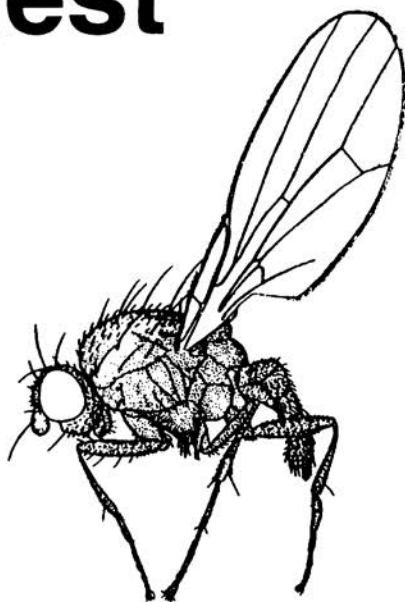


# Dipterists Digest



2006 Vol. 13 No. 2

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# Dipterists Digest

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

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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 with 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 may be of any length up to 3,000 words and must not have been accepted for publication elsewhere. Items exceeding this length may be serialised or printed in full, depending on competition for space. Articles should be written in clear and concise English and should preferably be typed double spaced on one side of A4 paper. **All contributions should, wherever possible, also be supplied as E-mail attachments or on 3.5" computer disc** in ASCII, Word or Word Perfect formats and accompanied by 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 and should be supplied with the 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 (with parentheses if applicable) and nomenclature should follow the most recent checklist, unless reflecting subsequent changes. Tables should be on separate sheets. Figures should be drawn in clear black ink, about 1.5 times their printed size and lettered clearly. **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.

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## ***Orthonevra intermedia* Lundbeck, 1916 (Diptera, Syrphidae) new to Britain**

**C. MARTIN DRAKE**

Orchid House, Burrridge, Axminster, Devon EX13 7DF

### **Summary**

*Orthonevra intermedia* Lundbeck, 1916 is added to the British list from Delamere Forest, Cheshire. Its distinctions from allied species are discussed and illustrated. Comments are made on its habitat requirements.

Delamere Forest in Cheshire lies on glacial sands and gravels that once supported extensive heathland with scrub oak and birch woodland. It was planted with oaks following the shortage of timber caused by ship-building for the Napoleonic wars, and has been maintained as mainly conifer forest more recently. The topography undulates, giving dry ridges and wet hollows which once supported either bogs, ponds or meres. Many of these were drained long ago, but the Cheshire Wildlife Trust and Forestry Commission who manage the site wish to restore some peatland basins to wetland since these areas give poor timber yields but have high potential wildlife value. The 'Lost Meres and Mosses of Delamere' project was therefore initiated to identify the more promising areas for restoration (Ecology First 2004). I undertook the evaluation of terrestrial invertebrates during a survey in 2003 (Drake 2003). Among many interesting species in 29 sites surveyed within the Forest was *Orthonevra intermedia* Lundbeck, 1916.

Stubbs and Falk (2002) alerted dipterists to the possible occurrence in Britain of yellow-legged *Orthonevra* other than *O. geniculata* (Meigen). The Cheshire specimens were clearly not the same as my specimens of *O. geniculata* and the genitalia agreed with the figures of *O. intermedia* given by Thompson and Torp (1982) and van der Goot (1981) (as *O. rossica* Stackelberg). The distinction between *O. geniculata* and *O. intermedia* (both have yellow knees) is straightforward since the face in both sexes of *geniculata* is considerably wider than that of *O. intermedia*, and its antennae are shorter (Figs 1-6). The face and antenna were also illustrated by van der Goot (1981), Violovitsh (1983), Torp (1984) (face only) and van Veen (2004).

Three other *Orthonevra* species with partly yellow legs need to be discussed. Thompson and Torp (1982) described *O. stackelbergi*, which is externally indistinguishable from *O. intermedia* and had been confused with *O. intermedia* by Stackelberg (1953) whose interpretation was followed by Violovitsh (1979, 1983). Stackelberg had both species but described Lundbeck's *O. intermedia* as a new species, *O. rossica*, while incorrectly regarding the second species, described later by Thompson and Torp (1982), as *O. intermedia*. Van der Goot (1981) and Violovitsh (1983) illustrated the genitalia of *O. stackelbergi* under the name *O. intermedia*, and van der Goot figured *O. intermedia* under the synonym *O. rossica*. The distribution of *stackelbergi* appears to be more boreal than that of *O. intermedia*, although it is present in Germany and Scandinavia, so it is less likely to



occur in Britain. However, to prevent any confusion, I illustrate the genitalia of the two yellow-kneed British species, drawn from my own specimens (Figs 7-12). The surstyli can be seen without dissection if they are gently eased out while fresh. When they are viewed to show the maximum width, those of *O. intermedia* have a pronounced step on the inner edge, in *O. geniculata* they are simple and blunt, and in *O. stackelbergi* they are tapered. Distinctions in the female genitalia were given by Thompson and Torp (1982).

*Orthonevra elegans* (Meigen) is another species with partly yellow legs and narrow antennae; it differs from the other three discussed here in having a narrow dark band across the eyes (illustrated by van Veen 2004). Speight (1988) predicted that it would occur in Britain on the basis of its widespread occurrence in Atlantic sea-board countries from Denmark to northern France. Finally, *O. erythrogona* Malm, which is found in northern Europe south to northern Germany and widely in Asia, has only narrowly yellow knees and short antennae shaped like those of the common *O. nobilis* Fallén. Therefore, yellow-legged *Orthonevra* need to be checked carefully. They are keyed well by van Veen (2004).

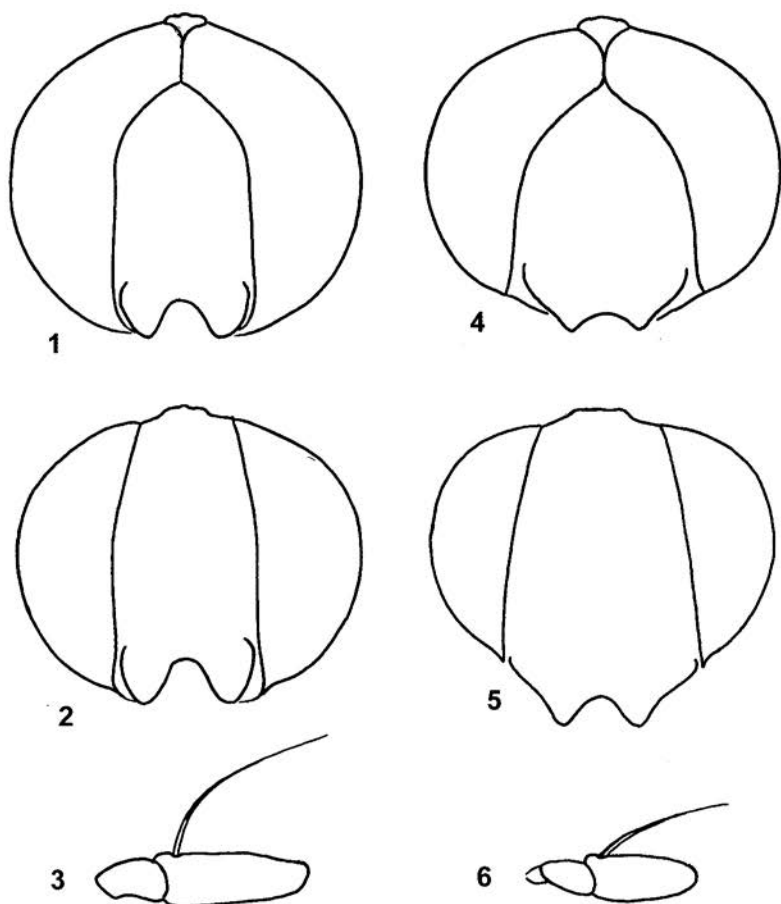
Three males and a female were swept on 2 July 2003 from recently cleared secondary birch woodland at the areas called Norley Moss (SJ551720) next to the lake Hatch Mere in Delamere Forest. The vegetation was mainly tussocks of *Molinia caerulea* (purple moor-grass) and sparse *Phragmites australis* (reed) under thin birch. Nearby was old deciduous woodland and old dense conifer plantation. Other Diptera of poor fen or carr conditions found here included such species as the hoverfly *Platycheirus occultus* Goeldlin, Maibach & Speight and craneflies *Pilaria fuscipennis* (Meigen), *Euphyllidorea phaeostigma* (Schummel) and *Phyllidorea squalens* (Zetterstedt) (Limoniidae). Interestingly *Orthonevra brevicornis* Loew was recorded nearby, although this species was probably more closely associated with the poor fen bordering Hatch Mere.

Another two males were taken on 6 July 2003 at the tiny bog called Barnsbridge Basin (SJ542719). Although barely a quarter of a hectare in size and surrounded by tall but relatively sparse pine, this was one of the most intact bogs surveyed in the Forest, having actively growing *Sphagnum* and extensive *Eriophorum angustifolium* (cotton grass). The fauna here included more acidophiles than found at Norley Moss, such as the hoverfly *Sericomyia lappona* (Linnaeus) and the cranefly *Euphyllidorea meigenii* (Verrall).

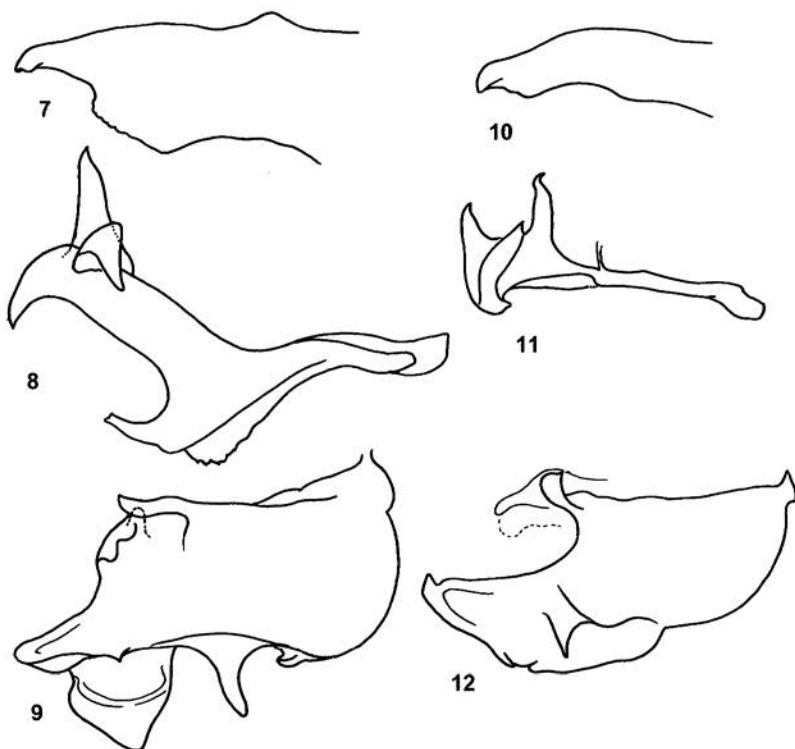
These habitats fall within the range listed by Speight *et al.* (1999) as most preferred by *O. intermedia*, that is bogs, poor fen and rich fen. A site in mid-western England is not the usual place where new arrivals are found, and, in view of its previously known range which covers the northern half of Europe (including Scandinavia) and Russia, it seems likely that *O. intermedia* has been present in the British fauna for some time.

### Acknowledgements

The 'Lost Meres and Mosses of Delamere' project was funded by the Aggregates Levy Board, and directed by a steering group comprising the Cheshire Wildlife Trust, English Nature, Forest Enterprise and Cheshire County Council.



Figs 1-6. Head of both sexes and female antennae of *Orthonevra intermedia* and *O. geniculata*. 1, male *O. intermedia*; 2, female *O. intermedia*; 3, antenna of *O. intermedia*; 4, male *O. geniculata*; 5, female *O. geniculata*; 6, antenna of *O. geniculata*.



