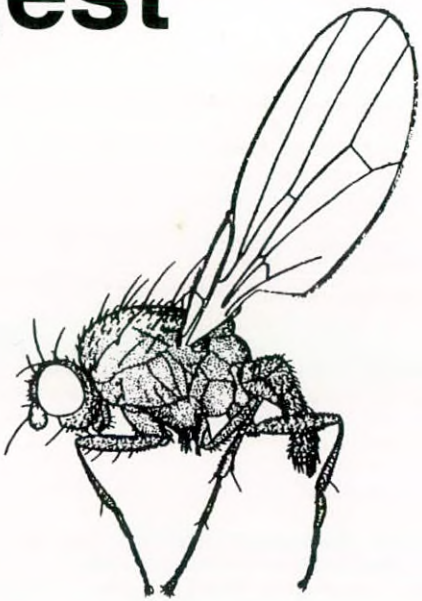
Dipterists Digest

2007 Vol. 14 No. 1

Cover illustration: Logie House, Moray, a 1970s drawing by Ken Lawson (courtesy of Mrs Panny Laing), see article on pages 49-73 *Francis John Henry Jenkinson, his life and legacy* by Ivan Perry

Dipterists Digest



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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

Dipterists Digest 2007 **14,** 1-4

Rhaphium suave (Loew) (Diptera, Dolichopodidae) new to Britain

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Summary
Rhaphium suave (Loew, 1859) was collected from three riverside sites in Gwent, Cheshire and Northumberland. The habitat was wet sandy shores with nearby tall vegetation. Characters to differentiate it are figured.

Introduction

Surveys of the flies using exposed riverine sediment (ERS) have yielded a number of species new to Britain or science, for examples see Parker (2006) and Hewitt and Chvála (2002). In 2005 and 2006, surveys of flies of predominantly sandy ERS on a number of rivers in Britain recorded several more new species. This note discusses the moderately large dolichopodid *Rhaphium suave* (Loew, 1859), which was recorded at three widely separated sites (Bates *et al.* 2006; Drake *et al.* 2007). An aim of the surveys was to investigate the small-scale distribution of flies at ERS, so each sample was confined to discrete patches of habitat having fairly uniform conditions. This approach allowed some possible habitat preferences to be detected.

Results

On 9 July 2005, the River Dane was surveyed at Byley Hill Farm just downstream of Middlewich, Cheshire (SJ708673). The river here is about 10m wide and flows through pasture on sandy alluvium overlying boulder clay. Three males of *R. suave* were swept from a narrow bare wet sand shore with only sparse colonisation by the invasive alien Himalayan balsam (*Impatiens glandulifera*). Two more males were taken nearby from the tall dense balsam and low willow (*Salix*) scrub that backed onto this shore.

The River Usk at Great Hardwick, Gwent (SO315107), downstream of Abergavenny, was surveyed during the following week (16 July 2005). The river around Abergavenny is wide (c. 25m) and flows on glacial drift but has deposits of sand as well as stony ERS. The site at Great Hardwick was a long gravel bar densely vegetated with willow scrub and separated from high steep wooded banks by a silty back channel. Four males of *R. suave* were swept from the sandy tail end of this long bar in conditions that were unusual for this stretch of river since the shore was almost entirely sand with some silt, whereas most of the shores were more pebbly. The shore was mostly bare of vegetation apart from sparse yellow-cress (*Rorippa sylvestris* or *R. palustris*) and redshank (*Polygonum persicaria*), as well as a backdrop of willow scrub that cast light shade.

The final record was from the River Till, Northumberland, at Doddington Bridge (NY994308) on 15 July 2006. The Till here flowed through pasture and arable farmland of low conservation interest in a wide sandy floodplain. The river itself was about 5m wide and had cut a deep channel with nearly vertical sand banks but leaving occasional gravelly shores.

A single male of *R. suave* was swept from the downstream end of one such shore next to almost still water, and which was typical of the tail ends of shores and bars in this stretch of river in being almost entirely sand with tiny amounts of silt. The shore was bare of vegetation but there was flote grass (*Glyceria fluitans*) at a water's edge and some nearby sparse willows cast light shade on part of the shore.

These records indicate a preference for wet sandy shores, which in two cases were next to almost still water, which had allowed the sand and some silt to be deposited, and thus made the stretches slightly atypical of most of the shores of these rivers. The sites also had nearby tall herbs or willows so the flies may have a requirement for shelter around sunny wet shores. Some other species that require sandy river banks were present in the samples, notably the limoniid craneflies *Hoplolabis areolata* (Siebke) at all three sites and *H. yezoana* (Alexander) at the Usk and Dane. It seems likely that *R. suave* is restricted to wet sandy river banks. Vaillant (1967) listed five *Rhaphium* species with aquatic larvae and it is likely that *R. suave* has similar biology.

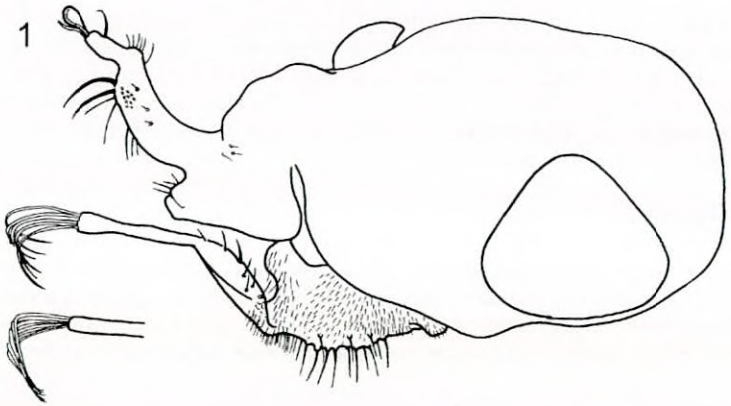
Identification

Rhaphium suave is one of a small group of species that are most reliably separated by reference to the genitalia. The specimens were identified from the genitalia figures given by Negrobov (1979). The key by Parent (1938) could not be used to identify them, even when their identity had been ascertained, as the relevant couplet (25) in his key to *Porphyrops* does not describe the genitalia well. Two specimens from Great Hardwick (R. Usk) are illustrated (Figs 1–4). The hairs at the tip of the brown and slightly twisted external appendages (Assis-Fonseca's (1978) genital lamellae) are pale (not black as stated in Parent), and vary in shape from a closely grouped right-angled cluster to the more diffuse group, as shown in two examples in Fig. 1. The internal appendages are black and have a sharp bend towards the tip, so giving them a characteristic zigzag appearance; the tip itself bears a pale spoon-shaped appendage.

In the key by Assis-Fonseca (1978) the specimens run to *R. gravipes* Haliday (couplet 14), from which *R. suave* can be distinguished by its front and mid tibiae being pale rather than black as in *R. gravipes*. The state of other characters, as they appear in Assis-Fonseca's key, are: third antennal segment long-oval and broader than the second segment, no hind coxal seta, arista simple (nearly twice as long as third antennal segment), 'whiskers' (post-occipital hairs), coxal hairs and face white, mid tarsus simple, and mid coxa without modified hairs. In common with several other species of *Rhaphium*, the first tarsal segment of the front leg is swollen ventrally at the tip (Fig. 4). The body is just over 5mm long and the wing just over 4mm long.

No attempt was made to identify females although large specimens that may have included *R. suave* were collected at the same sampling points.

Figs 1 – 4. *Rhaphium suave* (Loew). 1, male genital capsule, lateral view; 2, male genital capsule, dorsal view; 3, male genital capsule, ventral; 4, male front tibia and tarsus, anterior view.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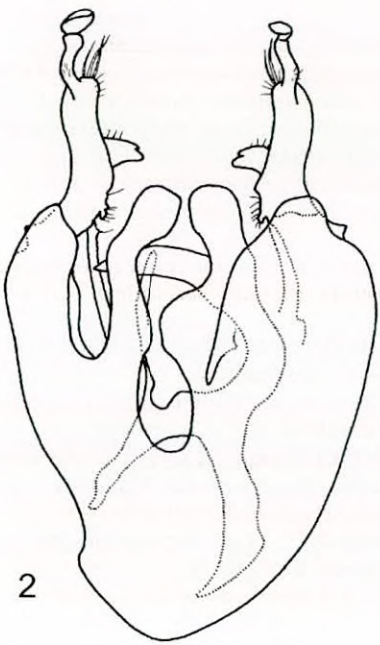
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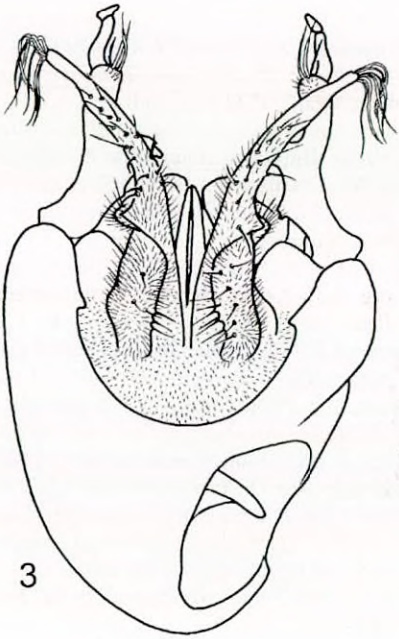
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Distribution

Rhaphium suave appears to be restricted to central and eastern Europe. The Palaearctic Catalogue (Negrobov 1991) listed Austria, Hungary, Poland, France and the north, central and south territories of the USSR. Olejníček (1984) included it for Slovenia, and gave its ecological groups as hygrophilous and at lakes and flowing water. Negrobov (1979) synonymised *R. magnini* Vaillant (1970), described from France, with *R. suave*.

Acknowledgements

The survey that included the Usk and Till was undertaken for Buglife – The Invertebrate Conservation Trust and was funded by the Environment Agency, Natural England and the John Spedan Lewis Trust; the survey of the Dane was funded by the Environment Agency. I thank the staff of the Environment Agency and Countryside Council for Wales for help in gaining access permissions. Andy Godfrey provided help with some literature.

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Dipterists Digest 2007 **14,** 5-7

Hilara tenella (Fallén, 1816) (Diptera, Empididae) new to Britain and the Channel Islands

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Summary
Hilara tenella (Fallén, 1816) is recorded as new to Britain from two sites in southern England, and new to Jersey in the Channel Islands. The three habitats where it was found were a shaded stream in lowland pasture, a marshy margin to a large pond, and marshy ground with nearby willows and stream. The male genitalia and fore leg are illustrated.

Introduction and results

A single male of *Hilara tenella* (Fallén) was collected at Tilford on the River Wey, Surrey (SU869442) on 20 July 2005, during a survey of the flies of exposed riverine sediments (Drake *et al.* 2007). The river here was about 4m wide and flowing through pasture with nearby copses, and was partly shaded by alders. The underlying geology was Lower Greensand giving rise to completely sandy banks and shores. The specimen was swept below trees in dense tall vegetation consisting mostly of Himalayan balsam *Impatiens glandulifera*, nettle *Urtica dioica* and reed canary grass *Phalaris canariensis* growing on a low shelf of deposited sand at the river's edge. At the time this sampling point was noted for its dull fauna, with the field notebook entry 'very poor' - appearances can be misleading! The only other species of interest at this sampling point was the limoniid cranefly *Limonia trivittata* (Schummel), although other scarce species were present elsewhere along the 1km stretch of river surveyed here. The keys by Collin (1961) clearly did not include the species so it was forwarded to Adrian Plant (national recorder) for identification. Chvála's (2005) monograph had only just been published but neither of us had seen a copy at the time, so were unable to name the fly, but Milan Chvála kindly did so.

Jon Cole identified another male of *H. tenella* among flies collected by Ken and Rita Merrifield during a Dipterists Forum summer field meeting. The site was Burton Pond, near the village of Duncton, West Sussex (SU977178) visited on 28 June 2006. The old mill pond was several hectares in area and had a marshy margin with reeds and other emergent plants where the *H. tenella* was almost certainly taken (nearby drier heathy grassland was also visited). Wet alder *Alnus glutinosa* woodland surrounded the pond. Like the Tilford site, the pond also lay on Lower Greensand near the edge of the River Rother's sandy floodplain. The two sites were almost 30 km apart and were in different river catchments although their headwaters rose within a few kilometres of each other in the Hampshire Downs.

Among unidentified non-British material in my collection was a single male *H. tenella* collected in a Malaise trap run by Dr A.C. Warne at Waterworks Valley (also called La Vallée de St Laurens), Jersey, in the Channel Islands (WV6350), emptied on 21 July 1993. This specimen was amongst material in alcohol sent for identification many years ago. Once its

genitalia had been mounted, it was clear that the species was non-British so had been put to one side, but the mounted genitalia allowed it to be reliably identified. The trap in which it was caught was sited in a patch of open marshy ground at the end of a garden with willows along one side and a stream nearby. Further upstream, the valley's steep flanks were wooded, and there were two linear reservoirs collecting water from the small stream.

Identification

Chvála (2005) provided a key that includes this species. He separated *H. tenella* and the much larger *H. thoracica* (Macquart) from all other *Hilara* on the basis of their yellow colour in the first couplet. *Hilara tenella* is differentiated from *H. thoracica* by its grey-brown thoracic dorsum having quadriserial acrostichal bristles; the dorsum is sub-shining yellow in *H. thoracica* and has irregularly bi- to triserial acrostichal bristles. The male genitalia are illustrated (Figs 2-4). The base of the hypandrium has a small but conspicuous knob that interrupts its smooth curved profile, visible without dissection, and the process on the lateral lamella is small and irregularly shaped.

The front basitarsus is long and spindle-shaped, being about two-thirds the length of the front tibia (Fig. 1). In lateral view, as illustrated, it is slightly flattened below but it is more obviously swollen in dorsal view.

Habitat preference and distribution

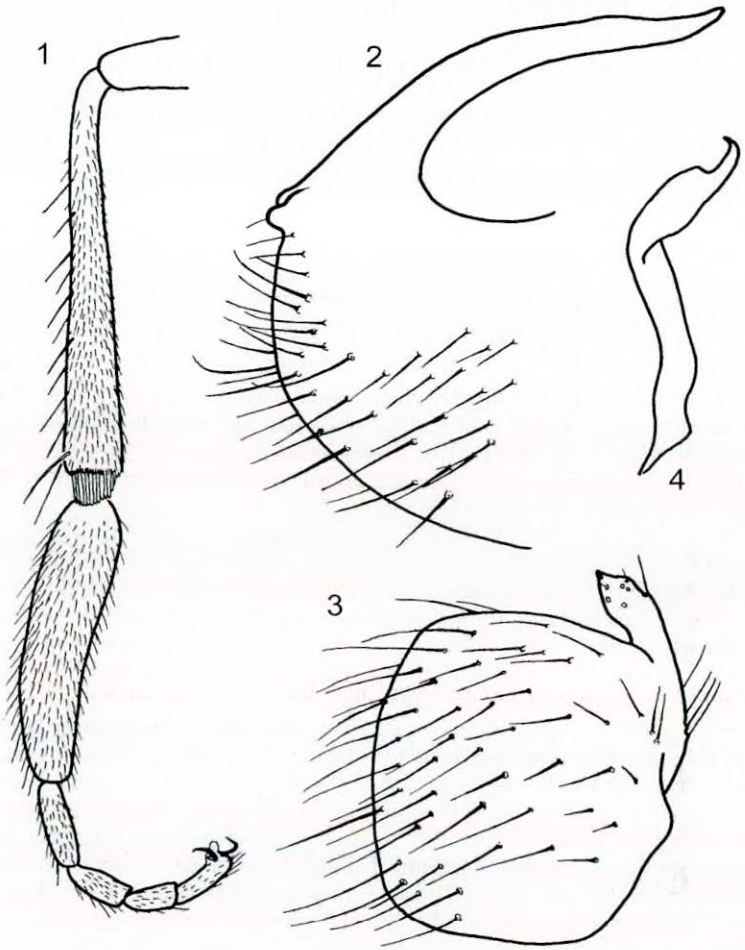
Chvála (2005) stated that the species is most often swept from meadows and the flooded woodland biotopes along rivers. The habitats of the English and Jersey specimens agree broadly with this description, although the Burton Pond site was characterised more by still water rather than by the small inflow and outflow streams.

Chvála (2005) gave a wide range from southern Sweden to the French Pyrenees but implied that *H. tenella* was frequent only in a belt in central Europe south of Berlin in Germany. Early records have not been repeated in Scandinavia or in the Netherlands where it is thought to be extinct. The English and Jersey records indicate that it is not confined to the warm central lowlands of Europe.

Acknowledgements

I am grateful to Adrian Plant for forwarding the Wey specimen to Prof. Milan Chvála who kindly identified it, and to Ken and Rita Merrifield and Jon Cole for allowing me to publish their record and for their comments on the draft. Dr Tony Warne provided information on the Jersey site. The survey of exposed riverine sediments was undertaken for Buglife – The Invertebrate Conservation Trust and funded by the Environment Agency, English Nature and the John Spedan Lewis Trust. Burton and Chingford Ponds SSSI is a Sussex Wildlife Trust reserve, and the Dipterists Forum is grateful for permission to collect here during their 2006 summer meeting.

Figs 1-4. *Hilara tenella* (Fallén) male. 1. Fore leg, anterior face. 2. Hypandrium. 3. Lateral genital lamella. 4. Postgonite, posterior view.



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Dipterists Digest 2007 **14**, 8-11

Hilara aartseni Chvála, 1997 (Diptera, Empididae) new to Britain

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Summary
Hilara aartseni Chvála, 1997 (Diptera, Empididae) was recorded as new to Britain from several sites along the River Wey in Hampshire and Surrey and River Rother in Hampshire and West Sussex, during a survey of exposed riverine sediments in July 2005. The empid was one of the more frequently occurring species of *Hilara* at these sites and occurred mostly in shaded stretches of stream bank.

Introduction

The flies inhabiting sandy exposed riverine sediment were surveyed in 2005 and 2006 at several rivers in Britain (Drake *et al.* 2007). Two lowland rivers in southern England, the Rother and the Wey, were selected for survey primarily because of the presence of the therevid *Cliorismia rustica* (Panzer). Among several species recorded as new to Britain was the empid *Hilara aartseni* Chvála from these two rivers.

Results

Both rivers originate in the Hampshire Downs but are in different catchments, the Rother flowing eastward to join the Arun in West Sussex, and the Wey flowing north-eastwards to join the Thames. They originate on or close to the Upper Greensand and their upper reaches have a cobbly bed and shores of pebbles or gritty particles. For most of their lengths, both rivers flow on the Lower Greensand so that their banks are sandy and some of the exposed shores contain a moderate proportion of sand. Six sites were sampled along about 25km of the Rother from just upstream of Petersfield, where it is a small woodland stream, to shortly upstream of Fittleworth where the river is up to about 15m wide. Five sites were sampled along about 20km of the Wey, from Bordon where it is a small woodland stream, to Eashing where the river is up to about 8m wide. A number of subsamples were taken at each site using sweep-netting and suction sampling. Estimates were made of environmental features such as vegetation cover and shade. The proportions and dimensions of particles of different sizes at each location were estimated by eye; the cut-off between pebbles and cobbles was technically 64mm along their longest axis.

Hilara aartseni was recorded at three of the six sites on the Rother and at four of the five sites on the Wey, and on both rivers these included the uppermost to lowermost of the sites visited (Rother: Upper Adhurst SU765254, V.C. 11, 22 July 2005; Habin SU793233, V.C. 13, 21 July 2005; Woolbeding SU873220, V.C. 13, 22 July 2005; Shopham Bridge SU985184; V.C. 13, 22 July 2005, Wey: Bordon SU801357, V.C. 11, 19 July 2005; Frensham SU838417, V.C. 17, 19 July 2005; Tilford SU870439, V.C. 17, 20 July 2005; Eashing SU947438 V.C.17, 20 July 2005). *Hilara aartseni* was present in 17 of the 49 sweep-net samples and seven of the 19 suction samples, so making it among the commoner

species on both rivers, ranking 22nd out of 238 species on the Rother and 35th out of 263 species on the Wey. Of 15 species of *Hilara* recorded on these two rivers, *H. obscura* Meigen and *H. manicata* Meigen were consistently more frequent than *H. aartseni*; *H. rejecta* Collin and *H. chorica* (Fallén) were similar in frequency, and *H. nigrina* (Fallén) was less frequent. The other nine species of *Hilara* were considerably less frequent than *H. aartseni*. There were rarely more than a few individuals in each sample, whereas the other common *Hilara* were often numerous.

Habitat preference

The samples were taken from wet, flat shores with simple topography, and always at the water's edge. The fly occurred on cobbly or pebbly shores at the upper sites on the Rother and on sandy shores of most of the other sampling sites, so its occurrence did not appear to be influenced by particle size. It may, however, prefer sandy soil since this was the dominant soil type along all stretches surveyed. Most sites where it was found were heavily shaded by trees or sometimes scrub, and only two sampling points were entirely unshaded indicating a preference for shaded shores. Consequently although the banks themselves were often well vegetated there was often not much understorey vegetation, consisting at most of a low percentage cover of ruderals and very rarely any tall herbs.

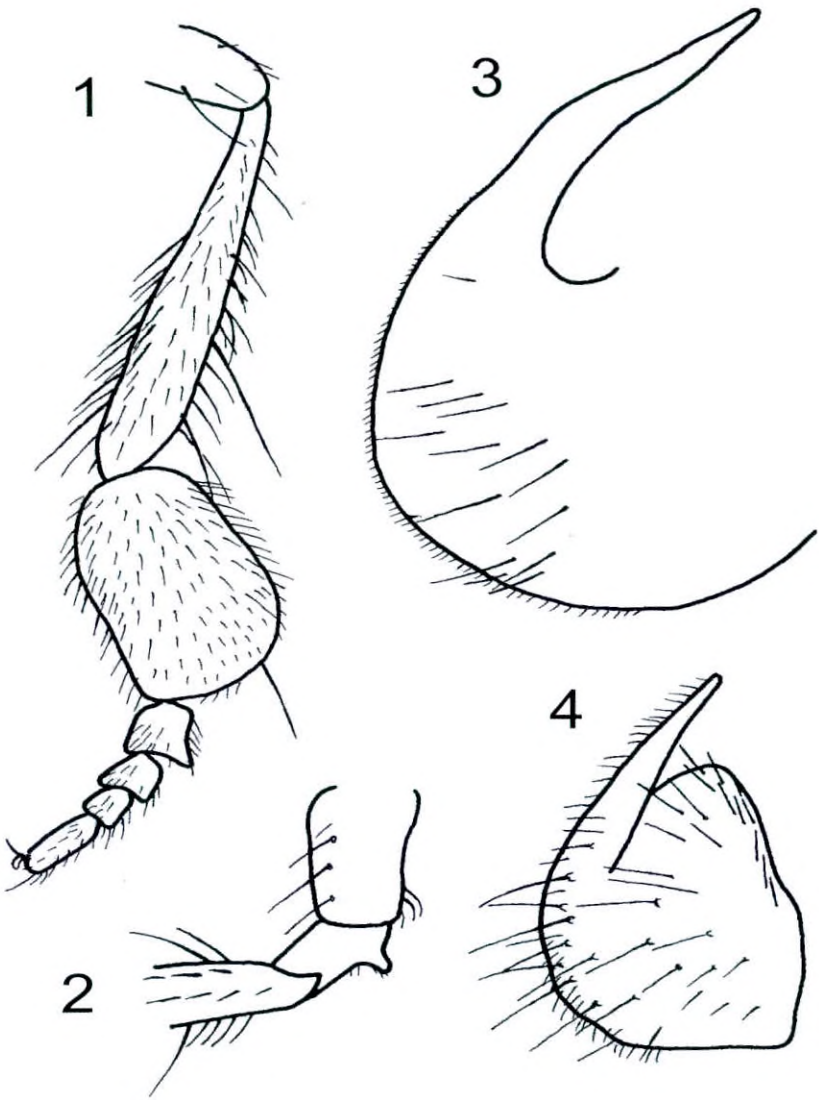
Chvála (2005) suspected that the species is widely distributed in Europe where it is frequent in Bohemia in the Czech Republic, and is known from France and the Netherlands and Chvála (*in prep.*) refers to the distribution as central and western Europe, including the French coast. The species appears to be found exclusively along streams, and males have been seen swarming in the shade over very narrow streams partly covered by the overhanging high bank vegetation. This description of the habitat agrees with that at the sites where *H. aartseni* was found along the Wey and Rother.

Identification

It was realised during identification of the samples from the survey that the species was not included in Collin's (1961) monograph, but was distinguished as a morpho-species that was later named by Adrian Plant using Chvála (1997).

It is a small species, slightly larger than *H. chorica* which it superficially resembles. Its thorax is almost glossy and has biserial acrostichal bristles that diverge posteriorly; the pleura are decidedly grey-pollinose, and the abdomen is dull black. The front basal tarsal segment is conspicuously swollen and only slightly longer than broad, and the second segment has a forward projection at its tip (Fig. 1). The front coxae are yellow, as are the base of the front femora and the front knees.

Males have a small blunt projection on the front of the hind trochanter (Fig. 2), as is also found in *H. apta* Collin and rather less conspicuously in two other species of the *H. chorica* group: *quadriseta* Collin and the non-British *H. woodiella* Chvála (Chvála, 2005). The genitalia are unremarkable (Figs 3 and 4). Females are similarly coloured and have stout, compressed and slightly sinuous hind tibiae, figured by Chvála (2005).



Figs 1-4. *Hilara aartseni* Chvála male. **1.** Fore leg. **2.** Hind coxa, trochanter and base of femur. **3.** Hypandrium. **4.** Lateral genital lamella.

When trying to identify *H. aartseni* using Collin (1961), it runs to *H. chorica* if the legs are regarded as mainly black at couplet 112, but differs obviously from this species in having yellow coxae in both sexes (among other characters). It runs to *H. manicata* if the legs are regarded as mainly yellow at couplet 112, but *H. manicata* males differ in the front basal tarsal segment being only slightly swollen, having the conspicuous fan of bristles on the eighth sternite and lacking the projection on the hind trochanter of *H. aartseni*.

Acknowledgements

I am grateful to Adrian Plant for naming the species. The survey was undertaken for Buglife – The Invertebrate Conservation Trust and funded by the Environment Agency, Natural England and the John Spedan Lewis Trust. Alan Stubbs made useful comments on an early draft.

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Dicranomyia aperta Wahlgren, 1904 (Diptera, Limoniidae) - an association with Grass of Parnassus (*Parnassia palustris* Linnaeus)

- Sand Dale (SE8584), is a small, steep-sided valley on the southern boundary of Dalby Forest in the North York Moors National Park. Calcareous springs in the lower parts give rise to shallow trickles and 'flush' conditions, and here Grass of Parnassus *Parnassia palustris* is frequent, the plants flowering in late summer.

On 20 August 2003 specimens of *Dicranomyia aperta* were taken, by general sweeping in the vicinity of the plants, and when I returned to the site on 6 September flies were still present, although in smaller numbers. On this occasion I was able to observe them at rest on the flower heads; some flower heads had three or more flies on them and of 10 specimens examined, 2 were males and 8 females. Most seemed to be inactive, but I noticed

that some of the flies were 'head down' into the base of the flowers. On 25 August 2006 I was able to observe this behaviour with the benefit of a hand-lens and noted that in this almost vertical position their heads were in the area between the base of the ovary and the staminoides. I speculated that they were possibly imbibing either moisture or nectar. They could easily be observed from very close range without them flying off. No instances have been observed of the flies associating with other flowering plants in the vicinity.

