meigen, 1804) (Diptera, Asilidae)

MALCOLM SMART

Southcliffe, Pattingham Road, Perton, Wolverhampton WV6 7HD;
malcolmsmart@talktalk.net

Laphria femorata Meigen, 1804 has been treated by most later dipterists, notably Engel (1928) and Lehr (1988) as a synonym of *Choerades marginatus* (Linnaeus, 1758), described in *Asilus*. Moucha and Hradsky (1956) discussed its status as a recognisable variety of *C. marginatus* (under the name *Epholkiolaphria marginata*), following Meigen in assuming that the typical form of *C. marginatus* has a yellow haired face (but black mystax), while typical males of *C. femoratus* have a white haired face. Miksch *et al.* (1993) similarly recognised the two varieties, noting apparently consistent differences in the relative lengths of the scape and pedicel and published separate distribution maps for them in Germany. Geller-Grimm (2003, 2004) treated them as separate species in his key to the Robberflies of Germany and in *Fauna Europaea*, where *C. femoratus* is only listed for Austria and Germany. It has not been recognised in any of the recent national checklists.

All British material that I have seen appears to be of the form *femoratus* Meigen and, if further study confirms the status of *C. femoratus* as a valid species, the name of our British species now known as *Choerades marginatus* (including both forms A and B of Stubbs and Drake 2001) would potentially change to *Choerades femoratus*. If anyone comes across a MALE in Britain with a band of golden yellow (not silvery white) adpressed hairs across the face below the antennae, it would be appreciated if such a specimen could be referred to me.

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The puparium and Scottish distribution of *Pseudolyciella pallidiventris* (Fallén, 1820) and allied species (Diptera, Lauxaniidae)

GRAHAM E. ROTHERAY

National Museums Collection Centre, 242 West Granton Road, Edinburgh EH5 1JA

Summary

Breeding sites and early stages in *Pseudolyciella* Shatalkin, 2000 and *Meiosimyza* Hendel, 1925 (= *Lyciella* Collin, 1948) (Diptera, Lauxaniidae) are poorly known. A puparium of *Pseudolyciella pallidiventris* (Fallén, 1820) is described in this paper; *P. pallidiventris* is only known in Scotland on the basis of six records but the allied species, *P. stylata* Papp, 1979, is common and widespread. Another allied species, *P. subpallidiventris* Papp, 1979, is the rarest of the three species in Scotland but all three species are probably under recorded.

Introduction

Adult *Meiosimyza* Hendel, 1925 and *Pseudolyciella* Shatalkin, 2000 (both formerly included under *Lyciella* Collin, 1948) (Diptera, Lauxaniidae) are distinctive flies by virtue of their colour pattern and habits. Shatalkin (2000) separated *Pseudolyciella* and used the name *Meiosimyza* (which had priority over *Lyciella*) for the residue, which may be paraphyletic and further splitting may ensue. Adults of *Meiosimyza* are mostly yellow but *Pseudolyciella* species have a grey dusted thorax. They are fairly small flies, being about 3-4mm long. Some species are common and widespread and they are often seen motionless or walking slowly on or under leaves of trees and shrubs, generally in damp, partially shaded situations.

Although *Meiosimyza* and *Pseudolyciella* species have been reared several times, few early stages have been described. The only descriptions are those of Hennig (1952) for *Meiosimyza rorida* (Fallén, 1820) and Miller and Foote (1976) for the allied Nearctic species, *Poecilolygia browni* (Curran, 1933), also previously included in *Lyciella*. Three possibly different types of breeding media have been reported: dead wood, dead leaves and bird nests. Puparia of *Pseudolyciella pallidiventris* (Fallén, 1820) have been found under bark by de Meijere (1909) and Czerny (1932). Chandler (1978) recorded this species from the bark encrusting fungus, *Phlebia radiata* (as its synonym *P. merismoides*) based on a record in an unpublished thesis (Trifourkis 1977), Collin (1948) reared *Meiosimyza affinis* (Zetterstedt, 1847) from larvae found in a decaying stump and Brian Laurence reared *M. rorida* from puparia found under bark of unspecified type. Three species have been reared from larvae found mining dead leaves: *Meiosimyza subfasciata* (Zetterstedt, 1838) (de Meijere 1909), *M. decipiens* (Loew, 1847) and *M. rorida* (Thienemann 1926). From bird nests two species have been obtained. Edwards (1925) reared *Meiosimyza decempunctata* (Fallén, 1820) from thrush, *Turdus philomelos* Brehm and blackbird, *Turdus merula* Linnaeus nests and Armstrong (1953) referred to records by E.B. Basden of *M. decipiens* from wren, *Troglodytes troglodytes* (Linnaeus) nests. The rearing reported by H.J. Burkill of *M. decempunctata* from flower heads of *Carlina vulgaris*, also cited by Smith (1989), is considered to require confirmation as pallopterids with similar wing markings are known to develop in this plant.

Although old, the keys in Collin (1948) enable most British species included by him under *Lyciella* to be identified. One case where this is not possible is *Pseudolyciella pallidiventris* because two additional species have been separated from it: *P. stylata* (Papp,

1979) and *P. subpallidiventris* (Papp, 1979). Based on differences in the gonites of the genitalia, only males of these three species can be identified with certainty (Papp 1979). Fortunately the gonites project beyond the genital capsule and can be assessed in most specimens without dissection (Godfrey 1994). With the addition of these two species the genus *Pseudolyciella* is represented in the British Isles by three species of which two have previously been recorded from Scotland (Godfrey 1994) and the third is added here.

In this paper I describe a puparium of *P. pallidiventris* from the large collection of Diptera obtained from bird and mammal nests and mammal runs, burrows and droppings by E.B. Basden in the 1930s and deposited in the collections of the National Museums of Scotland (Rotheray 1991). I also assess the Scottish distribution of *P. pallidiventris*, *P. stylata* and *P. subpallidiventris* based on re-identification of specimens under *P. pallidiventris* in the collections of the National Museums of Scotland.

Methods

To check the determination of the 60 specimens identified as *P. pallidiventris* in the National Museums of Scotland collection, the key by Collin (1948) was used. Males were then separated from females and male gonites examined for each of 32 specimens in relation to the comparative figures of the gonites of the three allied species given by Godfrey (1994).

Only one puparium was present in the series of *P. pallidiventris* reared by Basden and it was glued to a piece of card under the stage of one of the two females in the series. The card obscured details of the ventral surface. To reveal these details and examine the head skeleton at the interior, apicoventral end of the puparium, the puparium was immersed in warm water for approximately 30 minutes. After this time the glue had dissolved and the puparium came away easily from the card. An upper, shield-shaped portion of the puparium had split on emergence of the adult but was still attached. To expose the head skeleton, this was removed and the rest of the puparium placed in a tube containing a concentrated solution of KOH and the tube heated for 20 minutes in a hot water bath. The cleared head skeleton resulting from this treatment was examined with a binocular microscope in a solid watch glass containing glycerol. During the natural process of being laid down in the puparium, the head skeleton had been twisted and broken across the intermediate sclerite and because of this and its fragile state, it was studied *in situ* and no attempt was made to remove it. Drawings were made using a drawing tube attached to the microscope. Measurements were made using a measuring eyepiece. Terms follow Rotheray and Gilbert (2008).

Results

Identification and Scottish Records

Of the 60 specimens in the NMS collection that had been identified as *P. pallidiventris* using Collin (1948) 32 were males, of which 19 have been determined as *P. stylata* Papp, 1979 and 11 as *P. pallidiventris* while only 2 were apparently *P. subpallidiventris* Papp, 1979. The gonites of the four males from the Basden series corresponded to the figure given for the gonites of *P. pallidiventris* by Godfrey (1994) with one gonite longer than the surstyli and the other about as long as the surstyli. Based on these males and where each quoted date represents one male, records for the three species in Scotland are given below.

Pseudolyciella pallidiventris (Fallén, 1820)

Aberdeenshire: Crathie, 5.vii.1969, E.C. Pelham Clinton. **Argyllshire:** Lephinmore, 1.x.1951, E.C. Pelham Clinton. **Dunbartonshire:** Bonhill, 27.vi.?1894, J.R. Malloch. **Midlothian:** Miltonbridge, 3.xi.1951, 4.vi.1953, 19.ix.1952, E.C. Pelham Clinton.

***Pseudolyciella stylata* Papp, 1979**

Argyllshire: Lephinmore, 1.x.1951, at light, E.C. Pelham Clinton. **Arran:** Lochranza, 17.vii.1969, E.C. Pelham Clinton. **Dunbartonshire:** Bonhill, 13.vi.1894, 18.vii.1894, 7.ix.1894, J.R. Malloch. **East Lothian:** Dunglass Estate, 14.vi.1997, A.E. Whittington. **Midlothian:** Miltonbridge, 11.ix.1953, 6.vii.1953, 26.vii.1953, 21.ix.1953, 3.vi.1953, 2.vi.1953, E.C. Pelham Clinton. **Perthshire:** Rannoch, 19.vii.1923, A.E.J. Carter; Callander, 5.viii.1962, E.C. Pelham Clinton. **Stirlingshire:** Plean, 11.ix.1961, E.C. Pelham Clinton. **Western Isles, Lewis:** Stornoway, 8.vii.1906, N.B. Kinnear.

***Pseudolyciella subpallidiventris* (Papp, 1979)**

Aberdeenshire: Crathie, 5.vii.1969, E.C. Pelham Clinton.

Description of the puparium of *Pseudolyciella pallidiventris*

Length 4mm, width 1.8mm, truncate posteriorly and anteriorly, flattened on the entire ventral surface and dome shaped in cross section, about twice as high as broad; puparium split dorsolaterally from just in front of the anterior spiracles on the prothorax to the first abdominal segment to facilitate emergence of the adult (Fig. 1);

anterior spiracles on anterior margin of the loosened portion of the puparium, length 0.06mm, bifurcate with 5 spiracular openings (Fig. 2);

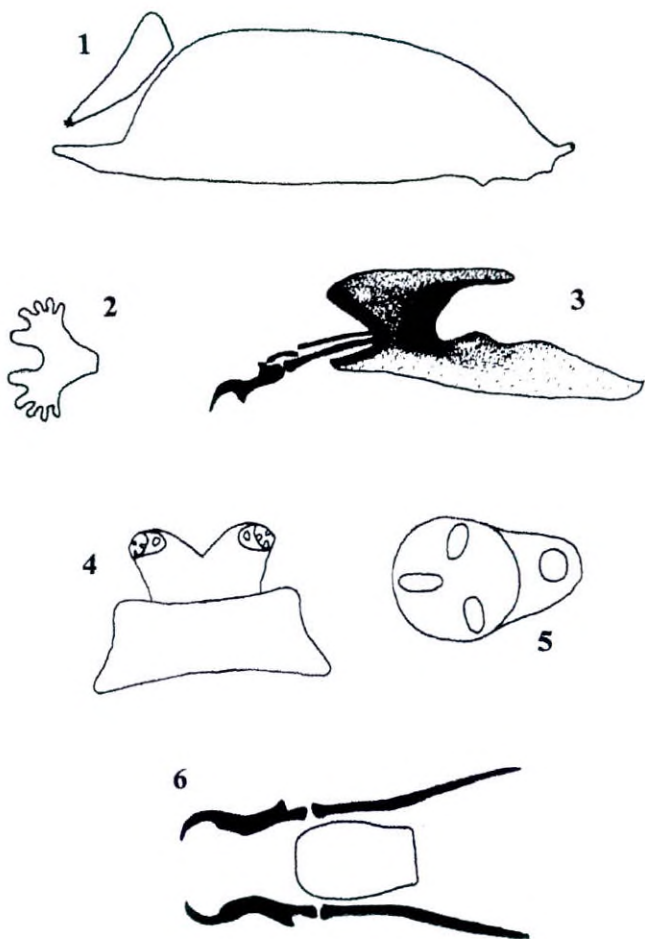
head skeleton (twisted in the puparium but corrected in Fig. 3): length 0.9mm, mandibles, intermediate sclerite including parastomal bars strongly sclerotised; basal sclerite only strongly sclerotised on the anterior and posterior margins; mandibular sclerites separate, very narrow and elongate and a long (> half as long as entire mandibular sclerite) apical hook; beneath each mandibular sclerite a comma shaped dental sclerite is present; intermediate sclerite about two thirds as long as mandibular sclerite (0.15 v. 0.21mm) with the ventral bridge not as strongly sclerotised as the lateral arms and separated from the basal sclerite; ventral cornua about twice as long and broad as dorsal cornua and with a dorsal apodeme; dorsal apodeme with a window; cibarial ridges (= ventral pharyngeal ridges) present; epipharyngeal plate with a sclerotised, square-shaped apex (Fig. 6);

vestiture evenly distributed over entire lateral and dorsal margins of the thorax and abdomen and comprising upright, tapering setae about 0.03mm long separated by about a length;

locomotory spicules present on posterior margin of the metathorax and except for anterior and posterior margins, coating more than two thirds of the ventral surface of abdominal segments 1-7; locomotory spicules present as three bands separated by narrow strips without spicules; anterior and posterior bands about half as wide as middle band; spicules in bands comprising numerous, interrupted transverse rows with anterior and posterior corners of front and rear bands extending to the lateral margins of the abdomen and mixing with the vestiture; on each abdominal segment spicules of the anterior band even sized but anterior margin of middle band and spicules of posterior band about twice as large;

anal segment with lateral margins bearing 2 pairs of triangular, about equal sized, fleshy projections; anus opening parallel with longitudinal axis of the body and with a pair of semi-circular shaped lateral lobes;

posterior breathing organs borne on a pair of bifurcating projections (Fig. 4), lightly sclerotised pale brown; each spiracular plate with 3 pairs of openings on a raised disc higher than the cuticular scar; interspiracular setae apparently missing or indistinct, not studied or drawn (Fig. 5).



Figs 1-5. Puparium of *Pseudoyciella pallidiventris* (Diptera, Lauxaniidae): 1, whole puparium, lateral view head end to the left, length 4mm; 2, anterior spiracle, lateral view, base to the right, length 0.06mm; 3, head skeleton, lateral view, anterior end to the left, length 0.9mm; 4, posterior breathing tubes, anterior view; 5, spiracular plate, dorsal view, interspiracular setae missing; 6, apex of epipharyngeal plate between the mandibles and arms of intermediate sclerite, dorsal view, length 0.15mm, width 0.1mm.

Material examined: Berkshire: Temple, one puparium and associated female ex E.B. Basden collection, NMS1963.18; from the nest of a rook, *Corvus frugilegus* Linnaeus; 55 feet

high in a *Pinus sylvestris* tree; nest collected 30.i.1932, female emerged 18.v.1932; nest with sticks, matted leaves, inner bark, grass and lots of fine vegetable mould; 4 males and one other female emerged over the period 18.v. to 25.v.1932 but only one puparium was associated with an adult in the series of six specimens.

Discussion

The puparium studied here is associated with a female specimen that, according to the label, was identified by E.B. Basden and confirmed by J.E. Collin as *Lyciella pallidiventris*. However, long after the identifications was made, two allied species were split from *pallidiventris* (Papp 1979). One of these species may be represented in the series reared and identified by Basden as *P. pallidiventris*, but this seems unlikely because all four males in the series were confirmed as *P. pallidiventris*. Hence the identification of the female as *P. pallidiventris* is assumed to be correct, although confirmation will only be practicable if characters are found that enable females to be reliably identified.

Pseudolyciella pallidiventris has been reared from under bark (de Meijere 1909, Czerny 1932), from bark encrusting fungi (Chandler 1978) and the nest of a rook as detailed here. It is possible, however, that bark, fungi and bird nests are not different breeding sites if the breeding medium was actually dead leaves. Basden kept data sheets for each bird nest he collected (Rotheray 1991). From the data sheet on the rook nest, Basden refers to it containing, 'matted leaves' and in accounting for the records from dead wood and the saproxylic fungus, dead leaves frequently accumulate in and on dead wood and larvae might have come out of such leaves to pupate under the bark or in association with the fungus. Clearly more rearing is required to clarify the breeding medium of *P. pallidiventris*. The absence of data specifying precisely what larvae actually use for development also extends to rearing records of *Meiosimyza* species from bird nests and dead wood. They too might not be different if the breeding medium was dead leaves. Dead leaves could be the main breeding site for *Meiosimyza* and *Pseudolyciella* species. This is a common development medium in other lauxaniids but Broadhead (1984) considered that they should not be regarded as true leaf miners because no characteristic mine shape can be discerned.

Miller and Foote (1976) referred to the sclerotised apical end of the epipharyngeal plate in their descriptions of eight species in seven genera of Nearctic lauxaniid third stage larvae. This curious feature was also present in the head skeleton of *P. pallidiventris* studied here (Fig. 6). It may characterise lauxaniid third stage larvae because the epipharyngeal plate is opaque and the apical end not noticeably sclerotised in all other cyclorrhaphan larvae I have studied. The early stage characters of *P. pallidiventris* are similar to those described by Miller and Foote (1976) for the Nearctic species, *Poecilolycia browni*. Their narrow, elongate mandibular sclerites, bifurcating posterior breathing tubes and vestiture of triangular shaped setae separated by about their length may characterise and distinguish larvae of *Meiosimyza* and *Pseudolyciella* species. However the mandibular sclerite of *M. rorida* figured by Hennig (1952) shows a mandibular sclerite with a subrectangular base, not a narrow one.

If mining dead leaves is the genuine breeding medium, then the functional significance of an elongate mandibular sclerite is presumably for reaching into the narrow, confined space to extract food. However the significance of a sclerotised apex to the epipharyngeal plate is unclear. A coating of upright setae and exceptionally wide bands of locomotory spicules covering over two thirds of the ventral width of each of the first seven abdominal segment may also be important for gripping the upper and lower surfaces of the mine during locomotion. A firm grip is also required to prevent slippage when the head and thorax are raised during food gathering. Miller and Foote (1976) referred to lauxaniid puparia being

coated in a white fluid which is secreted from the anus and which the larva coats itself with just prior to pupariation. In the puparium studied here, no such coating was apparent.

The Scottish records of *P. pallidiventris*, *P. stylata* and *P. subpallidiventris* support the pattern of relative abundance mentioned by Godfrey (1994) with *P. stylata* being the most common and widespread of the three species. Godfrey only gave one Scottish record of the remaining two species, *P. subpallidiventris* from Skye. From the records presented here, this species has also been taken in Aberdeenshire and *P. pallidiventris* is known in Scotland from Aberdeenshire in the north to Midlothian and Dunbartonshire in the south. Undoubtedly all three species are under recorded in Scotland.