**Figs 7-12. Male genitalia of *Orthonevra intermedia* and *O. geniculata*. 7, surstylus of *O. intermedia*; 8, aedeagus of *O. intermedia*; 9, epandrium of *O. intermedia*; 10, surstylus of *O. geniculata*; 11, aedeagus of *O. geniculata*; 12, epandrium of *O. geniculata*.**

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***Brachyopa bicolor* (Fallén) (Diptera, Syrphidae) and other scarce invertebrates associated with sycamore (*Acer pseudoplatanus*) at Southwater Country Park, West Sussex** — According to the atlas (Ball, S.G. and Morris, R.K.A. 2000. Provisional Atlas of British Hoverflies (Diptera, Syrphidae). Huntingdon, BRC) there is only one old record of *Brachyopa bicolor* from the Weald, although modern records exist in a scattered band from the New Forest through into East Anglia. I swept a male from a sap-run exuding from the end of a recently felled sycamore *Acer pseudoplatanus* tree, at the edge of Walnut-tree Plantation in Southwater Country Park, Horsham, Sussex (SU167326) on 31.v.2005. The plantation supports a mixture of firs and hardwoods of no great age, but the boundary trees including several recently felled sycamores yielded several other interesting invertebrates including the ant *Lasius brunneus* (Latreille) (Hymenoptera, Formicidae), and the beetles *Uleiota planata* (Linnaeus) (Silvanidae), *Diplocoelus fagi* Guérin-Méneville (Biphylidae) and *Pyrochroa coccinea* (Linnaeus) (Pyrochroidae). All of these species are increasingly frequently recorded, and *U. planata* and *P. coccinea* have certainly increased in range markedly in recent years —

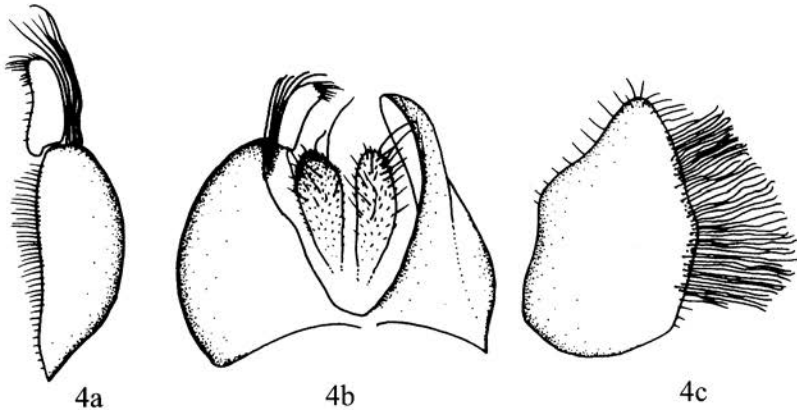
**JONTY DENTON**, 29 Yarnhams Close, Four Marks, Hants, GU3

**Illustrations of previously unfigured male genitalia of British species of *Platypalpus* Macquart (Diptera: Empidoidea, Hybotidae) - a correction**

**ADRIAN R. PLANT**

National Museum and Galleries of Wales, Cathays Park, Cardiff, CF10 3NP, UK

In my treatment of previously unillustrated genitalia of British *Platypalpus* species in the previous issue of this journal (Plant 2006), the male terminalia of *P. ingenuus* (Collin) were included twice (Figs 4 and 5) and the figure for *P. fasciatus* (Meigen) was omitted. The figures of *P. fasciatus* are presented here and should be substituted for figures 4a-c, retaining the original captions.



**Fig. 4. *Platypalpus fasciatus* (Meigen, 1822), England [V.C. 16] (L. Clemons coll.).**

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Plant, A.R. 2006. Illustrations of previously unfigured male genitalia of British species of *Platypalpus* Macquart (Diptera: Empidoidea: Hybotidae) *Dipterists Digest* (Second Series) **13**, 33-37.

## ***Opesia grandis* (Egger, 1860) (Diptera, Tachinidae) new to Britain**

**I. PERRY**

27 Mill Road, Lode, Cambridge, CB25 9EN

### **Summary**

*Opesia grandis* (Egger, 1860), a poorly known European species, is reported as new to Britain from the Devils Ditch, Cambridgeshire and its distinction from *O. cana* (Meigen, 1824) is given. Records of other Tachinidae of note from the site are also provided.

### **Introduction**

Whilst collecting Diptera in chalk grassland on the northern section of the Devils Ditch, near Burwell, Cambridgeshire, TL577651, on 8 July 2006, an unfamiliar calyptate fly was captured on a flower of wild carrot *Daucus carota*. Conditions were windy at the time and as the flower bobbed to and fro in the breeze, the real significance of the capture was not realised at the time. On returning home however, it soon became apparent that the specimen was a tachinid of the subfamily Phasiinae and one which I had not seen before.

Using the keys by Belshaw (1993), the specimen came out quite easily to *Opesia cana* (Meigen), but as that species normally occurs much earlier in the year and is restricted to broadleaved woodland (Falk and Pont in preparation), my doubts were soon rising. By consulting the work of Tschorsnig and Herting (1994), I could see that there were two further species of *Opesia* known from temperate Europe, one of which, *O. grandis*, had a given flight period as July and when the specimen was put through their keys, it came out quite nicely as a male of that species. The British species of *Opesia* may be separated by the characters given in the keys to the central European Tachinidae (Tschorsnig and Herting 1994), as given below:

### **Key to British species of *Opesia***

1. Thorax before the suture with three black middle stripes (in males often merged, in females the central stripe is sometimes only faintly visible). Basicosta black-brown, like tegula. Calyptae white (males) or faintly yellowish (females). Two katapisternal (= sternopleural) bristles (seldom 3, very seldom 1). Frontal bristles in males accompanied by 15 - 20 hairs, which are only a little shorter than the frontal bristles. Females: sternite 7 (shiny black) shorter than sternite 6 ..... *O. cana* (Meigen)
- Thorax before the suture with two widely spaced black middle stripes. Basicosta clearly lighter than the tegula. Calyptae yellow. Three katapisternal bristles. Frontal bristles in males only accompanied by 4 - 8 short hairs. Females: sternite 7 much longer than sternite 6 ..... *O. grandis* (Egger)



## Discussion

The third *Opesia* species known from temperate Europe, *O. descendens* Herting, is on the wing in September and can be distinguished from the other two species by using the characters provided by Tschorsnig and Herting (1994), in particular it has only one katepisternal bristle and in the male the anterior claws are hardly longer than the last tarsal segment, as long as the last two segments in *O. cana* and *O. grandis*.

I made several further visits to the same part of the Devils Ditch during the following weeks and another male was found on 11 July 2006, on a flower of wild parsnip *Pastinaca sativa*. The plant was growing at the edge of an uncultivated field, adjacent to the Ditch at Swaffham Prior, TL574653. Very little appears to be known about *Opesia grandis*; Tschorsnig and Herting (1994) gave its status as "very rare" with a distribution of "scattered throughout Europe to Northern Germany, Northern Poland." No host records were given for any of the three *Opesia* species, but as with other members of the Phasiinae, a species of heteropteran plant bug (Hemiptera) is most likely. The relatively large size of *O. grandis* (body length 10 mm), indicates that a fairly substantial sized host would be required.

The preferred habitat of *O. grandis* was not stated by Tschorsnig and Herting (1994), but the northern section of the Devils Ditch is tall, herb rich, *Bromus erectus* chalk grassland, with scattered scrub of mainly hawthorn *Crataegus monogyna*. In recent years a large scale chalk grassland restoration project has been undertaken, with much of the mature scrub removed and the resulting areas sown with the grasses *B. erectus* and *Festuca ovina*. Where the sowings have not been attempted or where they have been unsuccessful, a vigorous carpet of ruderal vegetation has appeared and it may be this habitat, rather than the established chalk grassland, that is attractive to *O. grandis* or its hosts. Everything points to *O. grandis* being a recent colonist to the Ditch and probably this country. In the past the site was a favourite haunt of James Collin and both C.J. Wainwright and E.C.M. d'Assis-Fonseca also collected tachinids there. I have visited the site regularly over the last 30 years or so and on 12 July 2003 a joint Dipterists Forum / British Entomological and Natural History Society Field Meeting was held there, with several dipterists present. It is therefore considered significant that *Opesia grandis* has not been found during any of these previous visits.

In recent years several of the Phasiinae have expanded their ranges and species such as *Catharosia pygmaea* (Fallen), *Subclytia rotundiventris* (Fallen), *Cistogaster globosa* (Fabricius), *Phasia hemiptera* (Fabricius) and *Hemyda vittata* (Meigen), have been recorded in South Cambridgeshire, where previously they were unknown. It will be interesting to see if *O. grandis* turns up more widely in future years and what habitat it favours. If the experience on the Continent is anything to go by, it is likely to remain rare wherever it occurs and its discovery on a small isolated area of chalk grassland in Cambridgeshire was most unexpected.

During the course of my visits to the Devils Ditch during 2006 looking for *O. grandis*, a number of other tachinids were found, the most interesting being: *Exorista grandis* (Zetterstedt), *E. mimula* (Meigen), *Phryxe erythrostoma* (Hartig), *Loewia foeda* (Meigen), *Actia infantula* (Zetterstedt), *A. lamia* (Meigen), *Demoticus plebejus* (Fallen) and *Cistogaster globosa* (Fabricius).

## Acknowledgements

I would like to thank Chris Raper and Matthew Smith for confirming my identification of *O. grandis* and for giving me much encouragement with the Tachinidae. Hans-Peter Tschorsnig also kindly checked the identification from a photograph sent by Chris Raper. Finally I would like to thank my fellow colleagues on the Friends of the Devils Ditch Committee, who over many years have worked hard to ensure that the site retains its wildlife interest and with whom I have enjoyed many happy hours.

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## Recent records of scarce tachinid flies (Diptera, Tachinidae) from England and Wales

— During regular visits to the coastal sand dune system of Whiteford Burrows National Nature Reserve (SS4494) on the Gower peninsula (V.C. 41) over the last ten years, a small population of *Eurithia intermedia* (Zetterstedt, 1844) has been found with adults recorded on a number of occasions in April 1997, May 2003 & 2005. Good numbers of *Estheria cristata* (Meigen, 1826) have been found visiting flowers of parsley water-dropwort *Oenanthe lachenalii* in adjacent areas of freshwater seepage marsh and saltmarsh in August 2000, July 2004, July to August 2005 and July 2006. There are few previous Welsh records of either species.

A single male of *Exorista grandis* (Zetterstedt, 1844) was collected on the coastal dunes at Tywyn Aberffraw (V.C. 52, SH358678) on 28 June 2005. Oddly, no further specimens have been found previously or since at one of MAH and EAH's favourite collecting haunts. The only other Welsh records are from Aberystwyth in 1946 (Parmenter, L. 1953. Some records of bred Tachinidae. *Entomologist's Record and Journal of Variation* **65**, 29-31), Llangennith Burrows in 1952 (d'Assis-Fonseca, E.C.M.. and Cowley, J. 1953. Insects and spiders collected in Glamorgan June and July, 1952. *Transactions of the Cardiff Naturalists' Society* **81**, 66-74.) and, more recently, from the dunes at Kenfig in 1999 (Ivan Perry pers. comm.).

A single male of *Eriothis prolixa* (Meigen, 1824) from coastal dune grassland at Merthyr Mawr NNR (V.C. 41, SS871767) on 18 May 2005 is a first Welsh record. This

species was also found in good numbers on flower-rich chalk grassland at Martin Down NNR (V.C. 8, SU053188) on 27 May 2005.

Two Welsh records of *Lophosia fasciata* Meigen, 1824 in 2006, both from Caernarvonshire (V.C. 49), are unprecedented with only one previous Welsh record, from Glamorgan (Falk, S.J. and Pont, A.C. (in preparation). *A review of the scarce and threatened flies of Great Britain. Part 5: Calyptratae*. Peterborough, Joint Nature Conservation Committee). Single adults were found at a wooded coastline with tufa-rich seepage cliffs at Felinheli (SH517669) on 13 July 2006 by MAH and in woodland at Coedydd Aber NNR (SH6671) on 20 July 2006 by Keith Bland (*pers. comm.*).

*Actia infantula* (Zetterstedt, 1844) was recorded new to Wales when a female was found hovering in front of a rotting, decorticated stump of holm oak *Quercus ilex* at the edge of woodland at Marle Hall Woods (V.C. 49, SH800786) by MAH on 7 June 2005.

*Phasia barbifrons* (Girschner, 1887) is a more unlikely 'new to Wales' from flower-rich acid pastures at Ty'n y Benrhos in Coed y Brenin (V.C. 48, SH735226). A solitary male was swept on 27 May 2005 and two adults were recorded on 15 June 2006 by MAH. This is a recent addition to the British list (Clemons, L. 2001. *Phasia (Phasia) barbifrons* (Girschner, 1887) (Diptera, Tachinidae), a possibly overlooked species new to Britain. *Dipterists Digest (Second Series)* **8**, 3-5) which, although initially confined to south-east England, was recorded in the Swindon area and at Bilston, Staffordshire in 2004 (Matthew Smith *pers. comm.*).