In September 1927 Chris Cheetham observed *D. aperta* 'feeding at flowers of *Parnassia palustris*' at Austwick in the Yorkshire Dales (*Naturalist* 1930 p. 402) and evidently on this basis Falk (1991. *A review of the scarce and threatened flies of Great Britain (Part 1).* Research and Survey in Nature Conservation No.39. Nature Conservancy Council, Peterborough) commented that adults 'have been found sitting in the flowers of grass of parnassus' - **ROY CROSSLEY**, 1 The Cloisters, Wilberfoss, York YO41 5RF

A remarkable local abundance of *Tabanus bromius* (Linnaeus) (Diptera, Tabanidae) in Dorset - On 16 July 2005, in the Cranbourne Chase area of Dorset, I came across a mass of fairly large flies, alighting in some numbers onto the floor of the woodland track. This area of woodland (at ST 979192) was a conifer plantation, which I had just entered from deciduous woodland. On closer inspection nearly all the flies present appeared to be tabanids and from an example taken it was confirmed that they were *Tabanus bromius* (Linnaeus).

Most of the flies appeared to be searching the ground in the vicinity of damp mud. On landing nearby they began to sweep the ground from left to right with their fore legs while slowly walking towards the mud, using only their other legs. This occurred during a period of fine weather with moisture in short supply and the mud was confined to ruts in the ground, left by forestry vehicles and was the only source of moisture present at the site. It was soon clear that some of the flies were not successful in homing in on the mud, some instead climbing up and down short vegetation nearby. Those that reached the mud clearly forced their proboscis into it and were obviously imbibing moisture. Drinking from wet mud is a well-known activity of various tabanids, including *T. bromius*, as summarised by A.E. Stubbs and C.M. Drake (2001. *British Soldierflies and their allies.* 512 pp. British Entomological and Natural History Society, p. 339), but the leg-waving activity seems not to have been noted previously (Martin Drake *pers. comm.*).

As I continued down the track, the numbers of tabanids gradually increased, for a distance of at least 200 metres, where (at ST 981190) I came upon an area where they were swarming in huge numbers. As I approached those that were on the ground took off and the air was filled with them, with the appearance and sound resembling a massive bee swarm, causing my rapid departure. I probably walked about 16 km that day, through all types of woodland, but I did not come across any more concentrations of tabanids - **M.J. PARKER,** 9 East Wyld Road, Weymouth, Dorset DT4 ORP

Dipterists Digest 2007 **14,** 13-22

The genus *Chyromya* Robineau-Desvoidy (Diptera, Chyromyidae) in Britain, with description of a new species

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Summary
Present knowledge of the genus *Chyromya* Robineau-Desvoidy in Britain is presented and a new species, *C. britannica* sp. n., described. The British species of *Chyromya* are keyed. The genitalia of *C. britannica*, *C. femorellum* and *C. miladae* are illustrated.

Introduction

In 2003 I took a small sample of detritus from a rot-hole amongst the roots of an oak tree *Quercus* in Highnam Wood RSPB reserve, Gloucestershire. Shortly after, three tiny yellow flies emerged, one male and two females, which although keying to *Chyromya*, are rather smaller than usual, almost as small as *Gymnochiromyia*. Further, the male specimen had the apical two segments of the front tarsi conspicuously darkened. On dissection it became apparent that they did not fit the descriptions of any currently accepted European species.

The following year I succeeded in rearing 5♂and 2♀ from detritus from the same rot-hole. Subsequently I have been able to examine reared material from Nottinghamshire and Oxfordshire, a Malaise caught specimen from London and a netted specimen from Bristol, making a total of 21 specimens. Both external and genitalia characters have proved to be constant so the possibility that these individuals are aberrations or extremes in a cline can confidently be ruled out.

Chyromya Robineau-Desvoidy in Britain

Four species assigned to this genus have been recognised in recent literature as occurring in Britain, *C. femorellum* (Fallén, 1820), *C. flava* (Linnaeus, 1758), *C. miladae* Andersson, 1976 and *C. oppidana* (Scopoli, 1763) (Chandler 1998). Andersson (1971) reviewed the genus, confirming several synonymies, reinstating *C. femorellum* as a full species and designating lectotypes for several names. Unfortunately the Linnaean type of *flava* could not be located so he based his understanding of this taxon on the 'short and not very distinctive description' by Linnaeus and on the writings of Fallén who, when describing *C. femorellum,* restricted *flava* Linnaeus to a species with 'green eyes and normal femora' as opposed to brown-yellow eyes and swollen fore and hind femora for *C. femorellum* (the colour of the eyes in this family is totally unreliable). Andersson (1971) accepted this restriction, but did not designate any neotype of *C. flava* from the Zetterstedt specimens he examined.

The genus *Chyromya* is in need of a full revision but this will require more research than is possible now. It is beyond the scope of this paper to research the Linnaean type of *flava*, or to resolve the doubts about the status of *C. femorellum* (possibly just large *flava*) and *C. oppidana* (only known from females) (M. Ebejer *pers. comm.*).

Key to the British species of *Chyromya*.

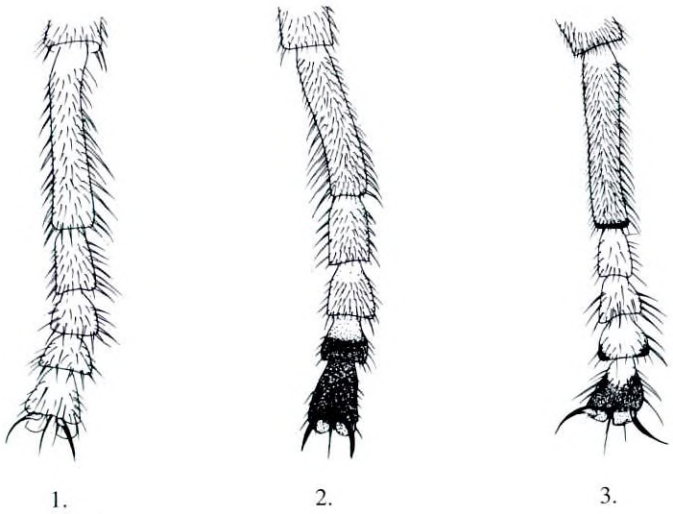
For keys to the genera of the Chyromyidae see Ebejer (1996) and Wheeler (1998). To identify the species of the other genera see Ebejer (1998a) (*Aphaniosoma*) and Ebejer (1998b) (*Gymnochiromyia*) who keys the West Palaearctic species. Although much of the following key should work for both sexes, female external characters can be much less clear and useful genitalia characters are limited.

1. Front tarsi uniformly pale yellow, apical segments not darker (take great care with females as some are no more than faintly darker brown on the apical two segments) (Fig. 1) 2

\- Front tarsi with apical two segment clearly darkened in male; in females this character is usually perceptible but sometimes only faintly so (Figs 2 and 3) 3

2. First flagellomere clearly darkened, usually largely black (only female known) ..... ***C. oppidana* (Scopoli)**

\- First flagellomere entirely yellow. Male genitalia (Figs 11-14) with surstyli not hooked, just slightly incurved apically. Female sternite 8 elongated, the bifurcated distal ends truncated (Fig. 15) ..... ***C. femorellum* (Fallén)/*flava* (Linnaeus)**
(see Andersson 1971 and 1976 for his diagnosis of these taxa)



Figs 1-3. Front tarsi of males: 1. *Chyromya femorellum/flava*, 2. *C. britannica*, 3. *C. miladae*.

3. Front basitarsus uniformly yellow, penultimate segment infuscated on approximately the apical half, apical segment entirely dark blackish or brown (Fig. 2). Hind femora lacking long bristles, covered with the normal short ciliation shorter than the breadth of the hind tibia medially. Male genitalia (Figs 4-7) with surstyli strongly hooked apically. Female sternite 8 rhomboid, barely longer than broad, the bifurcate distal ends pointed (Fig. 8) ..... ***C. britannica* sp. n**

- Front basitarsus narrowly black apically, penultimate segment darkened on apical corners, apical segment black with pale base medially (Fig. 3). Hind femora with long anteroventral bristles, longer than the breadth of the hind tibia medially. Male genitalia (Figs 16-19) with surstyli rather blunt apically ..... ***C. miladae* Andersson**

***Chyromya britannica* sp. n** (Figs2 and 4-10)
Holotype: ♂ (dissected, genitalia set in DMHF on coverslip on same pin) (National Museum of Wales, Cardiff): **BRITAIN**: **Gloucestershire**, Forest of Dean, Highnam Woods RSPB NR, V.C. 36, SO7719, reared from debris from rot-hole at base of oak tree *Quercus* beside ride in extensive coppice woodland, emerged 1 July 2004 (leg. D.J. Gibbs).

Paratypes: location as holotype: 1♀, emerged 21 May 2003; 1♂, emerged 25 May 2003 (dissected abdomen in DMHF on cover slip on same pin); 1♀, emerged 27 May 2003 (dissected abdomen in DMHF on cover slip on same pin; head and left front and both mid-legs missing); 4♂ (one with head missing), 2♀, emerged 1 June 2004. **Bristol**, 1♀, Arno's Vale V.C. 6, ST6071 swept in woodland 26 June 2004 (leg. D.J. Gibbs). **Middlesex**, 1♀, Hownslow, Mogden, TQ17 Malaise trap 28 July to 3 August 2005 (leg J. Ismay and B. Schulten). **Oxfordshire**, 4♂ (1 dissected abdomen in DMHF on cover slip on same pin, right wing missing), 4♀, Oxford, Binsey V.C. 23, SP4980, reared from rotting material from a hollow poplar *Populus* log 10-19 May 2006 (leg. J. Webb). **Nottinghamshire**, 1♀, Sherwood Forest Center Parcs V.C. 56, SK6364, reared from debris from the base of a hollow sycamore *Acer* in woodland, collected 14 May 2006, emerged 22 June 2006 (leg. D.J. Gibbs).

Location of types: Holotype in NMWC; paratypes in NMWC (1♂, 2♀), Oxford University Museum (1♂, 1♀), British Museum of Natural History (1♂,1♀), National Museum of Scotland (1♂, 1♀), collection of British Entomological and Natural History Society, Berkshire (1♂, 1♀), private coll. DJG, Bristol (2♂, 3♀), private coll. J. Ismay, Oxford (1♀), private coll. J. Webb, Oxford (1♂, 1♀), private coll. M.J. Ebejer, Cowbridge (1♂).

Male. MEASUREMENTS in mm: body length 2.5 (n=6), wing length 2.4-2.7 (n=10), wing breadth 0.9-1.0 (n=10)
DESCRIPTION: *Head*: entirely yellow except for a dark brown ocellar tubercle and arista which become darker apically. Jowls a little broader than the first flagellomere, less than half the height of the eye, covered in setulae except for a glabrous band adjacent to the eye. Longer vibrissae usually apparent amongst the other genal setae which become shorter

rearward. Antennae a little darker than the head, more orange-yellow, the first flagellomere circular. In dorsal view frons converging anteriorly, narrower than in *C. femorellum*. Pedicel with a single long seta dorsally, 3 pairs of orbitals, 2 upper reclinate, 1 lower convergent; frons covered with minute setulae. Ocellar setae relatively short, divergent, the post ocellars cruciate. Two pairs of vertical setae. A regular row of postocellars, the inner ones behind the verticals convergent, the remainder curved out and down, becoming shorter towards bottom of occiput. Short, scattered setulae on occiput between the post-occipital row and the neck. Eyes bare, in life iridescent golden-green, turning red brown on drying after death.

Thorax: entirely yellow, usually darker on the mesonotum; 4-6 dorsocentrals, the prescutellar pair long and strong, decreasing anteriorly, often rather short presuturally. A pair of distinct prescutellar acrostichals, remaining setae between the dorsocentral rows not distinguishable from general pilosity, in 4-6 very irregular rows or no rows perceptible. Postpronotal lobe with two stronger setae, the inner one shorter, sometimes barely longer than the 4-6 short setae anterior to the stronger setae. One strong presutural seta, two strong notopleural setae, the notopleuron otherwise glabrous. Supra-alar about as long as the posterior notopleural seta, the postalar longer than the supra-alar but shorter than the prescutellar dorsocentral. Anepisternum with a single seta in its upper-hind corner, surrounded by short setulae covering the posterodorsal third of the sclerite. Katepisternum with a single seta in the posterodorsal position, a scattering of short setulae below and in front of this seta; a group of longer setulae ventrally between the front and mid coxae. Scutellum with 4 strong marginals, the apical pair long and convergent, sometimes their tips crossing; lateral setae about half the length of the apical setae. One or two small marginal setulae between the large apicals, between the apicals and laterals and anterior to the laterals and 3-6 similar setulae on the dorsum of the scutellum.

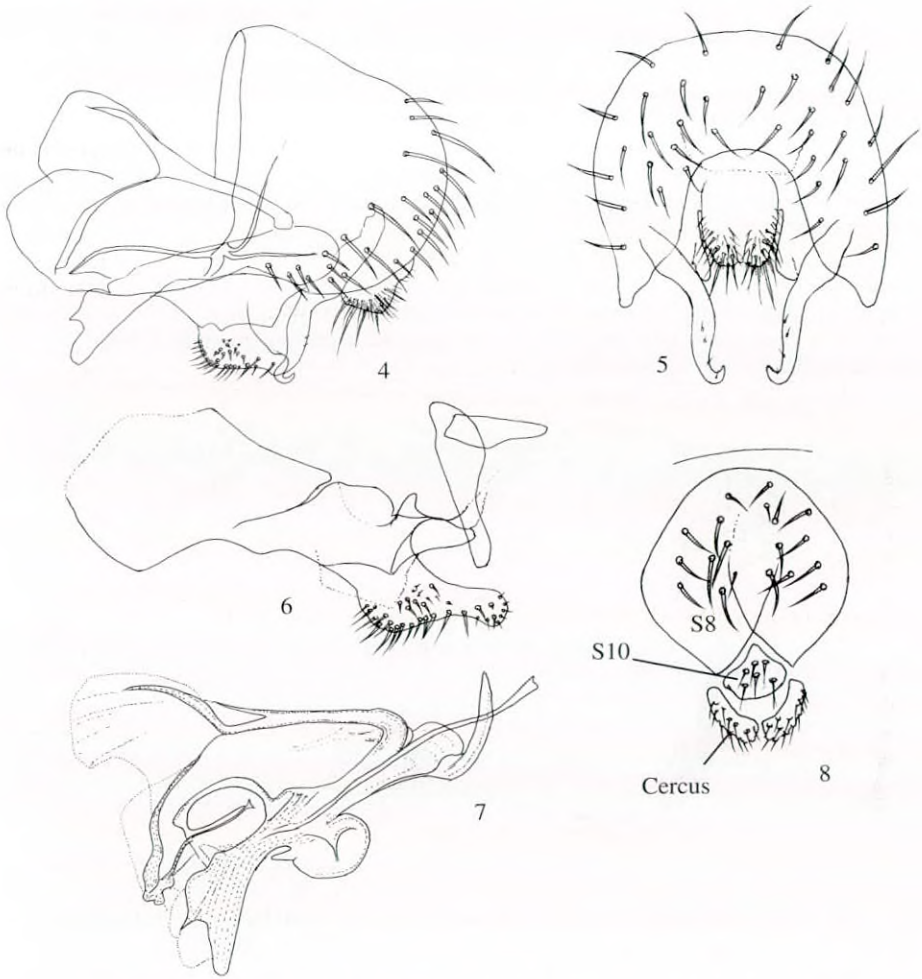
Legs: entirely yellow except for the apical and penultimate segments of the front tarsi which are infuscated brown to blackish, the penultimate one paler brown basally (Fig. 2). Apical segment of the mid and hind tarsi are also often perceptibly darker, more brownish than the remaining segments. Claws black, sometimes narrowly perceptibly paler at their base. Front coxae with long setae apically, otherwise covered with short, fine setulae, mid coxae with long setae anteroapically and laterally, hind coxae with a single long setae laterally at mid-point, otherwise with fine setulae anteriorly. Femora, tibiae and tarsi covered with small setulae, front femora also with a row of longer posterodorsal setae, these becoming more dorsal or even anterodorsal towards the tip of the femora (the femora are often collapsed, so deciding the exact position of these setae is difficult).

Wings: venation complete, pale yellow, costa with darker setulae up to tip of R2+3. Venation as *femorellum/flava* although r-m tends to be relatively closer to dm-cu.

Abdomen: entirely yellow, the tergites basally covered with fine, upright setulae, apically with longer and stronger reclinate setae. Sternites with fine scattered setulae.

Genitalia: yellow, the epandrium smaller than in the common *femorellum*, covered with scattered small setulae. Surstyli relatively longer and more slender than in *femorellum* and *miladae* with their tips conspicuously hooked (Figs4 and 5), pregonites of a quite different shape to *femorellum* and *miladae* (compare Figs 6 with 13 and 18) but are reminiscent of the pregonites of *flava* as defined by Andersson (1976, see Figs8 and 11).

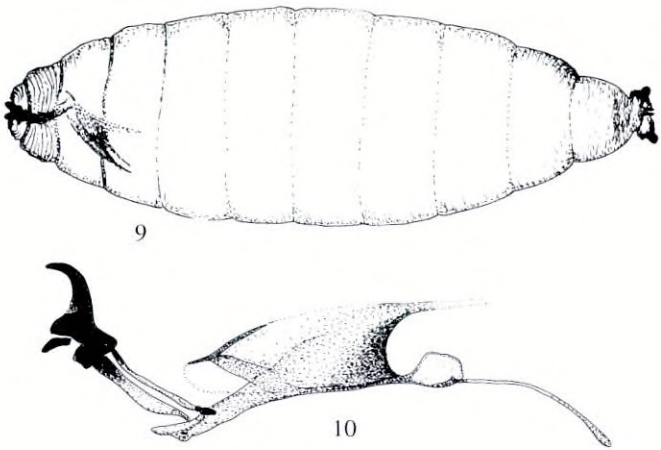
Aedeagus with a rounded 'beaked' structure ventrally (Fig.7), this lacking in *femorellum* (Fig. 14) and irregular in *miladae* (Fig. 19).



Figs 4-8. ***Chyromya.britannica*** **genitalia: 4. Male genitalia left lateral; 5. Epandrium caudal view; 6. Hypandrium and pregonite; 7. Aedeagus and aedeagal apodeme; 8. Female postabdomen, ventral view.**

Female. MEASUREMENTS in mm: body length 2.3-2.7 (n=9), wing length 2.3-3.0 (n=10), wing breadth 0.9-1.2 (n=10).
DESCRIPTION: As male, except that the infuscation of the apical and penultimate segments of the fore-tarsi is weak, although they are usually perceptibly darker and browner than the otherwise yellow tarsi. Mid and hind tarsi entirely yellow, although in well-marked individuals the apical segment is a shade darker. Posterodorsal setae on the front femora a little shorter and tending to be biserial or irregular. Sternite 8 is conspicuously shorter than that of *C. femorellum*. In both species this sclerite is medially divided, one side overlapping the other, thus distally bifurcate. In *C. britannica* sternite 8 is rhomboid, a little longer than broad, with the bifurcate distal ends pointed (Fig.8). The two spermathecae are black, globular and rather flattened, with a very short black tube on the flatter face, indistinguishable from those of *C. femorellum*.

Puparium
A single larva was separated from the sample from Highnam Wood and, once it had pupated, placed in a small glass tube until a male fly emerged. The puparium is 2.6mm long and 0.9mm broad, fusiform, light amber in colour (Fig. 9).



Figs 9-10. *Chyromya britannica* sp. n.: 9, puparium; 10, cephalopharyngeal skeleton.

Habitat and Biology
Specimens have been found in deciduous woodland, mixed woodland, an ex-industrial site with abundant sallow *Salix* bushes and from a row of riverside poplar trees *Populus*. At three of these sites flies were reared from rotting wood and leaf-litter in rot-holes in broad-leaved

trees. It would appear that it is the presence of suitable trees with rot-holes rather than the wider habitat which is important for this species. Even with the limited data available *C. britannica* has been reared from rot-holes in three different genera of deciduous trees, *Acer pseudoplatanus*, *Populus* species and *Quercus robur*. This suggests that it could be found in similar situations in any broad-leaved tree species.

Distribution
So far only recorded from England where it has been found in the counties of Gloucestershire, Bristol, Oxfordshire, Middlesex and Nottinghamshire but likely to be widespread.

Discussion
While *C. britannica* is abundantly distinct from *C. femorellum* and *C. miladae*, no specimens of *C. flava* as defined by Andersson (1971, 1976) have been examined. As mentioned above, the pregonite of *C. britannica* is similar in shape to that of *C. flava* as illustrated by Andersson (1976). It is just conceivable that *C. britannica* is the same species that Andersson (1971, 1976) diagnosed as *C. flava*; a possibility which can only be resolved by examining the Zetterstedt specimens. However, this seems unlikely as Andersson's (1976) illustration of *C. flava's* surstyli does not show the very characteristic hooked tip of *C. britannica* nor, when comparing with *C. femorellum*, is any mention made of any darkened apical segments of the fore tarsi. There is no suggestion in any of the literature that Linnaeus's *flava* was anything other than entirely yellow-legged. If the Zetterstedt specimens named *C. flava* by Andersson (1971) do prove to be conspecific with *C. britannica*, then one would be forced to conclude that Andersson (1971) was in error in calling them *flava*. Should this transpire then, as Andersson (1971) did not designate any neotype from the Zetterstedt specimens he examined, it will not affect the status of *C. britannica*.

***Chyromya femorellum* (Fallén, 1820)** (Figs1 and 11-15)
This is the commonest species found in Britain and is likely to be the species which often turns up at windows indoors. As with other members of the genus, nearly all specimens caught in the field or found indoors prove to be females, and as such are impossible to distinguish from *C. flava*. The species has not been reported in detail as a British species, being introduced as British in the Checklist (Chandler 1998).

Biology
Likely to be found in the same situations as *britannica*; the sample from a hollow poplar tree from Oxford which yielded eight specimens of *britannica* also produced 1♂, 2♀ of *C. femorellum*. Another Oxfordshire specimen was reared from an old woodpecker's nest. A rare field caught male was swept from the flowers of *Tilia* cf. *euchlora*.

Material examined:
Oxfordshire; 1♂, Kidlington, V.C. 23, April 2002 reared from woodpecker nest (leg. J. Webb); 1♂, Oxford, Milham Ford School, V.C. 23, SP5207, swept from flowers of *Tilia* cf.

euchlora 24 July 2001 (leg. J. Webb); 4♂, Oxford, Milham V.C. 23, 20 July 2001 (leg. J. Webb); 1♂, 2♀, Oxford, Binsey, V.C. 23, SP4980, reared from rotting material from a hollow Poplar *Populus* log 10-19 May 2006 (leg. J. Webb). **Warwickshire**; 1♂, Hawkesbury Sidings V.C. 38, SP354847, 24 June 1997 (leg. S.J. Falk); 1♂, Coventry, Cannon Park Road, V.C. 38, SP3176-SP3075, 3 June 1991 (leg. S.J. Falk); 1♂, Coventry, Herald Way Marsh V.C. 38, SP3776, 12 July 1994 (leg. S.J. Falk).

Female specimens probably belonging to this species:
Bristol; 1♀, Redfield, V.C. 34, ST6173, at window indoors, 13 August 2001 (leg. D.J. Gibbs); 1♀, Redfield V.C. 34, ST6173, at window indoors, 26 June 2004 (leg. D.J. Gibbs). **Gloucestershire**; 1♀, Staple Hill, South Gloucestershire, V.C. 34, ST6575, at window indoors 25 July 2006 (leg. D.J. Gibbs).

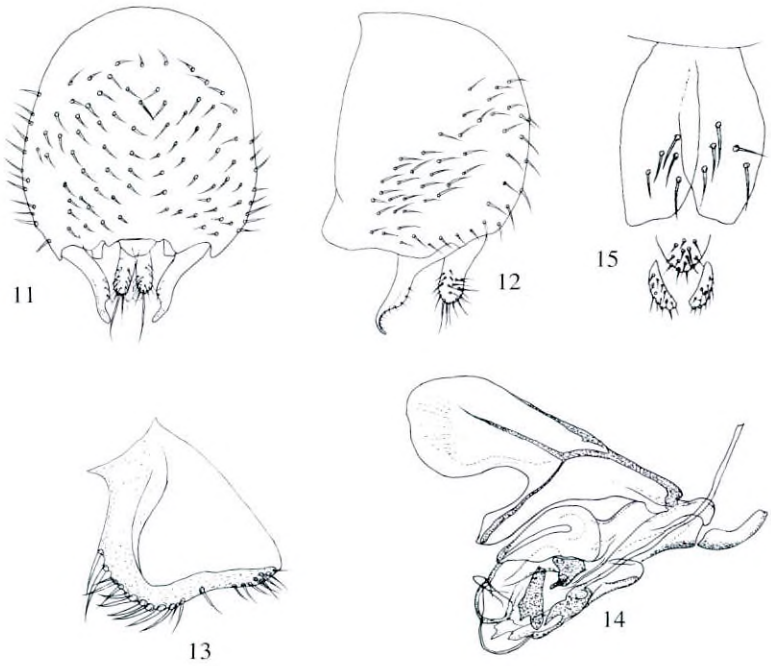


Fig. 11-15. ***Chyromya femorellum*** **genitalia: 11, epandrium, caudal view; 12, epandrium, left lateral view; 13, pregonite; 14, aedeagus and aedeagal apodeme; 15, female postabdomen, ventral view.**

***Chyromya flava* (Linnaeus, 1758)**

No specimens fitting Andersson's (1971, 1976) description of this taxon have been found amongst British material. All specimens that I have been able to obtain which were previously named *C. flava* clearly belong to *C. femorellum* as defined by Andersson (1971, 1976). Whether this is because *C. flava* is a non-British (or very rare) species or consists merely of small examples of *C. femorellum* will have to await a full revision of the genus.

***Chyromya miladae* Andersson, 1976** (Figs 3 and 16-19)

This would appear to be a rare or elusive species in Britain; so far only two specimens have come to my notice. The species has not been reported in detail as native to this country, being introduced as British in the Checklist (Chandler 1998). The structure of the surstyli and aedeagus suggest that this species is not as closely related to *C. britannica* and *C. femorellum* as they are to each other.

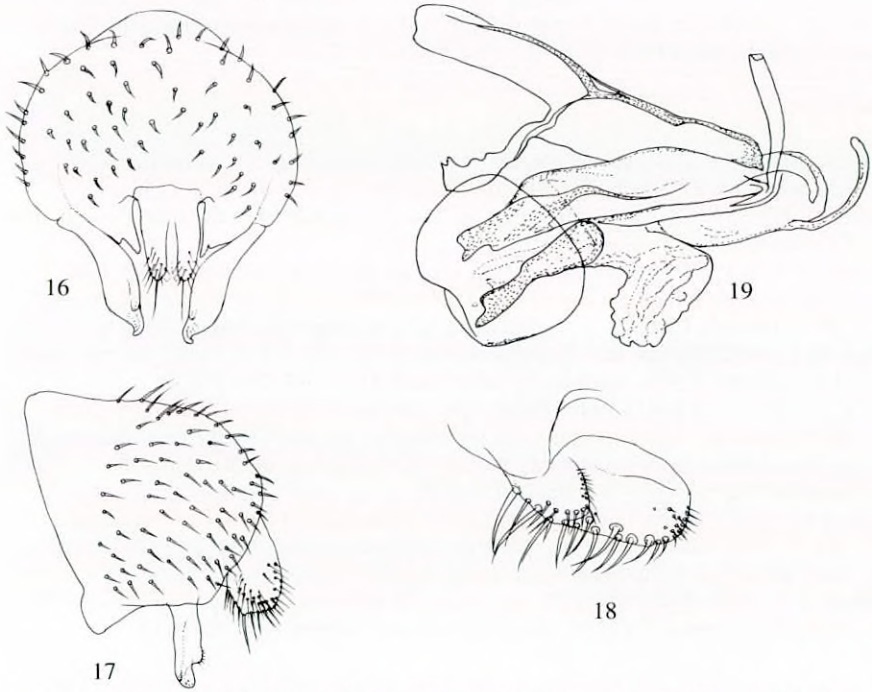


Fig. 16-19. *Chyromya miladae* genitalia: 16, epandrium and surstyli, caudal view; 17, epandrium and surstylus, left lateral; 18, pregonite; 19, aedeagus and aedeagal apodeme.