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A new species of *Rhegmoclemina* Enderlein, 1936 from England (Diptera, Scatopsidae)

JEAN-PAUL HAENNI¹ and ANDY GODFREY²

¹ Muséum d'histoire naturelle, rue des Terreaux 14, CH-2000 Neuchâtel, Switzerland

² 90 Bence Lane, Darton, Barnsley, South Yorkshire S75 5DA

Summary

Rhegmoclemina lunensis sp. nov. (Northern England) is described and figured, being the first representative of the genus in Britain. A key to the identification of the European species of *Rhegmoclemina* Enderlein, 1936 is given.

Introduction

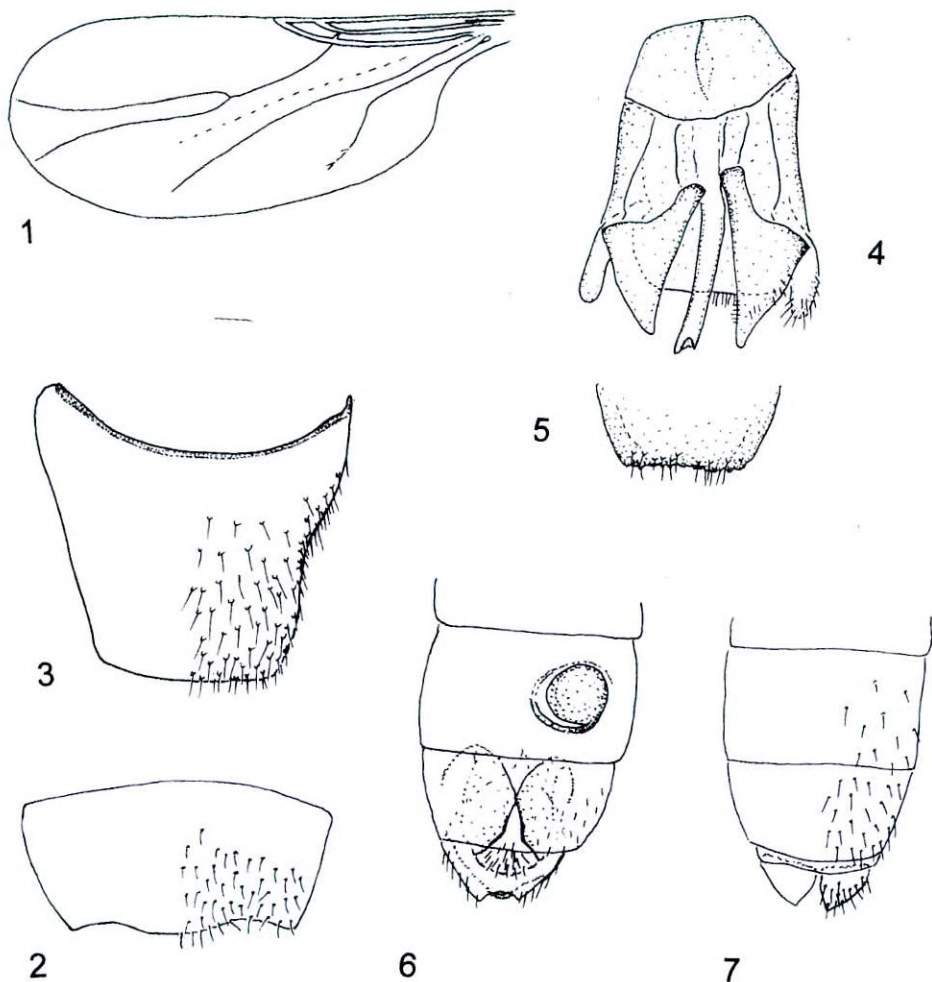
Minute scatopsids of the genus *Rhegmoclemina* Enderlein, 1936 are rarely encountered midges of unknown biology. Only three European species have been described so far, none of which have been recorded in Britain until now (Haenni 2004). It was thus surprising to discover numerous specimens of a species of this genus in material collected at two sites from coarse exposed riverine sediments on the banks of the River Lune, near Hornby, Lancashire. The material was collected by sweep netting and with a petrol-driven garden vacuum with a muslin bag inserted in the inlet tube. A total of 83 specimens were taken by sweep netting and 22 with the vacuum. The samples were collected on 18-20 July 2006 by the second author. The survey was part of a wider project to examine and assess Diptera associated with finer exposed river sediments (Drake, Godfrey and Hewitt 2007).

This material proved to belong to a new species, which is described below.

Rhegmoclemina lunensis sp. nov. (Figs 1-7)

Type material. Male holotype labelled: River Lune, Lower Broomfield, Arkholme, Lancashire SD598727, 18/7/2006, A. Godfrey leg.; 28 paratypes, same data as holotype; 4 paratypes, same data as holotype but 19/7/2006; 72 paratypes: River Lune, Caton, Lancashire SD539652 20/7/2008, A. Godfrey leg. All material preserved in alcohol. Holotype and 9 paratypes (4 males, 5 females) deposited in Natural History Museum, London (NHM), 10 paratypes (5 males, 5 females) deposited in first author's collection, Muséum d'histoire naturelle, Neuchâtel, Switzerland (MHNN), all other paratypes in second author's private collection.

Diagnosis. *Rhegmoclemina lunensis* is similar to *Rh. bellstedti* Haenni, 1998 described from Germany. It differs from *R. bellstedti* in the male by the shape of tergite 7, simple, hardly produced posteriorly (Fig. 2) (tergite 7 is broadly triangular and heavily sclerotized in *Rh. bellstedti*); by the shape of sternite 7 (Fig. 3) which is asymmetrical in the new species but symmetrical in *Rh. bellstedti*, and by other characters of the genitalia, especially the large and elongate ventral lobe which is truncate and apically rugose (Fig. 5) (the ventral lobe is much less developed in *Rh. bellstedti*).



Figs 1-7. *Rhegmoclemina lunensis* sp. nov. (1-5, male; 6-7, female): 1, wing; 2, male tergite 7; 3, male sternite 7; 4, male genitalia (ventral view); 5, male genitalia (apical part of dorsal lobe); 6, female terminalia (ventral view); 7, female terminalia (dorsal view).

Description. Male. 1.1-1.3mm long. Dull brown in general colour, with lighter parts on legs, wing hyaline.

Head. Antenna short, but clearly longer than head height, with 8 much shorter than wide flagellomeres, flagellomere 8 as long as combined length of flagellomeres 5-7. Palpus oval, apically rounded; labella short, rounded.

Thorax compressed laterally, notum dark brown with a pair of lighter spots at the posterior corners posteriorly to the wing bases. Pleura shining. Prostigmatic sclerite large, elongated, broadly triangular in general shape, rounded at angles, with small spiracle at anterior third. Wing (Fig. 1) 0.9-1.1mm long, hyaline, anterior veins brown, posterior veins hyaline, not contrasting with membrane. Radial sector reaching middle of wing, second costal section hardly longer than R_1 ; stem of M fork about 2.5 times as long as fork, with M_1 and M_2 practically parallel on most of their length, slightly nearing supapically, then diverging rather strongly in the apical section; 2-4 macrosetae on CuA_2 . Halteres brown, lighter on ventral surface, devoid of setae on stem. Legs dark brown except apical half of mid tibia, hind tibia (except a dark submedian ring) and mid and hind tarsi lighter brownish. Abdomen with tergites more or less emarginated medially and irregularly frayed on anterior margin. Tergite 7 simple, slightly convex posteriorly (Fig. 2), sternite 7 shield-like, slightly asymmetrical (Fig. 3), genitalia (Fig. 4) rotated to the left, concealed in sternite 7, capsule-like, bearing 2 pairs of posteriorly directed appendages, the inner pair (penis valves) triangular, the outer pair finger-like, rounded and pilose apically, dorsal lobe strongly developed, broad, truncate and rugose apically (Fig. 5), aedeagus thick, elongate (Fig. 4).

Female. 1.2-1.4mm long. Wing, 1.0-1.2mm. Like male in general features, all tarsi lighter brownish. Tergite and sternite 7 simple; tergite 8 narrow, hardly emarginated posteriorly, cerci broadly and obtusely triangular (Fig. 7), sternite 8 simple, internal structures with deeply separated lateral lobes (Fig. 6); spermatheca with contorted duct (Fig. 6).

Etymology. The new species is named after the type-locality, along the River Lune in the Lake district.

Ecology. The specimens were collected from exposed riverine sediment comprising 90% pebbles at Lower Broomfield (Fig. 8) and 50% pebbles, 50% cobbles at Caton (Fig. 9). The species was found at varying distances (1-30m) from the river's edge and the largest number (22) were obtained from a sample 25-30m from the river at Broomfield (this location has very extensive exposed coarse shingle spread over a large area). Dry rather than wet sediment was preferred. The River Lune was 20-30m wide at the sample sites, with strong flow, well developed riffles and no obvious pollution and is clearly of high water quality. Grazing, human disturbance and shade were minimal at the sample sites.

Distribution. In the British Isles, *Rh. lunensis* sp. nov. is presently known only from north-west England. In Europe it is also recorded from Sardinia (Haenni in press).

Discussion.

The known distribution of the new species may appear somewhat strange; however, the unique male specimen from Sardinia (Haenni in press) is similar in all characteristics to the males from England and there is no doubt that they are conspecific. The new species must evidently be more widely distributed in Europe but has apparently been overlooked until now, possibly due to its small size and its specialised habitat.

The two sites produced an impressive list of Diptera and other invertebrates associated with exposed river sediments. These include three species of Diptera currently not on the

British list but details of which will be published in due course. Other Scatopsidae included *Anapausis talpae* (Verrall, 1912), *Coboldia fuscipes* (Meigen, 1830) and *Thripomorpha coxendix* (Verrall, 1912). Other Diptera of high nature conservation value included *Spiriverpa lunulata* (Zetterstedt, 1838) (Therevidae), *Tachydromia edenensis* Hewitt & Chvála, 2002, *T. halidayi* (Collin, 1926), *Platypalpus stabilis* (Collin, 1961) (all Hybotidae), *Hercostomus plagiatus* (Loew, 1857) (Dolichopodidae) and *Meoneura minutissima* (Zetterstedt, 1960) (Carnidae). The results would appear to confirm the value of exposed riverine sediments for Diptera and suggest that the River Lune is one of the better rivers for this habitat in north-west England and may be comparable with other good examples of this habitat in the region (for example, see Hewitt *et al.* 2005).

Key to the European species of *Rhegmoclemina* (♂♂ only):

1. Tergite 7 transverse, about twice as wide as long, not produced posteriorly, or hardly so (Fig. 2) 2
 - Tergite 7 hardly wider than long, produced posteriorly into a wide triangular, apically blunt projection *bellstedti* Haenni, 1998 (Germany)
2. Tergite 7 emarginate posteriorly; genitalia exposed, well visible, long and flattened, more than 3 times as long as wide, trough-like, with a pair of elongate, slender, posteriorly directed appendages and a very short, concealed aedeagus *vaginata* (Lundström, 1910) (Northern Europe)
 - Tergite 7 with posterior margin sinuous and weakly produced medially (Fig. 2); sternite 7 asymmetrical (Fig. 3); genitalia capsule-like, bearing 2 pairs of shorter appendages, the inner pair triangular, the outer pair finger-like; aedeagus longer, thick (Figs 4-5) *lunensis* sp. nov. (England, Sardinia)

Note. According to the original description and figures (Duda 1928), *Scatopse hungarica* Duda, 1928 is certainly a species of *Rhegmoclemina* but the only known specimens (the type series in Hungarian Natural History Museum in Budapest) were destroyed by fire in 1956 and the species has not been found again since its description. *Rhegmoclemina hungarica* is similar to *Rh. bellstedti* because of the shape of the posteriorly directed genital appendages, which are triangular and pointed in shape.

Acknowledgements

The material collected on this survey was part of a much larger survey of Diptera associated with sandy river deposits which was managed by Buglife - the Invertebrate Conservation Trust and the second author is grateful for the help received during the project by Dr Martin Drake, Matt Shardlow and Alan Stubbs. The second author would also like to thank Andrew Clarke (Environment Agency, Preston) for arranging access to the sample sites and for assistance with sampling.

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Figs 8-9: habitats of *Rhegmoclemina lunensis* sp. nov. on the banks of the River Lune.



8. General view of the wetter habitat in the type locality at Lower Broomfield.



9. Close up of the sediment at Caton. The Caton sample 5 produced 71 specimens of the new species (photographs A. Godfrey).

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A new County record of *Tephritis matricariae* (Loew, 1844) (Diptera, Tephritidae) from Oxfordshire

– When BH sampled his wildlife-friendly garden between 29 January and 20 February 2009 for over-wintering insects, several Tephritidae were collected. Initially a variety of garden plants and shrubs including *Hebe* were beaten, whilst at later dates the *Hebe* bush was targeted by sweeping. Using the key by I.M. White (1988. Tephritid flies. Diptera: Tephritidae. *Handbooks for the Identification of British Insects*. 10 (5a) pp.1-134) one specimen was identified as *Tephritis neesii* (Meigen, 1830), whilst the remaining specimens keyed out to *Tephritis conura* (Loew, 1845), but this was not a confident identification as the wing length was too short for that species. Hence, some photographs of these specimens were posted on the Dipterists Forum webpage with a request for assistance. Laurence Clemons thought that they were *T. matricariae*, but asked to see a specimen. BI requested BH to bring the specimens to the Dipterists Forum Workshop at Preston Montford in March 2009. BI confirmed the identification as *T. neesii* and *T. matricariae*, using White (1988. *op. cit.*) and papers by L. Clemons (2000. *Tephritis matricariae* (Loew, 1844) (Dip.: Tephritidae) new to Britain and breeding in East Kent, *Entomologist's Record and Journal of Variation*. 112: 225-230) and B. Merz (1994. Diptera Tephritidae. *Insecta Helvetica A. Fauna* 10: 1-198).

The data from the specimens is as follows: OXON, V.C. 23, Kidlington, garden, SP490136, on the following dates: 1♂ 29.i.2009, 1♀ 31.i.2009, 1♂ 13.ii.2009, on *Hebe*, in Oxford University Museum of Natural History; 1♀ 14.ii.2009 on *Hebe*, 1♂ 20.ii.2009, on grass, in coll. B. Ismay; 1♂ 31.i.2009, on *Hebe*, in Oxford University Museum of Natural History. Laurence Clemons (*pers. comm.*) informed us that most, if not all, British *Tephritis* overwinter as adults. *Tephritis matricariae* has now been found more widely, though still concentrated in Kent, with records from the following vice-counties: East Norfolk, West Suffolk, Cambridgeshire, Essex, Hertfordshire, Surrey, East Sussex and Middlesex (as at Sept 2008. www.dipteristsforum.org.uk/documents/TEPHRITIDAE_MAPS_SEP08). We now report the spread of this species to Oxfordshire, V.C. 23. This is some 60km from the nearest previously reported location in Middlesex, and thus it is likely that the fly will be found in intermediate locations and possibly beyond. Laurence Clemons (*pers. comm.*) informed us of a further unpublished record from Northamptonshire. We thank Laurence Clemons for his help with the identification of these specimens and information on the distribution and behaviour of *T. matricariae* - **BARBARA ISMAY**, 67 Giffard Way, Long Crendon, Aylesbury, Buckinghamshire, HP18 9DN, schultmay@insectsrus.co.uk and **BRIAN HARDING**, 12 Broad Close, Kidlington, Oxfordshire, OX5 1BE, bharding1946@msn.com

Dipterists Day Exhibits 2008 - compiled by Editor from exhibitors' notes

Apart from exhibits that also appeared at the Exhibition of the British Entomological and Natural History Society, notes were received only for the following exhibits.

BLOXHAM, M.G. – Diptera from Birmingham and the Black Country in 2008. An overview of the results for two surveys was presented. Park Hall Farm (Minworth SP156908) provided a sizeable list of Diptera associated with the river Tame floodplain wetlands which are a prominent feature there. Nineteen Nationally Scarce flies were noted and the displays included photographs both of the main central wetland area and also of *Sciomyza simplex* Fallén (Sciomyzidae) 28.viii.2008 - this being one of twenty two different sciomyzids recorded during the survey, bearing out an observation of S.J. Falk (*pers. comm.*) that the floodplain of the river Tame in this part of Warwickshire is notably rich in species from this family. While most of the insects were swept, several smaller ones were obtained using a Malaise Trap (M.T. in the listings here).

Specimens exhibited included *Macrocera fascipennis* Staeger (Keroplastidae) M.T. 30.vii.2008, *Odontomyia tigrina* Fabricius (Stratiomyidae) 15.vi.2008, *Stratiomys singularior* Harris (Stratiomyidae) 29.vii.2008. *Dioxya bidentis* Robineau-Desvoidy (Tephritidae) 20.viii.2008 was swept from *Bidens tripartita* (trifid bur-marigold). The other specimens were *Colobaea bifasciella* Fallén (Sciomyzidae) M.T. 25.viii.2008, *Anagnota bicolor* Meigen (Anthomyzidae) M.T. 30.viii.2008 and *Conisternum decipiens* Haliday (Scathophagidae) 16.vii.2008. With the exception of Sutton Park SSSI, it is likely that this site contains the most important assemblage of wetland Diptera currently recorded from the conurbation.

A second site overview was of Diptera from Cuckoo's Nook geological SSSI and the Dingle (Walsall SP048988). As a deciduous woodland site on Barr limestone with some ancient coppice, this promised much of interest but this initial survey suggested some impoverishment - possibly because the surrounding land has been regularly used for cereal production and chemical spraying/enrichment of water sources may have been a factor. In spite of this a list of eleven very local or Nationally Scarce Diptera were recorded. Those on display here included *Ptiolina obscura* Fallén (Rhagionidae) 11.vi.2008, *Lophosia fasciata* Meigen (Tachinidae) 24.vii.2008 and *Helina abdominalis* Zetterstedt (Muscidae) 1.vii.2008. All three appear to be new Staffordshire records and the last named may well qualify for inclusion in lists of species characteristic of old woodlands with damp areas, according to Adrian Pont (*pers. comm.*).