A record of *Cistogaster globosa* (Fabricius, 1775) from chalk downland at St. Catherine's Hill (V.C. 11, SU482276) is not surprising. However, two males of *Linnaemya comta* (Fallén, 1810) from coastal soft cliff at Whale Chine on the Isle of Wight (V.C. 10, SZ468783) provides a first record for the vice-county and is one of few recent records for Britain. The most recent draft of the JNCC Calyptrate review (Falk and Pont *ibid.*) includes only three recent records; Glenmore, Easternness in 1970, Braunton Burrows, North Devon in 1988 and Findhorn Dunes, Elgin in 1998 (for details of Findhorn record see Howe, M.A. and Howe, E.A. 2001. Recent records of scarce tachinid flies (Diptera, Tachinidae) in England and Scotland. *Dipterists Digest (Second Series)* **8**, 6).

During the 2006 Dipterists Forum summer field meeting in Sussex, MAH recorded a single female of *Nemoraella pellucida* (Meigen, 1824) from mixed woodland at Ebernoe Common (V.C. 13, SU975272) on 28 June. There are few modern British records of this species, although Peter Hodge has found it at Hackhurst Downs in Surrey in 1997 (Chandler, P.J. 1998. 1997 annual exhibition: Diptera (Hodge, P.J.). *British Journal of Entomology and Natural History* **11**, 100.) and at Woolbeding Common in West Sussex in 2003 (P.J. Hodge *pers. comm.*). A return visit to Ebernoe on 1 July 2006 failed to find additional specimens.

The same meeting yielded one male and one female of *Thecocarcelia acutangula* (Macquart, 1850) from Castle Hill NNR on 25 June 2006 (TQ385078 and TQ380065 respectively). This rarity has been recorded more frequently in recent years in south-east England (see Tachinid Recording Scheme website: [tachinid.org.uk](http://tachinid.org.uk)).

We thank Keith Bland and Peter Hodge for allowing us to refer to their unpublished records and Natural England for permitting access to Martin Down NNR – **M.A. HOWE** and **E.A. HOWE**, Countryside Council for Wales, Maes-y-ffynnon, Penrhosgarnedd, Bangor, Gwynedd, LL57 2DW

## ***Anthomyia bazini* Ségué (Diptera, Anthomyiidae) rediscovered in Britain after 65 years**

**D.M. ACKLAND\*, J.H. BRATTON\*\* and J. HAROLD\*\*\***

\*Hope Entomological Collections, Oxford University Museum of Natural History;  
email:mackland@btinternet.com

\*\*18 New Street, Menai Bridge, Anglesey, LL59 5HN; email: jhnbratton@yahoo.co.uk

\*\*\*Hen Ardd, Carreg y Gath, Rhiwlas, Bangor, Gwynedd, LL57 4HD; email:  
jhmoths@yahoo.co.uk

### **Summary**

*Anthomyia bazini* Ségué, 1929 (Diptera, Anthomyiidae) is refound in Britain, 65 years after the first capture in 1941. Information on habitat, identification and distribution is given. The male genitalia are figured.

### **Introduction**

*Anthomyia bazini* Ségué, 1929 was added to the British List by Ackland (1997). It was first recognised by Nigel Wyatt, of the Natural History Museum in London, who identified a male in their collection from Worcestershire with the data labels: "Alfrick, 5.vii.1941", and "C. J. Wainwright collection B.M. 1948-488".

During the summer of 2006 two of us (JHB and JH) carried out an invertebrate survey of Coed Crafnant nature reserve, Merioneth, focussing on saproxylic insects. Two specimens of a black and grey muscid-type fly were caught, which were unfamiliar to the collectors. These were found to be male anthomyiids of the same species, which were submitted to DMA for identification, and proved to be *Anthomyia bazini*.

### **Habitat and collecting methods**

Coed Crafnant nature reserve is a 49 hectare site consisting of a steep, west facing rocky wood dominated by sessile oak *Quercus pedunculata*, silver birch *Betula pendula* and ash *Fraxinus excelsior*. The site rises as a series of steps, with trickles and *Sphagnum* lawns on the terraces. Dead wood is plentiful, including numerous fallen mature trees. There is a rich lichen and bryophyte assemblage but flowering plants are sparse because of a long history of sheep grazing. Adjacent to the reserve there is improved sheep pasture in the valley bottom and moorland above the wood.

Three visits at hawthorn *Crataegus* blossom time were productive but nectar sources are sparse later in the summer. To compensate, cut flowers of *Buddleia*, hemp agrimony *Eupatorium cannabinum*, hogweed *Heracleum sphondylium* and knapweed *Centaurea nigra* and lures of overmature damson jam and a molasses/banana mixture were provided on 26 July. The jam was thickly spread on tree trunks and branches at the edge of a west-facing patch of wet heath and on nearby fallen tree trunks within the woodland canopy (SH617285). The weather was warm with frequent sunny spells. In both situations the jam soon attracted males of *Anthomyia bazini*, and JHB and JH both took a specimen.

### Immature stages

The larvae of the *Anthomyia pluvialis* (Linnaeus) section of *Anthomyia* (black and grey species) develop in the nests of birds. Keilin (1924:153) stated: "In spite of their saprophagous mode of life the larvae of *Anthomyia procellaris* live and are found only in the nests of birds. The numerous investigations of the last 40 years on the fauna of other decomposed organic substances have never revealed in them the presence of these larvae. We are dealing here with a case of saprophagous specificity which is analogous to the specificity of parasites".

However, there are records of other species of *Anthomyia* developing in a range of rotting substrates, and Ivan Perry (*in litt.*) related that he had reared *A. procellaris* from the musk thistle *Carduus nutans* in July 1996, the larvae being in the roots, associated with the larval borings of the hoverfly *Cheilosia grossa* (Fallén). Obviously more work is needed to establish the range of food of these species. As bird nests are a likely breeding ground for *A. bazini* it is hoped we can obtain some old nests from the dozens of nest boxes in Coed Crafnant and rear flies of both sexes from them.

### Identification of adults

The male of *A. bazini* is very similar in outward appearance to *A. procellaris* Rondani, but it can be recognised by the rather wide and square-ended membranous lobes on the processes of sternite V when viewed in profile (Figs 3-4). In *A. procellaris* (fig. 11) the membranous lobe is narrower and rounded, viewed in profile with the setae more or less continuous; in *A. imbrida* Rondani (Fig. 14) the membranous lobe is similar to *A. bazini*, but *A. imbrida* males have 14–20 anterodorsal setae on the hind tibia (4–9 in *A. bazini*); in *A. pluvialis* (Fig. 8) the membranous lobe is similar to *A. procellaris* but the inner marginal and distal setae are separated in profile, leaving a small gap. If the genitalia are dissected, the following characters will separate *A. bazini* from the other three British species: distal section of the aedeagus with an almost basal dorsal projection (Fig. 6); postgonite with an expanded seta on the distal margin (Fig. 5) (also present in *A. pluvialis*); pregonite (Fig. 5) with a sloping dorsal margin with the dorsal of the two setae placed medially (pregonite tapering). The female of *A. bazini* remains unknown.

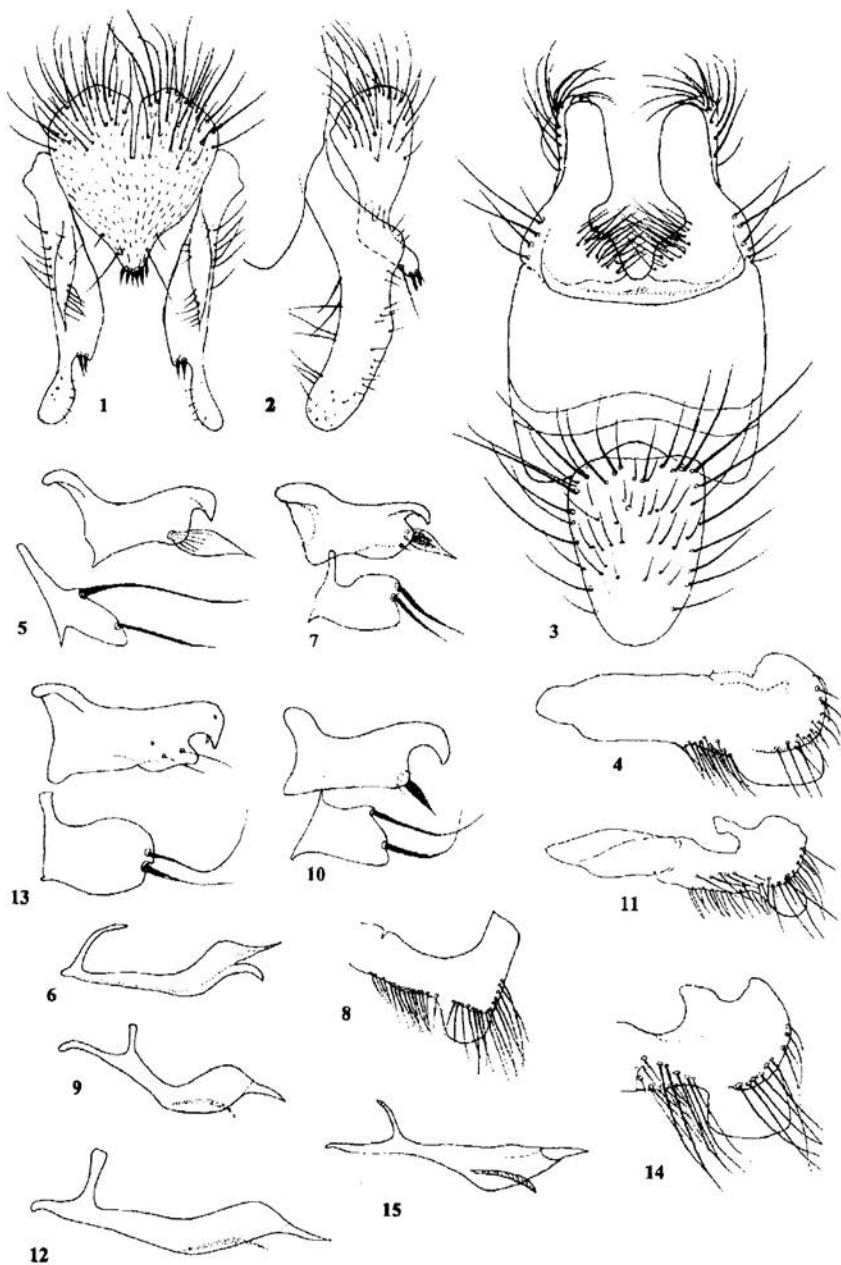
For a key to the European species of the *Anthomyia pluvialis* complex see Michelsen (1980).

### Distribution

*Anthomyia bazini* has been recorded from the Czech Republic, Crete and mainland Greece, France, Hungary, Spain and the Near East (Michelsen 2004).

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Figs 1-6. *Anthomyia bazini* Séguy. 1, cercal plate and surstyli, caudal view; 2, cercal plate and surstyli, lateral view; 3, sternite IV and V, ventral view; 4, sternite V, lateral view; 6, aedeagus. Figs 7-9. *Anthomyia pluvialis* (Linnaeus). 7, pre- and postgonite; 8, sternite V; 9, aedeagus. Figs 10-12. *Anthomyia procellaris* Rondani. 10, pre- and postgonite; 11, sternite V; 12, aedeagus. Figs 13-15. *Anthomyia imbrida* Rondani. 13, pre- and postgonite; 14, sternite V; 15, aedeagus.





The male specimen collected by JHB will be deposited in the Hope Entomological Collections, University Museum of Natural History, Oxford; the male collected by JH will be retained by the collectors.

### Acknowledgements

Our thanks go to the North Wales Wildlife Trust who funded this survey and who own the wood.

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**Another record of *Catharosia pygmaea* (Fallén, 1815) (Diptera, Tachinidae) in Kent** — On 30 May 2006 I visited the former brickworks at Conyer, on the North Kent coast (TQ962653, VC15, East Kent) as part of a survey of brownfield sites in the Thames Gateway area for the Invertebrate Conservation Trust, Buglife. I swept a minute black tachinid that I was unable to name until Peter Chandler identified the specimen as *Catharosia pygmaea* (Fallén, 1815). The site is heavily rabbit-grazed and there are large areas of former hard standing, demolished buildings and bare sandy and clay soil with scrub, sparse and creeping vegetation and encrusting lichen growth. Just north of the site is an important SSSI saltmarsh. Among numerous red data book and nationally scarce insects were the other following uncommon flies: *Lejogaster tarsata* (Meigen) (Syrphidae) 30.v.2006, *Tropidia scita* (Harris) (Syrphidae) 7.vi.2006 and *Dorycera graminum* (Fabricius) (Ulidiidae) 30.v.2006 — **RICHARD A. JONES**, 135 Friern Road, East Dulwich, London SE22 0AZ, [bugmanjones@hotmail.com](mailto:bugmanjones@hotmail.com)

## **Further additions and changes to the fauna of British Lonchaeidae (Diptera)**

**IAIN MACGOWAN**

Scottish Natural Heritage, Battleby, Redgorton,  
Perth, PH1 3EW.