Material examined:
Suffolk; 1♂, RAF Barnham, V.C. 26, TL8579, scrubby areas, 22 June 1996 (leg. I. Perry). **Warwickshire**; 1♂, Offchurch Disused Railway, V.C.38, SP3665, 26 June 2002 (leg. S.J. Falk).

***Chyromya oppidana* (Scopoli, 1763)**
No examples of this taxon were seen but specimens fitting the description certainly occur in Britain. The fact that only females have been recorded has led to the suggestion that *C. oppidana* is merely a colour form of *C. femorellum/flava* (M. Ebejer *pers. comm.*).

Acknowledgements
I am very grateful to Martin Ebejer for helpful taxonomic discussions on this family and for critically reviewing the manuscript. I thank Peter Chandler for encouragement with this paper. Also, thanks are due to Steven Falk, Ivan Perry, Judy Webb and to John and Barbara Ismay who kindly made their specimens available for study.

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Dipterists Digest 2007 **14,** 23-29

The American black dump fly *Hydrotaea aenescens* (Wiedemann, 1830) (Diptera, Muscidae) in Britain and Ireland

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Summary
The occurrence of *Hydrotaea aenescens* (Wiedemann, 1830) in Britain and Ireland is documented, and the presence of breeding populations at English several sites confirms that the species is now established in England.

Introduction and recognition

The black dump fly, *Hydrotaea aenescens* (Wiedemann, 1830), is a widespread and abundant filth fly in warmer areas of the New World. As the vernacular American name suggests, it is most commonly found around urban refuse tips. Larvae develop in garbage and are semi-carnivorous, and consequently they have been the subject of interest as potential antagonists of the larvae of *Musca domestica* Linnaeus (see the summary in e.g. Skidmore 1985: 106-108).

Hydrotaea aenescens first appeared in Europe in the early 1960s, and has spread widely and rapidly. Adults can be easily distinguished from the other species of *Hydrotaea* by their yellow palpi (black in other *Hydrotaea*).

This paper summarises earlier reports of *H. aenescens* from Britain and Ireland, and gives a number of new records which confirm the occurrence of established breeding populations of the species in this extreme western corner of Europe.

Previous records in Britain and Ireland

This species first came to the attention of ACP in 1979, when based at the Natural History Museum in London. Adult flies were submitted for identification by Mr J.E. Newby, Angling Manager of the Leisure Sport Angling Club, Staines, Middlesex. These were identified as *Ophyra* (now *Hydrotaea*) *aenescens* (Wiedemann). Mr Newby's accompanying letter included the following information: "With regard to *Ophyra aenescens*, larvae have been available in this country from France for some months but so far appear to have been imported by individual anglers travelling to and from the continent. The situation has now changed and I enclose a photostat of a display advertisement which appeared in the Angling Times on Wednesday November 21st 1979 from which you will see that quite considerable importations are now being made. It occurs to me that the legality of such imports may be dubious and I would welcome your comments on this." The enclosed advertisement was for the dyed larvae of *aenescens*, "French Red Devils, the bait that's better than bloodworm" (see Fig. 1), and lists over

80 suppliers. However, if such Red Devil larvae were lost or discarded by anglers and subsequently pupariated and hatched, it seems that the species did not become established at that time.

In 1980, some insects were submitted for identification to the then Commonwealth Institute of Entomology, London, by Dr J. P. O'Connor of the National Museum of Ireland, Dublin, Republic of Ireland. Among these was a fly that ACP identified as a female of *Hydrotaea aenescens*. Dr O'Connor's accompanying report ran as follows: "This specimen was confiscated in the larval stage while being used by continental anglers as bait. It was obtained at Lough Sheelin, Co. Cavan, during August 1978 and subsequently pupated and hatched in the museum." This was clearly an interception, and there is no evidence that the species became established in the Republic of Ireland. O'Connor and Nash (1982) reported this record.

Both these cases were summarised by Adams (1984) and by Chandler (1998: 176), and both authors noted that the species had not yet become established although this was likely to happen. We can now record a number of recent captures, which indicate that *H. aenescens* has indeed become established in England.

New records

In 2001 Ken Bond sent to Peter Chandler specimens that had been collected on 7 December 2001 at a piggery in County Cork.

In 2002, adult *H. aenescens* were recovered from a decomposing pig carcass during a forensic entomology experiment conducted by HNL and identified by ACP at the Oxford University Museum of Natural History. This experiment was conducted at Ripley, Derbyshire (V.C. 57) from 20 May to 16 October, in a small field containing trees, shrubs, and other vegetation. This site, owned by the Derbyshire Constabulary, was surrounded by high fences, which kept the public and many animals away from the area. The fenced area also included a helicopter pad, a garage and the skid-pan used for training. There were no landfill sites nearby, and only a dumpster 200 metres away, which mostly contained garage waste and rarely food waste. Beyond the fence was a privately owned field, accommodating a few cows and a horse, more than 250 metres away from the experimental site.

Hydrotaea aenescens was not observed on the carcass during the early stages of decomposition. It was observed along with *Hydrotaea ignava* (Harris) (formerly *Ophyra leucostoma* (Wiedemann)) and *Hydrotaea capensis* (Wiedemann) (formerly *Ophyra capensis*), and recovered at the peak of decomposition and throughout the more advanced stages of decomposition. Adults of these three species were numerous on the posterior half of the carcass, which contained more moisture and where faecal material could be found.

During the very late stages of decomposition, 64 days after the commencement of the experiment, newly emerged *Hydrotaea* spp. were observed leaving the carcass. In October, all larvae and puparia remaining on and under the decomposing carcass were collected and reared in the laboratory. Only *Hydrotaea capensis* later emerged. Several empty puparia possibly of other *Hydrotaea* species were recovered but the species was not determined.

Fig. 1. A page from the Angling Times of 21 November 1979, advertising "red devils" (larvae of *Hydrotaea aenescens*) as anglers' bait.

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Cliff Glenton, 186 Northfield Ave W13.
Rons, 465 Upper Richmond Rd SW14.
Robertsons, 37 Prince Regent Lane E13.
Roberts, 193 Leytonstone Rd E15.
A.C.T., Well Hall Rd SE9.
A.C.T., 170 Sydenham Rd SE26.
Boundry Sports, Walthamstow E17.
Gone Fishing, Leytonstone E15.
Sowerbutts, 151 Commercial St E1.

SURREY —
Angling Centre, 65 London Rd, Croydon.
Coopers, 1 Wrythe Green Lane, Carshalton.
Feltons Tackle, 705 London Rd, North Cheam.
Guns & Tackle, 180 Oatlands Drive, Weybridge.
Gerrys, 298 Whitehorse Rd, Croydon.
Continental Sports, Redhill.

KENT —
Friendly Fisherman, 25 Camden Rd, Tunbridge Wells.
Medway Fishing Tackle, 103 Shipbourne Rd, Tonbridge.
Manclow, Sevenoaks.
Angling Centre, 304 High St Orpington.
Ken Brown, 9 Homesdale Rd, Bromley.
Downham Tackle, 24 Downham Way, Downham.

ESSEX —
Bromages, 666 Green Lane, Ilford.
L. Bowler, Merry Fiddlers Roundabout, Dagenham.
Angling Centre, 209 North St, Romford.
The Tackle Shop, Chingford.

MIDDLESEX —
Judds, Uxbridge Rd, Hillingdon.
Thames Angling, 11 Feltham Rd Ashford.
Alan Sports, 17 High St, West Drayton.
D. & D. Pets, 14 Sutton Court Rd, Hillingdon.
Hounslow Angling Centre, 265 Bath Rd Hounslow.
Tookes, Ruislip Rd, Greenford.

HERTS —
Ross, Hoddesden.
Mecca Angling, 1 Parliament Square, Hertford.
Lee Sports, Ware.
Simpsons, Nunsbury Drive, Turnford.
Tackle Carrier, 157 St Albans Rd, Watford.
Queensway Pet Stores, 52 Queensway, Hemel Hempstead.
Sargents, 165a Uxbridge Rd, Rickmans worth.
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Balms, 71 High St, Burnham.
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Angling Centre, 69 West Wycombe Rd High Wycombe.
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Cox, 23 High St, Chesham.
Sullivans, High St, Winslow.

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J. Wilkins, 39a, James St, Oxford.
Haydens Fishing Tackle, 3 The Vineyard, Abingdon.
Castaway, 86 Warwick Rd, Banbury.
Allmonds, 1 The Causeway, Bicester.

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Wyers, 479 Oxford Rd, Reading.
Kings, 18 Ray St, Maidenhead.
Turners, 21 Whitley St, Reading.

WILTS —
House of Angling, 60 Commercial St, Swindon.
Pet Centre, 106 High St, Marlborough.
Angling Centre, 175 Manchester Rd, Swindon.

MIDLANDS —
W. H. Lane, 31 London Rd, Coventry.
Tony Scott, Uxbridge St, Burton-on-Trent.
R. Russell, 93 Coventry St, Kidderminster.
Coopers, 115 Abbey St, Nuneaton.
Coopers, 17 Wiles Rd, Leamington Spa.
Gresley Tackle, Castle Rd, Castle Gresley, Burton-on-Trent.
Smiths, 76 Kingsley Park Terrace, Northampton.
Rod & Tackle, Bridge St, Tutbury.
Rod & Tackle, 21 Bridge St, Uttoxeter.
Angling Centre 45 Bristol Rd, Gloucester.
D. & J. Sports, 71 Cricklade St, Cirencester.

VARIOUS —
Taskers, 191 County Rd, Walton, Liverpool.
A. Kelley, 21n Wheatfield Drive, Belfast.
Crudingtons, Broad St Bath.
Town Angling, 54 Ewhurst Rd, Crawley, Sussex.

WHOLESALERS —
P. Redford, 26 Ansdell Rd Rochdale 342271.
Cockcrofts, 1 Manor Drive, Bingley 68637.

Similar experiments were conducted at this Derbyshire location in the autumn of 2002 and in the summer of 2003, but neither adults nor larvae of *H. aenescens* were found. Only *H. ignava* was captured and reared in subsequent experiments.

While *H. aenescens* was regularly observed on the carcass during the first experiment, it is disappointing that no subsequent experiments resulted in captures of this species. The summer of 2002 was considered to be wet and much cooler than normal; however, the decomposing pig would have provided a much warmer microclimate.

Lefebvre and Pasquerault (2004) implied that *H. capensis* and *H. aenescens* are forensically significant species in France, but this is not yet the case in Britain.

Hydrotaea aenescens was recorded by Cole (in Chandler 2005a: 70), collected on 29 June 2004 at Dogsthorpe Star Pit SSSI Wildlife Trust Reserve, Peterborough, Cambridgeshire (V.C. 32, Northamptonshire). Its presence there was certainly connected with a large landfill site opposite the Reserve rather than with the Reserve itself. It was confirmed as an addition to the British Checklist by Chandler (2005b: 77). JHC visited the reserve again in June of 2005 and 2006, and after some two hours of sweep-netting failed to find any further specimens. However, by the summer of 2006 refuse tipping at the adjacent landfill site had ceased, the refuse had been capped and the site closed. The species would not be expected to occur there again.

MJL first encountered this species among insects sent to him from a poultry house near Cranbrook in Kent in September 2003. At this time, *H. aenescens* was being advertised by a private consultant for use as a biological control agent to control common houseflies in poultry units, despite the fact that the insect was not considered to be indigenous to Britain. It is not clear whether any introductions had actually been made.

A specimen was received by MJL in July 2006 from Northfleet, Gravesend, Kent, from a derelict site that was being reclaimed by the addition of bonemeal and top soil. It appears that the bonemeal had been applied too heavily and the decaying material was attracting flies such as *Musca domestica* and *Protophormia terraenovae* (Robineau-Desvoidy) (Calliphoridae) in addition to *Hydrotaea aenescens*.

MJL found the species occurring sporadically on sticky traps set at a landfill site near Stoke Orchard, Cheltenham, Gloucestershire, from May until the end of monitoring in early November 2005. Numbers were greater in October and November than they had been earlier in the year. The species occurred abundantly at the same site in 2006, which was monitored between 7 April and 3 October. *Hydrotaea aenescens* was found from the last week in April until mid-September, with a peak between the end of May and mid-June (757 specimens on 16 sticky traps in one week at the peak).

In July 2006 MJL found a single specimen on a sticky trap at a landfill site at Haydock, Lancashire. This locality marks a considerable northern extension in the range of the species.

Material collected by HNL and MJL is deposited in the Natural History Museum, London, and the Oxford University Museum of Natural History, Oxford.

European distribution

In his revision of the Palaearctic Muscidae, Hennig (1962: 689, footnote, and 690) wrote that *H. aenescens* had been recorded in Europe by Stein (in Becker *et al.* 1907: 655, "Europa centr.") and by Séguy (1937: 308, "Europe méridionale"). He pointed out that the species was not

actually known from the Palaearctic region, but that its introduction could be expected. Oliveira (1941: 344) and Sabrosky (1949: 427) also recorded it as occurring in South Europe, though these statements were probably based on Séguy.

Stein's record may have been based solely on his synonymisation, albeit with a question mark, of *Ophyra viridescens* Robineau-Desvoidy (1830: 517) with *H. aenescens*. Robineau-Desvoidy described his *viridescens* from the following specimens: "J'ai trouvé cette espèce à Saint-Sauveur. Un individu tout-à-fait semblable a été envoyé de Philadelphia à M. Latreille" [FRANCE, Saint-Sauveur, and USA, Philadelphia]. The description did not mention the colour of the palpi, but Robineau-Desvoidy did state: "tout le corps d'un beau noir de jais verdoyant". This could apply to *H. aenescens* and the American specimen may well have been this species. But the French specimen(s), subsequently destroyed with the bulk of Robineau-Desvoidy's collection, was most probably *H. capensis* (Wiedemann), with which Hennig (1962: 690) and Pont (1986: 76) synonymised the name.

It was during the early 1960s that *H. aenescens* did indeed appear in Europe, and its dispersal was both rapid and widespread. Its distribution up to 1984 was listed by Adams (1984: 244) and up to 1986 by Pont (1986: 75). In the chronological list that follows, its appearance in the countries of the Western Palaearctic is documented according to the published literature and to material known to ACP ("[seen]" refers to the specimens seen and/or identified by ACP). This does not contain a complete listing of the European literature on *H. aenescens*, which is extensive, but only of the first recorded occurrence of the species country by country, so far as this is known to us:

1964 Austria (Tyrol) [seen], Italy (Saccà 1964)
1965 Germany (south) [seen]
1966 Spain (Michelsen 1975)
1967 Germany (north) (Sick 1971)
1968 Canary Is [seen]
1970 Lebanon [seen]
1971 Germany (west) (Stein and Knoll 1972)
1972 Denmark (Michelsen 1975)
1973 France (d'Aguilar and Martinez 1981)
1975 Hungary (Mihályi 1975)
1978 Czech Republic [seen], Malta [seen]
1980 Norway (south) (Rognes 1982)
1981 Corsica [seen], Israel [seen], Romania (Fabritius 1981)
1982 Crete [seen]
1986 Slovakia (Gregor in Čepelak 1986)
1988 Tunisia [seen]
1989 Morocco [seen], Sweden (south) [seen]
1994 Switzerland [seen]
1996 Egypt [seen]
1997 Turkey [seen]

2002 Azores (Pont and Báez in Carles-Tolrá Hjorth-Andersen 2002), Portugal (Pont and Báez in Carles-Tolrá Hjorth-Andersen 2002), Netherlands (Prijs in Beuk 2002)

2005 Armenia [seen]

It was also listed from Sardinia by Pont (2005).

Conclusions and outlook

The natural distribution of *H. aenescens* is in subtropical and tropical areas of the New World, but it has also spread into similar climatic areas of the Pacific as far as the Hawaiian Islands. At about 27°C the complete life-cycle takes 14 days, the duration lengthening above and below this temperature (see Skidmore 1985: 106-108). The fact that the species has established in temperate areas of Europe, as far north as southern Norway, is the result of its intimate association with refuse-disposal facilities. In such sites the temperature within the substrate remains higher than the ambient air temperature throughout the year, due to microbial fermentation, and so both adults and the immature stages are able to survive the cold winters of central and northern Europe.

Hydrotaea aenescens may well have a much wider distribution in Britain than we have recorded here. Not every landfill site or poultry unit can be monitored for its fly population levels, nor is either of these high on the list of priorities for dipterists engaged in faunistic studies and environmental surveys.

Acknowledgements

We are grateful to Jim O'Connor, Ken Bond and J.E. Newby for information supplied.

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Corrections and changes to the Diptera Checklist (17) – 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.

In the notes below where names of genera and species are given as in the Checklist, authorship is not stated here, unless a change in taxonomic status is involved. Changes are listed under families; names new to the British Isles list are given in bold type. The notes below refer to addition of 7 species, resulting in a new total of **6974** species.

Changes

Sciaridae

The following species are described as new in the present issue:
Bradysia ***chandleri*** Menzel, 2007.
Corynoptera ***subcavipes*** Menzel & Smith, 2007

EMPIDOIDEA

The following changes are proposed to the higher level classification of Empidoidea by B.J. SINCLAIR and J.M. CUMMING (2006. The morphology, higher-level phylogeny and classification of the Empidoidea (Diptera). *Zootaxa* **1180,** 172 pp.
Iteaphila is treated as of uncertain family position.
Hybotidae. Subfamily rank is accorded to Oedaleinae and Trichininae (raised from Tribes) and *Bicellaria* is transferred to Hybotinae as a Tribe Bicellariini, the genera previously placed in this subfamily treated as Tribe Hybotini. A tribe Symballophthalmini is recognised within Tachydromiinae for *Symballophthalmus* only.
Empididae. The subfamily Trichopezinae is transferred to Family Brachystomatidae and recognised as a subfamily within it. The subfamily Hemerodromiinae is divided into two Tribes, Hemerodromiini including *Hemerodromia* and *Chelifera*, while other British genera are assigned to Chelipodini. Oreogetoninae is not recognised as *Oreogeton* is of uncertain position in Empidoidea while the Rags Group (*Ragas* and *Hormopeza*) are incertae sedis in Empididae.
Brachystomatidae. This family now includes subfamily Trichopezinae sensu the British checklist.
Microphoridae. This is transferred to Dolichopodidae and the subfamilies Microphorinae and Parathalassiinae are recognised along with the other subfamilies within Dolichopodidae.

Empididae

The following species are added in the present issue:

Hilara ***aartseni*** Chvála, 1997
Hilara ***tenella*** (Fallén, 1816)

Dolichopodidae
The following species is added in the present issue:
Rhaphium ***suave*** (Loew, 1859)

Sciomyzidae
The following species was added to the British Isles list from Ireland by M.C.D. SPEIGHT (2007; reference under Changes to Irish Diptera List below):
Tetanocera ***montana*** Day, 1881 ++

Chyromyidae
The following species is described as new in the present issue:
Chyromya ***britannica*** Gibbs, 2007

Changes to the Irish Diptera List (7) – Editor

This section will appear as necessary to keep up to date the initial update of the Irish list in Vol. **10,** 135-146. Species will be listed under families as in the overall checklist update, but with references listed separately. The additions reported here bring the confirmed Irish list to 3206 species.

Ceratopogonidae
Dasyhelea saxicola (Edwards, 1929) (added by Ashe *et al.* 2007)

Dolichopodidae
Rhaphium nasutum (Fallén, 1823) (added by Speight 2007)

Sciomyzidae
Pherbellia rozkosnyi Verbeke, 1967 (added by Speight 2007)
Tetanocera montana Day, 1881 (added by Speight 2007)

References

Ashe, P., O'Connor, J..P. and Chandler, P.J. 2007. *Dasyhelea* (*Dasyhelea*) *saxicola* (Edwards) (Diptera: Ceratopogonidae) new to Ireland and Wales from limestone rockpools, with a review of its ecology and distribution. *Entomologist's monthly Magazine* **143,** 113-126.

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.

***Sphaerophoria scripta* (Linnaeus) (Diptera, Syrphidae) recorded for the first time from North Uist, Outer Hebrides** - *Sphaerophoria scripta* is a widespread and sometimes abundant hoverfly in a range of habitat types in the central and southern British Isles, but is scarce north of a line between the Humber and the Mersey (where it may only occur as a migrant). It has been recorded from the Shetland Islands, but is scarce in Scotland and unrecorded from the Hebrides (Ball, S.G. and Morris, R.K.A., 2000. *Provisional atlas of British hoverflies*. Centre for Ecology & Hydrology, Huntingdon. 167pp). A more recent Hoverfly Recording Scheme map of *S. scripta* distribution is available at: *www.hoverfly.org.uk*. The male is readily identified by length of abdomen and distinctive male genitalia (Stubbs, A.E. and Falk, S.J. 2002. *British Hoverflies*. Second Edition, The British Entomological and Natural History Society, Reading).

On 13 August 2006 a single male *S. scripta* was captured flying by the beach, close to vegetation in flower-rich machair on the north coast of North Uist (V.C. 110), near Newton House, Baile Mhic Phail (NF887782). Only this single individual was seen and it may have been a migrant from further south (see Stubbs and Falk *op. cit.*).

A provisional hoverfly checklist for the Outer Hebrides was provided by A. McCullough, A. Wakeham-Dawson and M.J. Parker (2002. A provisional checklist of the hoverflies (Diptera, Syrphidae) of the islands of North Uist, South Uist, Benbecula, Eriskay and Berneray in the Outer Hebrides. *Dipterists Digest* (*Second Series*) **9,** 95-102). Additions to this were made by A. Wakeham-Dawson and A. McCullough (2004. *Eristalis tenax* (Linnaeus) and *Scaeva pyrastri* (Linnaeus) (Diptera, Syrphidae) recorded for the first time from North Uist, Outer Hebrides. *Dipterists Digest* (*Second Series*) **10,** 72). The addition of this species brings the current total for the region to 56 species - **ANDREW WAKEHAM-DAWSON,** Mill Laine Farm, Offham, Lewes, East Sussex BN7 3QB and **ANGUS McCULLOUGH,** 108 Addison Gardens, London W14 0DS

***Erioptera (Mesocyphona) fossarum* (Loew, 1873) (Diptera, Limoniidae), new to France** - During a visit, on 16 June 2006, by JK to the Réserve Naturelle du Marais de Lavour (Dept. Ain, France) which lies between the River Rhône and its smaller tributary the River Seran, a male and a female specimen of *Erioptera (Mesocyphona) fossarum* (Loew, 1873) were swept from an area of carr, which is serviced by a boardwalk [N45 49.982 E5 44.803].

Photographs of the male specimen were sent to Dr. J. Starý who identified it as *Erioptera (Mesocyphona) fossarum* (Loew, 1873) which is a new record for France and he also provided the information that this represents the westernmost record yet for this species - **JOHN KRAMER,** 31 Ashtree Road, Oadby, Leicester LE2 5TE, England, johnkramer@tiscali.co.uk

Dipterists Digest 2007 **14,** 33-47

Pamponerus choremii sp. n. (Diptera, Asilidae) from Greece with diagnostic notes on other *Pamponerus* species and records of *Pamponerus epirus* Tomasovic, 2001 from two new sites

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Summary
Pamponerus choremii sp. nov. is described from the Island of Chios in Eastern Greece and its differences from other known species of the genus (*P. germanicus* (Linnaeus, 1758), *P. helveticus* Mik, 1864 and *P. epirus* Tomasovic, 2001) are discussed. Specimens are also recorded from the islands of Lesbos and Crete. The habitat preferences and oviposition behaviour of the new species are described and two new site records for *P. epirus* are presented.

Introduction

The genus *Pamponerus* was erected by Loew in 1849 for the single species *Asilus germanicus* Linnaeus 1758 from Northern and Central Europe. A second species, *P. helveticus* Mik was described from Switzerland in 1864 but this was treated as a subspecies of *P. germanicus* by later authors until reconfirmed as a full species by Weinberg and Bächli (1993). A third species, *P. epirus* Tomasovic, was described from Western Greece in 2001 and the current work adds a fourth species from Eastern Greece.

During a survey of the insects of Chios in early 1999 one of us (MJT) found a damaged specimen of an unrecognised asilid in a Malaise trap sample. This was later identified as probably an undescribed species of *Pamponerus*. Arrangements were made to visit the site again at the same season the following year (2000) when several specimens of both sexes of the same species were netted. Later surveys (2001-2002) revealed the species to be present at another site in Chios and two sites on the Island of Lesbos. During the preparation of this paper, a further specimen (taken in 1972) was found amongst a collection of Asilidae from the Island of Crete. A search of material in the Natural History Museum of London (BMNH) collection revealed no additional specimens of the new species but located three previously unidentified specimens of *P. epirus* from Western Greece.

The four currently recognised species of *Pamponerus* are distinguished by small but significant differences in the male genitalia, in particular the shape of the epandrium, which can be seen in undissected specimens. Apart from this each species has its own characteristic appearance but almost all differences are in colour, particularly of the wing veins, wing membrane and hair/bristles on various parts of the body. These colours are subject to some variation among specimens of each species and so can only be used with care, taking these latter variations into account.

Material and Methods

We were fortunate to have specimens of all four known species available to us for the preparation of this paper.

P. germanicus has a very limited distribution in Britain and is restricted to a few coastal sand dune sites on, mostly on the west coast of England and Wales. However, it is not infrequent at those sites and we had a series of specimens of both sexes from various sites in Wales at our disposal in our own collections, some of which were dissected for comparison with the *P. choremii* type material.

P. epirus was represented by three previously unidentified female specimens in the Natural History Museum London, which were loaned to us by that museum. None were dissected.

P. helveticus is known from a relatively small number of specimens. For the purpose of this paper we were fortunate to be able to obtain on loan a single male and a single female specimen from the private collection of Gerhard Bächli (Switzerland). These were not dissected.

Colour photographs are used particularly to help convey the characteristic appearance described above. Black and white figures are numbered sequentially from 1 to 29 and referred to as "Fig. 4", "Fig. 25" etc. Colour figures are grouped together into four plates designated A, B, C and D, the individual pictures being numbered individually on each plate and referred to in the text as "Fig. C3", "Fig. B1" etc.

Where variation between the holotype and paratypes exists this is indicated in the description of the new species. Characters, which have been or may be used to distinguish between all the known species of the genus are emphasised. The terminology used generally follows that of Geller-Grimm (2003, CD-rom).

The genitalia of specimens of both sexes were dissected and photographs are included here. Specimens of *P. germanicus* were dissected and photographs of the corresponding parts of that species are included for comparison. Where available, copies of published drawings of the dissected genitalia of the other species of the genus have been included for comparison (including those of *P. germanicus* to facilitate correlation with our photographs).

Pamponerus choremii sp. n.

Material examined (summary of data on specimen labels)

Holotype ♂**:** Kato Fana, Chios, Greece, N38°12.54' E25°55.72', 22.iv.00, M.J. Taylor, A6080P (deposited in the World Museum Liverpool, acquisition no. LIV.2006.17).

Paratypes:

Kato Fana, Chios, Greece, N38°12.52' E25°55.67', M.J. Smart, Back beach scrub, Elevation 5m: **1**♂, 22.iv.2000 A, at flowers; **1**♂, 22.iv.2000 B, on plant stem, vine; **1**♀, 27.iv.2000 AF, on plant stem, vine.

Kato Fana, Chios, Greece, N38°11.74' E25°58.16', M.J. Taylor: **1**♀, 25/30.iv.99, A4863P, ♀ genitalia No. 4155

Kato Fana, Chios, Greece, N38°12.54' E25°55.72', M.J. Taylor: **1**♀, 22.iv.00, A6081P; **1**♂, 27.iv.00, A6143P, ♂ genitalia No. 4156; **1**♀, 2.v.00, A6176; **1**♀, 7.v.00, A6214, ♀ genitalia slide no. 5088; **1**♀, 30.iv.01, A7520P; **1**♀, 30.iv.01,A7521; **1**♀, 30.iv.01, A7522;

Managros, Chios, Greece, N38°27.77' E25°56.32', M.J. Taylor: **1**♀, 20.v.96, A0404.