DRAKE, C.M. – (1) British *Achalcus* (Dolichopodidae). The eight British species were exhibited. In surveys of Broadland fens in 2007 and 2008, *Achalcus vaillanti* Brunhes was widespread and quite common, *A. thalhammeri* Lichtwardt was fairly widespread but infrequent, and *A. nigropunctatus* Pollet & Brunhes was scarce. Records of *A. nigropunctatus* from Lings Mill at Hickling Broad (TG407221, 25.vi.2008) and Common fen (TG350245, 29.vi.2008) are the second and third British records.

(2) Some fenland flies from Norfolk Broadland. The exhibit included some of the many nationally scarce or rare species collected as part of a study investigating how management affects fenland invertebrates, undertaken in 2007-8 for the Broads Authority, and from Sutton Fen in 2007, surveyed for Royal Society for the Preservation of Birds.

Tipula marginella Theowald (Tipulidae) was the commonest tipulid although species in this family were generally scarce: Sutton Fen (TG3723, 17 and 22.vi.2007), Catfield Fen (TG368212, 18.vi.2007, 19.vii.2007, 26-30.vi.2008), Catfield Great Fen (TG365211, 23.vi.2007, 28.vi.2008), Hickling Broad (TG413208, 25.vi.2008), Strumpshaw Fen (TG338065, 20.vi.2007, 26.vi.2008, 1.vii.2008), Surlingham Broad (TG312075, 27.vi.2008), Surlingham Marsh (TG326066, 1.vii.2008), Upton Fen (TG385138, 18.vii.2007, 30.vi.2008).

Dicranomyia ventralis (Schummel) (Limoniidae) was caught equally frequently by sweep-netting and vacuum sampling at several sites, usually by ditches or pools, or in *Cladium* sedge beds: Catfield Fen (TG368212, 28-30.vi.2008), Catfield Great Fen (TG365211, 19.vii.2008 and 28.vi.2008), Hickling Broad (TG413208 and TG413211, 25.vi.2008), Reedham Marsh (TG365194, 26.vi.2008), Snipe Marsh (TG378200, 18.vi.2007), Sutton Fen (TG3622 and TG3623, 22-23.v.2007, 21.vii.2007, 12-13.xi.2007), Woodbastwick (TG336165, 23.vi.2007).

Erioptera mejerei Edwards (Limoniidae) was the commonest and most widespread crane-fly, despite having Vulnerable status, recorded from most of the fens visited.

Helius pallirostris Edwards (Limoniidae) was widespread and almost as frequent as the common *Helius flavus* (Walker), and usually found in tall or dense fen vegetation; recorded from many of the fens visited.

Paradelphomyia czizekiana Starý (Limoniidae). I first found this species at streams and seepages so it was a surprise to find it, sometimes with the common *P. senilis* (Haliday), at four fens: Reedham Marsh (TG365193, 26.vi.2008), Strumpshaw Fen (TG338065, 24.vi and 1.vii.2008), Sutton Fen (TG370238, 17.vi.2007), Upton Fen (TG385138, 30.vi.2008); the population at Strumpshaw Fen was large.

Phylidorea abdominalis (Staeger) (Limoniidae) was widespread but found only as occasional individuals, mainly in sweep-net samples, at Barton Fen (TG359236, 29.vi.2008), Catfield Fen (TG367212, 18.vi.2007 and 28-30.vi.2008), Catfield Great Fen (TG366212, 28.vi.2008), Common Fen (TG350245, 29.vi.2008), Hickling Broad (TG426216, 19.vi.2007), Snipe Marsh (TG378200, 28.vi.2008), Sutton Fen (TG3623 and TG3723, 22-23.v.2007, 17-22.vi.2007 and 29.vi.2008), Upton Fen (TG385138, 30.vi.2008).

Pilaria scutellata (Staeger) (Limoniidae) was sparsely distributed at Barton Fen (TG359236, 29.vi.2008), Hickling Broad (TG428216 and TG408215, 25.vi.2008), Strumpshaw Fen (TG338064, 24.vi.2008), Sutton Fen (TG365228, 22-23.v.2007; TG369233, 29.vi.2008).

Anopheles algeriensis Theobald (Culicidae) males were collected frequently by sweep-netting and vacuum sampling, and one larvae was caught in a flooded pitfall trap, at Sutton Fen in 2007 (TG3623 and TG3723; 19-22.vi.2007, 20-24.vii.2007 and 12-13.ix.2007). I also found it at a regularly cut reedbed at Hassingham (TG364050, 27.vi.2008) and at Catfield Great Fen (TG365213, 28.vi.2008); the last Norfolk records were made over 50 years ago at Catfield Fen.

Hybomitra muehlfeldi (Brauer) (Tabanidae) was the expected Broadland horsefly and was frequent at the few fens where it was recorded, but these records probably reflected sunny conditions when they were visited as much as habitat quality: Catfield Fen (TG3621, 28-30.vi.2008), Catfield Great Fen (TG3621, 19.vii.2007, 28.vi.2008), Common Fen (TG350245, 29.vi.2008), Sutton Fen (TG368231, 24.vii.2007), Woodbastwick Fen (TG337165 and TG342165, 30.vi.2008).

Platypalpus pygialis Chvála (Hybotidae) was previously known from one record from Upton, 1951. All the males in the present batch of records were this species and not the similar *P. albisetata*. They were collected mostly by suction sampling: Common Fen

(TG350245 and TG351244, 29.vi.2008), Sharp Fen (TG369197, 26.vi.2008), Snipe Fen (TG378200, 28.vi.2008), Strumpshaw Fen (TG335067 and TG338070, 20.vi.2007), Sutton Fen (TG370237, TG371237 and TG375234, 17-22.vi.2007), Woodbastwick Fen (TG336165, 30.vi.2008). Females that could be either *P. pygialis* or *P. albiseta* (Panzer) were found at Catfield Fen, Horning Fen, Reedham Marsh and Strumpshaw Fen in June 2008.

Rhamphomyia caliginosa Collin (Empididae) was patchily distributed but was one of the commoner empids, although it is usually considered to be a coastal species (records from Catfield Fen, several places around Hickling Broad, Reedham, Sharp Fen, Strumpshaw Fen and Sutton Fen, 19-20.vi.2007 and 24-30.vi.2008).

Dolichopus laticola Verrall (Dolichopodidae), the BAP 'Broads Dolly-fly', was swept frequently at Sutton Fen (TG3723 and TG3823, 17.v.2007, 17-20.vi.2008 and 23.vii.2007); 1♂ swept from Catfield Great Fen (TG366212, 28.vi.2008).

Dolichopus nigripes Fallén (Dolichopodidae) was found only at its known site (Woodbastwick, TG336165 and TG341164, 23.vi.2007) but it was at three places here so its population was probably sound.

Thrypticus smaragdinus Gerstäcker (Dolichopodidae) was added to the British list from an earlier fen survey of Broadland but there have been few other records. This large and unmistakable *Thrypticus* was widespread in northern Broadland: Catfield Fen (TG366211, 28-30.vi.2008), Catfield Great Fen (TG365213, 28.vi.2008), Common Fen (TG350245, 29.vi.2008), Hickling Broad (TG413211, 25.vi.2008), Horning Fen (TG361179, 29.vi.2008), Reedham Marsh (TG365193, 26.vi.2008), Sharp Fen (TG369197, 26.vi.2008), Snipe Marsh (TG378200, 28.vi.2008).

Pherbellia argyra Verbeke (Sciomyzidae) was sparse at Catfield Great Fen (TG365213, 28.vi.2008), Hickling Broad (TG413210, 25.vi.2008), How Hill (TG368190, 26.vi.2008), Sharp Fen (TG369197, 26.vi.2008), Turf Fen (TG368187, 26.vi.2008) and Upton Fen (TG385138, 30.vi.2008).

Podocera delicata (Collin) (Stenomicrodidae) was found by vacuum sampling at Hickling Broad (TG413208, 23.vi.2007) and Sutton Fen (TG368234, 21.vi.2007; TG368234, 29.vi.2008).

Stenomicrodica cogani Irwin (Stenomicrodidae) was widespread but caught mainly by vacuum sampling.

Notiphila guttiventris Stenhammar, *N. subnigra* Krivosheina and *N. umbrosa* Drake (Ephydriidae) were recently added to the British list; *N. subnigra* was present at almost every fen and *N. umbrosa* was nearly as widespread and both were sometimes abundant; *N. guttiventris* was more patchily distributed but still more common than several 'common' *Notiphila*.

Siphona pauciseta Rondani (Tachinidae) is restricted to East Anglia and was widespread in Broadland fens: Barton Fen (TG359236, 29.vi.2008), Hickling Broad (TG407215, TG411210 and TG413207, 25.vi.2008), Horning Fen (TG361179, 29.vi.2008), How Hill (TG368190, 26.vi.2008), Reedham Marsh (TG365193, 26.vi.2008), Rockland Marsh (TG339057, 27.vi.2008), Sharp Fen (TG369197, 26.vi.2008), Surlingham Marsh (TG325066, 1.vii.2008), Sutton Fen (TG369233, 29.vi.2008), Turf Fen (TG369187, 26.vi.2008), Woodbastwick Fen (TG338165, 30.vi.2008).

Angioneura cyrtoneurina (Zetterstedt) (Calliphoridae) 1♂ by sweeping and 1♂ by vacuum sampling at Hickling Broad (TG428216, 28.vi.2008).

GRAYSON, A. – Some Diptera taken during the Dipterists Forum Summer Field Meetings based at Plumpton College, Plumpton, from 24.vi.2006 to 1.vii.2006; The University of Wales, Aberystwyth, from 13.vii.2007 to 20.vii.2007; and Glenmore Lodge,

Glenmore, from 28.vi.2008 to 5.vii.2008. The exhibit consisted of 61 specimens, and included the following rare, local or unusual species.

West Sussex (V.C. 13) in 2006:

Thereva plebeja (Linnaeus) (Therevidae), Devil's Dyke (TQ266116), 25.vi, ♀ from streamside vegetation;

Atylotus latistriatus Brauer (Tabanidae), Pagham Harbour (SZ862971), 29.vi, ♀ from saltmarsh.

East Sussex (V.C. 14) in 2006:

Atylotus rusticus (Linnaeus) (Tabanidae), Montague Farm, Pevensey Levels, 28.vi, ♂ from TQ641054, ♀ from TQ625064;

Hybomitra ciureai (Séguy) (Tabanidae), Abbot's Wood (TQ566077), 28.vi., ♀ from woodland ride near lake;

Tabanus autumnalis Linnaeus (Tabanidae), Montague Farm, Pevensey Levels (TQ625064), 28.vi., ♀ from ditch;

Dioctria linearis (Fabricius) (Asilidae), Abbot's Wood (TQ567079), 28.vi, ♀ from dense undergrowth near lake;

Stenoperyx hirundinis (Linnaeus) (Hippoboscidae), Plumpton College (TQ358135), 24.vi, ♀ from toilet window below *Delichon urbicum* [house martin] nests.

Cardiganshire (VC46) in 2007:

Tabanus autumnalis Linnaeus (Tabanidae), Craig-y-Penrhyn (SN646939), 18.vii, ♀ from coastal marsh;

Tabanus sudeticus Zeller (Tabanidae), Ty Gwyn, Ynyslas (SN613926), 16.vii, ♀ seeking blood-meal from ponies;

Hybomitra montana (Meigen) (Tabanidae), Cors Caron (SN695635), 17.vii, ♂ hovering between bushes on bog;

Philonicus albiceps (Meigen) (Asilidae), Ynyslas (SN605939), 16.vii, ♀ on sand-dune;

Xylota jakutorum Bagachanova (Syrphidae), Cors Caron (SN696633), 17.vii, ♀ on leaf along wooded path;

Tachina grossa (Linnaeus) (Tachinidae), Cors Fochno (SN635918), 16.vii, ♀ taken *in copula* in centre of bog;

Gasterophilus intestinalis (De Geer) (Oestridae), Ty Gwyn, Ynyslas (SN613926), 16.vii, ♂ near ponies, Ynyslas (SN608922), 19.vii, ♀ hovering close to horse.

Easternness (V.C. 96) in 2008:

Hybomitra montana (Meigen) (Tabanidae), An t-Aonach (NH989061), 3.vii, ♀;

Tabanus cordiger Meigen (Tabanidae), Feshiebridge (NH842057), 2.vii, ♀, this sex was found in various locations along Glen Feshie and its environs;

Tabanus sudeticus Zeller (Tabanidae), Glen Feshie (NH844015), 4.vii, ♀ on car roof;

Laphria flava (Linnaeus) (Asilidae), Uath Lochan (NH838020), 1.vii, pair *in copula* on boulder;

Physocephala nigra (De Geer) (Conopidae), An t-Aonach (NH997073), 4.vii, ♂ at edge of bog;

Cephenemyia auribarbis (Meigen) (Oestridae), An t-Aonach (NH993073), 3.vii, both sexes taken in flight on mid-slopes of mountain.

WEBB, J.A. – *Agathomyia wankowiczii* (Schnabl) (Platypezidae). Reared from peat collected from beneath pimple galls on the underside of the bracket fungus *Ganoderma applanatum* on a birch log pile in Spartum Fen, Oxfordshire (SP654016), see cover illustration of 15(1). The peat was collected on 17.viii.2008 and kept indoors. The adult flies emerged from 20.viii.2008-11.ix.2008; 13 flies from the 60 that emerged were exhibited.

Recent records of *Clorismia rustica* (Panzer) and *Spiriverpa lunulata* (Zetterstedt) (Diptera, Therevidae) in England and Wales

C. MARTIN DRAKE

Orchid House, Burr ridge, Axminster, Devon EX13 7DF

Summary

Surveys for *Clorismia rustica* (Panzer) and *Spiriverpa lunulata* (Zetterstedt) were carried out on 24 rivers in England and Wales between 2003 and 2006. Records were based on adults seen or captured in the field and on adults reared from larvae. *Clorismia* was recorded at six rivers, of which the Dane in Cheshire was a new river for this species, and *Spiriverpa* was recorded at four rivers, of which the Breamish, Till and Coquet in Northumberland were new rivers; all other records were from rivers where it had already been found although some sites on these rivers extended or filled in gaps in the species' ranges. The habitat where *Clorismia* occurred was loose dry sand near the river edge, usually with sparse ground cover, and often with shade provided by trees, willow scrub or tall herbs. *Spiriverpa* was found only in unshaded places with dry bare or sparsely vegetated sandy or gravelly ground, sometimes many metres from the river.

Introduction

The stiletto flies *Clorismia rustica* (Panzer) and *Spiriverpa lunulata* (Zetterstedt) are closely associated with river banks and exposed riverine sediments where their larvae are presumed to live (Stubbs and Drake 2001). They were included in the UK's first Biodiversity Action Plan (BAP) as examples of species under threat from modification of the natural flow regime of sandy and stony rivers (UK Biodiversity Group, 1999a, b). *Spiriverpa lunulata* has since been removed from the BAP list but *Clorismia* remains (UK BAP Website 2008). Countryside Council for Wales (CCW), Buglife - the Invertebrate Conservation Trust, and the Environment Agency initiated projects to take forward some of the actions of the BAP. This work was wide-ranging and included studies to establishing the larval ecology of the therevids and to survey the assemblages of flies associated with sandy river margins (Bates *et al.* 2006; Bell *et al.* 2004; Drake 2004, 2007; Drake *et al.* 2007). Here I report records of adults of the two BAP therevids seen or collected in the field and from those reared from larvae. The methods and detailed results of larval ecology will be published later.

Sites

Sites for these surveys were selected mainly from rivers where either *Clorismia* or *Spiriverpa* had already been recorded and from those with a large proportion of sand in the banks or deposited sediments. Details of the selection procedure and the location of most rivers were given by Drake (2008). Grid references are given with the species records below. Eleven rivers in Devon were surveyed without finding either BAP therevid and are therefore not discussed.

Rivers Rother (West Sussex and Hampshire) and Wey (Surrey) are lowland rivers flowing for most of their lengths on Lower Greensand so that the banks are sandy and often eroding. Tall herbaceous vegetation dominated the banks at nearly all sites.

River Usk (Gwent and Powys) is a large stony river sampled along a 30km length of the piedmont zone where the floodplain is up to about 1km wide. Although sediments close to the river tend to be stony grading to gravel, there are extensive areas of almost pure sand

further from the water, as well as steep eroding sandy banks. Vegetation cover spanned the entire range from nothing close to the water to tall herbs and willow scrub further away.

River Monnow (Gwent / Herefordshire border) is a medium-sized stony river running in a narrow floodplain, and has narrow patches of exposed sediment, usually containing little sand. Most of the sampled lengths had partial shade cast by tall trees.

Rivers Dane and Bollin (Cheshire) are small lowland rivers with a high proportion of sand in the banks, narrow shores and tall herbs on most banks.

River Lune (Lancashire) is a large river flowing in a broad alluvial floodplain at the point where it was sampled. The substrate was predominantly pebbly to cobbly, and there was little or no tree shade.

Rivers Coquet, Till and Breamish (Northumberland) are moderately large stony rivers in their upstream sections but have increasingly large amounts of sand in the shore sediments in their lower reaches. The banks and shores at the most downstream site on the Till were almost pure sand.

Methods

Therevids were recorded by sweeping and 'stalking' along stretches of bank wherever the habitat looked suitable and where brambles *Rubus* spp. and fencing did not interfere with sweeping. The search lasted for approximately one hour, except at some sites on the Monnow and Usk where previous work had shown good populations of either species. The length of bank searched varied widely between sites and depended upon access constraints but was usually 200-500m. Many records also came from standardised sweep-netting or suction sampling for all flies at shores, bars of exposed riverine sediments and river banks (Drake 2008).

The sites used for more detailed work on the larval ecology were chosen from those where previous records indicated good populations. The first suite of sites where the methodology was developed had been surveyed specifically for *Clorismia* on the Usk and Monnow in Wales (Skidmore 2001). I returned to his sites on 25 and 27 July and 23 and 27 August 2002, and between 14 and 21 May 2003 (Drake 2004). Larvae were collected from areas of sparsely vegetated loose sand on the river banks and on areas of flood-deposited sand normally covered by winter floods. The larvae were found by several means. Initially, they were discovered using the method that works effectively for commoner therevids, which is to repeatedly flick the top few millimetres of dry sand, thus exposing large active larvae. More structured sampling was done by quickly excavating sand from a quadrat (0.25m²) to a depth of about 5cm, placing it onto a large sheet of polythene and slowly sieving the entire pile through a flour sieve (2mm mesh). Large larvae were retained for rearing.