### **Summary**

Two species are recorded from the British Isles for the first time, *Lonchaea subneatos* Kovalev, 1974 and *Lonchaea tenuicornis* Kovalev, 1978. The synonymy *Lonchaea corusca* Czerny, 1934 = *Lonchaea britteni* Collin, 1953, syn. nov. is established.

### **Introduction**

As the preparation of a new Handbook to the British Lonchaeidae has progressed several persons have either re-examined their own collected material or sent me material for identification and this has led to the addition of two new species to the British list. In addition the development of new keys for the family has entailed critical examination of species across Europe and as a result of this a new synonymy has been identified.

### **Species new to the British fauna**

As these species will be fully characterised in the forthcoming handbook their distinguishing features are not discussed here.

#### ***Lonchaea subneatos* Kovalev, 1974**

In the British fauna this species is similar to *Lonchaea peregrina* Becker, 1895 and *Lonchaea hackmani* Kovalev, 1981.

ENGLAND: Essex (5 sites, D.A. Smith); Hampshire (Leckford, v.1975, 2 males reared ex bark of black poplar *Populus nigra*, P.J. Chandler); Oxfordshire (Milham Ford School, v.2002 and vi.2003, 1 male, 2 females reared ex bark of Lombardy poplar *Populus nigra* var. '*italica*', J. Webb); Surrey, Richmond Park, 6.vi.1992, 4 females on black poplars *P. nigra*, P.J. Chandler).

#### ***Lonchaea tenuicornis* Kovalev, 1978.**

In the British fauna this species is very similar to *L. mallochi* MacGowan & Rotheray, 2000 and at present can only be separated from it on the basis of the male genitalia.

ENGLAND: Berkshire (Dinton Pastures Country Park, wooded bank of River Loddon, 29.vi.1996, 1 male, P.J. Chandler).

## New synonymy

### *Lonchaea corusca* Czerny, 1934 = *Lonchaea britteni* Collin, 1953, syn. nov.

In examining specimens of two species hitherto regarded as distinct, *L. britteni* Collin, 1953 (including the holotype) and *L. corusca* Czerny, 1934 from across Europe and the British Isles it became obvious that the structure of the male genitalia of both these species was very similar and lay within the scope of normal variation. In addition the key distinguishing character of hairy eyes in *L. corusca* and bare eyes in *L. britteni* is variable, with the specimens examined exhibiting a range of states from fully haired eyes, through to sparsely haired eyes and bare eyes. As there are no other consistent differential features between these two species *L. britteni* should be considered as a synonym of *L. corusca* and this synonymy is formally established here.

## Acknowledgements

I am grateful to Peter Chandler, Del Smith and Judy Webb for the loan of specimens.

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## *Lophosia fasciata* Meigen (Diptera, Tachinidae) at light in North Hampshire

— On the morning of 14 July 2005, whilst emptying my Robinson moth trap in the garden of my former home at Kingsmead, Medstead (SU6437), I was amazed to see the distinctive conopid-like *Lophosia fasciata* Meigen amongst the egg cartons. The night had been very warm and one of the most successful for moths of the year to that point, with over 50 species trapped including the first garden record for the Nationally Scarce *Apoda limacodes* (Hufnagel) (Lepidoptera, Limacodidae) - The Festoon. My former garden lies high on the Hampshire Downs (197m above sea level), in open arable-dominated ground with abundant hawthorn *Crataegus* dominated hedgerows.

Matt Smith (*pers. comm.*) informed me that the tachinid recording scheme holds two previous Hampshire records; Oxenbourne Down, 24.vii.1973, collected by George Else, and Leckford (SU33), 27.vii.1985, collected by Peter Chandler — **JONTY DENTON**, 29 Yarnhams Close, Four Marks, Hants, GU34 5DH

## The status of *Chrysotus angulicornis* Kowarz (Diptera, Dolichopodidae) and its deletion from the British list

OLEG P. NEGROBOV and PETER J. CHANDLER\*

Faculty of Biology, University of Voronezh, Universitetskaya Pl. 1,  
294693 Voronezh, Russia; email: ins@bio.vsu.ru

\*606B Berryfield Lane, Melksham, Wilts SN12 6EL

### Summary

The status of *Chrysotus angulicornis* Kowarz, 1875 is discussed. Its distinction from *C. gramineus* (Fallén) is confirmed but this can only be reliably based on the structure of the male genitalia. All British specimens examined that resemble it in antennal structure belong to *C. gramineus* (Fallén) and it is concluded that previous British records under the name *Chrysotus angulicornis* require confirmation. Pending discovery of authentic material *C. angulicornis* is deleted from the British list.

### Introduction

Type material of some of the Dolichopodidae (Diptera) described by Ferdinand Kowarz (1875) was studied by Negrobov and Pont (2005), who designated lectotypes of some of these species, including those belonging to the *Chrysotus gramineus* (Fallén, 1823) group. They concluded that *C. microcerus* Kowarz, 1875 and *C. varians* Kowarz, 1875 were synonyms of *C. gramineus* but found that *C. angulicornis* Kowarz, 1875 was a good species, separable from *C. gramineus* by details of the male genital structure, particularly the form of the aedeagus. This conclusion was, however, based at least in part on examination of other material, which agreed with the description of *C. angulicornis* in the form of the antennal first flagellomere, i.e. triangular in *angulicornis* (Fig. 1) and oval in *C. gramineus* and which had already been indicated to differ from *C. gramineus* in genital structure by Negrobov *et al.* (2000).

In the handbook to the British species by d'Assis-Fonseca (1978) this antennal character was used to distinguish *C. angulicornis* from allied species and British records under this name will have been based solely on this character. Some years ago Jonathan Cole studied the male genitalia of the British species of *Chrysotus* and concluded from this that *C. angulicornis* was, like *C. microcerus* and *C. varians*, synonymous with *C. gramineus* (Cole 1987) and he was followed in this conclusion in the British checklist (Chandler 1998). As a result of the above mentioned work by Negrobov and Pont (2005), *C. angulicornis* was reinstated both as a good species and on the British list, on the assumption that the antennal character was a constant distinction from *C. gramineus*.

More recently Kanpahää and Grichanov (2006) affirmed the distinction of *C. angulicornis* from *C. gramineus* and provided figures of the male genitalia of both species, based on Finnish specimens. Their figures were of the lateral view of the genitalia, which showed only small differences in the structure of the epandrium, cerci and surstyli between the two species, and of the aedeagus in ventral view. The most obvious differences between these species lie in the aedeagus (phallosome), which is simpler with a relatively slender sheath in *C. angulicornis*, while in *C. gramineus* (Fig. 2) the sheath is broader in dorsal and ventral view

with a distinct lateral process from the apical part of the sheath, as in a number of other species of the genus. In *C. gramineus* this process is short and bilobed, with the larger lobe broadened and blunt-ended apically.

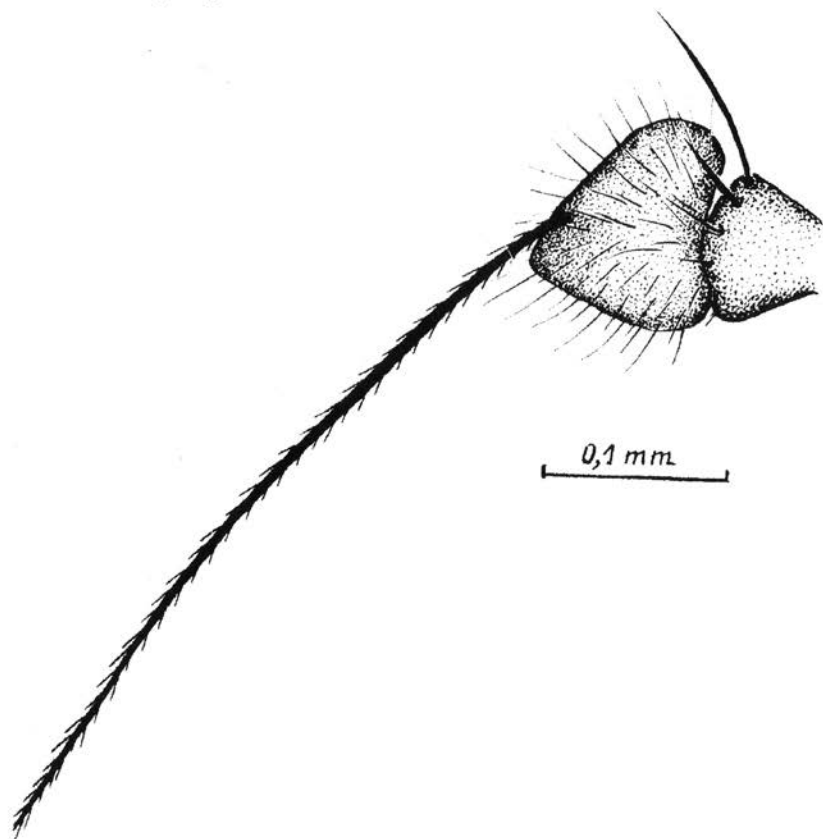


Fig. 1. Antenna of *Chrysotus angulicornis* Kowarz, lateral view.

Kanpahää and Grichanov (*op. cit.*) also cited the form of the antenna as a distinction between the two species, referring to the first flagellomere as a "subtriangular postpedicel." Specimens with *angulicornis*-like antennae, which agree with their figures of the aedeagus, have been examined by OPN from Bohemia (Czech Republic) (Fig. 3) and Georgia (Caucasus) (Fig. 4) and their genitalia are figured here, although it is noted that the aedeagus is relatively longer in the Georgian example so comparison with further material is desirable. A specimen from the North Caucasus, also with *angulicornis*-like antennae, has lateral processes on the aedeagus but these differ in form from *C. gramineus* so it probably represents another species.

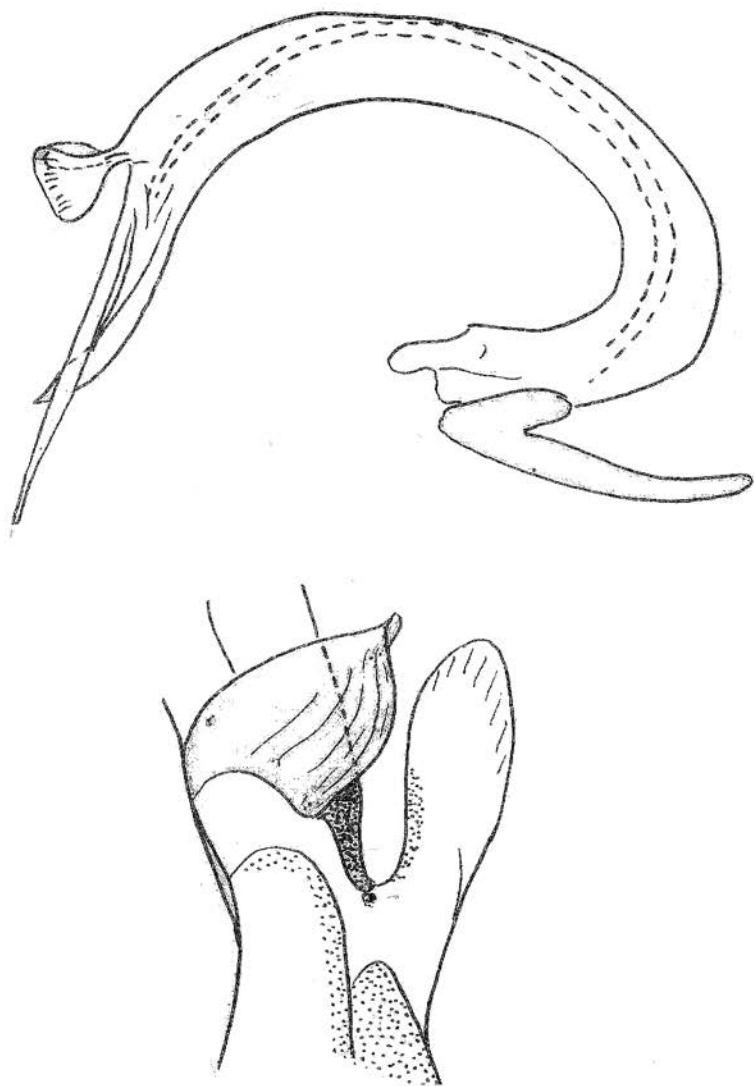
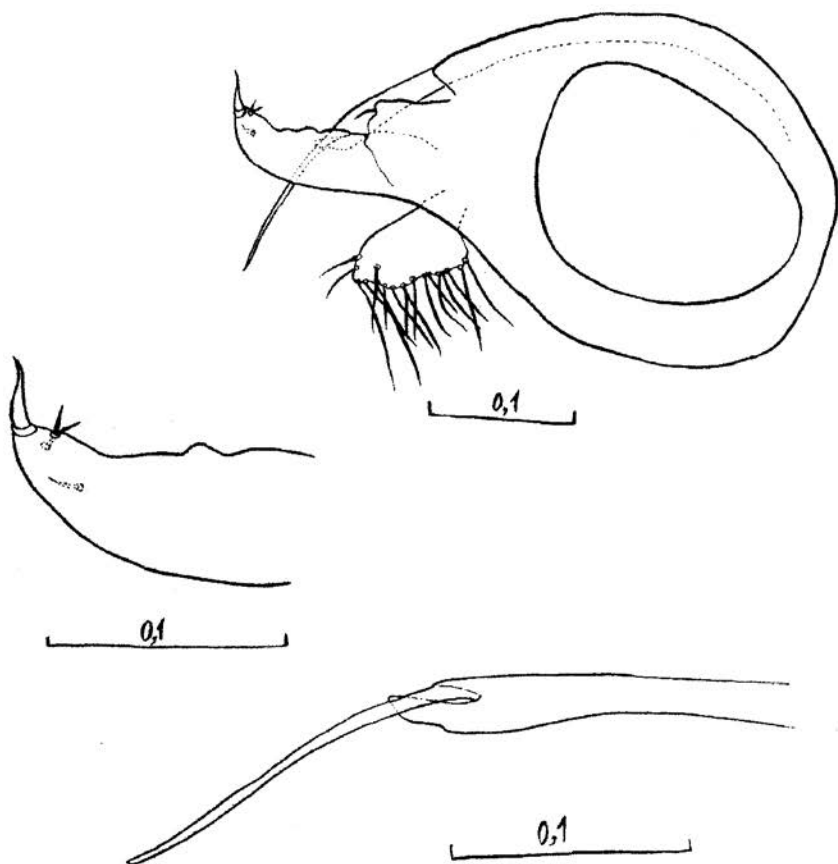