Managros, Chios, Greece, N38°27.89' E25°56.37', C. Clee: **1**♂, 8.v.00, A6217P; **1**♀, 8.v.00, A6218P.

Managros, Chios, Greece, N38°27.89' E25°56.37', M. Hull: **1**♂, 8.v.00, A6219P; **1**♀, 9.v.00, A6218P.

Managros, Chios, Greece, N38°27.89' E25°56.37', M.J. Taylor: **1**♂, 6.v.00, A6226.

Managros, Chios, Greece, N38°27.91' E25°56.29', M.J. Taylor: **1**♂, 29.iv.01, A7519.

Paleochora s.l., Crete, Greece, K. Guichard: **1**♂, 10.v.1972 A; Presented by P.J. Chandler to M.J. Smart on 24.iv.2001.

Kalloni Salt Flats, Lesbos, Greece, N39°12.50' E26°14.57', M.J. Smart, On reed stem, Low sand dunes, Back beach area, Elevation 3m: **1**♂, 1.v.2002 A, **1**♀, 1.v.2002 B, **1**♀, 1.v.2002 C, **1**♀, 1.v.2002 D, **1**♀, 1.v.2002 E.

Kalloni salt pans, 5km SE Kalloni, Lesbos, Greece, N39°12'29" E26°14'33", M. Hull: **1**♀, 26.iv.2001; **1**♀, 1.v.2001; **5**♀, 3.v.2001; **1**♀, 5.v.2001; **1**♀, 12.v.2001; **1**♀, 24.iv.2002, ♀ genitalia slide no. 4152; **1**♂, 24.iv.2002, ♂ genitalia slide no. 4151; ♂, 24.iv.2002, ♂ genitalia slide no. 4157; **2**♂, 24.iv.2002; **1**♂, 25.iv.2002, (genitalia separated in glycerol); **1** ♂, 25.iv.2002.

Kalloni salt pans, 5km SE Kalloni, Lesbos, Greece, N39°12'32" E26°15'01", M. Hull: **1**♂, 27.iv.2002.

Kalloni, Lesbos, Greece, N39°12.48' E26°14.55', M.J. Taylor: **1**♀, 25.iv.01, A7467P; **1**♂, 25.iv.01, A7468.

Sigri Beach, Lesbos, Greece, N39°12.43' E25°51.26', M.J. Smart, On grass stem, Sand dunes, Elevation 5m: **1**♀, 4.v.2002 X

Sigri, Lesbos, Greece, N39°12.72' E25°51.06', M.J. Smart, On shaded wall, Village street, Rocky headland, Elevation 20m: **1**♀, 4.v.2002 W.

Disposition of paratype material

Male and female pairs of paratypes are being deposited in the Natural History Museum London (BMNH), University Museum Oxford (UMO), Zoological Museum Amsterdam (ZMA), Muséum d'Histoire Naturelle Genève and ZSM-MWN Munich. Two males and two females will be retained in the private collection of M.J. Smart and one pair in that of M.J. Taylor to facilitate further study. The remainder (5 males and 18 females including all the dissected specimens) will be deposited with the holotype in the World Museum Liverpool.

Etymology. This fly is named after Iannis Choremi, a resident of the island of Chios and a lifelong champion of the conservation and protection of its wildlife.

Description

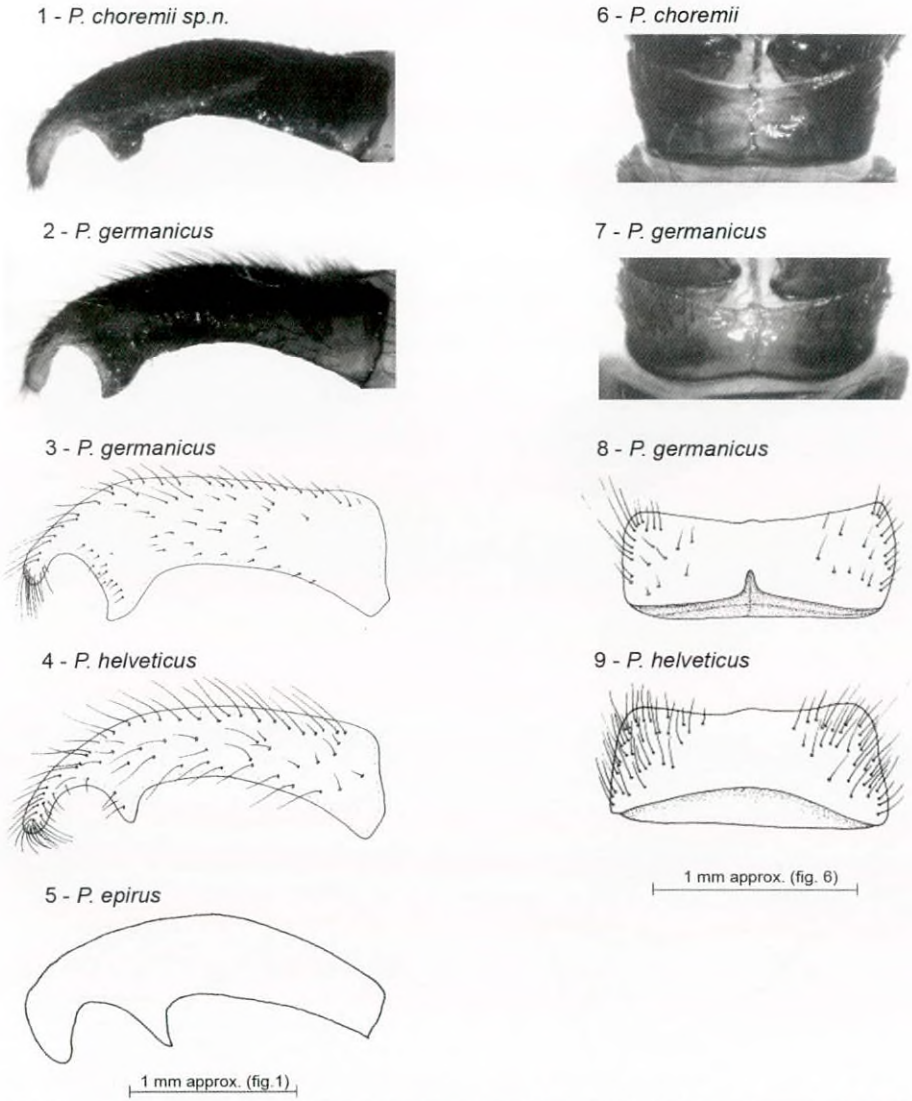
Male. Body length 16-19 mm excluding antennae, holotype 19 mm.

Head entirely black in ground colour, obscured to a greater or lesser degree by silvery white dust (pruinescence) and/or microscopic pile. Face and facial gibbosity with silvery white microscopic pile throughout. Mystax strong and reaching to the top of the facial gibbosity including the upper surface, consisting of strong bristles mixed with some weaker bristles along the lower facial margin, at the sides and at the top; composed of a mixture of black and silvery white bristles, the proportion of black approximately 50% in holotype (20% to 100% in paratypes and non-black bristles sometimes somewhat ivory coloured but never yellow or gold). Frons with microscopic silvery pile in very dense strips along the eye margins which also bear 2-4 rows of long black bristles, the median area occupying the space between the anterior ocellus and the bases of the antennae without bristles and almost bare of microscopic pile.

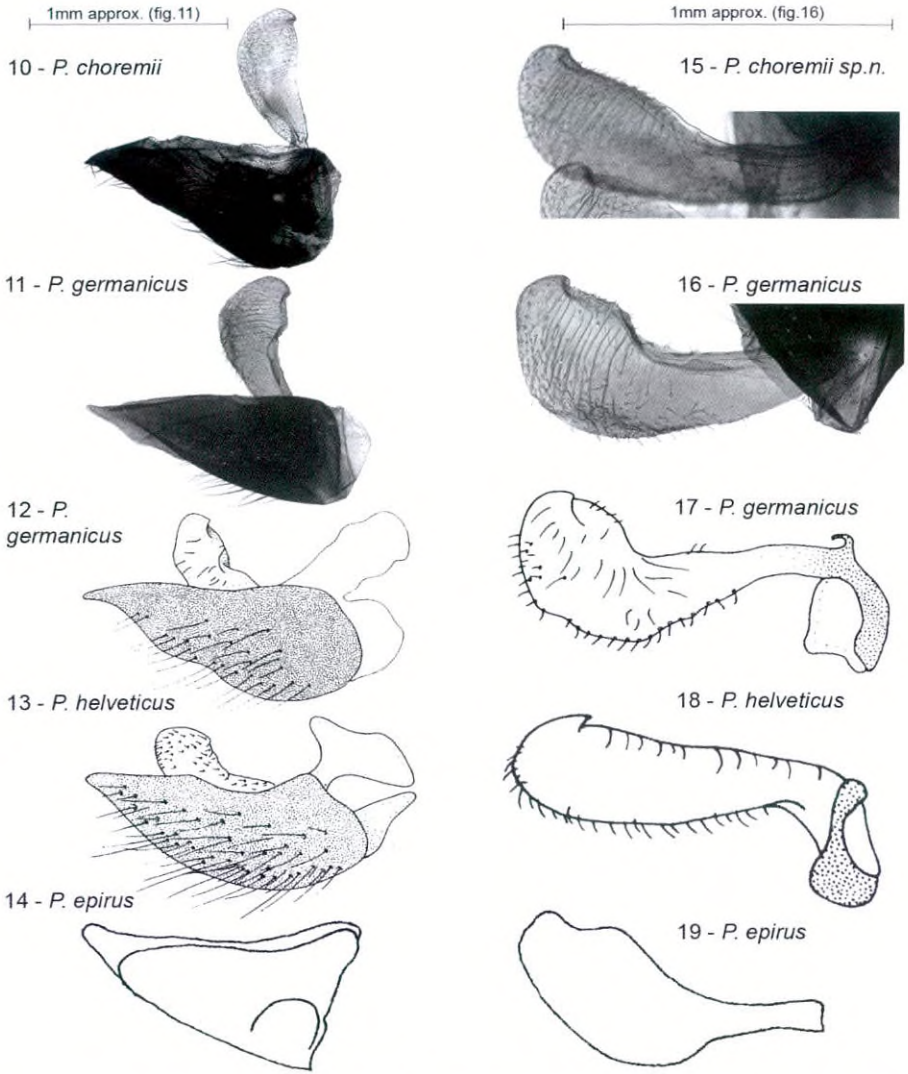
Ocellar tubercle weakly dusted, bearing numerous long fine black bristles similar to those along eye margins. Occiput covered in long very fine microscopically plumose white hair similar to that on anterior surface of front coxae, this long white occipital hair extending down onto genae and the lateral plates immediately behind base of proboscis, giving the appearance of a dense white (or ivory but not yellow) beard in both front and side view. There is an arc of strong postocular bristles, parallel to the eye margin behind the top third of the eyes, which are white interspersed with a few black bristles in the holotype but can be all white or all black (as in one paratype, see Figs B6 and B7), these bristles very conspicuous when black but when white can be extremely difficult to recognise amongst the white occipital hair. Proboscis black with long fine white hairs on the basal half and a few short yellowish white hairs at the apex, the intermediate section bare and shining. Palpi black, covered with long fine white hairs.

Antennae with black ground colour clearly evident through white dusting and all hairs black or white, not yellow. Scape with apical sixth bare and shiny, the remainder lightly white dusted and covered in fine mixed black and white hairs; those on the dorsal surface shorter than the scape itself, some of those on the ventral surface being as long as scape and pedicel combined. Pedicel slightly narrower at base than at apex, completely covered in white dust; bearing a few short hairs on apical two thirds. Flagellum three segmented, white dusted and without hair or bristles.

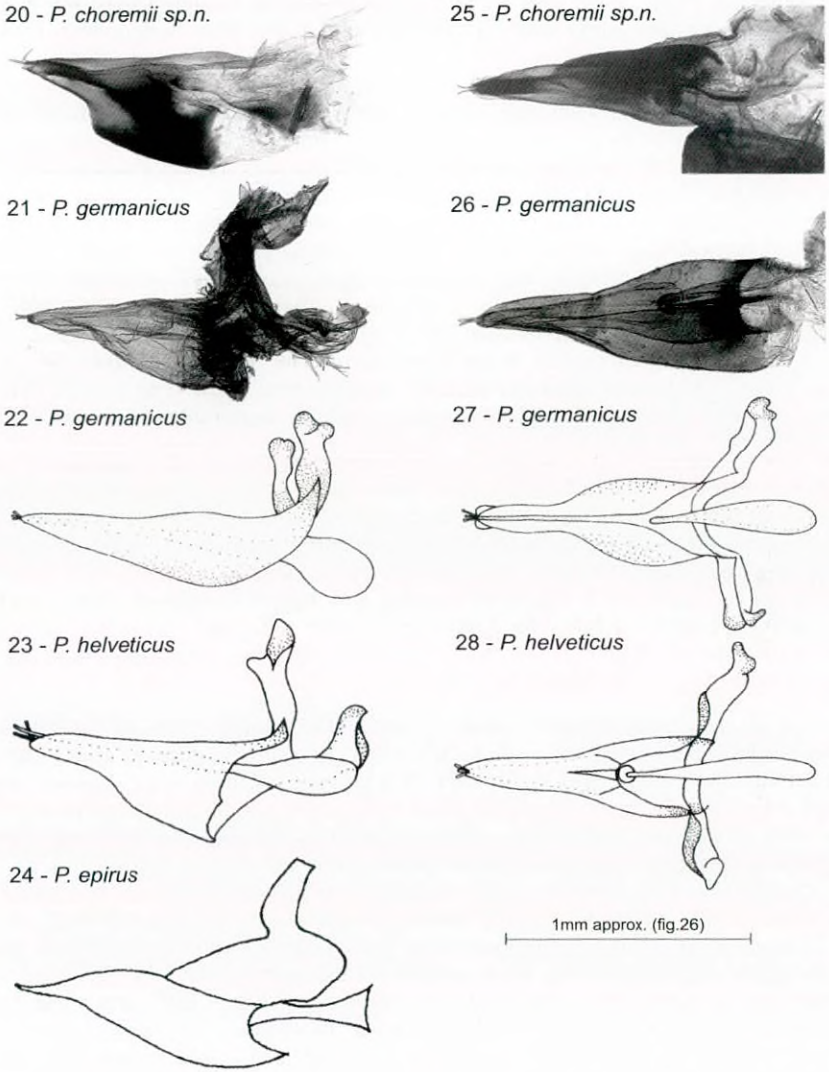
Thorax entirely dark brown to black in ground colour and completely covered with dust of variable density, which is primarily yellowish white or ivory coloured, but with darker areas of bronze or brown, particularly on the scutum. Dust pattern (Figs A1 and A2) similar to that in other species of the genus (Figs A3 - A6). Pronotum coated with white or ivory-coloured dust, more densely posteriorly; loosely covered in long (as long as scape plus pedicel) white microscopically plumose hairs and with a row of strong white antepronotal bristles, very inconspicuous among the surrounding fine white hairs of similar length. Scutum uniformly but not densely covered with fine pile, varying in length from approximately that of the scape anteriorly to twice or three times that length posteriorly and with the usual complement of long strong bristles including dorsocentral, notopleural, supra-alar and postalar, the majority white (never yellow or gold) but with some black intermixed.



Figs 1-9. ***Pamponerus*** **epandria (left column) and hypandria (right column): 1, 2, 6, 7, Photographs prepared for present study; 3, 4, 8, 9, drawings after Weinberg and Bächli 1993; 5, drawing after Tomasovic 2001.**



Figs 10-19. ***Pamponerus*** **gonopods comparing gonocoxites (= basistyli) in left column and gonostyli (= dististyli) in right column): 10, 11, 15, 16, photographs prepared for present study; 12, 13, 17, 18, drawings after Weinberg and Bächli 1993; 14 and 19, drawings after Tomasovic 2001 (Fig. 14 shows inner side of gonocoxite).**



Figs 20 - 28. ***Pamponerus*** **aedeagi, left column lateral view, right column dorsal view: 20, 21, 25 and 26, photographs prepared for the current study; 22, 23,27 and 28, drawings after Weinberg and Bächli 1993; 24, drawing after Tomasovic 2001.**

Scutellum white dusted with a distinct rim, covered in variable length and thickness white (some black) hairs. Rim with a variable number (6-12) of stout black or white bristles in the middle (6 black in holotype).

Pleura yellowish-white dusted with patches of long (1.5 times scape plus pedicel) white hair; proepisternum and adjacent proepimeron with conspicuous clumps of white hair which, in combination with the hair on the pronotum, occiput and anterior coxa, give the appearance of a dense white beard; anepisternum haired, denser and more bristly along the upper and posterior margins, sometimes with a few black hairs along the top; hair clumps also present on the upper posterior areas of katepisternum and katepimeron; katatergite and metepisternum with dense vertical fans of long white bristles containing numerous bristles (similar to scutellar bristles) in several rows; front part of katepisternum covered in fine hair; anatergite and upper posterior lobe of metepimeron covered in long fine white hair.

Prosternum bare, ventral margins of katepisternum and meron adjacent to coxae (precoxales) with long white hair; lower metepimeron bare; metasternum (plate in front of sternite 1) covered in dense white hair similar to that on sternite 2; a weak band of white hair crossing the metasternal membrane between coxa 3 and the sclerotised metasternum.

Wings with venation as in Fig. B3, the distal (recurrent) section of M3 is noticeably curved, making the outer end of cell m3 more convex than in other species of the genus (Figs B1, B2, B4, B5). All veins, including Rs and A, rather uniformly dark blackish-brown coloured; vein Sc sometimes somewhat lighter coloured, but any other contrasting reddish or yellowish colour restricted to area at extreme base of the wing proximal to the bases of the basal cells (br, bm) and cell cup; vein R and all its branches dark brown throughout. Wing membrane smoky greyish brown, slightly less pigmented in cells c, br, bm, along the anterior and posterior margins of cell cua1 and at the base of anal lobe; alula completely clear; lacking a milky white band across the base of the wing .

Legs with all three pairs similarly coloured: coxae black, lightly white dusted; trochanters shining black; femora completely shining black (however, in one paratype from Kato Fana small anterior and posterior patches of very dusky orange colour at apex of femora but not forming complete or bright orange rings); tibiae orange with a strong black ring occupying the apical sixth of its length; metatarsus orange, darkened at the apex, the following segments progressively blacker until segment 5 which is completely black.

Coxa 1 with long silver-white hair on anterior surface, grading into white mixed with some black bristles (similar to mystax) towards apex; some shorter fine white hair covering the posterior surface. Coxa 2 with long white hair on anterior and dorsal surfaces, grading into strong curved predominantly black bristles towards apex; posterior surface bare except for some strong curved black bristles at extreme apex. Coxa 3 with long white hair on anterodorsal surface and some shorter hair on posterior surface. Trochanters 1 and 2 with short soft white hair. Trochanter 3 similar but with some longer and thicker hairs ventrally and an apical posteroventral fan of 2 - 6 strong black and white bristles (all black in holotype). Femora with long fine hair predominantly white except for anteroventral black patches on femora 1 and 2; stout bristles mostly black except on femur 3 where 50% or more may be white (also mostly black in holotype). Tibia 1 with strong bristles mainly black but weaker

long fine posteroventral bristly hairs black or white. Tibia 2 with strong bristles mainly black. Tibia 3 with a variable mix of black and white bristles. Tarsi with a mix of black and white bristles.

Abdomen black with weak white dusting so that only the disc of tergites 7-8 and the terminalia have a shiny appearance; bristles almost all very weak and poorly differentiated from the abundant fine hair. Tergite 1 has the raised posterior half covered in long erect fine white hairs; lateral areas of this band bear white bristles (usually about 10 on each side), similar in form to the dorsocentrals and scutellars. Best observed in side view, these are superficially very similar to the surrounding hairs and almost transparent, but differ in being much thicker at the base. Tergite 2 is broadly covered with long (half length of tergite or more) white hairs and with a variable amount of shorter loosely adpressed pale yellow hair on the posterior part of axis. Tergite 3 similar to 2 but axial patch of short pale yellow (often partly black) hair is broader and may extend the full length of the tergite. Tergite 4 dominated by a central pale yellow (and black) short adpressed hair stripe, the erect white hair much shorter and reduced to strips along side margins and posterior corners. Tergites 5-8 are similar, but long white hair further restricted to lateral and posterior margins. Sternite 1 bare (do not confuse with the densely white haired metasternal plate immediately in front of it). Sternites 2-8 loosely covered in long white (with some occasional black) hair similar to that on tergite 2.

Genitalia (Figs C1-C3) shiny black, with only very slight dusting; loosely covered in medium to long black hair (comparable in length to that on tergite 7), only the apex of the epandrium and cerci bear some yellow or white hair. Figs 1-28 illustrate individual components of the genitalia in comparison with the corresponding parts of other species of the genus. Epandrium (Figs 1, C1 and C2) bearing a characteristic quadrilateral-shaped inwardly-directed tooth-like extension on inner edge of dorsal surface, about three quarters along its length. Hypandrium (Figs 6 and C1) bearing a central indentation, extending backward from anterior margin. Gonocoxites (Fig. 10) roughly triangular, lacking characters of obvious diagnostic significance. Gonostyli of distinctive shape as shown in Fig. 15. Aedeagus (Figs 20 and 25) with a characteristic deep "keel" beneath strongly stepped a short distance before the tip.

Female. On average slightly larger than male, length: 18-24 mm. Wing similar to male, no obvious sexual dimorphism in colour of veins or membrane. Abdomen (Fig. A2) smoothly tapered from tergite 3 to a point at the apex of the ovipositor in contrast to specimens of other species examined (in which the tergites 2-5 are more parallel-sided, compare Figs A4 and A6). Ovipositor (Figs C7 and C8) with segments 7-9 tapering evenly and segment 8 longer than wide.

Notes on diagnosis and separation of the known species of the genus *Pamponerus*

Pamponerus choremii is a species of overall greyish appearance, characterised in particular by the colour of the wing membrane and veins (Fig. B3). The veins at the extreme base of the wing are sometimes lighter coloured, but distal to the humeral cross-vein (h), all veins are of a

relatively uniform dark brown colour (in the other species of the genus, some veins, e.g. Sc, Rs, A and sometimes R_1, exhibit a contrasting orange-brown colour for a third or more of their total length). The wing membrane is rather densely and uniformly grey-brown coloured in both sexes (no sexual dimorphism as in *P. germanicus* and *P. helveticus*) with only small lighter coloured areas (but not milky white) within some cells in the basal half (c, br, bm, a1+2).

Plate A: Habitus photographs of *Pamponerus* species. Photographs illustrating overall appearance of the currently known species. A1 - *P. choremii* sp. n. holotype male from Kato Fana, Chios, Greece; A2 - *P. choremii* sp. n . paratype female from Kato Fana; A3 - *P. helveticus* (Mik, 1864) male from Follaterres, Switzerland (Bächli collection); A4 - *P. epirus* Tomasovic, 2001 female from Kalogria, Akhaia, Greece (BMNH collection, photograph copyright BMNH and published with permission); A5 - *P. germanicus* (Linnaeus, 1758) male from North Wales; A6 – *P. germanicus* (Linnaeus, 1758) female from North Wales.

Plate B: *Pamponerus* wings and heads. B1-B5 - photographs illustrating differences between the currently known species and sexual dimorphism in wing vein and membrane coloration: B1 - *P. germanicus* (Linnaeus, 1758) male wing; B2 - *P. germanicus* (Linnaeus, 1758) female wing; B3 - *P. choremii* sp. n., female wing (male wing is similar); B4 – *P. helveticus* (Mik, 1864) male showing similarity to male *P. germanicus*, female; *P. helveticus* wing is also similar that of female *P. germanicus;* B5 - *P. epirus* Tomasovic 2001 female wing (male is similar), photograph copyright BMNH and published with permission); B6-B7, illustrating variation in colour of postocular and mystax bristles in *P. choremii* sp. n.; B6 - specimen from Managros with postoculars all white and mystax predominantly so; B7 - specimen from Kalloni with postoculars all black and mystax predominantly so.

Plate C: *Pamponerus* genitalia preparations. C1 - C3, *P. choremii* sp. n. male genitalia relaxed, stretched to separate components and photographed in isopropanol; ventral, dorsal and lateral views. C4 - *P. choremii* sp. n. male aedeagus, gonopod and cerci slide mounted; C5 - *P. germanicus* (Linnaeus, 1758) male genitalia ventral view comparable to Fig. C1 with individual components named (note shape of tooth on inner side of epandrium); C6 - *P. germanicus* (Linnaeus, 1758) ovipositor slide mounted; C7 - *P. choremii* sp. n. ovipositor slide mounted comparable to C6; C8 - *P. choremii* sp. n. ovipositor slide mounted, lateral view.

Plate D: *Pamponerus choremii* sp. n. type location and oviposition sites. D1 - Type location, capture site of holotype near bottom left of picture; D2 - Area in which oviposition was observed; D3 - Flower heads similar to those on which oviposition was observed.