This method was used in a second project at sites on the Usk, Rother and Bollin; sites on the latter two rivers had been visited the previous year and found to support possibly strong populations of *Clorismia*. Visits for collecting larvae were made between 9 and 30 May 2006.

All but one of the records in these surveys was made by me. Andy Godfrey surveyed the River Lune as part of the Buglife survey and his record is included here.

Results

RIVER ROTHER

Habin, three points between SU793232 and SU805228, V.C. 13, 21 July 2005. *Clorismia rustica*: 2 males and 1 female. The eroding sandy banks here were topped by a vertical 'cliff' about 2m high, below which was a steep slope of fallen sand. Parts had dense ruderal

vegetation that included much mugwort (*Artemisia vulgaris*), yarrow (*Achillea ptarmica*), false oat grass (*Arrhenatherum elatius*), nettle (*Urtica dioica*), creeping thistle (*Cirsium arvense*) and hogweed (*Heracleum sphondylium*). Sheep trampling had opened up some dry sandy patches. In the following year, larvae were collected at Habin on 9 and 10 May 2006 at four points along about 750m of the river between SU790234 and SU797231. A total of 39 *Clorismia rustica* emerged between 30 May and 30 June 2006.

Woolbeding, SU869221, V.C. 13, 21 July 2005. *Clorismia rustica*: 1 female swept from tall rank vegetation dominated by Himalayan balsam (*Impatiens glandulifera*) and bur-reed (*Sparganium erectum*) on the sandy bank. Sheep trampling and river erosion had made some bare patches.

RIVER WEY

Eashing, SU944435, V.C. 17, 20 July 2005. *Clorismia rustica*: 1 female swept from reed sweet-grass (*Glyceria maxima*) with some Himalayan balsam on a sunny bank next to short-grazed horse pasture with extensive rabbit scrapes and exposed patches of soil. The low river banks were eroding and trampled near the point of capture but such exposed sand was otherwise scarce. The soil was slightly earthy sand at the river margin but pure sand 10m inland at a large rabbit scrape.

RIVER USK

Scethrog, SO106243, V.C. 42, 15 July 2005. *Spiriverpa lunulata*: 1 male seen at a mix of low pioneer vegetation (creeping thistle, great willowherb (*Epilobium hirsutum*), willow (*Salix*) saplings) and tall dense Himalayan balsam on almost pure sand.

Great Hardwick, SO309109, V.C. 35. *Clorismia rustica*: 6 males and 5 females from larvae collected in 2003, and a total of 28 adults from larvae collected on 30 May 2006 (emerging between 20 June and 27 July 2006). The river bank was a moderately steep slope dropping from sandy sheep pasture and had vegetation varying from dense tall herbs (mainly nettle, creeping thistle and Himalayan balsam) to close-cropped grass or completely bare due to sheep-trampling, and with intermittent scrub of willows and a few larger trees.

Great Hardwick, SO314108, V.C. 35, 16 July 2005. *Clorismia rustica*: 1 male resting on a bare cobbly shore close to the water.

Llanvihangel Gobion upstream of the B4598 road bridge, SO347089 to SO338094, V.C. 35. *Clorismia rustica*: 1 male and 8 females from larvae collected in 2003 and a total of 16 adults from larvae collected on 20 and 20 May 2006 (emerged between 10 June and 8 July 2006). All these larvae were collected along the bank where sand formed a steep slope below a small 1m-high 'cliff' at the pasture's edge, and in the partial shade of alders (*Alnus glutinosa*). The sand was dry and loose, and sparsely vegetated with grass and low herbs.

Spiriverpa lunulata: 9 males and 12 females from larvae collected in 2002; 1 male from a larva collected in 2003. All these were collected in the open cattle-grazed area of pure dry sand with sparse ruderal vegetation and some closed grass sward, at about 30-100m from the river edge. About half were reared from larvae collected by turning over dried cow-pats resting on bare sand, under which there were often several large larvae that were presumably attracted by the supply of prey. The large numbers of larvae found in July and August 2002 could not be found again in May 2006.

Llanvihangel Gobion downstream of the B4598 road bridge, SO358083, V.C. 35. *Clorismia rustica*: 2 males and 1 female from larvae collected in 2003 from a rabbit scrape at the pasture's edge near a densely scrubbed area, and from fallen dry sand at foot of the small 'cliff' below the pasture.

Spiriverpa lunulata: 1 female from a larva collected in 2002 at dry sand on the upper dry section of a narrow sand shore.

Rhadyr, SO367023, V.C. 35. *Clorismia rustica*: 1 male from a larva collected in 2003 at from a moderately steep unshaded bank with strips of bare sand between ungrazed grass and sparse taller herbs.

RIVER MONNOW

Maerdy, SO370247, V.C. 35, 8 July 2005. *Clorismia rustica*: 1 female resting on a bare stony shore in the shade of tall trees.

Monmouth Cap, SO399261, V.C. 35. *Clorismia rustica*: 4 males and 4 females from larvae collected in 2003 from a disturbed bank of sandy gravel in light shade of willows and from dry sand on level ground near field-level under willow and alder scrub with a ground layer of tall Himalayan balsam, nettles, hedge garlic (*Alliaria petiolata*) and butterbur (*Petasites hybridus*).

Skenfrith, SO463204, V.C. 35. *Clorismia rustica*: 6 males and 5 females from larvae collected in 2003. Many of these were from a small area of bank that had slumped to expose dry sand between patches of ungrazed grass sward; it was mainly unshaded. More adults were reared from larvae collected nearby in thin grass sward under tall alders in the sandy cattle pasture.

RIVER DANE

Salterford Farm, SJ779677, V.C. 58. *Clorismia rustica*: 1 female was swept from a small pebbly mid-channel bar on 9 July 2005 and another was caught in a pitfall trap set for beetles in the period 4-21 July 2005 at SJ777676 about 200m downstream on a partially shaded and sparsely vegetated pebbly shore. The immediate banks of the first site were densely wooded, although gave way shortly downstream to pasture bordering a small cliff about 2-3m high that formed the bank here. There were no sand bars in the immediate vicinity. The sandy banks at the pitfall-trap site were lightly shaded by Himalayan balsam.

Forge Lane, SJ850634, V.C. 58. *Clorismia rustica*: single females were caught in pitfall traps set for beetles from 5-22 July and again from 22 July to 5 August 2005 in a lightly shaded pebbly area in close proximity to wet sand.

RIVER BOILIN

Prestbury, SJ892787, V.C. 58, 10 July 2005. *Clorismia rustica*: several individuals were seen in the afternoon at several parts of this open sandy site with short sward and clusters of alder saplings where the river clearly deposited sand in a narrow but flat channel about 50m wide between high sandy cliffs. Another specimen was caught in the period 5-22 July 2005 in a pitfall-trap. A total of 35 *Clorismia rustica* emerged between 20 May and 8 July 2006 from larvae collected here on 13-14 May 2006.

RIVER LUNE

Lower Broomfield, SD598727 and SD596725, 20 July 2006. *Spiriverpa lunulata*: 7 adults swept and one taken by suction sampling, recorded by Andy Godfrey. None had been seen here July the previous year.

RIVER COQUET

Sharperton, four points between NT956338 and NT957361, V.C. 68, 14 July 2006. *Spiriverpa lunulata*: 2 males and 1 female swept, and several pupal exuviae collected in a

suction sampler. They were on dry sand or dry stones of a large expanse of exposed riverine sediment with sparse ruderal vegetation, 10-40m from the river.

Ryehill, NU022189, V.C. 68, 13 July 2006. *Spiriverpa lunulata*: 1 male on a broad shore of dry pebbly sediment with sparse pioneer vegetation.

Thropton, NU029184, V.C. 68, 13 July 2006. *Spiriverpa lunulata*: 1 female on a broad shore of dry pebbly sediment with sparse pioneer vegetation.

RIVER BREAMISH

Brandon, NU037691, V.C. 68, 16 July 2006. *Spiriverpa lunulata*: 1 male swept from pebbly sediment with pioneer vegetation.

RIVER TILL

Bewick Bridge, NU059225, V.C. 68, 15 July 2006. *Spiriverpa lunulata*: a 'swarm' of four males was flying 1-2m above an exposed gently sloping sandy bank about 40x10m in area, along a tree-sheltered stretch of river. The bank was lightly trampled by sheep, leaving sparse nettles and thistles, and the flies were swarming over 50cm-tall thistle stems on bare sand about half-way up the bank. They flew to-and-fro fairly quickly and erratically, each in their own zone about 5m across, and chased or investigated other insects (and each other) flying into this zone. The weather was hot and sunny but moderately windy. They were still flying about an hour after first being seen in mid afternoon.

Doddington Bridge, NU037169, V.C. 68, 16 July 2006. *Spiriverpa lunulata*: 2 males on a small island bar with a scrubby middle and pebbly shore.

Discussion

The records confirmed the presence of both *Clorismia* and *Spiriverpa* at rivers where they had been previously recorded, and indicated no evidence of a change of status. As most rivers visited had been selected because there were previous records, there were few surprises in the results. The records tended to fill gaps between known sites or slightly extend the known range. On the Usk, the range of *Spiriverpa lunulata* was extended c.20km upstream of Llanwenarth where a good population was already known (Skidmore 2001). Previous records of *Clorismia rustica* on the Rother were from Habin recorded in 1974 (Chandler 1975) and Ambersham Common (SU906213) about 2.5km downstream of Midhurst (Alan Stubbs pers. comm.), so the present record from Woolbeding merely filled the gap in this c.10km range. Conditions appeared suitable both upstream and downstream of this stretch of river, and it is likely that *Clorismia* has a wider distribution along the Rother. The only earlier record from the Wey was from Charterhouse where it was first seen in 1989 (Stubbs and Drake 2001). The present record from Eashing extended the range upstream by about 4.5km. In the same year as my survey it was recorded between these two sites at Somerset Bridge near Elstead (SU920441) by David Baldock in June 2005. In each case, only one individual was seen so, although the population was still present, it appeared to be weaker than at any other river.

The Cheshire records of *Clorismia rustica* were of more interest. It was first recorded in Britain from several specimens collected in June and July 1875 from the banks of the River Bollin at a site close to Bowdon, now a district of Altrincham (c. SJ7485) (Cooke 1878, reported by Verrall 1909). A second Cheshire record was obtained by rearing a larva collected at Broadbottom on the River Etherow (SJ9993) (Skidmore 1985). Thus, although finding the fly more widely was not completely unexpected, the large population at Prestbury on the Bollin and sparser but clearly moderate population on the Dane indicated that the sandy rivers of Cheshire are one of its stronger localities, although it was not found on other

apparently suitable sites on these rivers nor on the Weaver (Drake *et al.* 2007). Cheshire was once thought to be near the northern known limit of *Clorismia* but recent records from Cumbria and Perthshire have considerably extended its range (Drake *et al.* 2007; Stephen Hewitt *pers. comm.*).

The records of *Spiriverpa* in Northumbria indicated that it was probably widespread here as it was seen at six of the eight sites visited. Its range on the Till / Breamish extended from Brandon to Doddington Bridge, a distance of about 25km along the floodplain and rather further along the winding river course, and from Sharperton to Thropton on the Coquet, a distance along the floodplain of about 12 km. The only previous record for Northumberland was from for Corbridge, presumably taken by the R. Tyne, in 1948 (National Biodiversity Network Gateway 2008).

Sampling of adults was undertaken in July since this appeared to be the peak flight period for *Clorismia*. However, the earliest record of an adult emerging from immature stages collected in May 2006 was 20 May, just days after collecting a pupa. Nearly all immature stages (mainly larvae) collected in 2003 and 2006 emerged between 5 June and 9 July, and as the temperature indoors was unlikely to have been very different from the field temperature in midsummer, these records suggest that June, rather than July, is the peak flight period for *Clorismia*. The span of emergence dates for larvae (all *Spiriverpa*) collected in 2002 cannot be used to judge emergence times since they were kept over winter indoors, with the first adult emerging on 10 February in the year following its collection in late August.

The habitat preferences indicated by the records confirm the brief but accurate sketches in Stubbs and Drake (2001). For *Clorismia*, this reads 'Sandy river banks in the partial shade of such trees as alders are the required habitat.' and for *Spiriverpa* it reads '.... dry sandy sediments beside rivers and streams ... the higher parts of shingle banks and other areas where the river spreads its load of sandy alluvium during spate conditions, especially where sparse vegetation has developed.' There did seem to be a strong requirement by *Clorismia* for a degree of shade, which was provided by tall herbs, such as Himalayan balsam and nettles, as well as by scrub and trees. It is perhaps slightly worrying that *Clorismia* appeared to thrive under the aggressive non-native Himalayan balsam. Loose exposed sand appeared to be a major requirement for *Clorismia*, and this could be provided by various mechanisms, including flood deposition, erosion of sandy banks, and trampling and scraping by grazing animals (sheep, cattle, rabbits). Not enough records were obtained for *Spiriverpa* to enlarge on its requirements although, like *Clorismia*, it appeared to rely on dry loose sediment away from the saturated river margin, but clearly was not as restricted as *Clorismia* to such sandy places. It was seen or reared from larvae found only in the more exposed and unshaded areas of dry sediment. However, what remains enigmatic is why only rivers, rather than dunes, soft cliffs or heathland, provide the exact type of substrate.

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Achalcus thalhammeri Lichtwardt, 1913 (Diptera, Dolichopodidae) at grazing marshes in Kent and East Sussex – This

infrequently found species has been recorded from old fenland habitat in Norfolk, Cambridgeshire and Yorkshire (Laurence, B.R. 1995. *Entomologist's monthly Magazine* **131**, 95-105; Perry, I. 1998. *Dipterists Digest (Second Series)* **5**, 69; Drake, C.M. 2008. *Dipterists Digest (Second Series)* **15**, 41-43). Several specimens were collected incidentally during pond-netting for aquatic invertebrates in ditches on coastal grazing marshes. Although only one specimen was a male and therefore could be unambiguously identified using the key by M. Pollet (1997. *Systematic Entomology* (1996) **21**, 353-386), the females were distinct from *A. cinereus* (Haliday in Walker) which is the other British brown wetland *Achalcus* and were the same as females I had collected along with males in Norfolk fens. Pollet's key distinguishes the females of *A. thalhammeri* (and the non-British *A. phragmitidis* Pollet) from *A. cinereus* by their paler sternites, darker thoracic setae, larger size and longer legs. The first three of these characters work adequately, but there was no difference in the leg length as a proportion of wing length in my specimens. However, the basal tarsal segments of the front leg of *A. thalhammeri* are relatively longer, so the tibia's length reaches only to the end of the third segment whereas in *A. cinereus* it reaches to at least the middle of the fourth segment. A clearer character is that the face of *A. thalhammeri* is broader at the facial suture and widens almost immediately from the suture, whereas *A. cinereus* has narrower, less widely diverging face which is parallel above the suture for at least twice its width here (N=7 for *A. thalhammeri*, N=10 for *A. cinereus*). The non-British *A. phragmitidis*, known from Belgium reedbeds, closely resembles *A. thalhammeri* but I was not convinced that Pollet's descriptions and key characters fitted *A. phragmitidis* better than *A. thalhammeri*. Separation is based mainly on colour which may have been altered in my specimens during retrieval from alcohol; differences in chaetotaxy and ratios of antennal segments appeared too small to be reliable.

The records were made at Pevensey Levels, East Sussex (1♂, TQ656062, 24.iv.2008; 1♀, TQ672058, 27.iv.2008), Shorne Marshes, Kent (1♀, TQ693746, 18.v.2008) and Chetney Marshes, Kent (1♀, TQ886698, 19.v.2008). The ditches at Pevensey Levels were typical of the site and bordered semi-improved sheep and cattle pasture; both were within the National Nature Reserve. The ditch margins were well trampled and grazed and, although there were plants such as reed sweet-grass (*Glyceria maxima*), there was no reed (*Phragmites australis*) and the vegetation bore no resemblance to old fenland habitat. The ditch at Shorne Marshes was at a well advanced stage in the hydrosereal succession, and supported tall reed and other emergent plants. The Chetney Marsh site was a large windswept brackish fleet bordered only with sea club-rush (*Bolboschoenus maritimus*) set in unimproved grassland grazed tightly by rabbits, geese and cattle. All three sites lie on clay, so differ from the East Anglian sites which are on fen peat. The only ditch that even vaguely resembled fen habitat was that at Shorne; the Pevensey ditches were both within 100-200m of reed-lined ditches. The Chetney record was the most bizarre since the marsh is almost surrounded by sea, all of it is brackish and all has the same bleak aspect typical of many of the Kent coastal marshes. It appears that *A. thalhammeri* is not a fenland species and does not depend upon reed or fen-like vegetation. I thank Buglife, the Invertebrate Conservation Trust, who instigated the survey of ditch invertebrates as part of the 'Ecological Status of Grazing Marsh Ditches' project funded by the Esmée Fairbairn Trust – C. MARTIN DRAKE, Orchid House, Burrigde, Axminster, Devon EX13 7DF

Falkland Islands Syrphidae (Diptera)

ANDREW WAKEHAM-DAWSON, ALEX G. JONES* and F.
CHRISTIAN THOMPSON**

Mill Laine Farm, Offham, Lewes, East Sussex BN7 3QB UK; email: andrew@wakeham-dawson.orangehome.co.uk [corresponding author; current address c/o St Cuthbert's Church, Mount Pleasant Airfield, BFPO 655]

* University Museum of Zoology Cambridge, Department of Zoology, Downing Street, Cambridge CB2 3EJ UK

**Smithsonian Institution, Department of Entomology, NHB-169, PO Box 37012, Washington, D. C. 20013-7012 USA

Summary

Platycheirus (*Carposcalis*) *longigena* (Enderlein, 1912) is added to the Falkland Islands resident syrphid checklist, which already includes *Eristalis tenax* L. 1758, *Syrphus octomaculatus* Walker, 1837 and *Platycheirus* (*Carposcalis*) *bertrandi* (Austen, 1913). Records of *Carposcalis* sp., *Chaetocnephala* sp. and *Eristalis bogotensis* Macquart, 1842, are resolved.

Introduction

The Falkland Islands (a British Overseas Territory) lie between 51° S and 52° 30' S and 57° 45' W and 61° 30' W in the South Atlantic, with one outlying island, Beauchêne, lying about 50 km to the south at 52° 55' S and 59° 11' W. The archipelago, consisting of two large and about 700 smaller islands (total land area 12,173 km²), is situated about 700 km northeast of Cape Horn and 500 km east of the nearest part of the South American continent (Patagonia).