Fig. 2. *Chrysotus gramineus* (Fallén) aedeagus, lateral view and detail of process.





**Fig 3. *Chrysotus angulicornis* Kowarz, male genitalia of Bohemian specimen: lateral view, detail of surstylus and apical part of aedeagus.**

**Comments on the lectotype specimen of *Chrysotus angulicornis* Kowarz, 1875**

Negrobov and Pont (2005) commented that Kowarz described this species from the male sex, collected by himself at Innsbruck and by Bergenstamm at Salzburg [both Austria]. A male specimen labelled by Kowarz "Insbrk / 27.6.73", in the collections of the University Museum, Oxford, was designated by them as the lectotype and they noted that no further syntypes had been found either at Oxford or in three other museums housing Kowarz types.

They also commented that at some time the lectotype specimen had become detached

from its pin and was now glued to the staging pin; they noted that the thorax was damaged, and left fore leg and right mid leg missing. This specimen was examined by PJC in September 2006 and it was also found that both antennae are missing as are the genitalia; Jonathan Cole (*in litt.*) has confirmed that it was already in this condition in 1981. There is a clean cut across the abdomen, suggesting that the apical part had been snipped off for examination but there is no record of when this was done or whether a resulting preparation exists.

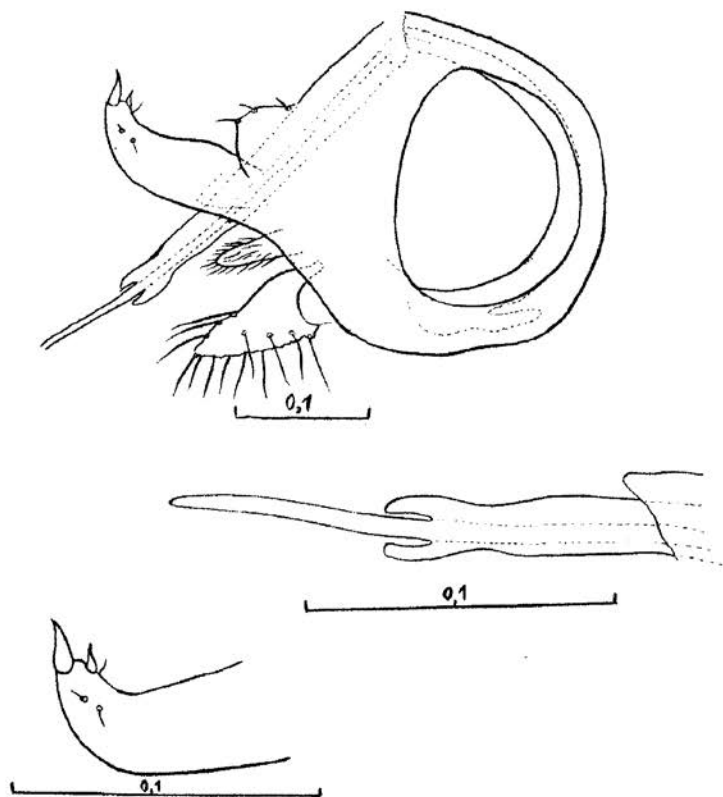


Fig. 4. *Chrysotus angulicornis* Kowarz, male genitalia of Georgian specimen: lateral view, detail of apical part of aedeagus and of surstylus.

It is consequently not presently possible to confirm that the lectotype is conspecific with the species identified as *C. angulicornis* by Negrobov *et al.* (2000) and Kanpahää and Grichanov (2006). It may be assumed that it agreed with that species in antennal structure and its Austrian origin is within the distributional range established for the species. It is therefore concluded in the interests of stability that retention of the name *Chrysotus angulicornis* Kowarz, 1875 for this species is the most appropriate action.

#### **Material examined of *Chrysotus angulicornis* Kowarz, 1875**

CZECH REPUBLIC: Bohemia centr, Osecek, nr. V. Osek, 12-16.vii.1971, 1♂, leg. R. Rozkošný.

GEORGIA: Lagodeskiy reserve, 23 07 1984, 1♂, leg. M. Zurikov.

#### **British material hitherto determined as *Chrysotus angulicornis* Kowarz, 1875**

The conclusions of Cole (1987) were based on his examination of specimens which ran to *C. angulicornis* in the keys of d'Assis-Fonseca (1978) and which he was unable to distinguish from *C. gramineus* in the structure of the aedeagus. Examination of several British specimens, entirely agreeing in the form of the first flagellomere with the figure of *C. angulicornis* given here, has shown that all of them belong to *C. gramineus* on the basis of the aedeagal structure. Data of this material, mostly from the collections of the University Museum, Oxford (UMO) is given below, those from the Verrall-Collin collection having been determined by the collectors as *C. angulicornis*.

#### **Dissected males of *Chrysotus gramineus* (Fallén, 1823) with *angulicornis*-like antennae**

ENGLAND: **Cambridgeshire:** Bedford Purlieu (formerly Northamptonshire), 4.vii.1979, 1♂, leg. J.H. Cole, (private collection). Woodditton Wood, 1.vii.1921, 1♂ and 7.viii.1940, 1♂, both leg. J.E. Collin (UMO). **Gloucestershire:** Bigsweir House, 25.vi.1972, 1♂, leg. P.J. Chandler (private collection). **Kent:** Hever, 8.vii.1907, 1♂, leg. J.W. Yerbury (UMO).

SCOTLAND: **Dunbartonshire:** Bonhill, 26.vi.1906, 1♂, leg. J.R. Malloch (UMO). **Perthshire:** Comrie, 8.vii.1907, 1♂, leg. A.E.J. Carter (UMO).

WALES: **Glamorgan:** Porthcawl, 26.vi.1906, 1♂ and 7.vii.1906, 3♂, leg. J.W. Yerbury (UMO).

No British specimens have yet been examined that agree with the figures given here for *C. angulicornis*. It is, therefore, considered appropriate to delete this species from the British list. Should any authentic specimens of *C. angulicornis* be discovered subsequently, as seems possible from the wide known distribution of *C. angulicornis*, it can be reinstated.

#### **Conclusions**

Although only a small material has been checked by dissection it is clear that the subtriangular form of the first flagellomere cannot be regarded as a reliable distinction of *C. angulicornis* from *C. gramineus*. *Chrysotus gramineus* is a very variable species as indicated by the synonymy with it of *C. microcerus* and *C. varians* and it must now be recognised that variation in its antennal structure is greater than hitherto appreciated.

## Acknowledgements

We are grateful to Jonathan Cole for the chance to see his unpublished figures of the aedeagus of *Chrysotus* species and for useful discussion. We are also indebted to the University Museum, Oxford for arranging loans from their collections. OPN has carried out this work within the framework of a grant received from the Russian Fund of Basic Researches.

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**An inland record of *Eumerus sabulorum* (Fallén) (Diptera, Syrphidae) in Cornwall** - On 13 June 2005, whilst carrying out an invertebrate survey at Driers Pit, Bugle, Cornwall (SX0258), I swept what I at first assumed was a small *Sphcodes* bee from an open sparsely vegetated china clay waste heap. This was in fact an adult female of *Eumerus sabulorum* (Fallén).

The substrate was a coarse mica sand, and a further two adults were seen flying low over the bank. No sheepbit *Jasione montana* (the putative host plant) was evident at the time but in late July several plants had appeared close to where the flies were swept. The hoverfly atlas (Ball, S.G. and Morris, R.K.A. 2000. *Provisional Atlas of British Hoverflies (Diptera, Syrphidae)*. Huntingdon, BRC) gives only one previous record from a landlocked 10km square from the vicinity of Dartmoor. Driers Pit lies over 7km inland, although SX05 does straddle the coast - **JONTY DENTON**, 29 Yarnhams Close, Four Marks, Hants, GU34 5DH

## Corrections and changes to the Diptera Checklist (16) – 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 deletion of 3 species and addition of 17 species, resulting in a new total of **6967** species.

### Changes

**Limoniidae.** A change affecting the British fauna was proposed by J. STARY (2004. Revision of European species of the genus *Rhabdomastix* (Diptera: Limoniidae). Part 2: Subgenus *Rhabdomastix* s. str. *European Journal of Entomology* **101**, 657-687):  
*Rhabdomastix* (*Rhabdomastix*) **japonica** Alexander, 1924 = *Rhabdomastix hilaris* Edwards, 1938, syn. n. [= *Rhabdomastix laeta* of British list, misidentification]

**Mycetophilidae.** The following species were added by P.J. CHANDLER (2006. Additions and changes to the British fauna of fungus gnats (Diptera: Mycetophilidae). *British Journal of Entomology and Natural History* **19**, 77-89):

*Boletina* **landrocki** Edwards, 1924  
*Ectrepesthoneura* **tori** Zaitzev & Økland, 1994  
*Syntemna* **setigera** Lundström, 1914  
*Sciophila* **salassea** Matile, 1983  
*Sciophila* **krysheni** Polevoi, 2001  
*Phronia* **tiefii** Dziedzicki, 1889

The following additional changes result from the above paper:

*Sciophila* **pomacea** Chandler, 2006 = *Sciophila ochracea* Stephens in Walker, 1856, preocc.  
*Mycetophila* **subsigillata** Zaitzev, 1999 = *Mycetophila sigillata* of checklist, misident. and *M. sigillata* is deleted from the British list  
*Phronia* **vitrea** Plassmann, 1999 = *Phronia carli* Chandler, 2001, new synonymy

**Sciaridae.** In the previous issue the list of Sciaridae newly recorded as British included in error *Scatopsciara simillima* so the overall total added should be reduced by one.

The following nomenclatural changes result from F. MENZEL and K. HELLER (2006. Trauermücken (Diptera: Sciaridae) aus dem Nationalpark "Hainich" (Thuringen)

nebst der Beschreibung von *Scatopsiara andrei* Menzel spec. nov. *Studia dipterologica* **13**, 45-59);

*Bradysia signata* (Winnertz, 1867 - *Sciara*) = *B. bulbostyla* Mohrig & Menzel, 1990

*Corynoptera inundata* Fritz, 1982 = *C. recurvispina* Freeman, 1987

*Corynoptera deserta* Heller & Menzel, 2006 = *C. inundata* of authors, including Menzel, F. et al. 2006.