PLATE A: Habitus photographs of *Pamponerus* species

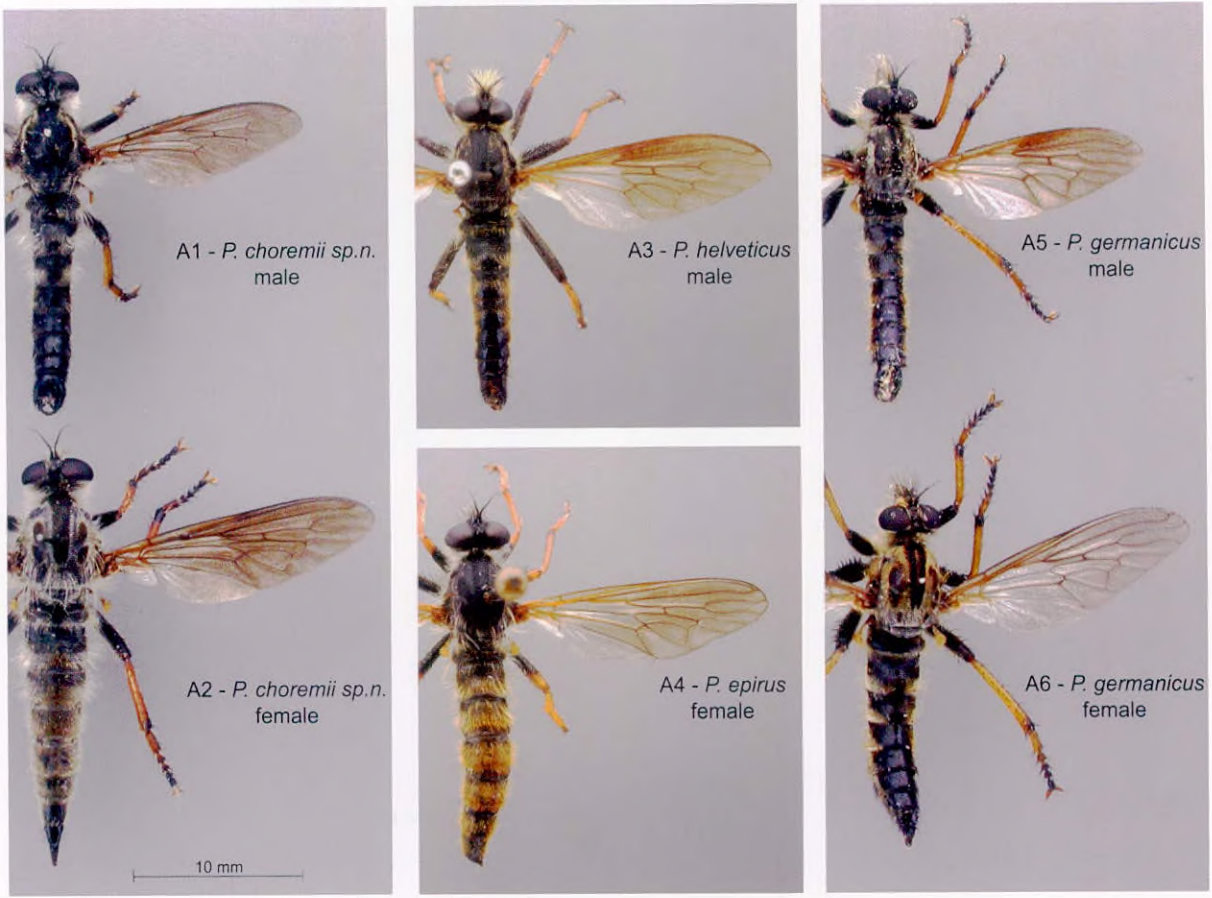
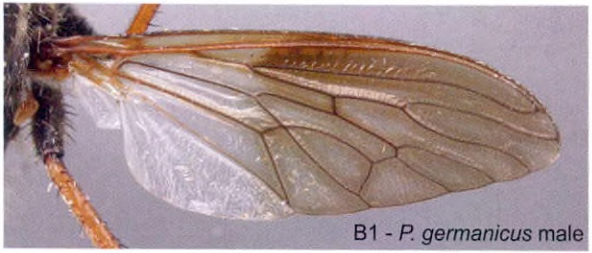
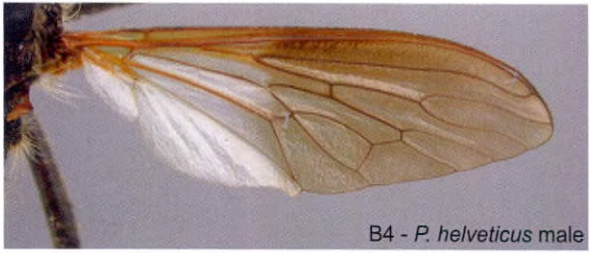


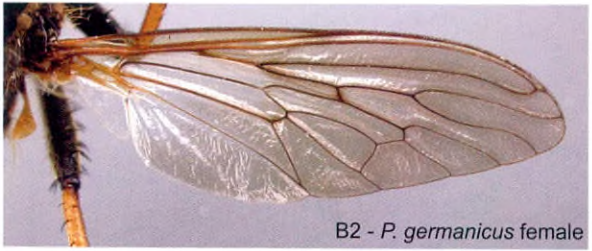
Plate B:
***Pamponerus* wings & heads**



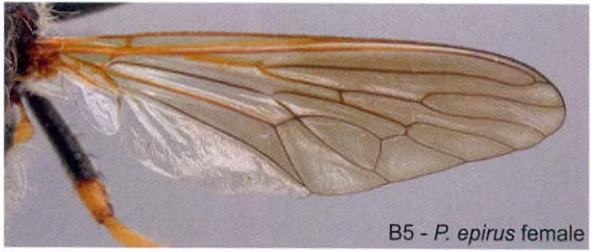
B1 - *P. germanicus* male



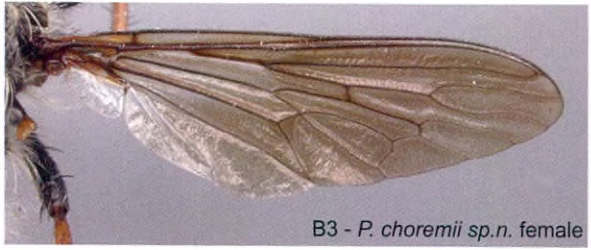
B4 - *P. helveticus* male



B2 - *P. germanicus* female

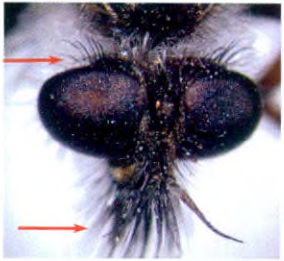


B5 - *P. epirus* female



B3 - *P. choremii sp.n.* female

B6 - *P. choremii sp.n.*
white postoculars



B7 - *P.choremii sp.n.*
black postoculars

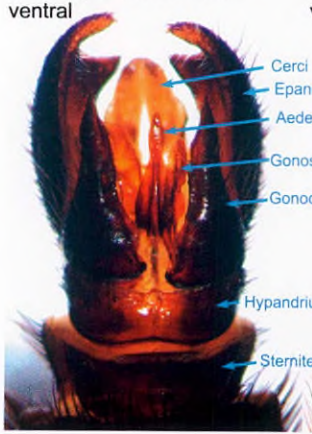
C1 - *P. choremii* male ventral

C2 - *P. choremii* male dorsal

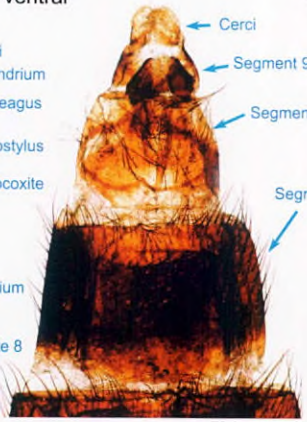
C3 - *P. choremii* male lateral

C4 - *P. choremii* male inner parts

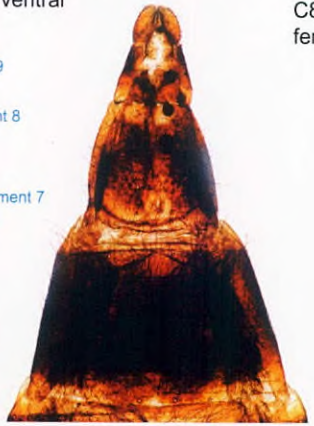
C5 - *P. germanicus* male ventral



C6 - *P. germanicus* female ventral



C7 - *P. choremii* female ventral



C8 - *P. choremii* female lateral

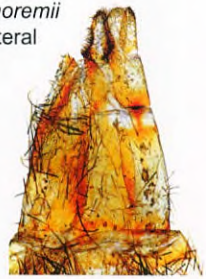


PLATE C: *Pamponerus* genitalia preparations

PLATE D: *Pamponerus choremii* sp.n. type location and oviposition sites


D1 - Kato Fana beach (type location)


D2 - Oviposition site


D3 - Ovipostion flower heads

The longer body hair is predominantly white or yellowish-white (rather than golden-yellow coloured) so that the abdomen viewed from above has the appearance of being dark grey with silvery hair and dusting. Hair of beard, occiput and coxae is long and silvery white so that in front and side view the head appears to be surrounded by a halo of silver white (not yellowish) hair. Mystax and postocular bristles are composed of a variable mix of black and white (not yellow or gold) bristles. Femora completely black without an apical orange ring and tarsal segments 2-5 are significantly darkened.

Epandrium as in Fig. 1, other parts of male genitalia Figs 6, 10, 15, 20 and 25. .Female abdomen and ovipositor in dorsal view evenly tapered to a point (Fig. A2). Body length 16-24mm.

Known distribution: Eastern Greek Islands (Chios, Lesbos and Crete).

Pamponerus epirus is a golden-yellowish species characterised by the orange rings at the apex of each femur and the predominantly orange coloured tarsal segments 1-4. The black ground colour of the tergites is partially obscured by the somewhat adpressed relatively long golden-yellow hair covering them (approximately the same length as the tergites themselves).

Wing veins Sc, R_1, Rs and CuA_1 are conspicuously orange coloured in at least the basal half, contrasting strongly with the brown colour of the other veins. Wing membrane colour is similar in both sexes with no sexual dimorphism (Van de Weyer *pers. comm.*), relatively strongly yellow-brown in the apical half, lighter in the basal half (Fig. B5).

Hair of the beard, occiput and coxae is white or ivory, so that in front or side view the head appears to be surrounded by a halo of silver white (not yellowish) hair similar to *P. choremii* but somewhat less dense. In the description of *P. epirus* and key to species (Tomasovic 2001) the mystax is stated to be completely black, but of the three specimens we have seen, one has 20-30% and another 10% or more of yellowish white bristles. In view of the strong variability of the mix of black/white mystax bristles observed in the *P. choremii* paratype series we consider it unwise to use the proportion of black mystax bristles to characterise any *Pamponerus* species. The proportion of black and white postocular bristles is similarly variable.

Some specimens, especially males, of *P. epirus* have a yellowish spot between the postalar callus and the scutellum (Van de Weyer *pers. comm.*). Such spots do not seem to occur in the other species of the genus.

Epandrium as in Fig. 5; other parts of male genitalia Figs 14, 19 and 24. Female abdomen relatively parallel-sided, ovipositor blunt (Fig. A4). Body length 19-22mm.

Known distribution : Ionian Sea coast of western Greece.

Pamponerus germanicus is a species with an overall much more brownish appearance than *P. choremii*. This is largely due to the yellow and brown dusting of the thorax (much whiter in *P. choremii* and *P. epirus*). The wing veins are two coloured in much the same way as in *P. epirus* (Sc, Rs and A usually light coloured for their entire length, sometimes R1 also, but the colour contrast is generally less conspicuous.

There is a strong sexual dimorphism in the colour of the wing membrane. The males have a sharply defined milky white band across the entire basal two fifths of the wing, while

the females have conspicuous unpigmented (not milky white) areas covering the basal two thirds of cell br, almost the whole of bm, part of the anal cell and the alula, generally reminiscent of *P. epirus*.

Hair of the beard, occiput and coxae is yellow or gold, so that the species appears to have a yellowish halo in front or side view. The mystax bristles are generally yellow or gold in the lower ½ or more and black at the top. The postocular bristles are black in all specimens that we have seen and the leg bristles are generally all black (in contrast to *P helveticus*). There is a reduction in the amount of yellow hair on the tergites posteriorly so that at least tergite 6 and 7 appear to be blackish.

Epandrium as in Figs 2 and 3; other parts of male genitalia Figs 7, 12, 17 21 and 26. Female abdomen relatively parallel-sided, ovipositor blunt (Fig. A4).
Body length 17-20 mm.

Widely distributed across north and central Europe and as far south as Italy and "Jugoslavia" (Lehr 1988) but apparently not recorded from Greece.

Pamponerus helveticus is very similar in appearance to *P. germanicus*. The sexually dimorphic wing markings are almost identical. The mystax is composed of mainly gold-coloured bristles with only a small proportion of black bristles (10 – 20%) at the top. The hair of the beard, occiput and coxae is golden yellowish (darker than in *P. germanicus*) so that the species appears to have a yellow-gold halo in front or side view. The postocular bristles are all black in the single male examined, but almost all yellow (1 black) in the single female examined. A small proportion of the leg bristles are yellow (particularly on the tibiae) in contrast to *P. germanicus* in which they are normally almost all black. In side view the golden lateral pile on the tergites is noticeably more dense than in *P. germanicus*.

Epandrium is as in Fig. 4; other parts of male genitalia Figs 9, 13, 18, 23 and 28. Female abdomen and ovipositor similar to *P. germanicus*. Size similar to *P. germanicus*. Known only from Switzerland.

The following key will facilitate separation of the species discussed above.

1.	Femora with an orange apical ring	*P. epirus* Tomasovic, 2001
-	Femora without orange apical ring	2
2.	Wing veins uniformly brown coloured (except sometimes at the base, no further than the humeral cross-vein); beard white	*P. choremii* sp. n.
-	Wing veins two coloured, some veins (e.g. Sc, Rs and A) noticeably lighter contrasting orange coloured in at least basal 1/3; beard yellow or gold	3
3.	Beard yellow, mystax with roughly 50% black bristles; leg bristles almost exclusively black, occasionally some white	*P. germanicus* (Linnaeus, 1758)
-	Beard more golden, mystax with black bristles restricted to extreme top, legs (especially tibiae) with many white/yellow bristles	*P. helveticus* (Mik, 1864)

Notes on the distribution of *Pamponerus* species in Greece

Until the present study only one species, *P. epirus* had been recorded from Greece in the literature, based on 3 male and 5 female specimens from a single locality in Western Greece.

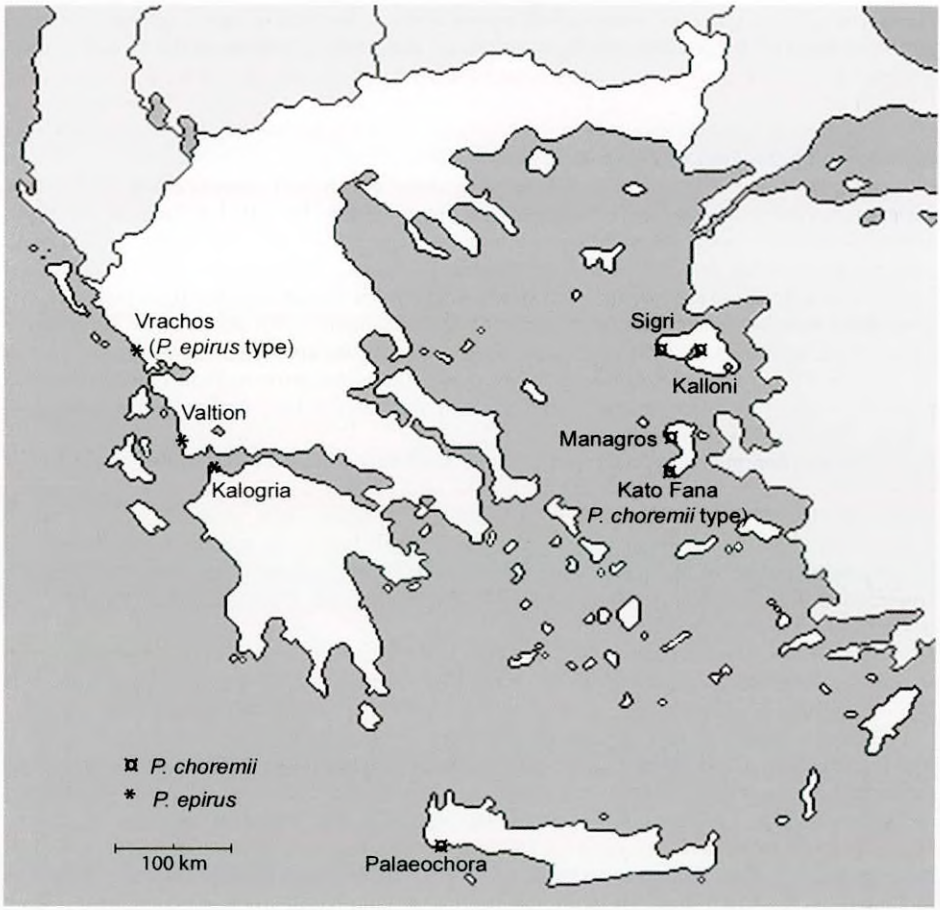


Fig. 29. Map of Greece showing known sites for *Pamponerus choremii* sp. n. and *P. epirus*

While researching material for this paper we located three female specimens of *P. epirus* from two other sites in the same general area along the Ionian Sea coast. The details on the data labels are as follows:

2 ♀. "Aitolia, Valtion, 2.v.1979, Greece, Col. A.E. Stubbs, BM 1893-90"
1 ♀. "Akhaia, Kalogria, 1.v.1979, Greece, Col. A.E. Stubbs, BM 1893-90"

The presently known ranges of *P. epirus* and *P. choremii* sp. n. do not overlap (Fig. 29), the latter species possibly being restricted to Crete and the Islands of the Aegean. Both species are associated with sandy coasts and have a very short and early flight season.

Ecology and behaviour of *Pamponerus choremii*

Pamponerus choremii is on the wing for only about one month, commencing in the third week of April. Males generally appear a few days before the females; later in the flight season only gravid females tend to be encountered. The earliest and latest dates for males are 22 April and 10 May, and for females 22 April and 20 May.

At the type locality, Kato Fana (Plate D1), males favour perches on vantage points around the periphery of the territory. They are most frequently seen perching 1 - 1.5m above ground level on the ends of twigs and shoots of Mastic shrubs and Rosemary bushes.

Females tend to favour lower perches, typically on low growing plants and the stunted prostrate vines in the central area of the territory from which they undertake frequent short 'capture dart' prey-seeking sorties.

Oviposition generally takes place in the seed heads of short grasses and other plants including *Silene*, usually immediately behind the reed beds on the landward side of the lagoon behind the beach (Plates D2 and D3), the moister conditions here probably being a major factor in site selection. Ovipositing females only dwell briefly on a chosen oviposition site before moving swiftly along some distance before laying again. The distances between consecutive oviposition sites are considerably longer than the flight distances when moving position while prospecting for potential prey

Population size and density is very low. In a typical 2 hour mid to late morning search in fine weather conditions at the height of the flight season, three experienced entomologists would typically make a total of only four or five contacts in total between them.

The territories of this species are generally within 100m of the shoreline. In 1999 a Malaise trap positioned about 150m from the shoreline adjacent to the main territory at Kato Fana only captured a single female, which was trapped between 25 and 30 April. Territories are generally large as at Kato Fana and Managros on Chios and Kalloni salt pans on Lesbos. However, the species can exist on quite small areas of dune. A female was found on the small dune at the south end of Sigri town beach, Lesbos, on 4 May 2002. This dune is of the order of 20m deep by 150m long. It is interesting that on that day there was a very strong wind blowing and another female was found resting on a shop wall within the village of Sigri about 1 km away.

Two instances of prey capture have been observed. At Managros Dunes, Chios, a male was seen capturing a small beetle with red elytra; the prey item was not secured as the predator flew off with its prey. It is believed that the beetle was a cantharid. A male was captured at Kalloni Salt Pans, Lesbos, on 24 April 2002 with a chafer beetle as prey.

In Chios *P. choremii* is the only asilid of its size and appearance on the wing in the two main sites, Kato Fana and Managros from late April to late May. However, at the Kalloni Salt Pans (Lesbos) another superficially very similar asilid species, *Echthistus cognatus* Loew, 1849 occurs in considerable numbers at the same time that *P. choremii* is on the wing

there. It is very difficult to tell the species apart in the field. Because the population density of *P. choremii* in Lesbos seems to be very low, as it is in Chios, it is necessary to net large numbers of asilids in order to secure a single *P. choremii*. Perhaps only three or four per cent on a good day will prove to be *P. choremii*.

Acknowledgements

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We also thank Dr. Bächli (in his capacity as editor of Mitteilungen der Schweizerischen Entomologischen Gesselschaft) for giving copyright permission for reproduction of figures from Weinberg and Bächli 1993 (our Figs 4, 5, 8, 9, 12, 13, 17, 18, 22, 23, 27 and 28) and Isabelle Coppée of Société Royale Belge d'Entomologie for giving copyright permission to reproduce figures from Tomasovic 2001 (our Figs 5, 14, 19 and 24).

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Notes on *Brachyopa scutellaris* Robineau-Desvoidy, 1843 (Diptera, Syrphidae) - *Brachyopa scutellaris* Robineau-Desvoidy is a widely distributed woodland species that is most frequently encountered as males hovering close to the trunks of oak trees *Quercus* species where they are lit up by shafts of sunlight. Checking oak trees (including turkey oak *Quercus cerris*) in late April and May is a good way of finding this hoverfly and I have found it to be not uncommon when I make a specific effort to look for it. Occasionally, I have also found it hovering close to birch *Betula pendula* trunks (Morris, R.K.A., 1998. *Hoverflies of Surrey*. Surrey Wildlife Trust, Pirbright. 244pp.8). I was therefore very surprised to take a specimen hovering close to the trunk of a fairly mature black poplar hybrid *Populus nigra* var. in the Fishpool Valley (SO4465) on 21 April 2007. This was not the only instance as I saw numerous individuals at a number of poplar trunks of diameter about 60 cm and altogether took four males, making it highly likely that these were the trees with which it was associated. This record extends the range of known or presumed host trees which also includes ash *Fraxinus excelsior*, aspen *Populus tremula*, yew *Taxus baccata* and elm *Ulmus* species (Ball, S.G. and Morris, R.K.A., 2000. *Provisional atlas of British hoverflies*. Centre for Ecology & Hydrology, Huntingdon. 167pp.).

Brachyopa scutellaris is a well-known leaf-basker (Morris 1998. *op. cit.*) and can often be found in considerable numbers. This year (28 April 2007) I found it to be numerous sunning on sycamore *Acer pseudoplatanus* leaves in a wooded strip adjacent to a minor road at Revesby (TF299618) in North Lincolnshire. In this case I took five specimens, which was necessary to confirm that it was the only species involved

Flower visits are not unknown and I took several specimens at dogwood *Cornus sanguinea* flowers at Ropsley Rise Wood (SK965346), South Lincolnshire on 11 June 2006; one male and two females were retained for checking. On 17 June 2007 I took a further male at this site after it had been observed visiting flowers of hogweed *Heracleum sphondylium* and bramble *Rubus* species.

In Spring 2007, on a visit to Dumfries and Galloway in early May, I noted *B. scutellaris* on several occasions. These include one occasion where two specimens were taken at bird cherry *Prunus padus* near Moniaive (NX764890), Dumfriesshire) on 3 May 2007, and a further example in Swaledale (SE091974), N.W. Yorkshire, on 5 May 2007 where it was also taken at *Prunus padus*. These latter records are of particular note because on both occasions the specimen was a male and seemed to be mate-searching in a similar way to *Volucella inflata* (Linnaeus) (Ball, S.G. and Morris, R.K.A., 2004. A mark-release-recapture study of *Volucella bombylans* (Linnaeus, 1758), *V. inflata* (Fabricius, 1794) and *V. pellucens* (Linnaeus, 1758) (Diptera: Syrphidae). UK. *Dipterists Digest* (*Second Series*) **10,** 73-83). The flies were observed flying relatively fast through and around the bushes before they appeared to approach particular flowers. At first it was not obvious that they were *Brachyopa* but this soon became apparent with closer observation - **ROGER K.A. MORRIS,** 7 Vine Street, Stamford, Lincs PE9 1QE

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Francis John Henry Jenkinson, his life and legacy

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Summary
By using a variety of sources, principally extracts from his diaries and records from his collection, an appreciation of Francis Jenkinson, his life and contribution to British Dipterology is given.

Introduction

When I first visited the Cambridge University Museum (CUM) almost 40 years ago, I was surprised to find they had such a large and comprehensive Diptera Collection. Closer inspection revealed that most of the material had been collected during the first quarter of the 20th Century and contained the collections of David Sharp and Charles Lamb. However, by far the largest proportion of the specimens present had the initials FJ on them and I soon realised this referred to Francis Jenkinson, whose collection has been a constant source of information and inspiration to me ever since.

There are no notebooks in CUM pertaining to Jenkinson's Diptera activities. However, his diaries are held in the Archive and Manuscripts Section of the Cambridge University Library. In the early part of 2005 and again in 2006 I transcribed all the information on Diptera therein and a document containing these extracts has been made available to CUM.

Francis Jenkinson's diaries and his collection thus form the basis for this article, although further information has been gleaned from a biography written by his brother-in-law Hugh Fraser Stewart (1926) and an appreciation of her husband given by his widow Margaret Jenkinson (1924). Peter Chandler has researched the genealogy of the Jenkinson family, which has provided important additional information and I am grateful to him for allowing me access to this.

The references to this paper include all publications by Francis Jenkinson that relate to Diptera, but no attempt has been made to include his publications on other entomological subjects.

The following abbreviations are used for the museums in which material mentioned is deposited:

BMNH	The Natural History Museum, London
CUM	The Cambridge University Museum

The Diaries

The diaries, beginning in 1866, cover a large part of Jenkinson's life but only those onward from 1900, when his interest in Diptera began, have been consulted. He used purchased diaries with a page for each day so there is a separate volume for each year; those examined from the period 1900-1923 were Lett's Office Diary and Almanac published by Cassell and

Company Limited. The entries, written in ink, are largely taken up with aspects of his work and details of a personal nature and there are notes on the weather and also a lot of phenological data that would be worth extracting.

In some respects the entomological content of his diaries is disappointing as he gives no detailed description of the localities visited and many of his most important captures are not mentioned. The reason for this is simply that he did not always recognise their true significance at the time and in many cases the specimens involved were not identified until much later, often after his death. Quite often all the information given is a brief account of where he collected that day and a list of Diptera at the bottom of the page, evidently added much later as specimens were identified. However, on occasions there are more detailed entries and they give a fascinating glimpse into what life was like for the dipterist 100 years ago.

The Collections

From the onset of his interest in Diptera Francis Jenkinson collected all families. Fortunately he didn't restrict himself to a few popular groups and fungus gnats were to become his favourites. Although he was continually giving specimens to individuals and institutions during his life, by the time he died in 1923, he had amassed a huge collection. In the CUM accessions book it records the receipt of his collection on 28 September 1923, which consisted of 175 store boxes of British Insects, mainly Diptera.

His collection was not arranged in a systematic way, the captures of each season and place being left together and the date and locality usually written on the outside of the box. F.W. Edwards and J.E. Collin were frequent visitors to see Jenkinson and his collection; one can only imagine the time they must have spent, poring over the specimens and searching for what particularly interested them at the time.

Jenkinson staged his specimens on cork squares purchased from Watkins and Doncaster. He lined the top of the squares with white chemist's labels and wrote the data by hand at the bottom edge of the stage, the locality on the left, the date in the middle and his initials on the right, so there were no separate data labels. He often abbreviated the locality name, the principal areas being abbreviated as follows:

Cro, ***Crow*** or ***Crowboro*** = Crowborough
Ly = the New Forest (for Lyndhurst, although he normally stayed at Brockenhurst)
Ca = Cambridge

Examples of his labelling are shown on the next two pages. The Cambridge specimens sometimes have an additional shorthand indicating where they were found in the City: *g* = garden or greenhouse at 10 Brookside, *Y* = garden, greenhouse and sheds at Southmead, Chaucer Road, *h* = specimen found in his house at either of the above two residencies, *UL* = University Library and *Od*, *Orch* or *Orchd* = Orchard the residency of his friend Horace Darwin, said to be on the outskirts of Cambridge (Jenkinson 1908).

There is also some material staged in his usual manner but not hand labelled. These have printed data labels, with a date range, evidently added after accession by the museum.


Logie.
FJ
5.VII.1902


LY.
FJ.
2.VII.04.


Ca. g. FJ
20. VI. 1904.


Crowborough: FJ.
3. VII. 1909.

Biographical information

Francis John Henry Jenkinson was born at Forres in Scotland on 20 August 1853. His father John Henry Jenkinson and his mother Alice Henrietta Gordon-Cumming had married at Rafford, near Forres in the previous year. Alice was daughter of Sir William Gordon-Cumming, Chief of the Cumming clan and before marrying had lived at Altyre House, which had been the Cumming family seat for 500 years. Soon after Francis was born, the family moved to Madresfield, Worcestershire where in 1855 his sister Eleanor (referred to as Nelly in the diaries) and in 1858 his brother George Seymour Charles were born.

However, tragedy struck the family in 1859, when Jenkinson's mother Alice was killed in an accident. We can only guess the effect this must have had on the young Francis and all the family. Certainly it caused his father to take up holy orders (Stewart 1926) and he became voluntary curate at St Mary's, Reading, having previously been ordained in 1846, but without apparently ever practising as a priest before, although his father John Banks Jenkinson was bishop of St David's. Although John Henry Jenkinson did not inherit the family title, Baronet of Hawkesbury, he evidently had independent means and the 1871 census has him living at St Mary's Vicarage with Eleanor and George, a governess and five other servants. In 1872 on being dislodged from the vicarage by a new vicar, the family moved around before finally settling at Ocklye House, Crowborough in 1887.

The young Francis went to school at Mr Nind's, Woodcote, near Henley-on-Thames from 1863-65 and then on to Marlborough until 1872. At Marlborough there was a flourishing Natural History Society, which had its own museum and Jenkinson soon became head of the entomological section. In 1868 he won a senior scholarship for which he was rewarded by a week's moth-hunting in the New Forest. His reports note a "great love of natural history which threatens to interfere with his work" and it appears that the happiest hours of his school years were spent on holiday in the Scilly Isles.

In 1871 he won an entrance scholarship at Trinity College, Cambridge, where he studied the Classics, although earlier members of the family including his father and grandfather had attended Oxford. His lack of physical robustness and diversions such as entomology, archaeology and music interfered considerably with his classical reading and success in university examinations. However, after completing the tripos he went on to obtain a Fellowship at the third attempt and began lecturing in the Classics.