The islands, which lie on the submarine Falkland Plateau, were probably situated to the southeast of South Africa when the present continents were combined in Gondwanaland but this was millions of years before higher flies were known to exist. There are only two seasons in the Falkland Islands: summer (November to February) and a longer winter for the remainder of the year. Temperatures range from 19°C in January to 2°C in July, with a mean annual temperature of 6°C. Winter weather conditions are similar to those of southern England, but there are more hours of sunshine and snow is possible throughout the year. The semi-arid climate (average rain fall between 431 mm (West Falkland) and 630 mm (East Falkland) per year), gentle relief (highest point is 705 m) and widespread impermeable soils combine to produce areas of ground that remain wet throughout the year. Constant strong (average speed 16 knots) prevailing winds from South America to the west and dry summers prevent any trees from growing naturally and the natural vegetation is mostly grassland or dwarf shrub heath (Robinson 1984, Aldiss and Edwards 1999, Wagstaff 2001).

The main vegetation associations are: (1) Maritime tussock formation in coastal areas; (2) Oceanic heath formation, which covers most of the land area; (3) Feldmark formation dominated by cushion plants; (4) Bog formation comprising wet, swampy areas, and (5) Fresh water vegetation. 80-90% of the flora is also recorded from Patagonia and Tierra del Fuego (Davies and McAdam 1989).

The Falkland Island syrphid fauna was studied by AGJ as part of the wider Falkland Islands Invertebrate Conservation Programme (FIICP) involving fieldwork between September 2004 and September 2007. FIICP (the organisation that co-ordinates conservation

in the islands) is a Falklands Conservation programme supported by The Natural History Museum, London (BMNH) and the University Museum of Zoology, Cambridge, and funded by the Darwin Initiative (UK Department of Environment, Food and Rural Affairs: DEFRA). AWD collected syrphid material in 2005 and 2006; FCT collected syrphids at Port Stanley on 9 January 2002. The present paper records species captured during these studies and reference is also made to specimens held in the BMNH and records made by Robinson (1984, unpublished 2008).

Unless otherwise stated, specimens were collected (in Malaise traps or hand-held nets) by A.G. Jones (indicated by (1) in the records given below), A.G. and M. Jones (2), A. Wakeham-Dawson (3), H.J. and A. Wakeham-Dawson (4) or A., S., H.J. and H.W. Wakeham-Dawson (5). Unless otherwise stated, specimens listed below are deposited in AWD's collection. Examples will be donated to the Falklands Conservation collection (Stanley, Falkland Islands) and the University Museum of Zoology, Cambridge. Terminology follows that of Thompson (1999).

The syrphid fauna

Three resident species of syrphid are currently known from the Falkland Islands: *Eristalis croceimaculata* Jacobs, 1900 (common), *Syrphus octomaculatus* Walker, 1837 (fairly common in gardens) and *Platycheirus (Carposcalis) bertrandi* (Austen, 1913) (abundant in all habitat types) (see Robinson 1984 and Jones 2004). *Eristalis tenax* (Linnaeus, 1758) was listed by Robinson but has not been recorded since 1984. To this list we add: *Platycheirus (Carposcalis) longigena* (Enderlein, 1912), which is common in all habitat types in the Falkland Islands, but was previously confused with *P. (C.) bertrandi*. There are several other Falklands syrphid records, which represent mis-identification or simply errors. The record of *Carposcalis* sp. (Beauchêne Island) (Robinson 1984) refers to *P. longigena*. The report of *Chaetocnephalia* sp. (West Falkland, Port Howard) in Robinson (unpublished 2008) is simply an error as this genus belongs to the family Tachinidae (Guimarães 1971: 174), not to the Syrphidae. The records of *Eristalis bogotensis* Macquart, 1842 (East Falkland, Stanley) by Robinson (unpublished 2008) and earlier authors merely reflect an obsolete classification (see below) and refer to *E. croceimaculata*.

The Dipteran fauna of the Falkland Islands is poorly documented. Austen (1913) was the first to report on it and his account was based on material collected by Rupert Vallentin (only one syrphid, *P. bertrandi*). Interestingly the earlier Swedish Skottsberg Expedition collected on the Falklands, but Enderlein (1912) reported no syrphids. Later Vallentin (1924: 370-371) added a few more flies to the list, including an unidentified *Melanostoma* species [= *P. longigena*]. So two syrphids were then known from the Falklands. Subsequently Riguelet (1956: 435) merely repeated Vallentin's list. After the 1982 Falklands War, much new material was collected and was passed along to the Natural History Museum. Robinson (1984) published the first checklist of the insects, including four syrphid species. Thompson in his revision of *Eristalis* (1997: 227) added another. Jones (2004: 21) listed three species and illustrated two in his insect guide.

Identification

The syrphids of the Falklands are easily recognized as there are few species (in keeping with the generally impoverished Falklands insect fauna) and each is very distinctive in habitus. None of the species is endemic and there are: (1) two large species (14 - 16 mm) of the genus *Eristalis*, separated by head shape, eye pilosity and overall appearance; (2) one medium sized species (10 - 12 mm), *Syrphus octomaculatus*, which has 3 pairs of large orange spots on the

abdomen and a yellow face, and (3) two small species (6 - 8 mm) of the genus *Platycheirus* (subgenus *Carposcalis*): one entirely shiny black (*P. longigena*) and the other dull greyish pollinose and black (*P. bertrandi*).

Eristalis (Eoseristalis) croceimaculata Jacobs, 1900 (ERISTALINAE)

Type locality: Argentina, Tierra del Fuego, Isla de los Estados, Golfe Saint-Jean.

Range and biology: *E. croceimaculata* is restricted to the south temperate regions of South America (Chile and Argentina). No other eristaline syrphid is known from so far south (Thompson 1997). Before the revision of the Neotropical *Eristalis* species, the name *bogotensis* was used for a wide-ranging species from Colombia to Tierra del Fuego. Thompson showed that this concept represented, in fact, two species, the southern component of which is *E. croceimaculata*. Hence, the records (Robinson unpublished 2008) of *E. bogotensis* from the Falklands refers to *E. croceimaculata*.

In the Falklands, *E. croceimaculata* adults fly from November to March (austral summer) and are common in all habitat types. *Eristalis croceimaculata* has probably been blown in by prevailing winds from southern South America. The adults feed at a range of nectar sources, including gorse (*Ulex europaeus*). This taxon is now a resident member of the Falkland Islands fauna and its interaction with *E. tenax* (see below), which appears to be no longer present in the islands, is unknown. Also, the question remains: did Vallentin miss this large, conspicuous species or was it absent and become established later on the islands?

Diagnostic features: large black and yellow hoverfly similar to *E. tenax* but with bare katepimeron and uniformly pilose eye, without the vittae of darker pile that are present in *E. tenax* (see below). Thompson (1997) illustrated the male genitalia.

Records (adults): Hill Cove Forest (TC88), West Falkland: 1♀, plantation, on spruce, by hand, 24.i.2004, (2); 1♀, plantation, on yellow flowers and yarrow *Achillea millefolium*, by hand, 27.i.2004, (2); 1♀, iii.1995, donated by Falkland Islands Department of Agriculture. **East Falklands:** Stanley Area, 7♂♂, 2 ♀♀, ix 1986, leg. Major C. Kirke, BM 1986-441, BMNH; 9♂♂, 3 ♀♀, 1-15.xii.1986, leg. Major C. Kirke, BMNH; 2♂♂, 5 ♀♀, 14-31.xii.1986, leg. Major C. Kirke, BMNH; 3♀♀, i.1987, leg. Major C. Kirke, BMNH. **Mount Pleasant:** 1♂, near fuel pumps on *Taraxacum*, 10.xi.2005, (3); 1♂, 1♀, 26.xi.2005, (5); 1♂, 4.ii.2006, (5); 6♀♀, on Brassicaceae, 12.ii.2006, (5). **Bleaker Island:** 5♂♂, on gorse, 14-17.xi.2005, (5). **Port Stanley (VC47):** 1♂, ix.1984-ii.1985, BMNH; 2♂♂, garden, captured by hand, 20.xi.2002, (1); 1♂, acid grassland, collected by hand, 26.xi.2002, (1); 1♀, in house, collected by hand, 18.xii.2002, leg. S. Goss; 1♂, on *Taraxacum*, 12.xi.2005, (4); 1♀, on Brassicaceae at Stanley Growers, 19.ii.2006, (3); 1♂, 3♀♀, garden, collected by hand, 10.iii.2006, (1); 1♀, 13.xii.2002, leg. Sniller; 4♀♀, collected on *Taraxacum*, 11.ii.2002, leg. B.J. & F.C. Thompson, USNM. **Saunders Island:** 1♂, 15-16.ii.2006 (5).

Eristalis tenax (Linnaeus, 1758) (ERISTALINAE)

Type locality: Sweden.

Range and biology: Originally restricted to the Afrotropical, Oriental and Palaearctic regions where it is widespread and has been associated with humans; introduced into the New World, Australia, and New Zealand; absent from tropical areas. *Eristalis tenax* is represented from the Falkland Islands by only three specimens in the BMNH collection, captured in 1983-4 (see below) and was not found during the current study period. We are not aware that the local disappearance of this species has been mirrored by any other Falklands insect species.

Diagnostic features: large black and yellow hoverfly with pilose katapimeron and densely pilose eye with two vertical vittae of darker, contrasting pile. It is worth consulting Thompson (1997) when examining Falklands *Eristalis* specimens in case other South American species are blown to the islands.

Records (adults): **Port Stanley (VC47):** 1♂, i-ii. 1984, leg. I.J. Strange. **Roy Cove, West Falkland:** 1♀, 1983, leg. S. Whitley. **Hill Cove, West Falkland:** 1♂, 1983, leg. S. Whitley.

Syrphus octomaculatus Walker, 1837 (SYRPHINAE)

Type locality: Chile.

Range and biology: Southern Chile and Argentina (Patagonia). In the Falklands, the adults fly from November to February (austral summer) and are fairly common in gardens.

Diagnostic features: medium sized black hoverfly with yellow face, yellow scutellum and six yellow spots on abdomen.

Records (adults): **Port Stanley (VC47):** 1♂, xi.1986, leg. Maj. C. Kirke, BM 1986-441, BMNH; 1♂, 7.ii.1983, on pine trees, leg. I.J. Strange, BMNH 1983-59, BMNH; 1♂, garden, captured by hand, 4.xi.2002, leg. S. Blake; 12♀♀, on Brassicaceae at Stanley Growers, 19-21.ii.2006, (3); 2♂♂, 2♀♀, on *Taraxacum*, 11.i.2002, leg. B.J. & F.C. Thompson, USNM. **Mount Pleasant:** 1♂, ii.1987, leg. Maj. C. Kirke, BMNH. **Hill Cove (TC88), West Falkland:** 1♀, Hill Cove forest, plantation, by hand, 24.i.2004, (2); 1♀, improved grassland, by hand, 27.i.2004, (2). **East Falkland:** 1♂, 2♀♀, vegetable garden (E5), Malaise trap, 8.ii.2006, (1). **West Point Island:** 1♀, 7.i.1954, leg. R. Banks, BM 1954-150, BMNH.

Platycheirus (Carposcalis) bertrandi (Austen, 1913) (SYRPHINAE)

Type locality: East Falkland Island.

Range and biology: southern South America, Chile (Magallanes) and Argentina (Tierra del Fuego). In the Falkland Islands, the adults fly between November and March and are abundant in all habitat types.

Diagnostic features: small hoverfly with grey pollinose face and maculae on the abdomen. Originally included in the genus *Melanostoma* Schiner, 1860, placed in *Carposcalis* Enderlein, 1938 by Thompson *et al.* (1976), but most recently Vockeroth (1990) has treated the group as part of *Platycheirus*. This and several closely related species occur in South

America (Austen 1913, Fluke 1945, Fluke 1957, Thompson *et al.* 1976). When Austen described the species, he mentioned additional specimens from Argentina, Chubut, Valle del Lago Blanco. Unfortunately, later workers overlooked this and the species was subsequently re-described as *P. reynoldsi* from Tierra del Fuego by Shannon and Aubertin (1933: 134). Thompson will publish illustrations of genitalia in a review of South American *Carposcalis* (in preparation).

Records (adults): Port Stanley (VC47): 5♂♂, 5♀♀, on pine tree, 13.i.1983, I.J. Strange, BMNH; 1♂, 6♀♀, xi.1986, leg. Maj. Kirke, BMNH; 5♂♂, 3♀♀, 1-15.xii.1986, leg. Maj. C. Kirke, BM 1986-441, BMNH; 17♂♂, 6♀♀, 14-31.i.1986, leg. Maj. C. Kirke, BMNH; 4♂♂, 10♀♀, i.1987, leg. Maj. C. Kirke, BMNH; 1♀, ii.1987, leg. Maj. C. Kirke, BMNH; 2♂♂, 6♀♀, on *Taraxacum*, 11.ii.2002, B.J. & F.C. Thompson, USNM; 1♀, rocky shore near Seaman's Mission, [captured by] hand, 16.xi.2002, (1); numerous ♂♂ and ♀♀, acid grassland near conifer plantation, Malaise trap, xi.2002, (1); 1♀, conifer plantation, [captured] by hand, 21.xi.2002, (1); numerous ♂♂ and ♀♀, garden, Malaise trap, 16.ii.2004, (2); 4♀♀, on Brassicaceae at Stanley Growers, 19.ii.2006, (3); 6♂♂, 6♀♀, in rough grass by road on *Taraxacum*, 12.xi.2005, (4). **Stanley (E3):** 1♀, d[warf] shrub, Malaise, 16.iii.2006, (1). **New Island:** 1♀, 5-6.i.1987, leg. Maj. C. Kirke, BMNH; numerous ♂♂ and ♀♀, grassland, Malaise trap, 22.ii.2006, (1). **Swan Inlet River:** 1♂, 1♀, on marsh daisy *Aster vahli* in boggy ground near the river, 12.ii.2006, (5). **Mount Pleasant:** 2♂♂, 4.ii.2006, (5). **Gipsy Cove, Stanley:** 1♂, 1♀ (small specimen), coastal vegetation, 16.xii.2005, (5). **Bleaker Island:** 1♀, Sandy Bay on beach; 1♀, middle-dee *Empetrum rubrum* and pasture, 14-17.xi.2005, (5). **Hill Cove (TC88), West Falkland:** 1♂, 1♀, forest plantation, on spruce, by hand, 24.i.2004, (2); 1♂, numerous ♀♀, garden, Malaise trap, 23.i.2004, (2); numerous ♂♂ and ♀♀, improved pasture near plantation, on yarrow (*A. millefolium*) flowers, by hand, 27.i.2004, (2). **East Falkland:** ♂♂ and ♀♀, vegetable garden (E5), Malaise, 8.ii.2006, (1); 1♂, tussac grass (E2), Malaise trap, 13.iii.2006, (1). **Carcass Island (TD51):** ♂♂ and ♀♀ (mainly), M[alaise trap], 16-20.i.2006, (1); 1♀, M[alaise trap], coastal vegetation (C1), 8 II [date?], (1); 1♀, Malaise, vegetable garden (C5), [date?], (1).

Platycheirus (Carposcalis) longigena (Enderlein, 1912) (SYRPHINAE)

Type locality: Argentina, Tierra del Fuego, Ushuaia.

Range and biology: Tierra del Fuego and Falkland Islands. In the Falkland Islands, the adults fly between November and March and are common in all habitat types. Originally reported by Vallengin (1924: 370) as *Melanostoma* species.

Diagnostic features: small shiny black hoverfly, without pollinose face or maculate abdomen. Thompson will publish illustrations of genitalia in a review of South American *Carposcalis* (in preparation).

Records (adults): Port Stanley (VC47): 1♂, 3♀, xi.1986, leg. Maj. C. Kirke, BM 1986-441, BMNH; 1♂, 3♀, 1-15.xii.1986, leg. Maj. C. Kirke, BMNH; 14-31.xii.1986, leg. Maj. C. Kirke, BMNH; 1♂, 1♀, i.1987, leg. Maj. C. Kirke, BMNH; 1♂, 3♀♀, on *Taraxacum*, 11.ii.2002, B.J. & F.C. Thompson, USNM; 1♂, 1♀, d[warf] shrub (E3), Malaise, 16.iii.2006, (1); 1♀, rocky shore near Seaman's Mission, [captured by] hand, 16.xi.2002, (1); 2♀♀, acid

grassland near conifer plantation, Malaise trap, xi.2002, (1); 2♂♂ on Brassicaceae at Stanley Growers, 19.ii.2006, (3); 4♂♂, 7♀♀, in rough grass by road on *Taraxacum*, 12.xi.2005, (4). **Gipsy Cove, Stanley:** 1♀, coastal vegetation, 16.xii.2005, (5). **New House (UC78):** 2♀♀, 9.xii.2002, leg. L. Anderson. **Mount Pleasant:** 1♀, ii.1987, leg. Maj. C. Kirke, BMNH; 1♀, (partially black; some grey dusting and abdominal markings more visible than in most *P. longigena* specimens; is this a *P. bertrandi* x *longigena* hybrid?), 12.ii.2006, (5). **New Island:** 1♂, 1♀, 5-6.i.1987, leg. Maj. C. Kirke, BMNH; 1♂, 1♀, grassland, Malaise trap, 22.ii.2006, (1). **Beauchêne Island:** 1♂, 2♀♀, xii.1980, rock 'tusset' grass, leg. R.I. Lewis-Smith, BMNH. **Swan Inlet River:** 4♀♀, on marsh daisy *Aster vahli* in boggy ground near the river, 12.ii.2006, (5). **Bleaker Island:** 2♂♂, 1♀, Sandy Bay on beach; 2♀♀, diddle-dee *Empetrum rubrum* and pasture, 14-17.xi.2005, (5). **Saunders Island, 'The Neck':** 2♂♂, 4♀♀, on *Senecio candicans* on beach, 15-16.ii.2006, (5). **Roy Cove, West Falkland:** 2♀♀, 1.xii.2005, (5). **Long Island (VC28):** 1♀, sandy shore, Malaise trap, 8.ii.2004, (2). **Lafonia (UC45):** 1♀, in acid grassland, [captured by] hand, 22.xi.2002, (1). **Hill Cove (TC88), West Falkland:** 1♀, garden, Malaise trap, 23.i.2004, (2); 1♀, Crooked Street, 500 m. a.s.l, oceanic heath, Malaise trap, 4.ii.2004, (2). **East Falkland:** 1♀, vegetable garden (E5), Malaise, 8.ii.2006, (1); 3♀♀, coast (E1), Malaise trap, 13.iii.2006, (1); 3♀♀, tussac grass (E2), Malaise trap, 13.iii.2006, (1). **Carcass Island (TD51):** 1♂, 1♀, M[alaise trap], 16-20.i.2006, (1). **Fitzroy:** 2♀♀, Malaise, [date?], (1). **Sea Lion Island:** 1♂, dwarf scrub, Malaise, 17.iii.2006, leg. M. Smart. **Jason Islands (TD03):** 1♂, 1♀, tussac grass, Malaise, 7.ii.2005, (1).