In the same paper the following species, of which the holotype was from the New Forest, is raised from the synonymy of *Trichosia morio*:

*Trichosia edwardsi* (Lengersdorf, 1930 - *Lycoria*)

**Chironomidae.** A species recorded from Ireland only, by D.A. MURRAY and J.R. BAARS (2006. Four Chironomidae (Diptera, Insecta) new to Ireland from remote upland lakes. *Bulletin of the Irish Biogeographical Society* **30**, 298-301) is new to the British Isles:

*Tanytarsus aberrans* Lindeberg, 1970 ++

**Dolichopodidae.** Reassessment of British records in the present issue leads to the deletion of *Chrysotus angulicornis* from the British list.

**Syrphidae.** The following species is added in the present issue:

*Orthonevra intermedia* Lundbeck, 1916

The following species was added by M.C.D. SPEIGHT (2006. *Trichopsomyia lucida* (Diptera: Syrphidae): an addition to the British list, and its segregation from related species.

*Entomologist's Record and Journal of Variation* **118**, 203-206):

*Trichopsomyia lucida* (Meigen, 1822 - *Pipiza*)

**Pipunculidae.** The following species is added in the present issue:

*Chalarus longicaudis* Jervis, 1992

**Tephritidae.** The following species was added by P.J. HODGE (2006. 2005 Annual Exhibition. *British Journal of Entomology and Natural History* **19**, 182, Pl. 4 Fig. 17): *Tephritis divisa* Rondani, 1871

**Lonchaeidae.** The following species are added in the present issue:

*Lonchaea subneatosa* Kovalev, 1974

*Lonchaea tenuicornis* Kovalev, 1978.

The following new synonymy proposed in the present issue results in the deletion of *Lonchaea britteni* from the British list:

*Lonchaea corusca* Czerny, 1934 = *Lonchaea britteni* Collin, 1953, syn. nov.

**Ephydriidae.** The following species is added in the present issue:

*Allotrichoma laterale* (Loew, 1960 - *Hecamede*)

**Rhinophoridae.** The following species is added in the present issue:

*Stevenia deceptoria* (Loew, 1847)



**Tachinidae.** The following species is added in the present issue:

*Opesia grandis* (Egger, 1860)

## Changes to the Irish Diptera List (6) – 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 3202 species.

### Chironomidae

*Dicortendipes pallidicornis* (Goerghebuer, 1934) (Murray and Murray 2006)

*Micropsectra attenuata* Reiss, 1969 (Murray and Murray 2006)

*Micropsectra lindebergi* Säwedel, 1976 (Murray and Baars 2006)

*Parapsectra uliginosa* Reiss, 1969 (Murray and Baars 2007)

*Tanytarsus aberrans* Lindeberg, 1970 (Murray and Baars 2006)

*Cricotopus (Isocladius) brevipalpis* Kieffer, 1909 (Murray and Baars 2006)

*Limnophyes asquamatus* Andersen, 1937 (Murray and Murray 2006)

*Orthocladius (Eudactylocladius) olivaceus* (Kieffer, 1911) (Murray and Murray 2006)

*Orthocladius (Symposiocladius) holsatus* Goetghebuer, 1937 (Murray and Murray 2006)

*Psectrocladius (Psectrocladius) ventricosus* Kieffer, 1925 (Murray and Murray 2006)

*Pseudosmittia angusta* (Edwards, 1929) (Murray and Baars 2006)

*Conchapelopia hittmairorum* Michiels & Spies, 2002 (Murray 2006)

### Syrphidae

*Eupeodes (Lapposyrphus) lapponicus* (Zetterstedt, 1838)

### Agromyzidae

*Agromyza nigrella* (Rondani, 1875) (O'Connor and Chandler 2006)

*Phytomyza continua* Hendel, 1920 (O'Connor and Chandler 2006)

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## ***Callicera rufa* Schummel (Diptera, Syrphidae) status and trends: an update**

**IAIN MACGOWAN\* and GRAHAM E. ROTHERAY\*\***

\*Scottish Natural Heritage, Battleby, Redgorton, Perth PH1 3EW  
(email: iain.macgowan@snh.gov.uk]

\*\*National Museums of Scotland, Granton Collection Centre, 242 West Granton Road,  
Edinburgh EH5 1JA (email: g.rotheray@nms.ac.uk)

### **Summary**

In Europe, Scotland appears to be the stronghold for *Callicera rufa* Schummel (Diptera, Syrphidae), where it is unusual compared with elsewhere in its range in having a distribution within the boreal forest area. Early stages are the most effective means of recording this species and based on these *C. rufa* is quite common from Argyllshire and Perthshire in the south to Wester Ross and Sutherland in the north. It appears to be actively extending its range as conifer plantations are clear-felled and breeding sites are created in residual stumps. However, larval mortality rates in holes can reach 70 or more per cent. Artificial breeding sites can be used for this species and those comprising holes cut in live, pine trees, are still being used for breeding 15 years after they were first set up.

### **Introduction**

In 1990 we reviewed the UK status of the supposedly endangered hoverfly, *Callicera rufa* Schummel (Diptera, Syrphidae). The review included the results of fieldwork using early stages to record distribution. Early stages are found in tree holes of pine, *Pinus sylvestris*, a breeding site discovered in the 1930s by Coe (1938) and only repeated in 1987 when Colin Hartley, Francis Gilbert and GER found larvae in holes of pine trees at Rothiemurchus, near Aviemore, Inverness-shire (Rotheray and MacGowan 2000).

Between 1904 when *C. rufa* was first recorded in Britain and 1987, it was known from just 8 localities, all in Scotland and all but one in the native pinewoods fringing the Cairngorms. By searching for early stages we found it at an additional 13 localities, 9 of which were outside the original area (Rotheray and MacGowan 1990). These records showed that status assessments in the Insect Red Data Book (Shirt 1987) were not necessarily reliable and that for *C. rufa* and probably many species breeding in clearly defined sites, early stages rather than adults can be the more effective stage to record (Rotheray 1990). Finding larvae does not necessarily mean that they can complete development in the breeding site in which they are found. However, in terms of recording distribution, they do mean that a gravid female must have been at the site. Furthermore, we often found empty puparia at tree holes showing that development was completed.

The results led to a re-assessment of status for *C. rufa*, from RDB1 'Endangered' to RDB 3 'Rare' (Falk 1991). From 1989 to 1999 and based on continued recording of early stages, we found it at a further 17 Scottish localities. These records provided the basis for a further status change, to 'Notable' based on its occurrence in 35 10km squares (Rotheray and MacGowan 2000). During this period we also found *C. rufa* early stages in water pockets of

two other conifers *Larix decidua* and *Picea abies* (MacGowan 1994, Rotheray and MacGowan 2000). Furthermore, in 1989 artificial breeding sites were made by cutting holes in live pine trees at Beinn Eighe NNR, Wester Ross. They were successful in attracting oviposition and two years after they were made, empty puparia were found showing that early stages had been successfully completed and opening up the possibility of using artificially made holes to manage and investigate *C. rufa* (MacGowan 1994). In this paper we bring the status and distribution of *C. rufa* up to date within a broader European context and also present new data on breeding sites and larval ecology.

## Materials and Methods

Searching for *C. rufa* early stages in holes of conifer trees has continued opportunistically since 2000 using the techniques described in Rotheray and MacGowan (1990). Basically these involve searching for holes in likely places on trees such as between twin trunks. Holes are frequently hidden from view by a covering of needles and other debris and this material is first removed and searched for puparia. If standing water is present, this is searched by hand or by gently stirring it up with a stick and looking for dislodged larvae. At the end of searching all material is returned in the order in which it was removed. Holes in stumps of *P. sylvestris*, *L. decidua* and *P. abies* were frequent in many localities and these were searched using the same technique. We also searched for *C. rufa* early stages during trips to Norway (Larvik), Sweden (Tyresta National Park), Finland (Åland Islands and Kuhmo) and Russia (Kostamus, in Karelia close to the border with Finland).

In 2002 artificial breeding sites were made at a pine wood, near Dulnain Bridge, Strathspey by using a chainsaw to cut holes up to 20cm deep in 40 pine stumps. In addition, 2 open-topped plastic tubs about 20 x 20 x 20cm and seeded with pine sawdust or chips were put out at the same wood. In 2003, five similar tubs were put out at a wood near Grantown and about 20 holes were made and tubs put out at a pine wood near Boat of Garten, Strathspey. From 2003-2006 artificial breeding sites were examined up to three times a year in March/April, July/August and October/November. The contents of each hole or tub were searched for larvae and puparia and, at Dulnain, cumulative annual counts of larvae made. Finally, after 15 years, in July 2006, we searched the original artificial breeding sites made at Beinn Eighe.

## Results

Although quantitative comparison was not made, holes in stumps were a more frequent larval habitat than holes in live trees. However, larvae were only present in stumps more than about 30cm diameter at the cut surface. Being at ground level holes in stumps are easier to find and search although it can be difficult to ensure that the bottom of holes are reached where they extend into roots. At many Scottish localities where we had previously recorded early stages in tree holes, *C. rufa* larvae were found in holes in stumps. A few additional localities were recorded. For example larvae were found for the first time in woodlands south-east of the Highland boundary fault at Dunkeld, Blairgowrie and west of Perth.

Larvae can be abundant in holes in stumps. In September 1994 in an area of pine stumps at Alltdourie near Braemar on Deeside we found many water-filled holes with 80+

larvae present. The population of *C. rufa* at this site was probably in the thousands. On returning to the site in the following spring, however, numbers had dropped considerably and most holes had less than 10 larvae.

Larvae of *C. rufa* were found in artificial breeding sites at all four locations including, after a gap of 15 years, three of the four holes at Beinn Eighe. At Beinn Eighe hole 1 (volume 0.4 litres) had no *C. rufa*, hole 2 (1 litre) had six larvae and three puparia, hole 3 (0.9 litre) had one puparium and hole 4 (2 litres) had nine larvae and one puparium. At each of the Strathspey localities, larvae were present at least in some holes or tubs every year from 2003 to 2006. At Dulnain where counts were made, up to 18 larvae were present per hole. Over the 40 holes, numbers entering winter in each year varied. In winter 2002/3 there were 76 larvae and corresponding numbers for the following two winters were 34 and 47. By the following spring of each year numbers had fallen. In spring 2003 there were 16 larvae and corresponding numbers for the following two springs were 13 and 12. Hence mean overwintering larval mortality over the three years was 71.8%, range 61.8–79%.

Small second stage and fully developed third stage larvae were often present together in the same hole. Larvae were occasionally observed apparently feeding. The body was pressed against the smooth surface of the side of the hole or a pine twig and the head and thorax were repeatedly moved backwards and forwards against the substrate as the larva shuffled slowly forward.

In all Scandinavian countries visited, holes in conifer stumps were found and searched. Although counts were not made, probably over 200 holes were examined. However, no larvae or puparia of *C. rufa* were found.

## **Discussion**

### **Breeding sites**

A more frequent breeding site for *C. rufa* than holes in conifer trees is wet or water-filled holes in stumps, particularly those of *P. sylvestris* and *P. abies*. But these results are probably due more to the greater abundance of the latter than a preference for ground level breeding sites. There is a preference, however, for breeding in conifer over broad leaved tree holes and stumps. Despite the adjacency of broad leaved tree holes and stumps to those of conifers in many localities in Scotland, we have never found *C. rufa* early stages in them.

Having examined many hundreds of conifer stumps of a wide range of ages and sizes, it is not necessary for the development of holes that heartwood be softened or hollowed by heart-rot fungi prior to felling. Given time, solid pine stumps may develop holes by one or more of a combination of factors including fungi, wood-boring beetles, cracks and crevices caused by differential drying at the cut surface and erosion of wood by wind and rain. Holes in stumps are also frequent at the "tear line" of stumps. This is the narrow amount of uncut wood between saw cuts made on either side of a tree before it is felled. The tear line that results after the tree falls leaves an area of jagged wood across the stump in the cavities of which wet decay may accumulate. We monitored at irregular intervals between 1997 and 2006, several pine stumps in Strathspey of more than 0.5m in diameter. These stumps probably go back to the second world war and the holes in them may have provided breeding conditions for *C. rufa* for a long time and certainly over the years of our observations. Conifer stumps less than about 30cm diameter almost never have holes. The reason why

larger stumps are more suitable for holes is probably due to the proportionally greater amount of heartwood at their core. Hence large stumps decay more slowly and do not powder or crumble in the way stumps less than about 30cm diameter tend to do. This explains why holes in stumps are more a feature of old growth areas of pine and managed sites where trees were not felled until they achieved a size greater than 30cm in diameter.