On 6 July 1887 at St John's Church, Croydon, he married Marion Wetton; however tragedy was to strike Jenkinson again. After a short visit to Northumberland, they returned to Cambridge, but alas Marion was already hopelessly ill and died six months later. In 1889 Jenkinson became University Librarian, a post for which he was well suited and which he held until his death in 1923.

On 2 April 1902 he married again to his cousin by marriage, Margaret Clifford Stewart (referred to as Daisy in his diaries), at St John's, Crowborough. Theirs was a very happy marriage, with many shared interests, particularly music. Outside the Library, music was said to be his first love. He played the piano and sang, but not to as great an accomplishment as was shown by his wife.

The following two photographs of Francis Jenkinson are reproduced here from the biography by Stewart (*op. cit.*).

circa 1892

The start of an interest in Diptera

In 1900 David Sharp, then Curator of Entomology at CUM, enlisted the help of Jenkinson to build up the Diptera Collection. Earlier in his student days Jenkinson had collected Microlepidoptera, going on joint expeditions to Wicken Fen with Nelson Richardson and then later with Edward Meyrick to local places such as Madingley and Cherryhinton Chalk-pits. However, when Meyrick left Cambridge Jenkinson was said to have dropped collecting for want of a companion (Stewart 1926).

For most of 1900 Jenkinson seems to have done very little collecting, or had any enthusiasm for the task. However, in August of that year he went to Scotland on holiday and encouraged by Sharp and, having the time available, he began to collect Diptera and was so successful that he had to ask Sharp to send him more pins and boxes. He was particularly fascinated by *Conops quadrifasciatus* De Geer (Conopidae), which he seems to have not noticed before, although of course he was later to find it much closer to home. Shortly after his return to Cambridge on 18 September, along with Sharp and taking his Scottish specimens with him, he visited George Verrall and James Collin at Newmarket to see their collection, also meeting there Frederick Theobald who was working on Culicidae. It seems that his success in Scotland and the visit to Newmarket fired his enthusiasm for Diptera and for the rest of his life it became a consuming passion. He began collecting in earnest and many dipterists will identify with a typical entry in his diary from that time:

> 23 October 1900 "Coming home I set to work at my diptera of which I pinned altogether 62 and did not get to bed till 2.15"

Collecting techniques and general comments

Although Jenkinson normally used a net to catch his flies, when this was not available he employed other methods:

> "He had a mantis-like agility in catching them in his fingers or with one of the glass-topped receptacles which filled his pockets. Jenkinson could leap into the air and snap a hovering fly into one of his pill-boxes" (Stewart 1926)

However, an encounter with a *Bombylius discolor* Mikan (Bombyliidae) proved to be a particularly elusive quarry, requiring desperate measures as his diary entry shows:

> 1 May 1908 "Bombylius discolor hovering 3 pm about 4 feet from the ground over the path by the ancient wall behind Peterhouse, where I used to find Anthophorus and Melecta. It would not let me get near enough to catch it, but at last I borrowed a young lady's racquet and knocked it down"

Perhaps the fly would have been more wary, had it known that Jenkinson had been a keen exponent of real tennis in his student days. Unfortunately the specimen, or what was left of it, is not present in the CUM collection.

Wherever Jenkinson was, at home, at work, with friends or on holiday, he was always examining windows for flies. It proved to be a valuable resource, especially for fungus gnats and phorids as a couple of diary entries whilst staying at Logie show:

> 29 August 1903 ".. and then the carriage arrived, the windows were lively with Fungus Gnats"
> 28 September 1913 "Phoras swarming on the windows - about 100 or more in my dressing room"

However, not all the inhabitants of windows were quite so welcome as another diary entry from his home in Cambridge shows:

> 26 October 1906 "Killed 57 Stomoxys on the dining room window, after breakfast"

On 26 July 1906 he made perhaps his most unusual capture on a window, *Nephrocerus flavicornis* Zetterstedt (Pipunculidae) (Jenkinson 1907b).

Jenkinson had the ability to enthuse others and engage them in the task of collecting Diptera. In 1900 his parlour maid was Bertha Haynes and she found *Stomorhina lunata* (Fabricius) (Calliphoridae), in the garden at Cambridge on 25.ix.01. Whilst living at Chaucer Road, Cambridge, he employed a gardener Frank Lander and there are numerous specimens in the collection with his initials FWL. However, his most accomplished helper was his housekeeper/cook Annie Allard and many important specimens bear her initials. Jenkinson notes in his diary on 6 August 1901, when Annie returned from her holiday in the south-west, she brought two boxes of flies for him to examine. Another entry on Jenkinson's birthday also illustrates her devotion to the cause:

> 20 August 1901 "When Annie called me, she said she must mark the day by catching something special. When I came down, she had Xanthogramma ornatum and 4 Pipunculus i c [= *in copula*] at lunch time she produced Xylota segnis and then S. cinctus"

The diary entry for 3 April 1902, shows that when Annie returned from Crowborough after attending Jenkinson's wedding the previous day, she had spent three hours at sallow bushes and had got the syrphids *Cheilosia albipila* Meigen, *Melangyna quadrimaculata* (Verrall), *Platycheirus discimanus* Loew and the tachinid *Gonia picea* (Robineau-Desvoidy).

Later in the year when she accompanied Jenkinson and his new wife to Scotland, she made many important discoveries, including *Blera fallax* (Linnaeus) (Syrphidae). Unfortunately she left his employment on 14 November 1902, moving to Norwich and although the diary records occasional visits and specimens being sent from North Walsham on 22 June 1904, her interest appears to have waned without Jenkinson's encouragement.

Collecting Locations

As collecting by Francis Jenkinson was concentrated in certain areas of the country the account of his activities is here arranged under these headings. Specimens mentioned were collected by him, except where indicated and the initials AA and FWL refer to the collectors named above. As all dates cited are in the period 1900-1923 they are abbreviated here.

Cambridge

In 1900 Jenkinson was residing at 10 Brookside (TL452575), in a terraced house on the southern edge of Cambridge, close to the Botanical Gardens. It had a long, narrow garden said to be 80 by 20 ft (Jenkinson 1901b), surrounded by a wall covered in part with ivy. Although he gives no detailed description of the garden, extracts from his diaries reveal that it contained a mix of native and cultivated plants. He often refers to "the mound" which had wild roses, gorse and primroses growing on it. There were several fruit trees including pear, cherry and plum; the latter two were often infested with aphids and the resulting honey-dew may have been attractive to Diptera. There were nut bushes (presumably hazel) and dog's mercury which he called "shocking stuff" and tried to remove.

There was a small greenhouse, which he inspected every evening for any flies that had become trapped and among the finds there were *Bombylius discolor* Mikan (Bombyliidae) 19.iv.00 AA, *Mallota cimbiciformis* (Fallén) (Syrphidae) 16.vii.06, *Stegana longifibula* Takada (Drosophilidae) 19.vii.06 and *Sarcophaga africa* (Wiedemann) (Sarcophagidae) 2.viii.05 and 2.ix.06. The greenhouse was also said to contain a pair of tree frogs from the Riviera (Stewart 1926), which presumably also caught flies!

The list of rare Diptera found in this small, city garden is quite remarkable and includes: **Bombyliidae:** *B. discolor* 27.iv.02; **Dolichopodidae:** *Ortochile nigrocoerulea* Latreille several 1903; **Syrphidae:** *Cheilosia cynocephala* Loew 8.ix.02, *Criorhina floccosa* (Meigen) 21.vi.02, *Didea fasciata* Macquart 26.ix.01, *Heringia vitripennis* (Meigen) numerous 1901-06, *M. cimbiciformis* 8.vii.03 on a tea rose, *Melangyna barbifrons* (Fallén) 3.iv.03, *Platycheirus discimanus* Loew 21.iv.06; **Pallopteridae:** *Palloptera laetabilis* Loew 25.vi.05; **Ulidiidae:** *Dorycera graminum* (Fabricius) 31 v.05, *Ulidia erythrophthalma* Meigen 7.viii.02 AA and 7.vii.03; **Ephydridae:** *Trimerina madizans* (Fallén) 23.vii.06; **Anthomyiidae:** *Leucophora sociata* (Meigen) 23.vi.05, *Eutrichota praepotens* (Wiedemann) 28.viii.06, *Pegomya testacea* (De Geer) 14.vi.06; **Muscidae:** *Pyrellia rapax* (Harris) 12.viii.04, 13.viii.04 (x 2) and 16.vii.06 (x 2); **Tachinidae:** *Myxexoristops stolidus* (Stein) 10.vi.06, *Timavia amoena* (Meigen) 26.vi.02 AA and *Ceromya monostrosicornis* (Stein) 26.v.05. This list is far from exhaustive, but does serve to show that a very rich Diptera fauna must have been present in the area at the time. Many of the species recorded were probably just passing through, but in the case of a further two species, found in numbers in the garden, they may well have been resident there.

Jenkinson first found *Agathomyia collini* Verrall (Platypezidae) on an ivy *Hedera* leaf, in a neighbour's garden on 20 July 1901. It was subsequently found quite frequently in his own garden and at CUM there are 21 specimens covering the period 1901-05, with dates from 29 April to 18 September, including all the months between. There is a diary record (repeated by Jenkinson 1903a), of a specimen taken by Annie Allard on 17 October 1902, but this is not

supported by a specimen at CUM. There are, however, two specimens taken at the Orchard; so it must have been present elsewhere in Cambridge at the time. Unfortunately the diary gives very little information on the habits of *A. collini*. On 6 August 1901 he records "A. collini male Annie got one on Oenothera leaf" and on 6 September 1902 a "female flying, in the garden, flight steady in a straight line". On 31 July 1903 he writes "saw a A. collini female buzz and settle on a teasel leaf" and "another on a vine leaf". It has been speculated (Chandler 2001) that, as many of the records are from gardens and orchards, the host fungus for *A. collini* may be *Phellinus pomaceus* which can be found on fruit trees, although Jenkinson makes no mention of this being present on his own trees. It is surprising that such a rare species with only two post 1960 records (Falk and Chandler 2005), should have such a long flight period, although *P. pomaceus* has a tough fruiting body which persists for a long time and could then possibly support successive generations of *A. collini*.

Acletoxenus formosus (Loew) (Drosophilidae) was found in large numbers in the garden at Brookside and in CUM there are about 30 specimens from there. Jenkinson seems to have been impressed by this pretty little fly and published three short notes on it (Jenkinson 1901g, 1902 and 1903d). When Collin (1902) gave a full description of the species, Jenkinson commissioned a beautiful colour plate by Edwin Wilson, apparently from a live specimen, to accompany the article. As a larva it is known to feed on the white fly *Siphoninus immaculatus* (Heeger) (Hemiptera, Aleyrodidae) upon ivy (Smith 1989) and may have been present on the ivy growing on the garden wall. However, it seems to have occurred almost anywhere in the garden, but was most frequent on the plum tree and on 19 July 1903 he noted it "at aphis infested plum shoots". He also found it several times on common mallow *Malva sylvestris* and wrote on 19 July 1903 "2 at Mallow, settling on leaves, exploring them mostly by oblique gliding motion, very lovely". Finally, on 28 July 1903 he "saw 3 or 4 mostly near the ivy". Today this species is rarely recorded and has possibly declined, although its unobtrusive habits may have contributed to this conclusion. Jenkinson was obviously tuned in to its ways, although few could hope to match his powers of observation.

Jenkinson was often content to spend time just observing what was going on in the garden and gave particular attention to pipunculids, which were quite frequent there. In 1903 he observed the oviposition of *Verrallia aucta* (Fallén) (Jenkinson 1903b). His diaries show that on 3 and 23 July 1906, he witnessed *Verrallia* exhibiting very similar behaviour.

At the end of September 1906, Jenkinson moved the short distance to Southmead, Chaucer Road (TL450570). Here with its acre of ground (Stewart 1926), he was able to indulge his passion for gardening and took many of his favourite plants with him from Brookside. He employed a gardener, F.W. Lander, constructed a rockery (whose plants were very attractive to Diptera) and bought a bigger greenhouse. Although the garden at Southmead does not appear to have been as productive for Diptera as Brookside, it still produced many interesting species including: **Limoniidae:** *Limonia maculipennis* (Meigen) 22.v.18; **Stratiomyidae:** *Beris clavipes* (Linnaeus) frequent; **Asilidae:** *Choerades marginatus* (Linnaeus) 9.vi.22; **Hybotidae:** *Tachydromia connexa* Meigen frequent, *T. halterata* (Collin) 6.vi.16; **Syrphidae:** *Cheilosia grossa* (Fallén) several, *C. cynocephala* Loew 11.viii.18 at aaron's rod, *Heringia vitripennis* (Meigen) 4.vi.11, *Meligramma guttatum* (Fallén) 19.vi.10;

Ulidiidae: *Dorycera graminum* (Fabricius) 6.vi.17 FWL, *Ulidia erythrophthalma* Meigen 17.vii.07 FWL; **Drosophilidae:** *Stegana coleoptrata* (Scopoli) 16.vii.23 potting shed; **Anthomyiidae:** *Eutrichota praepotens* (Wiedemann) 24.vi.23 FWL; **Muscidae:** *Hydrotaea parva* Meade 13.viii.16, *Pyrellia rapax* (Harris) frequent; **Tachinidae:** *Gonia ornata* Meigen 22.v.10 and **Oestridae:** *Gasterophilus nasalis* (Linnaeus) 3.viii.08 "a female buzzing gently round me by the rockery."

He also made some notable finds in his house such as: *Megophthalmidia crassicornis* (Curtis) (Mycetophilidae) 23.vi.16, 5.vi.19 and 28.vi.19, *Tabanus autumnalis* Linnaeus (Tabanidae) 14.vi.09, *Euthyneura halidayi* Collin (Hybotidae) 25.v.13 and 3.vi.21, *Eccoptomera microps* (Meigen) (Heleomyzidae) 10.i.22 and the anthomyiids *Zaphne wierzejskii* (Mik) 18.vii.11 and *Pegomya testacea* (De Geer) 22.vi.14.

Again these lists are far from exhaustive and do as expected show several similarities. However, it is interesting that he never saw *Agathomyia collini* or *Acletoxenus formosus* at Southmead. The list is also undoubtedly influenced by the proximity of the property to the flood meadows of the river Cam.

On 28 December 1920 the diary entry reads "Lander caught several Fungus Gnats in the bicycle shed" and then again on 10 January 1921, "Fungus Gnats numerous in the bicycle shed". From then on and in subsequent years, particularly during the winter months, the windows of the bicycle shed were often full of fungus gnats. Jenkinson gives no explanation for this phenomenon; presumably they entered through an open door or were emerging from within the shed. That so many fungus gnats should have been active during the winter months, is surprising. Perhaps the least frequent species found in this way was *Trichonta icenica* Edwards (Mycetophilidae) 30.i.21 and 14.i.23.

As the river Cam enters Cambridge from the South, it flows through some flood meadows, Coe Fen to the east and Sheep's Green to the west of the main channel. As in Jenkinson's time, there are a number of old channels and ditches, some of which dry up in summer, there are scattered poplars *Populus* and willows *Salix* and the whole area is grazed by cattle and horses. Jenkinson's route to and from work took him through the meadows and taking his pocket net with him, he often tarried here for a while. He makes several mentions in his diaries of an overgrown pond at the S.E. corner of Sheep's Green, where he found species including the stratiomyids *Nemotelus nigrinus* Fallén and *Stratiomys potamida* Meigen and the syrphid *Anasimyia lineata* (Fabricius). However, there is no sign of this pond today. Some of the interesting species he found on these meadows include: **Dolichopodidae:** *Dolichopus lineatocornis* Zetterstedt 15.vii.01 Sheep's Green; **Ephydridae:** *Mosillus subsultans* (Fabricius) 26.ix.01 Coe Fen; **Sarcophagidae:** *Macronychia striginervis* (Zetterstedt) found on a rotten willow on Sheep's Green in vii.05 and vi.09 and **Oestridae:** *Hypoderma lineatum* (De Villers) 30.v.12 on a path, Sheep's Green.

Gasterophilus intestinalis (De Geer) (Oestridae) used to frequent the horses and his diaries recount one incident:

> 17 September 1908 "Coming home to luncheon saw a Gasterophilus equi female laying eggs on a white horse and the horse being quiet, caught it in my hand!"

He also notes finding *Myennis octopunctata* (Coquebert) (Ulidiidae) on Coe Fen:

> 31 July 1904 "11.45 crossing the fen on Cruso's Island an exquisite Ortalid (Loxoderma lacustris) sat on a fence in the sun, looking like a fly that had died of fungus, its wings extended motionless"

Later in July 1906, David Sharp was to find *M. octopunctata* on poplars, nearby at Newnham Croft.

Jenkinson recognised the importance for Diptera of old elm *Ulmus* trees, with their rot holes, sap runs and associated fungi. The wooded area behind the main colleges, known locally as the "Backs", contained several such trees, although they also occurred elsewhere, such as at Newnham Croft and in Brookside close to where he lived. Even in Jenkinson's time these trees were under threat and he often lamented them being cut down, having their rot holes filled with cement or their fungi removed. Neither were they immune from the elements as his diary shows:

> 28 March 1916 "By 7 there seemed to be less snow falling, but some gusts were very violent. Destruction of trees enormous"
> 30 March 1916 "Terrible destruction of elms behind Kings and Clare Avenue"

By regularly examining the old elms, Jenkinson was able to record a range of Diptera associated with them including: **Limoniidae:** *Rhipidia ctenophora* Loew 11.vii.06 "ovipositing in elm sap"; **Mycetobiidae:** *Mycetobia pallipes* Meigen frequent at and reared from sap; **Stratiomyidae:** *Eupachygaster tarsalis* (Zetterstedt) 24.vii.04 "at a small cavern in an elm behind Kings"; **Dolichopodidae:** *Systenus leucurus* Loew, *S. pallipes* (von Roser) frequent on sap, *S. scholtzii* (Loew), *S. bipartitus* (Loew) (Verrall 1905 mentioned one on elm, specimen not in CUM); **Syrphidae:** *Brachyopa insensilis* Collin frequent at sap; **Odiniidae:** *Odinia hendeli* Collin 21.vii.07 and 4.vii.08, *O. meijerei* Collin 30.vi.08 and 4.vii.08; **Aulacigastridae:** *Aulacigaster leucopeza* (Meigen) frequent at and reared from sap; **Periscelididae:** *Periscelis annulata* (Fallén) frequent; **Muscidae:** *Phaonia cincta* (Zetterstedt) 8.viii.04, 27.vii.06 and 12.vii.21, *P. exoleta* (Meigen) 4.viii.04 "at wedding cake debris in hollow elm, Backs," *P. pratensis* (Robineau-Desvoidy) frequent at sap. Surprisingly the uncommon lauxaniid *Sapromyza obsoleta* Fallén, was also found several times at elm sap, presumably attracted to the exudate to feed.

One entry in the diaries shows a particularly cavalier attitude to hygiene:

> 1 October 1900 "Found the flies (Piophila casei) in the grocers shop belonged to cheese; and the females were hard at work ovipositing, pushing their tails in. Caught about a dozen. I remarked that the cheese would soon be full of maggots; oh said the grocer, it will all be sold before that"

Jenkinson may have got his cheese from a different shop. All the same he wasn't immune from such practices, recording *Piophila casei* (Linnaeus) (Piophilidae) in his house on 22.vi.07 and 29.vii.08.

Two entries in the diaries particularly intrigued me:

> 25 July 1901 "At 6 in Kings got five specimens of the fly that hovers over the water with a tail of eggs"
> 26 July 1901 ".. river in Kings and after some time saw the fly with strings of eggs. Caught 5 and one string"

I realised what species was involved when I came across a similar observation (Hamm 1919), regarding the oviposition of the ceratopogonid *Mallochohelea nitida* (Macquart). On checking at CUM I found specimens of *M. nitida* with the strings of eggs attached to the stage. It is a pity that Jenkinson did not publish these observations, as they appear to be one of the first accounts of this behaviour. It seems that F.W. Edwards had not seen these specimens as Hamm (1919) quoted him as saying, "the mode of oviposition was unknown".

Sympycnus spiculatus Gerstäcker (Dolichopodidae) was introduced as British by Verrall (1905), from material collected by Jenkinson. His diary records on 17 May 1902: "They were flitting about the conservatory and settling on plants at Dew-Smiths in Old Chesterton". It occurred in his greenhouse at Brookside and frequently in the larger one he had at Southmead, where many of the specimens bear the initials of his gardener. Some of the records are very early in the year i.e. 17.i 07 or 20.ii.11, indicating that they must have been resident there. It seems that there was then a "domesticated" population of *S. spiculatus* in Cambridge conservatories and greenhouses.

In 1913 Jenkinson discovered the introduced dolichopodid *Chrysotus longipalpis* Aldrich, at Cambridge Botanical Gardens (TL454572), recording the occasion in his diary:

> 16 November 1913 "At 12 we all went to the Botanical Gardens and in the Orchid House were several plants of a Pinguicula with a pink flower, on the leaves of which were many small flies. I saw they were Dolichops and managed to scrape off two and bring them home. The male has large spatula-like yellowish palps, shining like silver"

There are several diary entries recording their continued presence at least up until September 1921, but unfortunately the population does not appear to have survived until the present day.

On three occasions in 1916, Jenkinson observed the courtship behaviour of *Hercostomus nanus* (Macquart) (Dolichopodidae) close to where he lived and gives a brief description in his diary of two of these events:

> 25 June 1916 "On low plants sat a small Dolichopod and another was performing the piston rod dance (about 6 inches stroke)"
> 3 July 1916 "Herc. nanus female sitting on a leaf, while the male darted to and fro like a piston rod across her"

There is one rather curious diary entry regarding *Solva marginata* (Meigen) (Xylomyidae), for which I can offer no rational explanation. However, I repeat it here in the hope that someone may have an answer:

> 1 July 1922 "Xylomyia marginata. Lander brought two which he found while securing a swarm of bees in a turnip field (among the bees when he got home)"

Two species of Diptera collected by Jenkinson at Cambridge, are still known only from the type specimens: *Trichosia jenkinsoni* Freeman 1987 (Sciaridae) and *Lasiambia parcepilosa* Collin 1946 (Chloropidae). Unfortunately there is nothing in the diaries to indicate the circumstances of their capture and it has been speculated (Ismay 2000), that the occurrence of *L. parcepilosa* may have been the result of a casual import.

Outside of Cambridge Jenkinson did very little collecting in the county. On 28 July 1901 he visited Swaffham Prior (TL570641), where he found *Ulidia erythrophthalma* Meigen (Ulidiidae) and *Oxyna flavipennis* (Loew) (Tephritidae), both of which still occur close by today. On 12 July 1903 he was at Six Mile Bottom (TL580570), collecting in herb-rich chalk downland and finding amongst other things: *Eutrichota praepotens* (Wiedemann) (Anthomyiidae) and *Loewia submetallica* (Macquart) (Tachinidae). Although he served on the Local Committee of Management for Wicken Fen, he does not seem to have visited there during his Diptera collecting days.

The New Forest

Jenkinson made four visits to the New Forest whilst he was collecting Diptera. The last one in 1921 was a short stop on route from the Isle of Wight, to visit the ailing Sharp who had retired to Brockenhurst in 1909. On the other occasions: 20 June - 3 July 1901, 16-24 June 1903 and 2-13 July 1904, he was joined by Lamb and Sharp for the purpose of collecting. Most of their time was spent in the inclosures between Brockenhurst and Lyndhurst. These were the areas much favoured by the lepidopterists of the time and it's safe to assume that the rides with their fringing bramble and wild roses, would have made ideal Diptera habitat as well. New Park Inclosure, just north of Brockenhurst, was one favoured area and here Jenkinson took *Nephrocerus flavicornis* Zetterstedt (Pipunculidae) and *Loxocera nigrifrons* Macquart (Psilidae) on the same day, 18 June 1903. In Brick Kiln Inclosure he found on 28 June 1901 a *Callicera aurata* (Rossi) (Syrphidae), on a rose before breakfast and in the same area he records in his diary the capture of *Chrysotoxum octomaculatum* Curtis (Syrphidae):

> 27 June 1901 "Went to Brick Kiln enclosure on my way back saw a fly like a bit of brilliant yellow metal in the main ride, about 7 feet up. It proved to be a Chrysotoxum (C. octomaculatum)"

In Rhinefield Drive on 26 June 1901 at a *Rhododendron* he caught *Physocephala nigra* (De Geer) (Conopidae) according to his diary, but in CUM the specimen bears Sharp's name. Somewhere between Aldridgehill Inclosure and the Rhinefield Drive, they found an old beech tree with *Xylomya maculata* (Meigen) developing in it. The same tree on 9 July 1904

produced amongst other things, 23 *Stegana similis* Laštovka & Máca (Drosophilidae) with others left! On 1 July 1901 Jenkinson found the only British specimen of *Tipula sarajevensis* Strobl (Tipulidae); however, his diary gives no clue to the circumstances and the page for that day is completely blank, normally a sign that he was incapacitated through ill health.

Other notable captures he made in the New Forest include: **Tipulidae:** *Nephrotoma dorsalis* (Fabricius) 16.vi.03; **Keroplatidae:** *Rutylapa ruficornis* (Zetterstedt) 7.vii.04 Queens Bower; **Platypezidae:** *Callomyia elegans* Meigen 21 vi.03 New Park Inclosure and 17.vi.03 "collecting across country to Rhinefields"; **Syrphidae:** *Ferdinandea ruficornis* (Fabricius) 25.vi.01; **Tephritidae:** *Cryptaciura rotundiventris* (Fallén) 6.vii.04 Matley Bog; **Muscidae:** *Potamia setifemur* (Stein) 9.vii.04, *Phaonia exoleta* (Meigen) 7.vii.04 and 10.vii.04; **Tachinidae:** *Microsoma exiguum* (Meigen) 20.vi.03 and *Parasetigena silvestris* (Robineau-Desvoidy) 17.vi.03.

Over the last 25 years or so I have made frequent visits to the New Forest to collect Diptera. However, I have still to encounter many of the species Jenkinson seems to have found there with relative ease. I have seen *Stegana* there only once and the thought of finding 23+ on a single tree is difficult to comprehend, a sentiment that I am sure would be echoed by many dipterists today. The impression given is that the Forest must have been an exceptional area for Diptera at that time and the decline reported in the Lepidoptera there during the middle of the last century, was probably mirrored in the flies as well.

Crowborough, Sussex

Jenkinson made frequent visits to Crowborough, Sussex, staying with his father and sister Eleanor at Ocklye House (TQ501311), on the western edge of the town. Here the High Weald, with its mix of heath and woodland, provided varied habitat and below the house there was a wooded ravine or ghyll as its known locally. His diaries show that he often collected "up" or "down the ghyll" or across to the forest beyond. A nearby pond with its marshy margins and flowering mint *Mentha*, provided alternative habitat. There are several references in his diaries to an area known as Dog Hutch, where the sallows in spring were productive for species such as *Melangyna quadrimaculata* (Verrall) and *Platycheirus discimanus* Loew (Syrphidae).

On 14 August 1906 Jenkinson collected the first British specimen of *Tasiocera jenkinsoni* Freeman (Limoniidae). His diaries show that he was collecting in the ghyll on that day, but he makes no mention of *Tasiocera*.

The area around Ocklye House also proved ideal for fungus gnats. The ghyll often contained concentrations of them and as always the windows provided a steady supply. Many of the species he collected were new to Britain such as *Exechia pectinivalva* Stackelberg, *Rymosia connexa* Winnertz and *Sciophila fridolini* Stackelberg or still remain the only English example such as *Rymosia setiger* Dziedzicki, *Sceptonia regni* Chandler and *Mycomya ornata* (Meigen) (Falk and Chandler 2005).

In 1912 Jenkinson swept *Opomyza lineatopunctata* von Roser (Opomyzidae) in numbers from *Molinia* as darkness approached (Jenkinson 1913). My own experience of *O. lineatopunctata* is that it normally lives deep within *Molinia* tussocks and is unlikely to be obtained in this way. Jenkinson's observations suggest that at dusk it migrates to the top of

the plants and can then be obtained by sweeping. It would be interesting to try out this theory and to see if any other Diptera of similar habits could be obtained in this manner.