Acknowledgements

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Ichneumon mimicry in *Megamerina dolium* (Fabricius) (Diptera, Megamerinidae)

Ichneumon mimicry appears to be well developed in the Micropezidae: in Ecuador I observed several large micropezids on leaves alongside rainforest tracks, and their behaviour was very similar to that observed in *Rainieria calceata* (Fallén) (Denton, J. 2001. Rare and uncommon Diptera in England and Wales, 2000. *Dipterists Digest (Second Series)* **8**, 27-30.), with the legs extended out in front of the head and quivering to resemble antennae. On 23.vii.2007 at Zion's Copse, South Hampshire (SU4220), I saw a female of *Megamerina dolium* (Fabricius) at rest on a log. This too was adopting a stance with fore legs held out in front and quivering to mimic antennae. There is clearly a strong selective advantage in mimicking Ichneumonidae, presumably because they are distasteful and/or capable of painful prods! - **JONTY DENTON**, Old Hall Place, Hussell Lane, Medstead, Hampshire, GU34 5PF

Some recent records of *Sarcophaga subulata* Pandellé, 1896 (Diptera, Sarcophagidae) in Kent

Sarcophaga subulata Pandellé was added to the British list as '*S. laciniata* Pand.' by Colbran J. Wainwright (1940. The British Tachinidae (Diptera). Second supplement. *Transactions of the Entomological Society of London* **90**, 411-448) from specimen(s) 'discovered in the Ham St. Woods, Kent, where I first found it in May 1937. It has been taken on subsequent visits but seems very rare'. This site was repeated by F.I. van Emden (1954. Diptera Cyclorrhapha (Tachinidae, Calliphoridae). *Handbooks for the Identification of British Insects* **9**(4b), 1-134), who also gave Heddon's Marsh and Lynton,

Devon; Clevedon, Somerset and Abberley Hill and Alfrick, Worcestershire as sites for this species.

In the Natural History Museum, London there are fourteen specimens of *S. subulata* from two sites in Kent. Six of these relate to Wainwright's collecting at Ham Street/ Ham St. Woods i.e. 3 June 1936 one male, 5 June 1936 one male, 1 August 1937 two females and 4 August 1937 one male. The others, eight males, are from a visit paid to Woolwich Wood, Womenswold (TR2349) on 9 August 1956 by E.C.M. d'Assis-Fonseca.

Assuming that the 'Ham St. Woods' mentioned by Wainwright is part of the Orlestone Forest complex (TQ93) and not Ham Street Woods NNR (TR03) I can report its continued occurrence at the former by the captures of males at Faggs Wood (TR9834) on 3 August 1996 and Smallman's Wood (TQ988336) on 6 June 1988. Prior to this I had taken males at Canterbury Golf Course (TR174593) on 6 August 1984, Rusthall Common (TQ5639) on 28 May 1993 and Denge Wood near Garlinge Green (TR106528) on 8 August 1993.

A.A. Allen (2000. *Sarcophaga subulata* Pandellé (Dip.: Sarcophagidae): probable first records for West Kent and the London area. *Entomologist's Record and Journal of Variation* **112**, 256) mentioned finding a single male in his former garden at 63 Blackheath Park, SE3 (TQ4075) on 3 July 1967.

In the past four years I have taken single males of *Sarcophaga subulata* at five sites within Kent and the data are given below.

12 June 2004 'The Folly', Farningham Wood (TQ548677). Mainly dense woodland with oak *Quercus*, hawthorn *Crataegus* and holly *Ilex aquifolium* with large open glade on Thanet Sand.

4 June 2006 Blaxland Farm, Sturry near Canterbury (TR161634). Herb-rich meadow on London Clay.

11 May 2008 Little Hall Pinetum, Hackington near Canterbury (TR151606). Conifer arboretum and grassland on London Clay.

21 June 2008 Kiln Wood, Lenham (TQ8851). Deciduous woodland on damp Gault Clay.

5 July 2008 Lower Halstow near Rainham (TQ858676). Mainly sallow *Salix* scrub on site of former brickworks on Woolwich Beds.

According to T. Pape (1987. The Sarcophagidae (Diptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* **19**, 203pp.) *Sarcophaga subulata* has been reared from the gypsy moth *Lymantria dispar* (Linnaeus) (Lepidoptera, Lymantriidae), which is an occasional migrant to the British Isles. In the NHM collection (Nigel Wyatt *pers. comm.*) there is a male of *S. subulata* from Banstead Downs, Surrey that was reared from the snail *Helix cantiana* (now *Monacha cantiana* (Montagu)), so it is by no means host specific.

Several species in the subfamily Sarcophaginae have larvae that develop either as parasites, predators or scavengers, or perhaps a mixture of all these (details of their biology are still quite poorly known), on a wide variety of invertebrate hosts; snails are often involved, but there are also sometimes records from various insects such as lepidopterous larvae, Orthoptera and Coleoptera for a single sarcophagid species, so *S. subulata* seems likely to fit this pattern - **LAURENCE CLEMONS**, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE

New species of genus *Argyra* Macquart, 1834 (Diptera, Dolichopodidae) from the Far East of Russia and Japan

O.P. NEGROBOV and M. SATÔ *

Voronezh State University, Voronezh, 304006, Russia

* Rishiri Town Museum, Japan

Summary

Two new species of the genus *Argyra* Macquart are described, *A. hokkaidoensis* sp. n. from Japan (Hokkaido) and *A. takagii* sp. n. from the Russian Far East (Sakhalin, Siberia) and Japan (Hokkaido). A key to *Argyra* species known from Japan is provided.

Introduction

Most Palaearctic species of the genus *Argyra* Macquart, 1834 are known from Europe (Negrobov 1991). Only two *Argyra* species have been described from Japan – *A. arrogans* Takagi, 1960 and *A. superba* Takagi, 1960 (Takagi 1960). Subsequently *A. flavida* Negrobov, 1973 and *A. ussuriensis* Negrobov, 1973 were described from the Russian Far East (Negrobov 1973). Yang and Saigusa (2002) revised the genus *Argyra* from China. From China the following species have been described: *Argyra serrata* Yang & Saigusa, 2002, *Argyra pallipilosa* Yang & Saigusa, 2002, *Argyra nigripilosa* Yang & Saigusa, 2002, *Argyra beijingensis* Wang & Yang, 2004 and *Argyra chishuiensis* Wei & Song, 2006 (Yang and Saigusa 2002, Wang and Yang 2004, Wei and Song 2006). In the world catalog of Dolichopodidae (Yang *et al.* 2006) the species *Argyra chishuiensis* was placed in synonymy with *Argyra arrogans*.

Material

Types of the new species are preserved in the Hokkaido University Museum (HUM) and in the Zoological Institute of the Russian Academy of Sciences (ZIN); part of the paratypes are in the collection of The Black-Soil region's fund of invertebrates (Voronezh, Voronezh State University, VSU) and in Rishiri Town Museum (RTM).

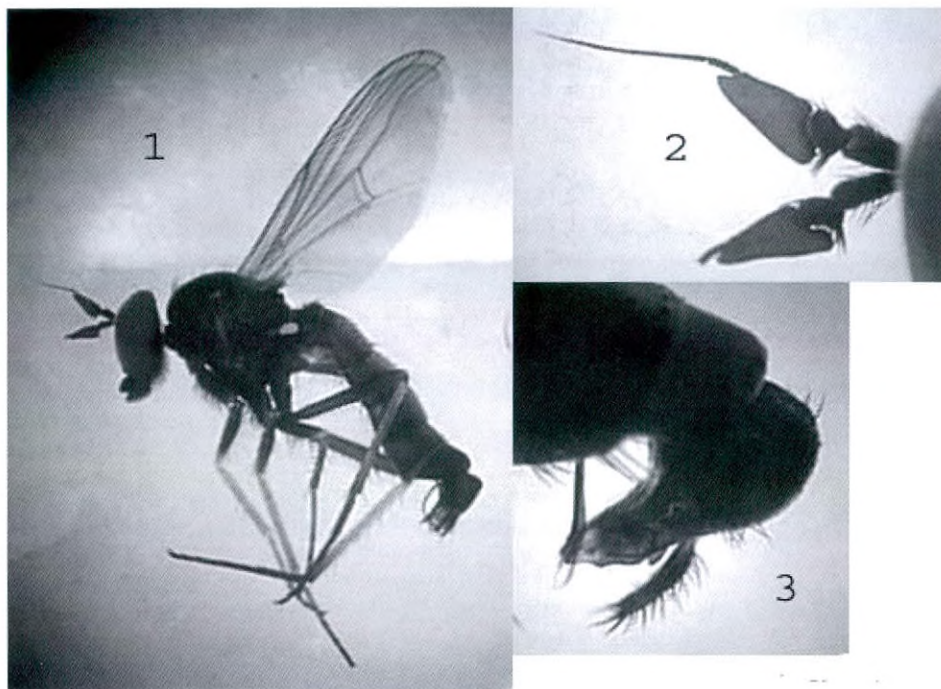
Argyra takagii Negrobov & Satô sp. n.

(Figs 1-4)

Diagnosis. Face black without silver pollen. The first flagellomere is 1.5 times as long as deep at base. Thorax lacking silvery-white tomentum; mesonotum with supplementary setae. Scutellum with hairs on the disc. Abdomen metallic-green; segments 2-6 covered with silver pollen.

Description. Male. Body length 6.3-6.4 mm. Wing length 5.6-5.8 mm.

Head. Face black without silver pollen. The ratio of median face width and height of first flagellomere at its base is 1.0: 0.9. Palpi muddy-brown. Antennae black; first flagellomere triangular on apical part and acute at the apex. The ratio of length of first flagellomere and its height at the base and length of arista is 16: 7: 27. Arista subapical.



Figs 1-3. *Argyra takagii* sp.n. 1, lateral view of male; 2, antennae; 3, hypopygium.

Upper postocular bristles black and lower postoculars white.

Thorax metallic-green with black shade. Pleura with muddy-brown-grey pollen; mesonotum with muddy-brown pollen. Propleura with a dark brown bristle; katepisternum with many black setae; 6 pairs of strong dorsocentral bristles. Acrostichal bristles well-developed; mesonotum with supplementary setae. Scutellum with 4 marginal bristles and with hairs on the disc.

Legs. Femora dark brown, fore and middle femora yellow apically. Tibiae yellow; distal part of hind tibiae brown. Tarsi dark brown or black; basitarsi of fore and middle tarsi yellow. Fore and middle coxae with numerous black setae. Hind coxa with 8-14 black setae. Fore femur with long antero- and posteroventral bristles as long as femoral diameter. Fore tibia with 5-6 anterodorsal and 3-4 posterodorsal bristles. Fore basitarsus with 7-9 short ventral bristles. Ratio of length of fore tibia and each segment of fore tarsus is 64: 40: 9: 10: 6: 8. Middle tibia with 4-5 anterodorsal, 4-5 posterodorsal, 4-5 anteroventral and 4-5 posteroventral bristles. Middle basitarsus with 4-6 short bristles on the ventral side. Ratio of length of middle tibia and each segment of middle tarsus is 79: 47: 18: 11: 7: 7. Hind basitarsus without strong bristles. Ratio of length of hind tibia and each segment of hind tarsus is 72: 19: 16: 10: 6: 6.

Wings transparent. Ratio of length of costal segment between R_{2+3} and R_{4+5} and costal segment between R_{4+5} and M_{1+2} is 3.32: 15. Apical section of R_{4+5} parallel with M_{1+2} beyond apical quarter of R_{4+5} . Ratio of length of basal and apical sections of M_{1+2} is 41: 39. Ratio of

length of apical section of CuA₁ and the crossvein is 4.2: 2.2. Calypters with dark cilia; halteres yellow.

Abdomen metallic-green with black setae. Abdominal segments 2-6 covered with silver pollen. Hypopygium (Fig. 4): surstylus broad with one long and one short epandrial bristles basal to it.

Female. Unknown.

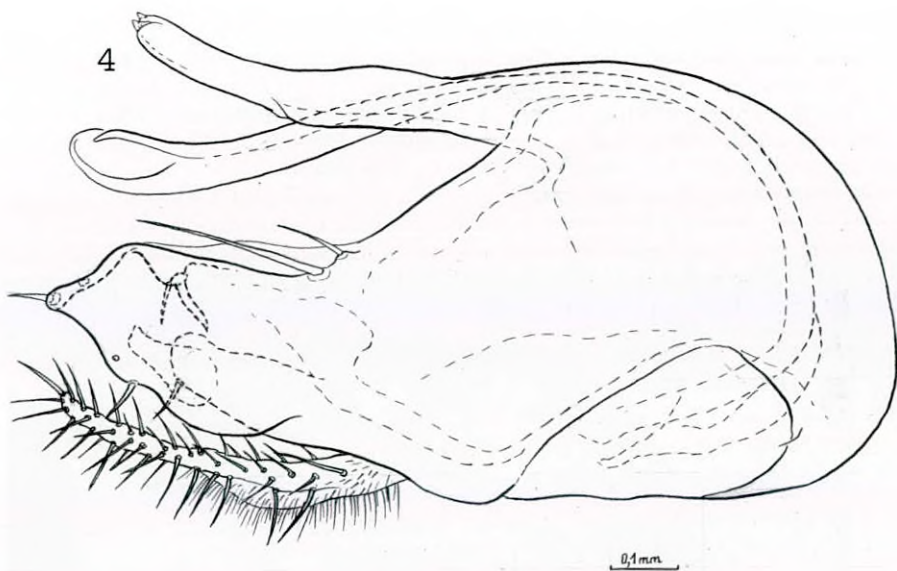


Fig. 4. *Argyra takagii* sp.n., lateral view of male hypopygium.

Type material. Holotype ♂ (ZIN), RUSSIA, Sakhalin, Annevskiyi raion, Urozhaynoye, 29 km SW from Yuzhnosakhalinsk, 13.vii.1973, leg. I. Shamshev. Paratypes: RUSSIA: 1♂ (VSU), near Yuzhnosakhalinsk, 7.vii.1982, I. Shamshev; 1♂ (ZIN), river Najda, 10 km from Bikov, 6-10.viii.1991, leg. V. Blagoderov; 1♂ (ZIN), Siberia, Lantakajk, river Saveljevka, 13-21.vii.1967, leg. Grunin. JAPAN: 3♂♂ (RTM), Hokkaido, Iwanano-sawa, Kami-toi-kan, Horonobe, 26.VI-12.vii.1993, Malaise trap, leg. M. Inoue.

Distribution. Russia, Japan.

Etymology. The new species is dedicated to Dr. S. Takagi from Japan.

Remarks. The new species runs close to *Argyra hoffmeisteri* (Loew, 1850) in the key by Parent (1938) and may be distinguished from it as follows:

- First flagellomere 1.5 times as long as deep at base. Surstylus triangular, narrow at apical part (Fig. 4, Negrobov, 1973) *A. hoffmeisteri* Loew
- First flagellomere twice as long as deep at base. Surstylus broad at subapical part (Fig. 4) *A. takagii* Negrobov & Satō sp.n.

Argyra hokkaidoensis Negrobov & Satô sp.n.

(Figs 5-8)

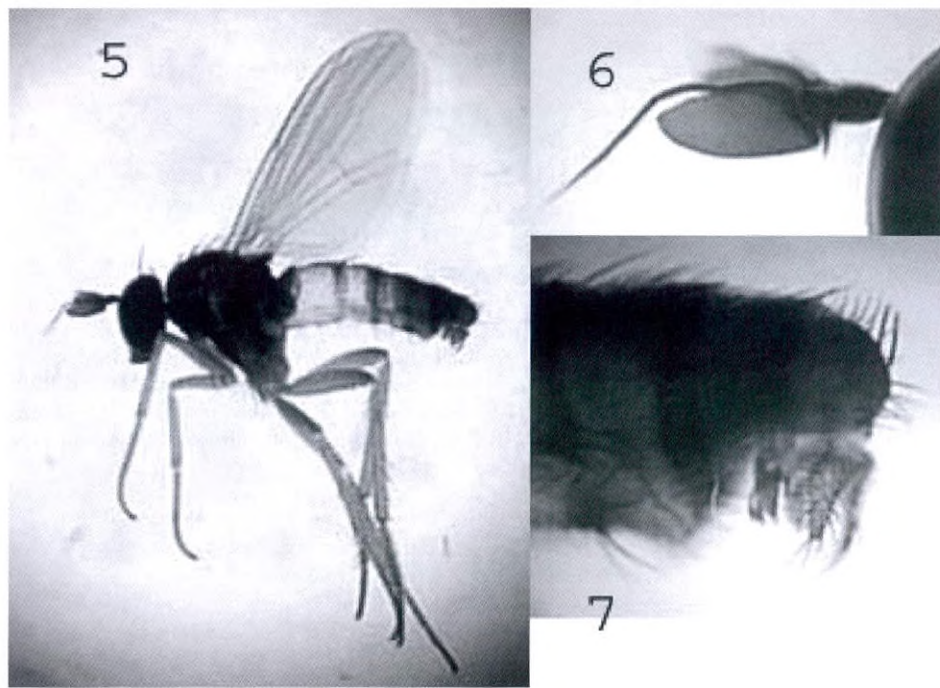
Argyra sp. 2: Satô, 1999: 56.

Diagnosis. Face white. First flagellomere 1.5 times as long as deep at base. Thorax lacking silvery-white tomentum; mesonotum without supplementary setae. Scutellum without hairs on the disc. Abdomen with segments 1-2 with yellow spots.

Description. Male. Body length 3.5-4.0 mm. Wing length 3.0-3.7 mm.