Mortality of larvae in holes in stumps can be high, particularly during winter with mortality rates of over 70%. We have not measured mortality in holes in trees to see whether rates compare. Various factors appear to affect larval survival in holes in stumps, the chief of which appears to be obtaining the correct amount of water throughout the year. During periods of prolonged rain, holes in stumps can flood. This may wash larvae and/or the microbes on which larvae develop, out of the hole or it may 'dilute' microbe populations so that larvae are unable to obtain enough food. On the other hand, too little rain in summer and the hole may dry out. Freezing does not seem to be a significant mortality factor as larvae were often found within blocks of ice in holes and they became active on thawing out. Larger capacity holes reduce these fluctuations and hence the risks to the larvae. We noticed that if the volume of a hole is less than about a litre, it tends to be the first to dry out. We also noticed that holes that are sheltered by a covering of moss, fallen wood or even deep in the shade, tend to be buffered from both flooding, drying out and freezing.

The time required for larval development in holes is another survival factor. Under laboratory conditions, Coe (1941) recorded larvae surviving up to 5 years. In laboratory cultures we recorded larvae surviving up to 3 years (MacGowan 1994). In the field, however, development from eggs to third stage larvae can occur within 7 months and adults emerge within 15-23 months. The unusual larval longevity recorded by Coe (1941) is possibly due to a low abundance of microbes in laboratory cultures (MacGowan 1994).

Artificially created holes, whether by cutting them into live trees, stumps or even making them from plastic tubs filled with pine sawdust or chips, will attract oviposition by female *C. rufa* and larvae are able to develop successfully in them. These results show that artificial breeding sites can be an important management tool for conserving and investigating *C. rufa* and probably many other saproxylic Diptera. For example, at Beinn Eighe, the cut holes help safeguard the population by increasing the number of breeding sites which surveys had revealed were restricted to very few trees. Artificial breeding sites could also be used to assess whether the species is present at a locality, or even extend its distribution across it.

## Distribution

The core area for *C. rufa* in Scotland is between Argyllshire and Perthshire in the south and Wester Ross and Sutherland in the north (Fig. 1). However, as noted by Rotheray and MacGowan (2000) some *C. rufa* localities lie outwith the historical range of *P. sylvestris* in Scotland and this appears to be due to the colonisation of stumps with holes in areas of plantation forestry. For example within the catchment of the River Tay, *C. rufa* seems to have dispersed out of the ancient pines in the Black Wood of Rannoch and moved into pine plantations further downstream and it is now present in the woodlands around Dunkeld, east to Blairgowrie and west of Perth. Similar movements appear to have occurred down the Spey and Findhorn into Culbin forest and to a lesser extent in Deeside.

At the current time, *C. rufa* appears to be extending its range and according to the criteria in Falk (1991), it can be classified as a Notable species. In Europe the distribution of



*C. rufa* is unclear due to taxonomic confusion with *Callicera fagesii* Guérin-Ménéville 1844 and *Callicera macquartii* Rondani 1844 (Speight 1991). The type locality is in Poland and confirmed records outside Scotland are from Belgium, Corsica, south west France, Germany, Greece Hungary, Italy, the Netherlands and Romania (Speight 1991, Speight *et al.* 2006, C. Pérez-Bañón *pers. comm.*). Despite searching for *C. rufa* in the coniferous forests of Norway, Sweden, Finland and the Russian Karelia we did not find any evidence of it and it is not recorded on any of the faunal lists for these countries.

**Fig 1. The core area of *Callicera rufa* distribution in Scotland, based on 38 localities in Rotheray and MacGowan (2000) plus additional localities noted here (= shaded area within dashed line).**

*Callicera rufa* has an unusual European distribution in relation to those of other saproxylic Syrphidae being concentrated in Atlantic, central and southern Europe. Furthermore, most of the saproxylic Diptera associated with boreal woodlands in Scotland are also found in equivalent boreal woodlands in Scandinavia. *Callicera rufa* appears to be the exception and its only existence in such boreal habitats may be in those of Scotland.

The history of this distribution pattern may be complex, as it seems to be for pine. For example genetic comparison of pines in Wester Ross has shown that they have greatest affinities with the pines of central France (Sinclair *et al.* 1998).

### Conservation and status

Although recommended to be revised to Notable status by Rotheray and MacGowan (2000) and noting the probability that it is a species extending its range in Scotland at the present time, it is important to judge this against its status elsewhere in Europe. Scotland appears to hold a significant proportion of the European population of *C. rufa*. In relation to other *Callicera* species, *C. rufa* is relatively abundant in Scotland. The quality and quantity of breeding sites is good in Scotland. This is due to the presence of a core of old "granny" pines within the native pinewoods, the increased felling of planted conifers creating many additional breeding sites and the northern Atlantic climate which favours wet conditions and slow rates of decay in stumps, more so than in other parts of its range. The abundance of *C. rufa* has been boosted artificially by man-made breeding sites; without this unintentional influence, the status of *C. rufa* would probably be very different. Nonetheless, *Callicera rufa* is an important and special component of Scottish boreal woodlands that appears to

have no equivalent elsewhere in Europe. In terms of conserving *C. rufa* our results show that conifer stumps with holes are important breeding sites as they are for other species truly endangered in Britain, such as the syrphid *Blera fallax* (Linnaeus) (Rotheray and MacGowan 2000). To maintain populations conifer stumps over 30cm diameter should be conserved. If artificial breeding sites are necessary, they should be made as large as possible with a 1.0 litre volume being regarded as the lower limit and they should be covered with a loose network of moss, twigs and similar material.

### Acknowledgements

We thank all owners and managers for permission to carry out entomological investigations on their land. We also thank the Royal Society for the Protection of Birds (RSPB) for their support, help and encouragement, in particular Jane Sears and Andy Amphlett. We are particularly grateful to Stewart Taylor for his work at Loch Garten in developing and putting out artificial breeding sites and to Anne Elliot of SNH and Richard Lyszkowski for help at various times. Thanks also to colleagues in Scandinavia for their help and support including Gunilla Ståhls and Gergely Varkonyi (Finland and Russia), Jogeir Stokland (Norway) and Hans Batsch (Sweden) and to Martin Speight for helpful comments on a draft of this paper. Finally little of this work would have been achieved without the 'team' from the Malloch Society with whom we have shared so many pleasurable experiences. They are Geoff Hancock, Steve Hewitt, Dave Horsfield, David Robertson and Kenn Watt.

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## ***Stevenia deceptoria* (Loew, 1847) (Diptera, Rhinophoridae) new to Britain**

**LAURENCE CLEMONS**

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

### **Summary**

*Stevenia deceptoria* (Loew, 1847) is added to the British list and its distinctions from *S. atramentaria* (Meigen) are characterised. Figures are provided of the male genitalia of both species.

### **Introduction**

*Stevenia* Robineau-Desvoidy, 1830 is one of the largest genera of Rhinophoridae. Herting (1993) listed nineteen species from the Palaearctic and Crosskey (1977) referred to single additional species from Socotra and Sri Lanka. The type species *Stevenia tomentosa* Robineau-Desvoidy, 1830 has been synonymised with *Stevenia atramentaria* (Meigen, 1824), which Meigen placed in the all-embracing genus *Tachina*.

*Stevenia atramentaria* (Meigen) has been on the British list since the beginning of the nineteenth century, albeit under a variety of names. Walker (1853) introduced it as a new species, *Tachina caminaria*, on page 35 and then described it further under '*Tachina atramentaria*, Meg.; Meig. Zw. iv. 291. 93 (1824)' on page 36. While Verrall (1888) and Meade (1892) mentioned only *Rhinophora atramentaria* Meigen, Verrall (1901) added *Rhinophora melania* Meigen and *Rhinophora simplicissima* Loew. Yerbury (1908) referred to the record of *Rhinophora simplicissima* and Wainwright (1928) gave a brief description of the latter under the name *Stevenia umbratica* Fallén. Van Emden (1954) stated that the single specimen that purported to be *Stevenia umbratica* Fallén was a female of *S. atramentaria* 'without discals'.

During general recording of Diptera at Samphire Hoe, Dover, Kent (TR 2939) on 5 August 2006 several *Stevenia* were swept from the flowers of wild carrot *Daucus carota*. These differed from *atramentaria* in having conspicuous orange patches along the side of the abdomen. Reference to the key by Herting (1961) suggested that they were *Stevenia deceptoria* (Loew) and the identity was confirmed by Mr. Nigel Wyatt of the Natural History Museum, London. Further specimens were subsequently found in the author's previously unidentified material thus: 30 July 2000, Lydden LNR, Dover, Kent (TR 2844), one male and 14 July 2002, Whinless Down, Dover (TR 2941), two males and two females. On 26 August 2006 a male and female were swept at Ham Fen, Hacklinge, Kent (TR 3354). All the Dover sites consist of chalk grassland while the Hacklinge site is damp grazing meadow.

### **Distinction from *S. atramentaria* (Meigen)**

The essential morphological differences between male *Stevenia atramentaria* and *Stevenia deceptoria* are tabulated below. Females of *S. deceptoria* have the orange abdominal side patch much reduced but all femora are distinctly orange on the ventral and posteroventral surfaces at the tip and the hind femora are also orange on the anteroventral surface of the tip.



*Stevenia atramentaria* (Meigen)

Two pairs of vertical setae – inner and outer.

Antennae entirely black.

Arista with hairs at least as long as its basal diameter.

Palpi black.

Ocellar triangle and occiput, seen from behind, largely shining black with shifting silvery patches.

Mesonotum mainly shining black with indistinct stripes of silvery-grey dusting along the line of the dorsocentral setae.

Abdomen shining black with narrow bands of silver pollinosity at the base of segments (on T3 – T5).

Terminalia as in Fig. 1a.

*Stevenia deceptoria* (Loew)

One pair of vertical setae – inner.

Apex of pedicel broadly orange.

Arista with hairs shorter, at most as long as its basal diameter.

Palpi orange.

Ocellar triangle and occiput, seen from behind, entirely matt grey.

Mesonotum extensively grey with distinct black stripes along the lines of the acrostichal and intra-alar setae.

Abdomen shining black with broader bands of silver pollinosity at the base of T3 – T5. At least T3 with a large lateral orange patch; smaller patches may be present on T1+2 and T4.

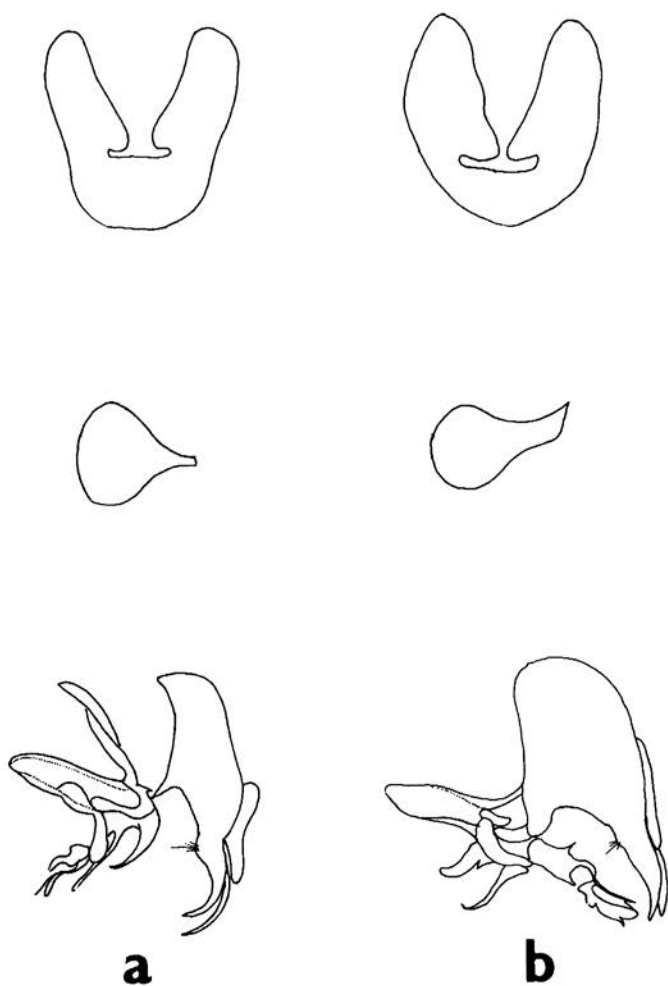
Terminalia as in Fig. 1b.

**Biology**

While *Stevenia atramentaria* is known to be an endoparasite of the woodlice *Trachelipus rathkei* (Brandt) and *Oniscus asellus* Linnaeus (Clemons 2001), no host has apparently been reported for *S. deceptoria*.