Acletoxenus formosus (Loew) (Drosophilidae) was found several times at Crowborough and noticed on occasions "buzzing at ivy on the house". Other Diptera of note recorded include: **Acroceridae:** *Acrocera orbiculus* (Fabricius) 19.vii.05 and 21.vii.05; **Empididae:** *Dolichocephala ocellata* (Costa) 6.x.06; **Dolichopodidae:** *Dolichopus arbustorum* Stannius vi.04; **Pipunculidae:** *Cephalops carinatus* (Verrall) 3.ix.19 "in cop. hovering", *Dorylomorpha rufipes* (Meigen) 25.vi.04; **Conopidae:** *Myopa fasciata* Meigen 5-9.ix.01 (x 5) and 19.viii.07 and **Tephritidae:** *Acinia corniculata* (Zetterstedt) 24.viii.07 and 15-21.viii.11.

Scotland

Jenkinson made nine visits to Scotland during the period 1900-1913. The First World War probably caused him to stop, but for some reason he never resumed after it ended. Apart from 1902, when he spent July in Scotland, all his other trips were in the late summer/autumn time. Unfortunately he made no visits in the May/June period, when adult Diptera can be at their maximum diversity there; so a large part of the fauna was not available to him. Jenkinson's mother and second wife were both Scottish and he had many relatives to visit and stay with there. Jenkinson obviously enjoyed his trips to Scotland enormously as his wife (Jenkinson 1924) recounts:

> "But how can I describe his joy when travelling northwards? When we passed from Perth to the Highland Line, his animation and delight were most infectious. Then when we got to the "summit" of Dalnaspidal his excitement knew no bounds. If he had suffered from headache or fatigue he revived the moment we got to the Highlands; he loved it so; a breath from those beloved hills restored him like wine"

Many entomologists, myself included, who make the long journey from the south will identify with these sentiments, the excitement at reaching the Highlands never diminishes, however many times we make the trip.

Jenkinson often stopped for a few days on route to or from the Highlands, at Auchenbowie, near Stirling (NS799874), where he seems to have had relatives and took the opportunity to collect Diptera when he could. He also stopped regularly at Edinburgh, visiting the Royal Scottish Museum, making acquaintance with Percy Grimshaw and Eagle Clarke and donating specimens. In 1900 he stayed for a few days at Reinacharn, near Dinnet, Deeside (NJ442085) and collected *Campiglossa argyrocephala* (Loew) (Tephritidae) 28.viii.00. At the end of his visit in 1902 he stopped for a few days at Boat of Garten, Speyside and found *Cadurciella tritaeniata* (Rondani) (Tachinidae) and Annie Allard got a *Chamaesyrphus* (Syrphidae) according to his diary, although there is no specimen in CUM.

In 1905 he spent a few days at Newtonmore, Speyside, where he caught *Elodia morio* (Fallén) (Tachinidae) amongst other interesting things. On 26 September 1911 he spent the day at Lossiemouth, where he encountered *Helcomyza ustulata* Curtis (Dryomyzidae). His diary entry reminds me of my own experiences with this elusive species: "We came to a place

where lumps of seaweed lay about and had a most exciting hunt for big Coelopas". On his last visit in 1913 he stayed for a few days at Ballater, Deeside and went up Craigandorrach (NO365965), before continuing northwards.

Logie, Moray

Jenkinson spent most of his time in Scotland staying at Logie House, Moray (NJ006509), with his wife's aunt, Anne Mary Stewart (referred to as aunt Annie). She was the widow of Major General John Drummin Stewart of the Bombay Army, who had died in Rome on 13 April 1874. She was also Francis' aunt by the marriage of her husband's sister Elizabeth Newton Stewart to his uncle Henry Gordon-Cumming. Anne Stewart survived Jenkinson, dying at Nairn in 1926 aged 85; however, she may have moved from Logie House some time before then and this may help explain why Jenkinson ceased to visit.

Logie House is an imposing building looking down onto the river Findhorn and proved to be an ideal location for Jenkinson to collect Diptera. His diaries show that he radiated out in all directions from the house, but his favoured route was to follow the banks of the Findhorn and on up its tributary the Divie towards Dunphail House. Regrettably only a short stretch of the Divie is accessible from this end today.

Unfortunately, Jenkinson gives no detailed description of the area around Logie House, although his diaries give the impression of large areas of open moorland, with woodland concentrated in the river valleys. He also mentions a peat bog and his records of *Tomosvaryella cilitarsis* (Strobl) (Pipunculidae) from August 1903, are likely to have come from there. He does not refer to native pine forest, although some of his captures indicate that it must have been present. Today the area must look totally different with its agriculturally improved pasture and commercial pine plantations. Only the valley of the Findhorn with its deciduous woodland and riverine habitats remains intact, although even here the conifers encroach in places.

With most of his visits timed for the autumn, the surrounds of Logie proved ideal for fungus gnats and the windows of the house provided a steady stream of specimens. Many of the species Jenkinson collected proved to be new to Britain (Falk and Chandler 2005) and on 23 September 1904 he found the only British example of *Docosia morionella* Mik. His diary relates that he found *D. valida* (= *D. sciarina* (Meigen)) on a window that day; however, there is no specimen of that species in CUM; so he may well have been referring to the specimen later identified as *D. morionella*.

Jenkinson found *Thereva handlirschi* Krober (Therevidae) regularly at Logie and there are 12 specimens in CUM, with dates ranging from 23 August to 20 September. His diary notes that he found them ovipositing:

> 8 September 1900 "Caught two female Thereva after watching them lay eggs like a grasshopper in the dry crumbly soil SW of the tree, sloping steeply to the road"

It is pleasing to report that *T. handlirschi* still occurs at Logie as I found it there in August 2006 and its apparent rarity may be due in part to its late flight period.

One of the species recorded at Logie was *Blera fallax* (Linnaeus) (Syrphidae), now important for its conservation status, which was found during his stay there in July 1902. Altogether 12 were captured, 10 by Annie Allard and the diary records the circumstances of some of these:

> 3 July 1902 "Spent the whole morning watching for the flies Cynorrhina fallax Annie caught yesterday on leaves of Wild Raspberry, but did not see one"
> 4 July 1902 "At tea at Altyre. While we were this occupied Annie got four more C. fallax, red tails, all males, in the same place exactly"
> 5 July 1902 "... a C. fallax not in the usual place, but among wild raspberry plants"
> 13 July 1902 "Cynorrhina fallax female settled on a rose leaf under the east window of the morning room and I caught it with my hand"

During the same trip *Laphria flava* (Linnaeus) (Asilidae) was also found as his diary notes:

> 11 July 1902 "About 11 I stationed myself by the Rhododendron bush in front of the hall door; almost immediately Laphria flava came and settled lightly on a flower and I caught it easily. It looked like a thin bumble bee"

Both *L. flava* and *B. fallax* are considered to be species of the Caledonian Pine Forest and these finds show that there must have been at least some elements of that habitat remaining very close to Logie House at that time. Unfortunately no vestige of it remains today. Other species found at Logie which also suggest the presence of native pine forest include: *Xylota jakutorum* Bagachanova (Syrphidae) numerous specimens vii.02, *Palloptera usta* (Meigen) (Pallopteridae) ix.04, 14.ix.05, 2.ix.09 and 27.ix.10 and *Clusiodes geomyzinus* (Fallén) (Clusiidae) 18.ix.09.

Following on from Jenkinson's discovery of elements of the Caledonian Pine fauna at Logie, he records in his diary a visit to the Nairn Museum:

> 17 September 1910 "Went with Daisy to the Museum. I put benzine and carbolic in the two cases of insects. Among the Diptera was Cynorrhina fallax and Laphria flava. Mr Thomson who collected them was schoolmaster at Glenfurness; his wife died and he went away to Glasgow"

Glenfurness (NH948437) is also by the Findhorn, about 7 miles to the south of Logie. Although Jenkinson's account is not precise on date or location, he seems to have known the person involved and the inference is that the specimens were collected at Glenfurness. Despite Jenkinson's efforts to protect the specimens, they do not appear to have survived to the present day and I have seen no mention of them in the literature.

The pipunculid *Eudorylas jenkinsoni* Coe was described as new to science (Coe 1966), largely based on material collected by Jenkinson at Logie and nearby Altyre. On 1 September 1903 he found *Asteia elegantula* Zetterstedt (Asteiidae) by "sweeping fern etc in front of the house, a little up the hill" and introduced it as British (Jenkinson 1904a). He subsequently

found it in numbers between 1909 and 1913 on dates from 1 to 23 September and altogether there are 24 specimens in CUM. Most specimens were swept from ferns opposite the front door; on 9 September 1909 he recorded a pair *in copula* and on 9 September 1911, of four collected two were immature. Jenkinson's experiences with *A. elegantula* suggest a late emergence, with possible overwintering as an adult like *A. amoena* Meigen, with few individuals surviving into the summer months. Such a strategy might help to explain why it is so infrequently found and why Jenkinson being in the right place at the right time, had so much success with it.

Until recently, when it was found at another locality on the Findhorn (Horsfield 1994), Jenkinson's records of *Phaonia pullata* (Czerny) (Muscidae) from Logie, were the only ones known from this country. There are seven specimens in CUM, one of which bears the date 7 September 1905; however, it must have been wrongly labelled, as his diary shows he was at Newtonmore on that day. Very little appears to be known about the biology of this species, which outside Scotland is only known from Central Europe and there is nothing relevant to this in the diaries. During their stay at Logie in 1902, the distinctive tachinid *Hyalurgus lucidus* (Meigen) was found, with four captured on 15 July (3 by Annie Allard) and another on 16 July. Wainwright's (1928) comment that Jenkinson had informed him that it was fairly common on Umbelliferae in 1915 is misleading, as he only found it during the 1902 visit.

Some other Diptera of note found at Logie include: **Tipulidae:** *Nephrotoma aculeata* Loew 7.ix.00, *Tipula limbata* Zetterstedt 18-29.viii.03; **Culicidae:** *Culex territans* Walker 11.ix.11; **Hybotidae:** *Tachypeza heeri* Zetterstedt 6.vii.02 Dunphail; **Platypezidae:** *Agathomyia lundbecki* Chandler in Shatalkin 16.ix.04 "in the valley of the Divie"; **Syrphidae:** *Cheilosia mutabilis* (Fallén) vii.02 (x 2), 5.vii.02; **Psilidae:** *Loxocera fulviventris* Meigen 31.viii.03 "heather garden," *L. sylvatica* Meigen 2.vii.02; **Piophilidae:** *Mycetaulus bipunctatus* (Fallén) 25.ix.13 "hall window"; **Aulacigastridae:** *Aulacigaster leucopeza* (Meigen) reared from elm sap 1902; **Fanniidae:** *Fannia ornata* (Meigen) 16.ix.11 and **Tachinidae:** *Erycilla ferruginea* (Meigen) 16.vii.02 AA (in BMNH), viii.03 (x 2), 20.viii 03 and 31.viii.03.

On 20 August 1903 Jenkinson met up with J.J.F.X. King and they spent the day collecting together at Logie. In his diary Jenkinson tells of the rather unusual way King dealt with his specimens: "He collects things alive in tubes (with a quill through the cork) and kills them by immersing the tube in boiling water".

Flowerburn, Fortrose

In his diary on 28 September 1918, Jenkinson records the receipt of a box of Diptera from Bill Grant. William Robert Ogilvie-Grant was Jenkinson's first cousin (his mother was Francis' aunt Eleonora Gordon-Cumming) and had worked at BMNH where he first studied ichthyology, before becoming Curator of Birds from 1909-1918. Jenkinson staged the specimens, labelling them Flowerburn, Fortrose 6-8 1918 and adding his own initials. Although Ogilvie-Grant seems to have had little or no knowledge of Diptera, the box contained some very interesting flies, including three specimens of *Physocephala nigra* (De Geer) (Conopidae) and *Thricops sudeticus* (Schnabl) (Muscidae). However, the most surprising inclusion was two specimens of *Hyalurgus lucidus* (Meigen) (Tachinidae), which

seem to have escaped all attention and have never previously been published. They are particularly interesting as they represent the most northerly records so far and increase the possibility that it may be rediscovered in Northern Scotland, although it has not been seen anywhere in this country since 1938 (Falk, Pont and Chandler in preparation).

The decline and death of Francis Jenkinson

Throughout his life Jenkinson suffered from ill-health and was frequently struck down by debilitating headaches and nausea. His face was said to be devoid of colour and often drawn with pain and fatigue (Stewart 1926). His wife remarks (Jenkinson 1924):

> "It was wonderful how he bore with such cheerfulness almost perpetual ill-health. I don't think he ever, or very seldom, felt quite well"

His health seems to have deteriorated further during the early part of 1923 and he spent a considerable part of March in bed, recording in his diary on the 7th : "Then came acute strain in the pit of the stomach". On 14 June 1923 he visited Harley Street where he saw a Mr Kenneth Walker, who decided on an operation on 30 July. His diary entries show no sign of the apprehension he must have been feeling, apparently confident of a successful outcome. The operation was performed at Holloway Hospital on the allotted day and there are no entries in the diary until 20 August. A few days later he was moved to a nursing home, The Nook, Holford Road, Hampstead to recuperate. However, on 1 September when Walker visits him there, he is informed that he needs another operation. Jenkinson never recovered from the second procedure performed on 5 September. He returned to the nursing home in Hampstead, where he died on 21 September 1923. His funeral service was held at Trinity College, where the chapel was filled from end to end and he was buried at Trumpington Cemetery just outside Cambridge.

Concluding Remarks

Jenkinson collected Diptera at a time when knowledge on the subject was increasing rapidly. Along with Sharp and Lamb in Cambridge and Verrall and Collin in Newmarket, the area was at the forefront of this expansion. Although the latter two produced most of the publications, the Cambridge trio provided much of the material on which these were based. The extensive correspondence held in CUM, shows that Jenkinson was in touch with many of the leading dipterists of the time such as: F.C. Adams, L. Bloomfield, A.E.J. Carter, F.W. Edwards, J.R. Malloch and J.H. Wood.

In his only major paper on Diptera (Jenkinson 1908), his pioneering work on fungus gnats introduced several species as new to Britain and described *Brachypeza radiata* Jenkinson as new to science, the only new species described by him and which is still a valid name. The first mention of F.W. Edwards in his diaries comes on 19 August 1912 and after that they met regularly, with Edwards being a frequent visitor to Jenkinson's home. Their shared interest in fungus gnats fostered cooperation and helped to improve our understanding

of this hitherto neglected group. Jenkinson read the proofs of Edwards' (1913) publication on fungus gnats and is singled out for particular thanks. *Sciophila jenkinsoni* Edwards, described as new in that paper, later proved to be synonymous with *Megalopelma nigroclavatum* (Strobl).

Then in his major work on fungus gnats (Edwards 1925), he described *Exechiopsis jenkinsoni* Edwards as new to science and paid tribute to Jenkinson, dedicating the paper to his memory.

The most important part of Jenkinson's legacy is his extraordinary collection. Considering he did not take up Diptera until he was 47 years old and had barely 24 seasons on the subject, to amass such an impressive collection is truly remarkable. His collecting gives us an insight into the richness of places like the New Forest, the Weald and the Findhorn Valley, before man's deprivations reduced them to what we see today and based on material collected by him, both Crowborough and Logie still feature prominently in the literature. From my personal point of view, his collecting in Cambridge is of particular interest. Many of the captures made in his gardens are difficult to comprehend today and include species I have not encountered anywhere in 40 years of collecting.

One last entry from the diary I think illustrates that bygone era so well:

10 May 1921 "3 am I opened the window and heard a corncrake and a nightingale both continuously"

Alas both birds have disappeared from Cambridge, along I suspect with many of the Diptera that occurred at the same time. I cannot help being a little envious of Jenkinson and the countryside in which he lived, but I am grateful to him for giving me a glimpse of what I missed.

Acknowledgements

I am indebted to the staff of the Cambridge University Library, Archive and Manuscripts Section for making available the Jenkinson diaries, to Dr William Foster and Russell Stebbings, Cambridge University Museum, for allowing me access to and loans from the Jenkinson Collection and for all the help and encouragement they have given me with this article, and to Nigel Wyatt, Natural History Museum, London, for arranging access to the National Collection. Peter Chandler provided me with much information on the Jenkinson and Gordon-Cumming families and has helped in many ways, for which I am most grateful.

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***Callicera aurata* (Rossi, 1790) (Diptera, Syrphidae) new to Scotland** - While carrying out a programme of survey and monitoring at Torry Bay Local Nature Reserve in Fife, Scotland, (V.C. 87, NT005864) in July 2006, one of us (SCL) was surprised to encounter isolated individuals of a *Callicera* species on bramble *Rubus* species flowers in different areas of the reserve over a one week period, the number and frequency of these sightings suggesting more than a single individual was present. A female was captured on 5.vii.2006 and identified as *Callicera aurata* (Rossi, 1790), using the keys and descriptions in Stubbs and Falk (2002. *British Hoverflies*, BENHS). This identification was confirmed by comparison with named specimens in the National Museums of Scotland where, as voucher for this record, the specimen has been deposited.

Callicera aurata has been recorded twice in Scotland but both records are misidentifications. The first specimen taken at Nethy Bridge, Strathspey by Kevan (1942. *Entomologist* **75,** 34-36) was published under the name *Callicera aenea* Fabricius and is extant in the collections of the National Museums of Scotland. However the specimen was misidentified and was a female of *Callicera rufa* Schummel. Kevan appears to have realised his mistake as the name '*aenea*' is ruled out on the label and substituted by '*rufa*' in the same handwriting. A specimen taken in Glen Tanar, Deeside by J. Cooter on 15.vii.1977 (Kenn Watt *pers. comm.*) and now in A.A. Allen's collection, was checked by G. Rotheray and I. MacGowan (1990. *Entomologist*. **109,** 35-42), who found that it was also *C. rufa*.

C. aurata is a rare species and most records come from southern England but records extend to Cumbria although the last time it was recorded there was 1963 (Steve Hewitt pers comm). The discovery of the species in Fife is unexpected and future monitoring will be required to determine whether it is another insect species that has moved north possibly in response to climate change. We are grateful to Steve Hewitt, Ivan Perry and Kenn Watt for information on *C. aurata* – **STEPHANIE C LITTLE,** 3, Alexander the Third Street, Kinghorn, Fife, KY3 9SD and **GRAHAM E ROTHERAY**, National Museums of Scotland, 242 West Granton Road, Edinburgh, EH5 1JA.

***Tethina illota* (Haliday) (Diptera, Tethinidae), a species and family apparently new to Scotland** – From 17 to 20 June 2005 two water traps were placed on the roofs of concrete pill-boxes on the dunes at Dumbarnie Links Wildlife Reserve (Scottish Wildlife Trust) on the south coast of Fife (NO4402). The catch consisted mainly of species already recorded on the reserve by other means, as already described (Corbet, G.B. 2004. Noteworthy Diptera at Dumbarnie Links Wildlife Reserve, Fife, Scotland. *Dipterists Digest* (*Second Series*) **11**, 127-143). However, one novelty consisted of two males and six females of an unfamiliar species, which proved to be *Tethina illota* (Haliday), identified using the key by J.E. Collin (1966. A revision of the Palaearctic species of *Tethina* and *Rhicnoessa*. *Bollettino del Museo civico di Venezia* **16,** 19-32) and the key and description by L. Czerny (1928. 55. Tethinidae. **In** Lindner, E. (Ed.) *Die Fliegen der palaearktischen Region*. Stuttgart). A repeat of the water-trapping at the same site from 26 to 29 June 2006 produced a further 26 males and 36 females, making it by far the most numerous species in the catch, but it has still not been found by other means.

There appears to be no published record of this species in Scotland, as indicated by the Scottish Insect Record Index (SIRI) held in the National Museums of Scotland, and it is not represented in the main collection of the museum. However Graham Rotheray has found a specimen in a collection awaiting incorporation into the main collection of the NMS, labelled only 'Tethinidae, Luffness Links, 11 July 1920' that proves to be a male *Tethina illota*. Luffness Links is a dune system near Aberlady in East Lothian at NT4781.

The map on the NBN website shows records in the south of Cumbria, the Wash, north Norfolk and north Cornwall, and therefore probably all at coastal sites. Czerny (*loc. cit.*) recorded that Haliday found *T. illota* on *Cakile maritima* and *Calystegia soldanella* on the shore at Dublin in June. *Cakile* is present at Dumbarnie Links, sparsely in most years including 2005 but abundantly in 1999; *C. soldanella* has not been found there in recent years.

None of the other nine British species of Tethinidae is recorded for Scotland in SIRI, nor in the NMS collection - **GORDON CORBET,** Little Dumbarnie, Upper Largo, Fife, KY8 6JG

Dipterists Digest 2007 **14**, 75-86

New records of British sciarid flies with description of two new species (Diptera, Sciaridae)

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Summary

Results are presented of the examination of 414 specimens of 48 species of the family Sciaridae. They were collected from different locations in England (Cumbria, Derbyshire, Lancashire and North Yorkshire) in 2004 and 2005. There are also two species new to science - *Bradysia chandleri* Menzel sp. nov. and *Corynoptera subcavipes* Menzel & Smith sp. nov. The males of the new species are described in detail with figures of the genitalia. This increases the number of sciarid species for the British Isles from 264 to 266.

Introduction

Sciaridae are found mostly in woodland, wet grassland or in other damp habitats. The larvae feed on rotting organic matter and can be found in the soil, under the bark of decaying trees, in association with fungi or in plant stems or leaves. A few species have adapted to conditions of protected cultivation and are serious pests of glasshouse crops and mushrooms.

Since 2001 a study of the sciarid fauna of the British Isles has been undertaken by Frank Menzel, Jane Smith and Peter Chandler. This has increased the number of species known in the British Isles from the 153 (Menzel in Chandler 1998) to 264 (Craik *et al.* 2005a-c, 2006; Menzel *et al.* 2006). There are still large areas of Great Britain and Ireland where sciarids have not been collected and there is still considerable scope for adding further species.

Detailed descriptions of two new species are given here as well as records of some sciarids collected by the authors from Cumbria, Derbyshire, and North Yorkshire in September 2004 and August 2005. These areas were chosen as few sciarids had previously been recorded from these counties. The habitats varied from mixed, coniferous and broad-leaved woodland to shingle, riverbanks and grassland. Deer Park, North Yorkshire included a site of special scientific interest. The weather prior to the collection in 2004 had been hot and dry while that in 2005 had been intermittently cool and wet. Nineteen species were collected from the two sites in Derbyshire of which *Corynoptera subcavipes* Menzel & Smith sp. nov. - is new to science.

Some sciarids from Lancashire found in association with wood ants by Neil Robinson, including the new species *Bradysia chandleri* Menzel sp. nov. are also covered and the present paper supplements the account by Menzel *et al.* (2006) as a contribution towards the proposed revision (Menzel *et al.* in preparation) of the handbook to the British species by Freeman (1983).

Material and methods

Most adults were caught with sweep nets and came from localities that were previously relatively poorly researched. A total of 414 specimens from 48 species and 14 genera were collected.

The specimens were prepared as permanent mounts for microscopical examination using Canada balsam as mountant. They are deposited in the collections of Deutsches Entomologisches Institut, ZALF e.V., Müncheberg, Germany (DEI), Warwick HRI, Wellesbourne, UK (HRI), National Museums of Scotland, Edinburgh, UK (NMS) and Tullie House Museum, Carlisle, UK (THM).

The nomenclature and systematics used are based on the revision by Menzel & Mohrig (2000), supplemented by Menzel & Heller (2005) and Menzel *et al.* (2006). The terminology used complies with Menzel and Mohrig (1997, 2000). The same format has been used for locality descriptions as in Menzel *et al.* (2006) but as only eight localities are involved these are abbreviated in the species list.

Localities and habitats

CUMBRIA

C1 Temple Sowerby (SE of Penrith), 54°38'50"N 02°36'57"W, NY6028, by fast flowing river Eden: (a) damp, shady area of bank; (b) shingle bank; (c) grassland under trees (ash *Fraxinus excelsior*, oak *Quercus*, pine *Pinus*)

C2 Yanwath Wood (SW of Clifton, S of Penrith), 54°37'21"N 02°44'32"W, NY5226, `` mixed woodland (beech *Fagus sylvatica*, spruce *Picea*, sycamore *Acer pseudoplatanus*)

DERBYSHIRE

D3 Ogston Reservoir (N of Brackenfield, E of Matlock), 53°07'48"N 01°26'39"W, SK3760, carr (willow *Salix*, alder *Alnus glutinosa*) with some oak

D4 Wye Dale (NW of Blackwell, SE of Buxton), 53°15'00"N 01°50'28"W, SK1072, broad-leaved woodland (alder, ash, beech, sycamore)

LANCASHIRE

L5 Gait Barrows National Nature Reserve (E of Brackenthwaite, SE of Arnside), SD4877 and SD4798-7751, from nest of ant *Formica rufa*

NORTH YORKSHIRE

NY6 Deer Park (SW of Helmsley) - *site 1*: 54°13'49"N 01°05'12"W, SE5981, mixed woodland (beech, white cedar, common oak, spruce);
- *site 2*: 54°14'17"N 01°05'53"W, SE5882, (a) mixed woodland (white cedar, common oak, beech, birch *Betula*) [Menzel leg.]; (b) mixed woodland (larch *Larix decidua*, birch) [Smith leg.];
- *site 3*: 54°14'22"N 01°06'10"W, SE5883, meadow with broad-leaved woodland (common oak, birch)

NY7 Howardian Hills, Yearsley (N of Brandsby, SE of Helmsley), 54°09'51"N 01°05'33"W, SE5974, mixed woodland (larch, black alder, birch, spruce, beech, sycamore)

NY8 Wass Moor, Tom Smith's Cross (NW of Ampleforth, SW of Helmsley), 54°13'20"N 01°07'46"W, SE5681, coniferous woodland (pine, larch)

Descriptions of the new species

***Bradysia chandleri* Menzel sp. nov.** (Figs 1-4)
Type locality: England, Lancashire, Gait Barrows National Nature Reserve [E. of Brackenthwaite, S.E. of Arnside] (Great Britain).
Holotype: ♂ taken from nest of ant *Formica rufa* (found running over the nest), 7.x.2004, N. Robinson leg. (in collection of DEI)
Paratypes: 1♂, same data as holotype; 3♂, 1♀, same locality, taken from nest of ant *Formica rufa*, 4.x.2005, N. Robinson leg. [in collections of DEI (1♂), NMS (1♂) and THM (2♂, 1♀)].
Etymology: The new species is named after Peter Chandler to acknowledge his work in editing the Checklist of British Diptera and his involvement in compiling the 'Sciarid fauna of the British Isles'.

Description. **Male. HEAD:** eye bridge complete, 2-3 facets wide. Antennae very long, narrow and unicolorous brown; basal segments dark brown; flagellomeres 1 to 10 almost subequal, only flagellomeres 11 to 14 distinctly shorter, 4th flagellomere (Fig. 2) 3.8 to 4.0 times as long as wide; setae of flagellomeres fine, pale and lying close to the surface, about as long as segment width; basal parts of flagellomeres with slightly rough to almost smooth surface and without sensilla; necks short, acute and unicolorous brown. Prefrons pale, distinctly long, with dense tufty bristles; clypeus almost bare (at most with 1-2 bristles). Palpi moderately long, 3 segmented and brown; basal segment slightly hump-backed with 3-4 bristles (one distinctly longer than others); sensory area simple, without distinct margin or deep pit; sensilla moderately long, slightly curved and pale; apical segment as long as basal segment; 2nd segment short and ovoid, 3/5 as long as apical segment and with distinctly longer outer bristle.