Head. Face white with silver pollen. The ratio of median face width and the height of first flagellomere at its base is 8: 11. Antennae black. First flagellomere bud-like, oval at the apex. The ratio of length first flagellomere, its height at the base and length of arista is 16: 7: 20. Arista situated mediodorsally on first flagellomere. Proboscis and palpi dark muddy-brown, with black bristles and setae. Postocular cilia light beneath.

Thorax. Mesonotum dark-metallic-green, with bronze sheen anteriorly, without silvery-white tint. Pleura dark green with silvery-grey pollen. Propleura with a pale bristle; katepisternum with 2 short black bristles; 6 pairs of strong dorsocentral bristles. Acrostichal bristles well-developed, biserial. Scutellum with 4 strong marginal bristles, without hairs on the disc.



Figs 5-7. *Argyra hokkaidoensis* sp.n. 5, lateral view of male; 6, antennae; 7, hypopygium.

Legs yellow except for dark coxae and apical third of hind femora and tibiae; hind tarsi wholly dark. Fore coxa with a great number of black bristles anteriorly. Fore femur with rather long bristles on the posterior surface apically, which are as long as the basal thickness of the femur. Fore tibia with 1 anterodorsal and 1-3 posterodorsal bristles, which are so short as to be not always distinct. Anterior basitarsus with ventral bristles below increasing in length towards base, basal ones are as long as the diameter of the basitarsus. Ratio of length of fore tibia and each segment of fore tarsus is 45: 28: 8: 7: 5: 4. Middle coxa with a great number of black bristles anteriorly. Apical part of middle femur with 2-3 long bristles on anterior and posterior (posteroventral) surfaces. Middle tibia with 3-4 anterodorsal, 3-4 posterodorsal, 1-2 anteroventral and 2-4 posteroventral bristles. Ratio of length of middle tibia and each segment of middle tarsus is 57: 29: 10: 9: 6: 5. Hind coxa with several hairs and 1-2 bristles arranged vertically, the uppermost black bristle long. Hind femur with long erect black anteroventral bristles apically, which are as long as the median thickness of the femur. Hind tibia with row of strong anterodorsal bristles and 3 posterodorsal bristles. Ratio of length of hind tibia and each segment of hind tarsus is 72: 35: 9: 7: 5: 4. Hind basitarsus with several long anteroventral bristles, which are 3 times as long as the thickness of the basitarsus.

Wings transparent. Ratio of length of costal segment between R_{2+3} and R_{4+5} and costal segment between R_{4+5} and M_{1+2} is 23: 13. Apical segments of R_{4+5} and M_{1+2} slightly sinuous towards the posterior edge of the wing, parallel in apical part of the wing. Ratio of length of basal and apical sections of M_{1+2} is 31: 31. Ratio of length of apical and basal segments of M_{3+4} is 7.4:15.0. Ratio of length of apical segment of M_{3+4} and cross-vein 7.4:4.0. Ratio of length of apical section of CuA_1 and crossvein is 14: 9. Ratio of length of basal and apical sections of CuA_1 is 29: 14. Calypters with dark cilia. Halteres yellow.

Abdomen dark metallic-green with grey pruinosity and black setae. Abdominal segments 2-4 with a large yellow spot on each side; especially the dorsal face of second segment almost covered with yellow spots. Hypopygium (Fig. 8): surstylus with 3 lobes, the median with 3 small apical setae and one subapical seta; the dorsal lobe is most internal in position of the three lobes and is like a small projection with 3 hairs.

Female. Unknown.

Type material. Holotype ♂ (HUM), JAPAN, Hokkaido, Otaru, Shiraisawa, Okusawa-suigenchi, 19.viii.1996, Malaise trap, leg. Y. Sasaki and F. Takahashi. Paratypes: JAPAN, 1♂ (RTM), Hokkaido, Horonobe, Rishiri Is., Iwanano-sawa, Kamitoikan, Malaise trap, 25.viii-14.ix.1993, leg. M. Inoue; 1♂ (RTM), Hokkaido, Rishiri Is., Higashi-nodottomari, Oshidomari, 2.viii.1995, Malaise trap, leg. M. Satō; 1♂ (RTM), Hokkaido, Rishiri Is., Higashi-nodottomari, Oshidomari, 22.viii.1995, Malaise trap, leg. M. Satō; 4♂♂ (RTM), Hokkaido, Otaru, Shiraisawa, Okusawa-suigenchi, 19.viii.1996, leg. Y. Sasaki and F. Takahashi; 3♂♂ (RTM), Hokkaido, Otaru, Shiraisawa, Okusawa-suigenchi, 6.ix.1996, leg. Y. Sasaki and F. Takahashi; 1♂ (RTM), Hokkaido, Rebun Is., Kushu-ko, Funadomari, 23.vii.1994, leg. M. Satō.

Distribution. Japan.

Etymology. The new species is named for the Japanese island of Hokkaido where the type material was collected.

8

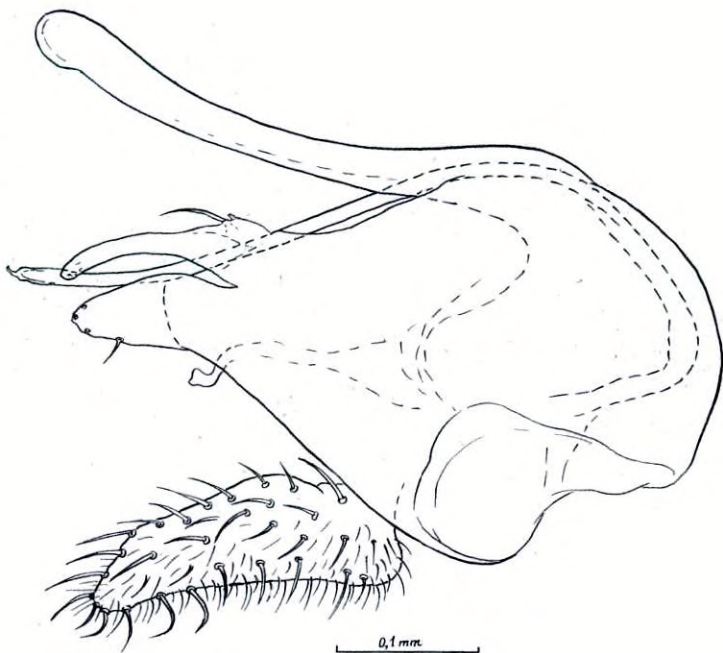


Fig. 8. *Argyra hokkaidoensis* sp.n., lateral view of male hypopygium.

Key to Japanese species of *Argyra*

1. Scutellum with small hairs. Mesonotum almost wholly covered with hairs 2
- Scutellum bare. Mesonotum only with hairs anteriorly 3
2. Pedicel with a dorsal lobe overlapping the first flagellomere by about half its length *A. superba* Takagi
- Pedicel without such a dorsal lobe *A. takagii* Negrobov & Sato sp.n.
3. Male with yellow spots on second and third abdominal segments *A. arrogans* Takagi
- Male with yellow spots on second, third and fourth abdominal segments *A. hokkaidoensis* Negrobov & Satō sp.n.

Acknowledgments

We would like to thank the following for collecting specimens of *Argyra*: Dr. T. Ito (Hokkaido Aquatic Biology), Dr. Mikio Inoue (Ehime University), Mr. Yuzuru Sasaki and Mr. Fuminori Takahashi. O.P. Negrobov has been supported by grant number RFBR 08-04-01623 a, from the Russian Fund for Basic Research.

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***Chrysopilus laetus* Zetterstedt, 1842 (Diptera, Rhagionidae), in south-east London**

- On 17 July 2008, I swept a small rhagionid from rough herbage on the Horniman Nature Trail (TQ347736), part of the Horniman Museum and Gardens, at Forest Hill, (Lewisham). Later, it proved to be *Chrysopilus laetus* Zetterstedt. This fly was accorded 'endangered' status (red data book category 1) by S.J. Falk (1991. *A review of the scarce and threatened flies of Great Britain (part 1)*. Peterborough: Nature Conservancy Council) because, at that time, it was only known from Windsor Forest. However, A. Stubbs and M. Drake (2001. *British soldierflies and their allies*. BENHS) reported it from several other sites in Cambridgeshire, Kent and at Burnham Beeches, Buckinghamshire. Occurrence at the latter site was also reported on by J.W. Ismay (2001. *Entomologist's monthly Magazine* 137, 214). There has been a spate of other recent records, including: Wimpole Park, Cambridgeshire (Damant, S.G. 2002. *Dipterists Digest* 9, 20), Westend Common, Esher, Surrey (16.vii.2002, a female alighting on birch *Betula* logs, P.J. Chandler, *pers. comm.*) and three widespread localities (including records from Gloucestershire and Middlesex) soon to be published in the report of the 2008 BENHS Annual Exhibition (exhibits by D. Gibbs, R.D. Hawkins and I. Perry. 2009. *British Journal of Entomology and Natural History* 22, in press).

Unlike other reported sites, the nature trail at Forest Hill is not ancient woodland, but is part of the disused railway line that once took visitors to the Crystal Palace. Nevertheless, it is tree-lined and the area in general is well known for its extensive woodedness. There are pockets of ancient woodland in the nearby Dulwich and Sydenham Hill Woods, and the place name itself indicates how once the hill here was densely forested - **RICHARD A. JONES**, 135 Friern Road, East Dulwich, London SE22 0AZ, bugmanjones@hotmail.com

Corrections and changes to the Diptera Checklist (21) – 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. Changes are listed under families; names new to the British Isles list are in bold type. The notes below refer to loss of no species due to synonymy and addition of 5 species, resulting in a new total of **7009** species.

Changes

Mycetophilidae. The following species was added by J. KJÆRANDSEN (2009). The genus *Pseudexechia* Tuomikoski re-characterized, with a revision of European species (Diptera, Mycetophilidae). *Zootaxa* **2056**, 1-45), who noted that it was figured as *P. trisignata* by P.J. CHANDLER (1978. *Entomologist's Record & Journal of Variation* **90**, 44-51); the true *P. trisignata* was described from a British type and both species are widespread in Britain: *Pseudexechia tuomikoskii* Kjærandsen, 2009

The following species are added in the present issue:

Exechiopsis seducta (Plassmann, 1976 - *Exechia*)

Mycetophila sigmoides Loew, 1869

Scatopsidae. The following species is added in the present issue:

Rhegmoclemina lunensis Haenni & Godfrey, 2009

Hybotidae. The following misidentification is corrected in the present issue:

Platypalpus caroli Grootaert, 1987 = *P. niveiseta*: Collin, 1961, misident.

Dolichopodidae. The following change, which has been overlooked previously, results from M. POLLET (2005. Systematic revision of Neotropical *Achalcus* and a related new genus (Diptera: Dolichopodidae, Achalcinae) with comments on their phylogeny, ecology and zoogeography. *Zoological Journal of the Linnean Society* **143**, 27-73):

AUSTRALACHALCUS Pollet, 2005

Australachalcus melanotrichus (Mik, 1879 – *Achalcus*)

Dryomyzidae and **Coelopidae.** In the Irish checklist cited in a previous issue (Chandler *et al.* 2008) recent usage was followed, contrary to the British checklist, in transferring *Malacomyia* to Coelopidae and according family rank to **Helcomyzidae** and **Heterocheilidae**.

Sciomyzidae. The following species, previously recorded from Ireland, is newly recorded for Britain in the present issue:

Tetanocera montana Day, 1881

Cnemospathidae. It is pointed out in the present issue that the Tribe Cnemospathini included in Heleomyzidae in the checklist is now generally treated as having family rank. In the Irish checklist (Chandler *et al.* 2008) it was also noted that family rank is also now accorded to **Chiropteromyzidae** and **Trixoscelididae**, treated as subfamilies of Heleomyzidae in the British checklist and the same applies to **Borboropsidae** which is raised from tribal rank. All

were recognised by L. PAPP (1998. 3.4.1. Families of Heleomyzoidea. pp. 425-455. In PAPP, L. and DARVAS, B. Contributions to a Manual of Palaearctic Diptera. Volume 3. 880 pp. Science Herald, Budapest). The three remaining subfamilies retained their status.

Drosophilidae. The following species is added in the present issue:
Chymomyza amoena (Loew, 1862 - *Drosophila*)

Changes to the Irish Diptera List (11) – Editor

This section appears as necessary to keep up to date the initial update of the Irish list in Vol. 10, 135-146 and the recent checklist of Irish Diptera (Chandler *et al.* 2008). Species are listed under families, but with references listed separately. The papers listed below have already been cited as in press respectively in the Irish checklist and in the previous issue so there is no change to the total Irish list of 3314 species.

References

- Alexander, K.N.A., Gibbs, D.J. and Speight, M.C.D. 2009. The Irish *Systemus alpinus* Vaillant reassessed as *Systemus mallochi* MacGowan (Diptera, Dolichopodidae). *Irish Naturalists' Journal* 29, 95-96.
- Gittings, T. and Speight, M.C.D. 2009. *Colobaea pectoralis* (Zetterstedt, 1847) and *Pherbellia dorsata* (Zetterstedt, 1846) snail-killing flies (Diptera, Sciomyzidae) new to Ireland. *Irish Naturalists' Journal* 29, 116-118.

***Gymnosoma rotundatum* (Linnaeus, 1758) (Diptera, Tachinidae) established in urban London** - On 1 June 2009 I swept a male of the very distinctive tachinid *Gymnosoma rotundatum* (Linnaeus) from long grass and herbage in an overgrown garden in the Honor Oak/Forest Hill area of Lewisham, south-east London. A few minutes later I caught a female flying around bramble bushes nearby. When I first saw her, I thought she was a wasp, by her hovering/hawking flight, as if she were hunting...for host prey?

This nationally rare (red data book category 3) fly is usually reported to be more or less confined to a discrete area of eastern Hampshire, West Sussex and Surrey. The review by Roger Morris (1997. *British Journal of Entomology and Natural History* 10, 11-13) illustrated this geographical restriction with a clear distribution map, although there are a few outlying historical records from West Kent, East Sussex and Hampstead (north-west London). He suggested that *G. rotundatum* appeared to have increased and spread during the 1970s and 1980s. Previously I have found it at Tilgate, East Sussex, TQ2833, on 1 August 1976 and Rewell Wood, Arundel, West Sussex, SU9880, on 10 September 1977. An on-line distribution map is available through the tachinid recording scheme (<http://tachinidae.org.uk/site/get-map.php?brno=11402>) and shows a similar tight geographic restriction but there continue to be numerous recent records within this range (the site was updated to 26 June 2004).

The locality in Lewisham (TQ354738, V.C. 16 West Kent) is well separated from this block of the fly's known distribution, but is a not unexpected expansion of range if the fly is spreading. It is 17 km north-east from the nearest recording scheme site, Happy Valley, Coulsdon, Surrey.

Capturing the fly reminded me that I also have a record of it from Devonshire Road Nature Reserve on 2 July 2007. This site, part of the Forest Hill to New Cross Gate railway

cutting, is a site of metropolitan importance for nature conservation, and at TQ356735 (also V.C. 16) is only 350 metres from the gardens I visited in 2009 - **RICHARD A. JONES**, 135 Friern Road, East Dulwich, London SE22 0AZ, bugmanjones@hotmail.com

A new record of *Prosopanthrum flavifrons* (Tonnoir & Malloch, 1927) (Diptera, Cnemospathidae) from Dungeness, Kent - One female of this species was swept from a rabbit grazed area with *Sedum*, *Echium*, *Salix*, grass and heath on sand beside an old gravel pit at Dungeness, Kent (TR073193) on 27 June 2006 by Barbara Schulten (now Ismay) during a Dipterists Forum Summer Field meeting. This appears to be the first record of the species from Kent. It was added to the British List by J.W. Ismay and D. Smith (1994. *Prosopanthrum flavifrons* (Tonnoir & Malloch) (Diptera, Heleomyzidae) new to Britain and the northern hemisphere. *Dipterists Digest (Second Series)* **1**, 1-5) and has subsequently been recorded from Devon by J.H. Cole (1996. A second British site for *Prosopanthrum flavifrons* (Tonnoir & Malloch) (Diptera, Heleomyzidae). *Entomologist's monthly Magazine* **132**, 310). The species was included in the family Heleomyzidae by Ismay and Smith (1994, *op. cit.*) and Cole (1996. *op. cit.*), but more recent publications (Oosterbroek, P. 2006. *The European families of the Diptera*, KNNV Publishing, Utrecht; Papp, L. 1998. Families of Heleomyzoidea, pp. 425-455. In Papp, L. and Darvas, B. (Eds): *Manual of Palaearctic Diptera* **3**. Higher Diptera. Science Herald, Budapest) placed it in the family Cnemospathidae. I thank my husband John Ismay for confirming my identification of this species - **BARBARA ISMAY**, 67 Giffard Way, Long Crendon, Aylesbury, Buckinghamshire, HP18 9DN, schultmay@insectsrus.co.uk

***Phytomyza sii* Hendel (Diptera, Agromyzidae) possibly a British species** - This species mines plants of the genera *Berula* and *Sium* (closely related genera that are sometimes considered synonymous), producing a relatively broad corridor that lies in one half of a leaflet and may roughly follow the margin. Feeding lines are well marked, but vacated mines soon go brown (Hering, E.M. 1957. *Bestimmungstabellen der Blattminen von Europa*. 3 vols. Junk, Holland.). On 1 August 1993, whilst walking along the tow path beside the Oxford Canal east of Ansty in Warwickshire, I came upon a stretch where there had been a minor landslide from the adjacent hill, that was blocking the path. The soil was quite damp, indeed in part waterlogged, and at the western end of the blockage quite a good colony of *Berula erecta* had developed. This is a decidedly local plant in Warwickshire, though the area (SP4083), was one in which the plant had been recorded as being present by D.A. Cadbury, J.G. Hawkes and R.C. Readett (1971. *A Computer-Mapped Flora: A study of the County of Warwickshire*. Academic Press). Quite a number of plants had been mined, but nearly all the mines had been vacated; a single fly reared from this is no longer available for confirmation. Although no other species of Agromyzidae has been recorded from this food plant the possibility of xenophagy by another species cannot be excluded. Plants of these genera should be examined for mines in order to provide confirmation that this is a British species. Males may be identified from the figure of the aedeagus by K.A. Spencer (1990. Host specialisation in the World Agromyzidae (Diptera). 444 pp. Kluwer Academic Publishers; p. 172) - **JOHN ROBBINS**, 123b Parkgate Road, Coventry CV6 4GF

Platypalpus caroli Grootaert 1987 (Diptera, Hybotidae) – a re-identification of British records of *Platypalpus niveiseti* (Zetterstedt, 1842)

B. ISMAY, D. SMITH* and S.J. FALK**

67 Giffard Way, Long Crendon, Aylesbury, Buckinghamshire, HP18 9DN;
schultmay@insectsrus.co.uk

* Milltown of Dunnideer, Inch, Aberdeenshire AB52 6XQ; delsmith444@btinternet.com

** Senior Keeper of Natural History, Warwickshire Museum, Market Place, Warwick CV34 4SA; stevenfalk@warwickshire.gov.uk

Summary

Platypalpus caroli Grootaert 1987 is recorded as new to Britain but has previously been misidentified as *P. niveiseti* (Zetterstedt, 1842), to which it keys out in Collin (1961) and Chvála (1975). It is necessary to delete *P. niveiseti* from the British list pending any confirmation of its presence in the British Isles.

Introduction

In September 2006, BI keyed out a male hybotid as *Platypalpus caroli* Grootaert, 1987, using the key by Chvála (1989). This species was thought to be previously unrecorded from Britain and runs in the keys of Collin (1961) and Chvála (1975) to *Platypalpus niveiseti* (Zetterstedt, 1842). Adrian Plant, who kindly checked the identification, agreed that the male specimen keyed to *P. caroli*. He advised BI to dissect it and to check the genitalia very carefully against the drawings provided by Grootaert (1987) as more species new to science are expected in the *Platypalpus albiseta* (Panzer, 1806) group, to which *P. caroli* belongs. The subsequent dissection agreed very well with the drawings.

Before BI could publish this record, she was contacted early in 2009 by DS, who also had identified *P. caroli*, using the paper by Grootaert (1987). DS and SJF subsequently checked other identifications of *P. niveiseti*, which they had made using Collin (1961) or Chvála (1975) and found that all other specimens previously named by them were *P. caroli*.

Material examined. 26♂, 18♀. **ENGLAND: Berkshire, V.C. 22:** 1♂, Dinton Pastures, Sandford Copse (SU778729), 17.vi.1993, leg. and det. P.J. Chandler; **Buckinghamshire, V.C. 24:** several specimens, Burnham Beeches NNR (SU98), 25.v.-1.vi.1999, 1-8.vi.1999, 8-18.vi.1999, 18-29.vi.1999, 1-28.x.1999, leg. H. Read, det. R. Crossley, Malaise trap; **Cambridgeshire, V.C. 29:** 1♂, Badger Wood (TL327595), v.1998, leg. C.W. Plant, det. D.A. Smith, Malaise trap; 1♀, Chippenham Fen (TL66), 26.vi.1917; 1♂, 28.vi.1935; 1♀, 26.vi.1950; 1♀, 8.vii.1950; 1♀, 13.vii.1950; 1♂, 14.vii.1951; 1♂, 24.v.1952; 1♂, 10.vi.1952: all same locality and leg. J.E. Collin, det. B. Ismay; 1♀, Gamlingay Wood (TL2453), 20.ix.1991, leg. and det. J.H. Cole; 3♂, 1♀, Monkfield Wood (TL322594), vi.1998, leg. C.W. Plant, det. D.A. Smith, Malaise trap; 1♀, Oaklands Wood (TL317596), vi.1998, leg. C.W. Plant, det. D.A. Smith, Malaise trap; 1♂, Woodditton Wood, 10.vii.1927, leg. J.E. Collin, det. B. Ismay; **Essex, South Essex, V.C. 18:** 1♂, Basildon (TQ664900), 1-25.vi.2006, leg. C.W. Plant, det. B. Ismay, Malaise trap, close to mature oak; 2♂, 1♀, Gray's Chalk Quarry (TQ609789), 29.vi.1980, leg. D.A. Smith, det. D.A. Smith, swept, habitat uncertain; **Huntingdonshire, V.C. 31:** 2♂, Alconbury (TL188743), 20.vi.1967, leg. and det. J.H. Cole,

rough grassland near woodland; 1♂, Calpher Wood (TL141698), 1.vii.1967, leg. and det. J.H. Cole; 1♂, 1♀, Raveley Wood (TL262548), 8.vii.1973, leg. and det. J.H. Cole; 1♂, 1♀, Waresley Wood (TL2654), 5.vi.2007, leg. and det. J.H. Cole; **Norfolk, East Norfolk, V.C. 27:** 1♀, Aslacton Parish Land (TM155917), 19.vii.1993, leg. and det. C.M. Drake, tall fen running into carr by stream; **Oxfordshire, V.C. 23:** 1♂, Aston Rowant (SU729972), 28.vi.2006, leg. and det. C.M. Drake, suction sampler, scrub margin of deciduous woodland on chalk; 1♀, Otmoor Range (SP573130), 20.v.-27.vi.1989, leg. K. Porter, det. R. Crossley, Malaise trap, habitat uncertain; 1♀, Weston Fen (SP5219), 22.vii.-10.viii.1987, leg. K. Porter, det. R. Crossley, Malaise trap, fenland in broadleaved woodland; 1♀, Wychwood Forest (SP31), 14.viii-8.ix.1989; 1♂, 15.vi-11.vii.1988; 1♀, 16.vi-7.vii.1989; all same locality and leg. K. Porter, det. R. Crossley, Malaise trap; **Warwickshire, V.C. 38:** 1♂, Barton Hill (SP269314), 2.viii.1999, leg. and det. S.J. Falk; 1♂, Copt Green (SP175693), 3.vii.1999, leg. and det. S.J. Falk; 1♀, Frankton Grounds (SP421693), 22.vii.1995, leg. and det. S.J. Falk; 1♂ (teneral, headless with collapsed genitalia), Oxhouse Farm (SP300508), 24.vii.1996, leg. and det. S.J. Falk (this also appears to be *P. caroli*); 2♂, Ufton Wood (SP389626), 16.vi.1999, leg. and det. S.J. Falk; 1♀, same locality, 2.viii.1997, leg. and det. S.J. Falk; **Wiltshire, South Wiltshire V.C. 8:** 1♂, 1♀ White Scar Hanging (ST881490), 16-21.vii.2003, leg. and det. C.M. Drake, Malaise trap, in deciduous woodland on chalk.

Identification

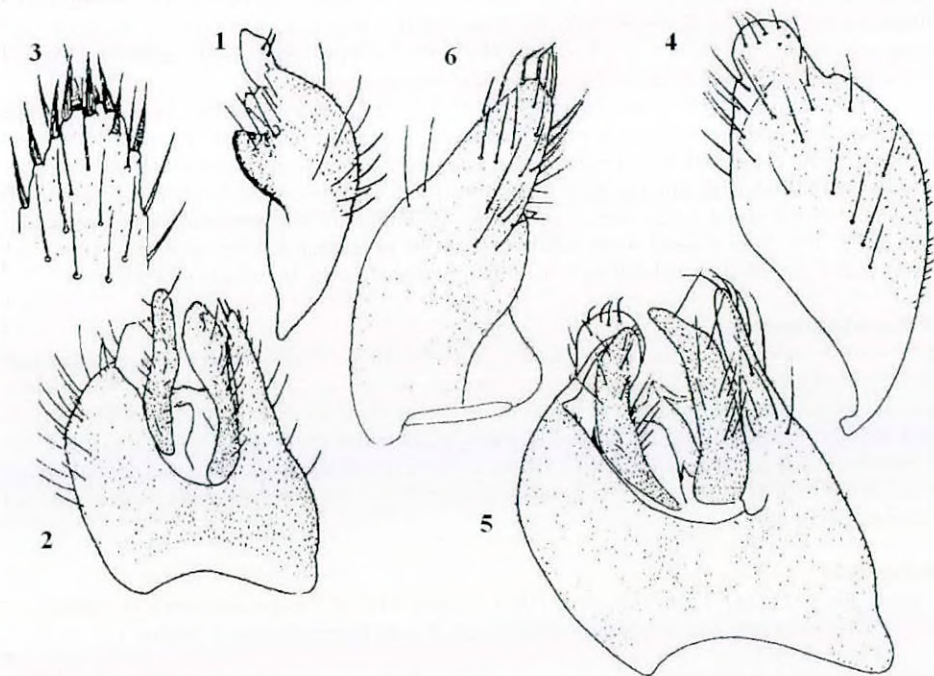
P. caroli belongs to the *P. albiseti* group. This group can be recognised by the following characters: black species with one pair of distinct vertical bristles; elongate first flagellomere (third antennal segment) with white, rather stout and pubescent arista; scutum black, katapisternum more or less polished, without postpronotal bristle; mid tibia without or with very small spur, mid femur with long posteroventral bristles; wing with recurrent, elongate S-shaped vein closing anal cell; frons narrow. Five of the species mentioned by Chvála (1989) as belonging to the *P. albiseti* group, have previously been recorded from Britain; apart from *P. niveiseti* these are *P. albiseti*, *P. pygialis* Chvála, 1973, *P. albocapillatus* (Fallén, 1815), and *P. pallidiseti* Kovalev, 1978.

British workers identifying *Platypalpus* tend to use the keys by Collin (1961) or Chvála (1975), in which *P. caroli* runs respectively to couplet 48 and to couplet 20, in both works running to *P. niveiseti*. The former does not include many species subsequently found to occur in Britain and the latter also omits *P. caroli* and some other species in this species group. All known British species of *Platypalpus* were keyed by Grootaert and Chvála (1992).

Platypalpus caroli can be distinguished from *P. niveiseti* by the first flagellomere being 3 to 4 times as long as deep with the white arista twice as long, the palpus being yellowish and the narrow frons being not as deep as the front ocellus, but widening towards the occiput. The right genital lamella has a large, dark, tooth-like projection on the middle of its outer margin and the left cercus is swollen at the tip. The left lamella has conspicuous black spines at its tip. It has a shining black scutum with biserial acrostichals. The pleura are dusted except for the polished katapisternum. In examining the J.E. Collin collection, BI noticed variation in the ocellar bristles (black or yellow), the colour of the bristly hairs on the fore femur (black or yellow) and in coloration of the coxae, which may be pale or brownish.

Platypalpus niveiseti has the first flagellomere 4 to 5 times as long as deep and the white arista subequal in length or slightly longer; the palpus is brown. The frons is about as wide as the front ocellus, but widening towards the occiput. The male right genital lamella does not have a tooth-like projection, both cerci are slender and the left lamella does not have

spines at its tip. The katepisternum is polished and the remaining pleura are dusted as in *P. caroli*.



Figs 1-3. *Platypalpus caroli* male genitalia: 1, right periandrial lamella; 2, hypopygium; 3, tip of left lamella. Figs 4-6. *Platypalpus niveiseta* male genitalia: 4, right periandrial lamella; 5, hypopygium; 6, left periandrial lamella. After Grootaert 1987.

Discussion

Before identification of the Basildon specimen, all material of *P. caroli* examined by us or co-workers had previously been identified as *P. niveiseta*. Some of these records had been included in publications, i.e. Collin (1961), Falk and Crossley (2005), Smith (1990) and the NBN Gateway (2009). Specimens recorded from Churchyard Dingle, Herefordshire on 23.vii.1907, leg. J.H. Wood (Collin 1961), Grays (TQ6078), Essex, from 1972 to 1978 (NBN Gateway: Invertebrate Site Register) and Yorkshire (Falk and Crossley 2005) were not located and specimen(s) from Chippenham Fen on 2.vii.1988 (unpublished record, D.J. Gibbs) were not re-examined. A specimen from Lashford Lane Fen SSSI, Berkshire, collected in 1987 or 1988 (SP467012) (NBN Gateway: Invertebrate Site Register) has been lost (R. Crossley *pers. comm.*). However, all the specimens previously determined as *P. niveiseta*, which were re-examined, were misidentified and most of these proved to be *P. caroli*. Therefore, we suggest deleting *P. niveiseta* from the British list until further evidence of its occurrence in Britain emerges.

According to Fauna Europaea (Chvala 2004) *P. caroli* has so far been recorded from Belgium, the Czech Republic, Germany and Switzerland. *Platypalpus niveiset*a, which occurs in more countries in Europe according to Chvala (2004), was accorded the conservation status of Rare (RDB3) by Falk (1991), and Nationally Scarce by Falk and Crossley (2005). Since nearly all records of *P. niveiset*a proved to be *P. caroli* we suggest awarding the conservation status Nationally Scarce to *P. caroli*.

The habitat for *P. niveiset*a given by Falk and Crossley (2005) is old broadleaved woodland and fens and it was known at the time of that publication from ten post-1960 sites. All specimens examined, if not otherwise stated, were either from broadleaved woodland or closely associated with this habitat. Most sites for SJF's specimens contained broadleaved woodland, but without a particular association with either ancient woodland or any particular soil type. The latter ranged from mildly calcareous to neutral and dry to damp. It is most likely that *P. caroli* is associated with broadleaved trees or even broadleaved woodland.

Acknowledgements

We thank John W. Ismay and Peter Chandler for advising on drafts of this paper, Adrian Plant for supplying data from the Empidoidea recording scheme and a copy of Patrick Grootaert's paper, advising on the species and a first draft; Colin Plant for passing the material on to BI and DS for identification and allowing publication of these records; Roy Crossley, Peter Chandler, Jonathan Cole and Martin Drake for re-examining their specimens and allowing publication of their data. We are grateful to Patrick Grootaert for allowing us to reproduce some of his figures.

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Novel courtship in <i>Choerades marginatus</i> (Linnaeus, 1758) (Diptera, Asilidae): the female Robber fly as coquette IAN W. RABARTS	31-39
A note on the status of <i>Choerades femoratus</i> (Meigen, 1804) (Diptera, Asilidae) MALCOLM SMART	40
The puparium and Scottish distribution of <i>Pseudolyciella pallidiventris</i> (Fallén, 1820) and allied species (Diptera, Lauxaniidae) GRAHAM E. ROTHERAY	41-46
A new species of <i>Rhegmoclemina</i> Enderlein, 1936 from England (Diptera, Scatopsidae) JEAN-PAUL HAENNI and ANDY GODFREY	47-52
A new County record of <i>Tephritis matricariae</i> (Loew, 1844) (Diptera, Tephritidae) from Oxfordshire BARBARA ISMAY and BRIAN HARDING	52
Dipterists Day Exhibits 2008 EDITOR	53-56
Recent records of <i>Clorismia rustica</i> (Panzer) and <i>Spiriverpa lunulata</i> (Zetterstedt) (Diptera, Therevidae) in England and Wales C. MARTIN DRAKE	57-63
<i>Achalcus thalhammeri</i> Lichtwardt, 1913 (Diptera, Dolichopodidae) at grazing marshes in Kent and East Sussex C. MARTIN DRAKE	64
Falkland Islands Syrphidae (Diptera) A. WAKEHAM-DAWSON, A.G. JONES & F.C. THOMPSON	65-71
Ichneumon mimicry in <i>Megamerina dolium</i> (Fabricius) (Diptera, Megamerinidae) JONTY DENTON	71
Some recent records of <i>Sarcophaga subulata</i> Pandellé, 1896 (Diptera, Sarcophagidae) in Kent LAURENCE CLEMONS	71-72
New species of genus <i>Argyra</i> Macquart, 1834 (Diptera, Dolichopodidae) from the Far East of Russia and Japan O.P. NEGROBOV and M. SATÔ	73-79
<i>Chrysopilus laetus</i> Zetterstedt, 1842 (Diptera, Rhagionidae), in south-east London RICHARD A. JONES	79
Corrections and changes to the Diptera Checklist (21) – EDITOR	80-81
Changes to the Irish Diptera List (11) – EDITOR	81
<i>Gymnosoma rotundatum</i> (Linnaeus, 1758) (Diptera, Tachinidae) established in urban London RICHARD A. JONES	81-82
A new record of <i>Prosopantrum flavifrons</i> (Tonnoir & Malloch, 1927) (Diptera, Cnemospathidae) from Dungeness, Kent BARBARA ISMAY	82
<i>Phytomyza sii</i> Hendel (Diptera, Agromyzidae) possibly a British species JOHN ROBBINS	82
<i>Platypalpus caroli</i> Grootaert 1987 (Diptera, Hybotidae) – a re-identification of British records of <i>Platypalpus niveiseta</i> (Zetterstedt, 1842) B. ISMAY, D. SMITH and S.J. FALK	83-86

Dipterists Digest Volume 16, No. 1 2009

- Notes on recording the Fen Flower Gnat *Asindulum nigrum* Latreille, 1805 (Diptera, Keroplatidae), a BAP Priority Fly JOHN DOBSON 1-2
- Eriothrix rufomaculata* (De Geer, 1776) (Diptera, Tachinidae) reared from *Chrysoteuchia culmella* (Linnaeus) (Lepidoptera, Pyralidae) – a first British host record
STUART PASTON and GRAHAM E. ROTHERAY 3-6
- Two Fungus Gnats (Diptera, Mycetophilidae) new to Britain DAVID GIBBS 7-13
- Ditomyia fasciata* (Meigen) (Diptera, Ditomyiidae) new to Wales from Monmouthshire, plus details of some previously unpublished Gloucestershire records
KEITH N.A. ALEXANDER and JUDITH A. WEBB 13
- Atylotus rusticus* (Linnaeus, 1761) (Diptera, Tabanidae) new to East Kent
ANDREW GRAYSON..... 14
- Tetanocera montana* Day, 1881 (Diptera, Sciomyzidae) new to Britain from Midland England ALAN STUBBS 14
- Notes on *Melanochaeta pubescens* (Thalhammer, 1898) (Diptera, Chloropidae) in Kent
LAURENCE CLEMONS 15-20
- Melanochaeta pubescens* (Thalhammer) (Diptera, Chloropidae) new to Buckinghamshire and Oxfordshire J.W. and B. ISMAY 20
- Chymomyza amoena* (Loew, 1862) (Diptera, Drosophilidae) new to Britain
LAURENCE CLEMONS 21-25
- Phortica variegata* (Fallén, 1823) (Diptera, Drosophilidae) in Kent
LAURENCE CLEMONS 25
- The genus *Macronychia* Rondani, 1859 (Diptera, Sarcophagidae) in Kent
LAURENCE CLEMONS 26-28
- A record of *Fannia lineata* (Stein, 1895) (Diptera, Fanniidae) from Kent
LAURENCE CLEMONS 28
- Forcipomyia paludis* (Macfie, 1936) (Diptera, Ceratopogonidae), the dragonfly biting midge: first British records since 1936 MARK G. TELFER 29-30

continued inside back cover

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