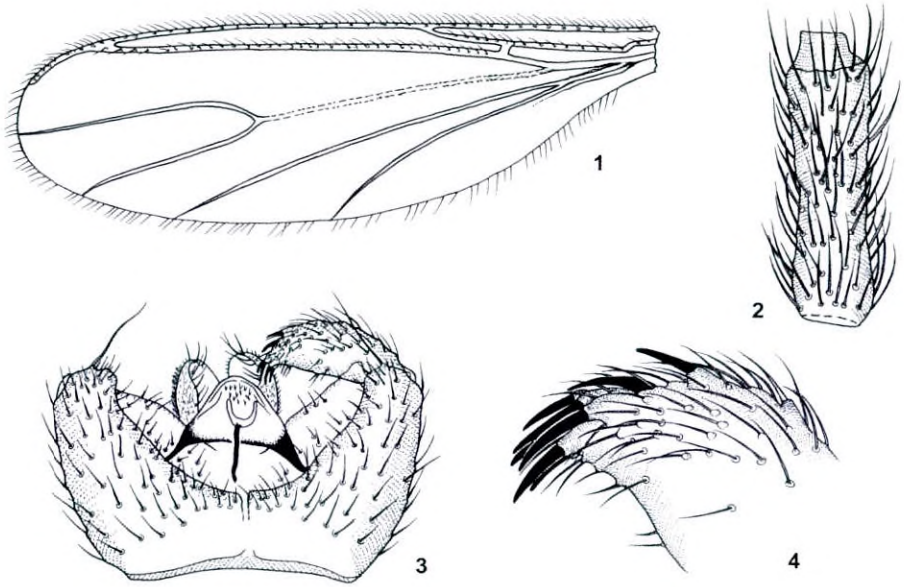
THORAX: small and narrow (with flatly arched mesonotum, short metanotum and relatively small katepisternum); all sclerites dark brown, only slightly paler laterally. Postpronotum bare. Mesonotum with sparse, fine, yellowish white setae and 5 long, lateral, dirty yellow bristles. Katepisternum triangular, deeper than wide. Scutellum distinct with 2 long, strong, yellow, marginal bristles among setae.

Legs long and strong; coxae and femora pale brown to yellow; tibiae and tarsi slightly darker due to dense setae; anterior tibia with 8-10 spines among setae; anterior femur not distinctly thickened; apex of anterior tibia with narrow, single row of bristles (row of 4-5 coarse bristles about 1/4 of width of apex of tibia); spurs on middle and posterior tibia yellow, narrow and subequal; posterior tibia with posterodorsal row of spines, apex with circlet of spines. Claws with very fine teeth.

Wings (Fig. 1) brownish and very narrow (about 3.5 times as long as wide with strongly reduced anal area); anterior veins strong, posterior veins weakly coloured; stalk of M only distinct near to base of fork of M; posterior veins and wing membrane without macrotrichia; fork of M relatively short, weakly curved and wide; stalk of M distinctly longer

than fork; x = 1.3 y, both bare; stalk of CuA_1 long, = 0.8 to 1.0 x; R-R_1 short; R_1 = 0.5 to 0.6 R joining C well before base of fork of M; R_5 almost linear and with only dorsal macrotrichia; C = 3/5 w. Halteres pale yellow with short stalk; capitulum with 1-2 rows of macrotrichia.

ABDOMEN: brown, not pale laterally; setae sparse, very fine and yellowish brown. Hypopygium (Figs 3-4) compact, distinctly wider than high and dark brown; ventral genital base whitish, without basal lobe or dense bristle group; ventral inner side of gonocoxites wide with weakly v-shaped emargination; setae on inner side short and fine, also with sparse short setae on inner membrane. Gonostyles (Fig. 4) narrow, about 2.5 times as long as wide and pointed at apex; outer side of apex evenly rounded; apex with coarse, dark bristles; in close proximity to the inner side of the gonostyle is a weakly demarcated group of spines (6 strong, subequal, closely placed spines) with a narrow tooth above spine group on dorsal side and an isolated spine among apical setae; inner side flat with only few short setae (long bristles missing). Tegmen distinctly wider than high, conical and sclerotised; apex narrowly rounded; area of teeth large and circular, with coarse, long, single tipped teeth. Aedeagus moderately long with narrow genital apodeme and sclerotised, wide, semi-circular base. Body length: 1,8-2.0 mm.



Figs 1-4. ***Bradysia chandleri*** **Menzel sp. nov., male: 1. wing; 2. 4th flagellomere; 3. hypopygium in ventral view; 4. apical part of gonostyle in ventral view.**

Female. Eye bridge 2 facets wide; outer bristle on 2nd palpal segment short; 4th flagellomere 3.7 times as long as wide; setae on basal part of flagellomeres sparse; katepisternum slightly larger and higher; strong marginal bristles on mesonotum and scutellum coarser and darker; coxae and legs distinctly brown; wings larger and longer, but only slightly wider, with reduced anal area (not so distinctly reduced as in males); x = 1.4 y; stalk of CuA_1 shorter = 0.5 x; R-R_1 slightly longer than in males; R_1 = R; halteres whitish, in strong contrast to dark brown body; all other characteristics as in males. Body length: 2.3 mm.

Discussion. This new species belongs to the *B. fungicola* group [characteristics of the species group given by Menzel and Mohrig (2000: 116)]. There are only a very few species in this group where male genitalia are short and compact, flagellomeres are very long and wings of the males are distinctly narrow (in particular anal area distinctly reduced). The combination of these characteristics is also found in *Bradysia pseudocampestris* Mohrig, 1978. In both species the entire body (including thorax) is distinctly narrow, the thorax and abdomen have very short, fine setae, the sensory area on the basal segment of the palpi has no margin, the 2nd palpal segment has a long outer bristle and the claws have very fine teeth. Also there is little difference in the tegmen, which is sclerotised and conical with a large area of coarse, long, single tipped teeth. *Bradysia chandleri* sp. nov. can be identified by longer, narrower wings, y distinctly shorter than x, longer flagellomeres with more adpressed setae (4th flagellomere 3.8 to 4.0 times as long as wide), unicolorous brown genitalia and narrower gonostyles with an isolated spine over the apical tooth. In contrast, *B. pseudocampestris* has shorter, wider wings; y about as long as x; distinctly shorter flagellomeres (4th segment = 2.9-3.4 times as long as wide); gonocoxites and usually the basal half of gonostyles pale brown to yellowish; gonostyles shorter and wider, apex without spine over the tooth.

***Corynoptera subcavipes* Menzel & Smith sp. nov.** (Figs 5-7)
Type locality: England, Derbyshire, Wye Dale, [NW of Blackwell, SE of Buxton], 53°15'00"N 01°50'28"W (Great Britain).
Holotype: ♂, 235 m a.s.l., broad-leaved woodland (alder, ash, beech, sycamore), sweep net, 16.ix.2004, F. Menzel leg. [in collection of DEI, Müncheberg (Germany)].
Etymology: The new species is named '*subcavipes*', because it is closely related to *Corynoptera cavipes* Mohrig, 1993. It has much smaller and weaker excavation on the ventral apex of the gonostyle than *Corynoptera cavipes* (sub- = a little, almost; cavus = concave, excavated, pes = leg).

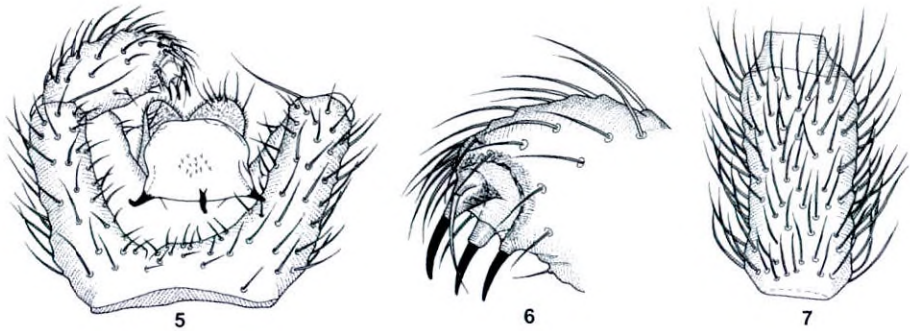
Description. **Male.** **HEAD:** eye bridge complete, 2-3 facets wide. Antennae unicolorous brown; basal segments dark; flagellomeres towards the apex of antennae slightly tapering and only slightly shorter; 4th flagellomere (Fig. 7) 2.5 times as long as wide; basal parts brown and without sensilla; setae dark, fine, erect but curved and almost as long as segment width; necks short, unicolorously dark brown and acute. Prefrons with coarse, dark bristles (4 longer and 10 shorter). Palpi 3 segmented and brown; basal segment hump-backed, about as long as narrow apical segment and with an outer bristle (also with a fine, short bristle on 2nd

segment); sensory area on basal segment in distinctly deep pit; sensilla long and curved; 2nd segment oval, about 0.7 times as long as apical segment and with 8 to 10 bristles (one distinctly longer).

THORAX: dark brown, yellow laterally. Mesonotum weak with pale, fine setae, with 3 long, strong lateral and 6 stronger, central bristles (all bristles dark brown to black). Scutellum well demarcated with 2 strong, marginal bristles and 10 very fine setae. Postpronotum bare. Katepisternum triangular, deeper than wide.

Coxae and legs paler than thorax and abdomen but distinctly brown; legs long and narrow; anterior tibia with 2 spines among setae; anterior femur strong but not distinctly thickened; tibial spurs of middle and posterior legs narrow, one of these on middle leg only slightly shorter and one on posterior leg distinctly shorter (by about 1/4); apex of anterior tibia with coarse, dense patch of bristles with weakly curved margin; posterior tibia with posterodorsal row of spines; apex with dark circlet of spines. Claws without teeth.

Wings brownish with well developed anal area; anterior veins strong, posterior veins distinct (only stalk of M indistinct) and as wing membrane without macrotrichia; stalk of M slightly longer than fork of M; fork of M short and wide; x = 1.3 y, both bare; stalk of CuA_1 very short, = 1/3 x; R_1 short, = 0.7 R and joining C well before base of fork of M; R_5 with dorsal macrotrichia (with 2 to 7 ventral macrotrichia on apex); C = 2/3 w. Halteres brown with short stalk; capitulum with 1 to 2 rows of macrotrichia.



Figs 5-7. ***Corynoptera subcavipes*** **Menzel & Smith sp. nov., male: 5. hypopygium in ventral view; 6. apical part of gonostyle in ventral view; 7. 4th flagellomere.**

ABDOMEN: dark brown, without paler lateral coloration; setae strong, dark and relatively long. Hypopygium (Figs 5-6) slightly wider than high with compact gonocoxites; ventral inner side of gonocoxites with wide emargination and sparse, short setae, ventral base without bristle lobe or tuft of setae; gonostyles (Fig. 6) elongate-oval, about 2.0 times as long as wide; apex rounded, without apical tooth and with sparse setae, with 3 strong, short,

subapical spines set in distinct sockets, with longer bristles ventrally at apex; upper quarter of ventral inner side with excavation without setae extending from apex down to third spine; dorsal inner side above second spine with emargination (thereby spine ventrally on slight lobe); setae on inner side close to spines rather long, those below spines short. Tegmen membranous, slightly wider than high, lateral margins s-shaped and with short basal appendages; apex widely rounded, flat in middle with slight emargination; distinct central structure missing; area of teeth small and rounded with fine, single tipped teeth. Aedeagus very short and fine, with wide semi-circular and weakly sclerotised base. Body length: 1.8 mm.

Female. Unknown.

Discussion. This new species has all the characteristics of the *C. concinna*-group [description of the species group given by Menzel and Mohrig (2000: 218)]. It is interesting that there is a tendency to reduced tibial spurs on middle and posterior legs in this species group, that was not recognised by Menzel and Mohrig (2000). Thus in *C. subcavipes* sp. nov. one tibial spur each on the middle leg is slightly and on the posterior leg distinctly shortened (by approximately 1/4). A similar distinct reduction of the second tibial spur on the posterior leg was noticed in *C. cavipes* Mohrig, *C. postglobiformis* Mohrig and *C. winnertzi* Mohrig.

The new species is closely related to *C. cavipes* Mohrig, 1993. In contrast, *C. subcavipes* sp. nov. has a higher tegmen, slightly longer flagellomeres and longer palpi (in particular, the 3rd segment is distinctly longer and the 2nd segment elongate-oval). The most important differences are in the gonostyles and their spines. *Corynoptera cavipes* has a longer apex to the gonostyles with distinctly narrow inner side and deep ventral excavation. The spine on the ventral apex is longer and set in a longer socket than in *C. subcavipes*. Also both smaller spines on the dorsal margin are closely aligned and set in relatively short sockets. *Corynoptera subcavipes* sp. nov. in contrast, has slightly wider gonostyles which are not narrowed in the upper third of the inner side, the apex is more widely rounded and the ventral excavation is distinctly smaller and flatter. The spines on the gonostyles are different from *C. cavipes*. All 3 spines on the apex are almost equally strong and are almost equidistant. The middle spine is set on the lower margin of a dorsal emargination on a slight lobe. Similarly to *C. cavipes*, the distinct central structure on the apex of the tegmen is also missing in *C. subcavipes*.

New records of other species

Bradysia alpicola (Winnertz, 1867)

Very common (Menzel *et. al.* 2006: 38). Material: NY7, 1♂, 6.viii.2005, Menzel leg. (DEI); 2♂, 6.viii.2005, Smith leg. (HRI).

Bradysia aprica (Winnertz, 1867)

Common (Menzel *et. al.* 2006: 38). Material: C2, 2♂, 8.viii.2005, Menzel leg. (DEI). NY6, Site 2, 2♂, 7.viii.2005, Menzel leg. (DEI).

Bradysia fungicola (Winnertz, 1867)
Very common (Menzel *et. al.* 2006: 43). Material: C2, 1♂, 8.viii.2005, Smith leg. (HRI). D3, 1 ♂, 16.ix.2004, Menzel leg. (DEI). D4, 1♂, 16.ix.2004, Menzel leg. (DEI); 1♂, 16.ix.2004, Smith leg. (HRI). NY6, Site 2, 4♂, 7.viii.2005, Menzel leg. (DEI).

Bradysia holsatica Heller, 2004
Widespread (Menzel *et. al.* 2006: 46). Material: NY7, 1♂, 6.viii.2005, Smith leg. (HRI).

Bradysia inusitata Tuomikoski, 1960
Widespread (Menzel *et. al.* 2006: 46). Material: C2, 1♀, 8.viii.2005, Menzel leg. (DEI); 1♂, 8.viii.2005, Smith leg. (HRI).

Bradysia lobulifera Frey 1948
Widespread (Menzel *et. al.* 2006: 48). Material: NY7, 1♂, 6.viii.2005, Menzel leg. (DEI).

Bradysia nitidicollis (Meigen, 1818)
Very common (Menzel *et. al.* 2006: 50). Material: D3, 1♂, 16.ix.2004, Menzel leg. (DEI). D4, 2♂, 16.ix.2004, Menzel leg. (DEI). NY6, Site 2, 10♀, 7.viii.2005, Menzel leg. (DEI). NY6, Site 3, 8♀, 7.viii.2005, Menzel leg. (DEI); 2♀, 7.viii.2005, Smith leg. (DEI). NY7, 9♀, 6.viii.2005, Menzel leg. (DEI); 2♀, 6.viii.2005, Smith leg. (DEI).

Bradysia pectoralis (Staeger, 1840)
Very common (Menzel *et. al.* 2006: 55). Material: D4, 4♂, 2♀, 16.ix.2004, Menzel leg. (DEI); 1♂, 1♀, 16.ix.2004, Smith leg. (HRI). NY6, Site 2, 4♂, 4♀, 7.viii.2005, Menzel leg. (DEI).

Bradysia placida (Winnertz, 1867)
Very common (Menzel *et. al.* 2006: 57). Material: C2, 1♂, 8.viii.2005, Menzel leg. (DEI); 2♂, 8.viii.2005, Smith leg. (HRI). D3, 1♂, 16.ix.2004, Smith leg. (HRI). NY6, Site 1, 8♂, 4♀, 7.viii.2005, Menzel leg.(DEI); 6♂, 3♀, 7.viii.2005, Smith leg. (HRI). NY6, Site 2, 4♂, 6♀ 7.viii.2005, Menzel leg. (DEI); 4♂, 3♀, 7.viii.2005, Smith leg. (HRI). NY6, Site 3, 3♂, 2♀, Menzel leg. (DEI); 1♂, 5♀, 7.viii.2005, Smith leg. (HRI). NY7, 4♂, 21♀, 6.viii.2005, Menzel leg. (DEI); 10♂, 39♀, 6.viii.2005, Smith leg. (HRI). NY8, 1♂, 8♀, 7.viii.2005, Menzel leg. (DEI); 2♂, 6.viii.2005, Smith leg. (HRI).

Bradysia polonica (Lengersdorf, 1929)
Very common (Menzel *et. al.* 2006: 59). Material: D3, 1♂, 1♀, 16.ix.2004, Menzel leg. (DEI). D4, 1♂, 3♀, 16.ix.2004, Menzel leg. (DEI); 1♂, 31♀, 16.ix.2004, Smith leg. (HRI). NY6, Site 2, 1♂, 2♀, 7.viii.2005, Menzel leg. (DEI).

Bradysia strenua (Winnertz, 1867)
Widespread (Menzel *et. al.* 2006: 62). Material: C1, 1♂, 8.viii.2005, Smith leg. (HRI).

Corynoptera blanda (Winnertz, 1867)
Widespread (Menzel *et. al.* 2006: 69). Material: NY6, Site 2, 2♂, 7.viii.2005, Menzel leg. (DEI). NY7, 2♂, 6.viii.2005, Smith leg. (HRI).

Corynoptera forcipata (Winnertz, 1867)

Very common (Menzel *et. al.* 2006: 72). Material: D3, 2♂, 16.ix.2004, Menzel leg. (DEI); 1♂, 1♀, 16.ix.2004, Smith leg. (HRI). D4, 5♂, 3♀, 16.ix.2004, Menzel leg. (DEI); 4♂, 2♀, 16.ix.2004, Smith leg. (HRI). NY6, Site 2, 4♂, 7.viii.2005, Menzel leg. (DEI). NY7, 1♂, 1♀, 6.viii.2005, Menzel leg. (DEI).

Corynoptera grothae Mohrig & Menzel, 1990
Rare (Menzel *et. al.* 2006: 75). Material: D4, 1♂, 16.ix.2004, Menzel leg. (DEI).

Corynoptera hypopygialis (Lengersdorf, 1926)
Widespread (Menzel *et. al.* 2006: 75). Material: NY6, Site 2, 1♂, 1♀, 7.viii.2005, Menzel leg. (DEI).

Corynoptera irmgardis (Lengersdorf, 1930)
Very common (Menzel *et. al.* 2006: 76). Material: D3, 8♂, 3♀, 16.ix.2004, Menzel leg. (DEI); 1♀, 16.ix.2004, Smith leg. (HRI).

Corynoptera melanochaeta Mohrig & Menzel, 1992
Very rare (Menzel *et. al.* 2006: 77). Material: NY6, Site 2, 1♂, 1♀, 7.viii.2005, Menzel leg. (DEI).

Corynoptera recurvispina Freeman, 1987
Common (Menzel *et. al.* 2006: 80). Material: D3, 2♂, 16.ix.2004, Menzel leg. (DEI).

Corynoptera saetistyla Mohrig & Krivosheina, 1985
Rare (Menzel *et. al.* 2006: 81). Material: D4, 1♂, 16.ix.2004, Menzel leg. (DEI). NY6, Site 1, 1♂, 7.viii.2005, Menzel leg. (DEI).

Corynoptera subfurcifera Mohrig & Hövemeyer, 1992
Very rare (Menzel *et. al.* 2006: 83). Material: NY6, Site 1, 1♂, 7.viii.2005, Menzel leg. (DEI).

Corynoptera subtilis (Lengersdorf, 1929)
Rare (Menzel *et. al.* 2006: 83). Material: C2, 1♂, 8.viii.2005, Menzel leg. (DEI).

Corynoptera tetrachaeta Tuomikoski, 1960
Widespread (Menzel *et. al.* 2006: 83). Material: NY6, Site 2, 1♂, 7.viii.2005, Menzel leg. (DEI).

Cratyna (*Cratyna*) *uliginosa* (Lengersdorf, 1929)
Very common (Menzel *et. al.* 2006: 86). Material: NY8, 2♂, 7.viii.2005, Menzel leg. (DEI).

Cratyna (*Spathobdella*) *nobilis* (Winnertz, 1867)
Very common (Menzel *et. al.* 2006: 90). Material: NY6, Site 2, 5♂, 7.viii.2005, Menzel leg. (DEI). NY6, Site 3, 5♂, Menzel leg. (DEI).

Ctenosciara hyalipennis (Meigen, 1804)
Very common (Menzel *et. al.* 2006: 92). Material: C2, 1♂, 2♀, 8.viii.2005, Menzel leg. (DEI); 1♀, 8.viii.2005, Smith leg. (HRI). D4, 1♂, 16.ix.2004, Menzel leg. (DEI). NY6, Site 1, 2♀, 7.viii.2005, Menzel leg. (DEI); 3♂, 1♀, 7.viii.2005, Smith leg. (HRI). NY6, Site 2, 1♂, 2♀, 7.viii.2005, Menzel leg. (DEI). NY6, Site 3, 2♂, 1♀, 7.viii.2005, Smith leg. (HRI). NY7, 5♀ Menzel leg. (DEI); 3♀, 6.viii.2005, Smith leg. (HRI). NY8, 1♂, 7.viii.2005, Menzel leg. (DEI); 1♀, 7.viii.2005, Smith leg. (HRI).
Epidapus (*Epidapus*) *atomarius* (De Geer, 1778)

Common (Menzel *et. al.* 2006: 95). Material: NY6, Site 1e, 1♂, 7.viii.2005, Menzel leg. (DEI).

Epidapus (*Epidapus*) *schillei* (Börner, 1903)
Very common (Menzel *et. al.* 2006: 96). Material: NY6, Site 1, 2♂, 7.viii.2005, Menzel leg. (DEI).

Hyperlasion wasmanni Schmitz, 1918
Common (Menzel *et. al.* 2006: 92). Material: NY6, Site 2, 21♀, 7.viii.2005, Menzel leg. (DEI). NY6, Site 3, 6♀, Menzel leg. (DEI); 2♀, 7.viii.2005, Smith leg. (HRI). NY7, 14♀, Menzel leg. (DEI); 1♀, 6.viii.2005, Smith leg. (HRI). NY8, 3♀, 7.viii.2005, Smith leg. (HRI).

Leptosciarella (*Leptosciarella*) *rejecta* (Winnertz, 1867)
Very common (Menzel *et. al.* 2006: 101). Material: C2, 1♂, 8.viii.2005, Menzel leg. (DEI). NY6, Site 2, 1♂, 1♀, 7.viii.2005, Menzel leg. (DEI).

Leptosciarella (*Leptosciarella*) *scutellata* (Staeger, 1840)
Very common (Menzel *et. al.* 2006: 102). Material: NY6, Site 1, 1♂, 7.viii.2005, Menzel leg. (DEI); 1♂, 7.viii.2005, Smith leg. (HRI). NY6, Site 2, 1♂, 7.viii.2005, Menzel leg. (DEI); 1♂, 7.viii.2005, Smith leg. (HRI). NY6, Site 3, 1♂, 7.viii.2005 Menzel leg. (DEI). NY7, 1♂, 6.viii.2005, Smith leg. (HRI).

Lycoriella (*Hemineurina*) *inflata* (Winnertz, 1867)
Common (Menzel *et. al.* 2006: 107). Material: D4, 1♂, 16.ix.2004, Smith leg. (HRI).

Lycoriella (*Lycoriella*) *castanescens* (Lengersdorf, 1940)
Very common (Menzel *et. al.* 2006: 108). Material: NY6, Site 3, 1♂, 7.viii.2005 Menzel leg. (DEI). NY8, 1♂, 1♀, 7.viii.2005, Smith leg. (HRI).

Lycoriella (*Lycoriella*) *ingenua* (Dufour, 1839)
Very common (Menzel *et. al.* 2006: 111). Material: C1, 1♀, 8.viii.2005, Menzel leg. (DEI); 1♂, 8.viii.2005, Smith leg. (HRI). NY6, Site 2, 1♀, 7.viii.2005, Menzel leg. (DEI).

Lycoriella (*Lycoriella*) *lundstromi* (Frey, 1948)
Widespread (Menzel *et. al.* 2006: 113). Material: C2, 1♂, 8.viii.2005, Smith leg. (HRI).

Lycoriella (*Lycoriella*) *subterranea* (Märkel, 1844)
Very rare (Menzel *et. al.* 2006: 114). Material: L5, 2♂, 2♀, 4.x.2005, Robinson leg. (DEI, THM).

Phytosciara (*Dolichosciara*) *flavipes* (Meigen, 1804)
Very common (Menzel *et. al.* 2006: 114). Material: D3, 1♂, 16.ix.2004, Menzel leg. (DEI).

Pseudolycoriella koreensis (Mohrig & Menzel, 1992)
Very rare (Menzel *et. al.* 2006: 118). Material: NY6, Site 2, 1♂, 7.viii.2005, Menzel leg. (DEI).

Scatopsciara (*Scatopsciara*) *atomaria* (Zetterstedt, 1851)
Very common (Menzel *et. al.* 2006: 119). Material: D3, 1♀, 16.ix.2004, Smith leg. (HRI). D4, 1♀, 16.ix.2004, Menzel leg. (DEI).

Scatopsciara (*Scatopsciara*) *calamophila* Frey, 1948

Widespread (Menzel *et. al.* 2006: 121). Material: C1, 1♂, 8.viii.2005, Menzel leg. (DEI). D4, 1♂, 16.ix.2004, Menzel leg. (DEI).

Scatopsciara (*Scatopsciara*) *edwardsi* Freeman, 1983
Rare (Menzel *et. al.* 2006: 122). Material: NY6, Site 2, 1♂, 7.viii.2005, Smith leg. (HRI).

Scatopsciara (*Scatopsciara*) *neglecta* Menzel & Mohrig 1998
Very common (Menzel *et. al.* 2006: 124). Material: D4, 1♂, 16.ix.2004, Smith leg. (HRI).

Scatopsciara (Scatopsciara) pusilla (Meigen, 1818)
Widespread (Menzel *et. al.* 2006: 125). Material: C2, 2♂, 8.viii.2005, Menzel leg. (DEI).

Scatopsciara (*Scatopsciara*) *vitripennis* (Meigen, 1818)
Very common (Menzel *et. al.* 2006: 126). Material: NY6, Site 3, 1♂ 7.viii.2005 Menzel leg. (DEI). NY8, 1♀, 7.viii.2005, Smith leg. (HRI).

Schwenckfeldina carbonaria (Meigen, 1830)
Very common (Menzel *et. al.* 2006: 129). Material: D3, 2♂, 2♀ 16.ix.2004, Menzel leg. (DEI).

Trichosia (*Trichosia*) *morio* (Fabricius, 1794)
Very common (Menzel *et. al.* 2006: 139). Material: NY6, Site 1, 2♂, 7.viii.2005, Menzel leg. (DEI). NY6, Site 3, 1♂ 7.viii.2005, Menzel leg. (DEI). NY7, 1♂, 6.viii.2005, Smith leg. (HRI).

Trichosia (Trichosia) splendens (Winnertz, 1867)
Very common (Menzel *et. al.* 2006: 141). Material: NY6, Site 1, 1♂, 7.viii.2005, Menzel leg. (DEI); 1♀, 7.viii.2005, Smith leg. (HRI). NY6, Site 2, 1♂, 7.viii.2005, Smith leg. (HRI). NY6, Site 3, 1♀, 7.viii.2005, Smith leg. (HRI).

Xylosciara (*Xylosciara*) *heptacantha* Tuomikoski, 1957
Widespread (Menzel *et. al.* 2006: 142). Material: C2, 1♂, 8.viii.2005, Smith leg. (HRI). NY6, Site 2, 1♂, 7.viii.2005, Menzel leg. (DEI).

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