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**Fig. 1.** Male terminalia of a) *Stevenia atramentaria* (Meigen) and b) *Stevenia deceptoria* (Loew). Top: sternite 5. Middle: ejaculatory sclerite. Bottom: postabdomen, left lateral view.

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***Catharosia pygmaea* (Fallén, 1815) (Diptera, Tachinidae) in Buckinghamshire** – This small black tachinid was first recorded in Britain from Warwickshire by Steven Falk (1998. *Catharosia pygmaea* (Fallén) (Diptera: Tachinidae) new to Britain. *British Journal of Entomology and Natural History* **11**, 1-5), and has since been found at other sites in south-east England (e.g. Smith, D.A. 1999. *Catharosia pygmaea* (Fallén) (Diptera: Tachinidae): a second record in Essex. *British Journal of Entomology and Natural History* **12**, 88; Clemons, L. 1999. The Phasiinae (Dip.: Tachinidae) of Kent - corrigenda and addenda. *Entomologist's Record and Journal of Variation* **111**, 197-198). Habitats have included brownfield sites, chalk downland and estuarine marshes.

On 15 September 2006 I captured a female specimen at Blue Lagoon Local Nature Reserve, just south of Bletchley (SP867329, V.C. 24, Buckinghamshire). The fly was crawling among sparse vegetation on a south-facing slope at the northern end of the reserve. Blue Lagoon was a brickworks from 1929 to 1970, and has subsequently developed into a series of pools of various sizes, with wetland, grassland and scrub. It is managed by Milton Keynes Council, who have been careful not to 'tidy up' the site too much and have created bare ground on this particular slope to benefit invertebrates (Chris Coppock *pers. comm.*).

The specimen did not key out using Belshaw's 1993 Royal Entomological Society handbook, but reference to the excellent Tachinidae recording scheme website ([tachinidae.org.uk](http://tachinidae.org.uk)) suggested that it might be *C. pygmaea* and this was confirmed from the English translation of Tschorsnig and Herting's 1994 key (Rayner and Raper: *The Tachinids (Diptera: Tachinidae) of Central Europe: Identification Keys for the Species and Data on Distribution and Ecology*). Falk (1998) described his female as having "wings entirely smoky brown-black except for the milky-white wing tips", but my specimen has the wings dark along the costa only, i.e. more similar to the male wing illustrated in Falk's paper.

I am grateful to Chris Raper for confirming the determination – **MARTIN C. HARVEY**, Buckinghamshire and Milton Keynes Environmental Records Centre, Tring Road, Halton, HP22 5PN, [mcharvey@buckscc.gov.uk](mailto:mcharvey@buckscc.gov.uk)

## ***Allotrichoma laterale* (Loew, 1860) (Diptera, Ephydriidae) new to Britain**

**DAVID GIBBS**

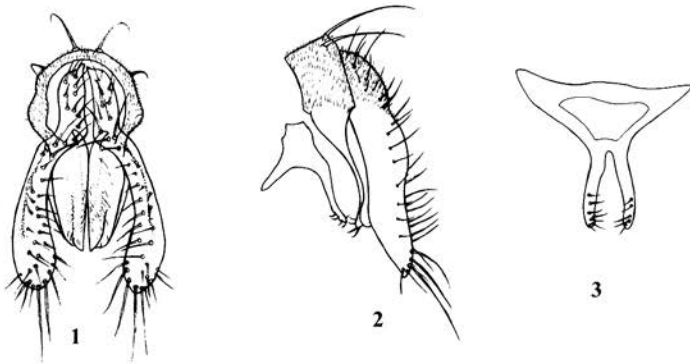
6 Stephen Street, Redfield, Bristol, BS5 9DY david.usia@blueyonder.co.uk

### **Summary**

The discovery of the shorefly *Allotrichoma laterale* (Loew, 1860) in Suffolk is reported and its identification is discussed.

### **Introduction**

During the summer of 2005 the muddy margins of saline pools at Dingle Marshes, Suffolk, were surveyed for the Royal Society for the Protection of Birds and English Nature. In each month from May to September water traps (pan traps) and pitfall traps were set at four trapping points and left in place for one week. As might be expected the Ephydriidae were an important element of the dipterous fauna. Twenty-five species were recorded which is approximately 17% of the British fauna and included rare species such as *Hyadina pollinosa* Oldenberg, 1923 (Gibbs 2006). In one of the July samples was a tiny blackish shorefly that immediately attracted attention by virtue of very conspicuous elongations of the genitalia. Using draft keys by Tony Irwin it was readily determined to be an *Allotrichoma* species. Reference to the excellent illustrations provided by Krivosheina and Zatwarnicki (1997) confirmed it as *A. laterale* (Loew, 1860).



**Figs 1-3. Male terminalia: 1, posterior view of genitalia; 2, genitalia and fifth tergite, lateral view; 3, fifth tergite, posterior view.**



**Fig. 4. Trapping location, field of view at middle of photograph 3 metres.**

### **Identification**

In a British context the genus *Allotrichoma* is easily identified by the combination of bare oral margin of face centrally, arista long plumose, third costal section less than half the length of the second costal section and posterior notopleural bristle well removed from the notopleural suture. The males of most species (and all those known from Europe) are further characterised by their remarkably elongated cerci which are immediately apparent in the undissected fly. They range in size from 1.3 to 2.2mm (Krivosheina and Zatwarnicki 1997).

Only one other species is known from Britain, *A. bezzii* Becker, 1896, a recently discovered and very rare species so far known by a single specimen from Dorset (Drake 2000). Species of *Allotrichoma* are all very similar so identification relies on examination of the male genitalia. In *A. laterale* the elongations of the cerci are broader, the apical hairs straight and up to one and half times the width of the cerci (Figs 1 and 2). In *A. bezzii* these structures terminate in numerous very long hairs, much longer than the width of a cercus, with incurved or wavy tips (see Drake 2000, Fig. 1). The surstyli of *A. laterale* are fused to the epandrium and, in posterior view, curved towards each other. In *A. bezzii* the surstyli are

separated from the epandrium and, in posterior view, easily visible between the cerci, at least once the internal structures are removed (see Krivosheina and Zatwarnicki 1997, Figs 1-4 and 17-20).

The British specimen differs slightly from that illustrated by Krivosheina and Zatwarnicki (1997). It has only four rather than six strong bristles on the epandrium, the elongations of the cerci are slightly shorter and broader and the apical setae are conspicuously longer relative to the width of the cerci. Because the surstyli and internal structures are identical to those illustrated by Krivosheina and Zatwarnicki (1997), these differences are best considered to be infraspecific variation.

Thus far characters to distinguish the females of the genus have not been found.

### **Biology and distribution**

Across its wide range *A. laterale* has been found in numerous habitat types including saline localities such as the shore of the Dead Sea in Israel, a sandy beach on Crete, a salty meadow in Bulgaria and the muddy margins of a reed bed in Mallorca, Spain. It is also recorded in wetlands such as a damp valley, along a river and over a ditch in a garden. There are even records from a deciduous woodland and the Dushanbe Botanical Garden, Tadjikistan.

The specimen from Dingle Marshes was taken in a trap on the margin of a large saline pool with a gravelly substrate coated with algal mats and a scattering of *Salicornia* (Fig. 4).

The larval requirements of *A. laterale* do not seem to have been described although a specimen from Uzbekistan was apparently reared from *Heliotropium europaeum* (Krivosheina and Zatwarnicki 1997). Other members of the genus have been recorded developing in decaying snails and musk rat faeces on a muddy freshwater shore in the USA (Thier and Foote 1980); mud containing pig manure on Guam, Marianas (Bohart and Gressitt 1951); breeding in wet refuse at river margin facing a cleaning plant in Sudan (Mathis 1985). Given these observations it seems most likely that *A. laterale* is also saprophagous and that the rearing record from *Heliotropium* does not indicate macrophytophagy. Across its wide range adults have been recorded from April to November (Krivosheina and Zatwarnicki 1997).

On the continent *A. laterale* is the commonest and most widespread member of the genus, recorded from Belgium in the west to Russia in the east and Finland in the north to Spain in the south, therefore its occurrence in Britain is not surprising.

### **Material examined**

BRITAIN, Suffolk, Dingle Marshes Suffolk Wildlife Trust/RSPB reserve, TM4872, 12-19 July 2005, water trap, 1♂; leg. Alan Miller.

### **Acknowledgements**

I would like to thank Martin Drake for his help in identifying this specimen and comments on the manuscript. I am very grateful to Alan Miller (Suffolk Wildlife Trust) for collecting the samples. The survey work at Dingle Marshes was commissioned by Mark Telfer (RSPB) and Jon Webb (English Nature).

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***Myopites eximius* Ségué (Diptera, Tephritidae) in Cornwall** – *Myopites eximius* is generally described as a saltmarsh species despite the fact that its host plant golden samphire *Inula crithmoides* also occurs along rocky coasts. This almost certainly reflects the fact that dipterists are more likely to be found on saltmarshes than down in the splash zone on windswept rocky sea cliffs. I have previously reported the species from rocky cliffs in South Devon (Alexander, K.N.A. 1995. *Myopites eximius* Ségué (Diptera: Tephritidae) new to Devon. *British Journal of Entomology and Natural History* **8**, 157-158) and can now add it to the Cornwall list. Golden samphire is locally abundant along the cliffs between Polzeath and Port Quin on the north coast of East Cornwall, and a single female *Myopites eximius* was taken by sweep-netting stands of the host plant at Rumps Point (SW932812) on 3 August 2006 – **KEITH N.A. ALEXANDER**, 59 Sweetbrier Lane, Heavitree, Exeter EX1 3AQ



## A gynandromorph of the bibionid *Dilophus febrilis* (Linnaeus) (Diptera, Bibionidae)

R.H. POULDING

1 Old Nursery Close, Porthleven, Helston, Cornwall TR13 9NZ

### Summary

A field-collected gynandromorph of *Dilophus febrilis* (Linnaeus, 1758) is described. It shows both bilateral and bipolar gynandromorphism with the external male components predominantly on the right side and the corresponding female components on the left. The head elements are mainly those of a male and the terminalia female. This is the fourth recorded case of gynandromorphy in the Bibionidae and the third for *Dilophus febrilis*.

### Introduction

During a recent re-examination of material stored in 70% alcohol following a survey of Dolichopodidae at Marazion Marsh RSPB NR, Marazion, Cornwall in 1993, a specimen of *Dilophus febrilis* (Linnaeus) exhibiting gynandromorphism was discovered. This fly was originally collected from a water-trap set under willows (*Salix* species) bordering a reed-bed on 27 July 1993.

A gynandromorph is a rare aberration of a dioecious organism that has both male and female characteristics due to genetic mosaicism arising from failure of the sex controlling mechanisms during early embryonic development. The stage at which this occurs determines the pattern and extent of the phenotypic mosaicism. In insects two extremes are readily recognised - the bilateral and the bipolar gynandromorph. In the bilateral gynandromorph one side of the insect shows male characteristics and the other side female with a clear mid-line demarcation between the two halves of the body. In the bipolar gynandromorph an anterior portion of the body is characteristic of one sex whilst the posterior is that of the other. Between these two extremes a varied mosaic pattern of male and female tissues can occur, which if minimal may be overlooked. Reviewing published cases of gynandromorphism in insects Nihei and Carvalho (2002) found this form of sexual aberration had been recorded in most insect orders but very few in the Diptera apart from the Culicidae in the Nematocera. Campbell and Service (1987) referred to eight British records of gynandromorphs in five species of Culicidae, and Hall (1987) reported records from 36 species in 12 genera world-wide.

Gynandromorphs have been reported from three other nematoceran families - Bibionidae (Zetterstedt 1850), Psychodidae (Gallego *et al.* 1994) and Simuliidae (Dang and Petersen 1979). In the Brachycera field-collected gynandromorphs have been found in eight families - Anthomyiidae, Dolichopodidae, Muscidae, Sarcophagidae, Sphaeroceridae, Stratiomyidae, Syrphidae, and Tachinidae (Cilek and Knapp 1994; Collin 1927; Nihei and Carvalho 2002; Wheeler 1992). Laboratory populations of Drosophilidae frequently contain gynandromorphs and can be produced experimentally (Demerec 1950).



## Materials and Methods

The *D. febrilis* gynandromorph was recovered from a water-trap set at ground level at the edge of reeds (*Phragmites australis*) overhung by willows (*Salix* species). The white plastic container used was partially filled with Plant's modification of Galt's solution with Triton X-100 as the surfactant (Plant 1989). Subsequent storage and examination was accomplished in 70% alcohol.

## Description

Superficially the gynandromorph resembles a large female *D. febrilis* with the abdomen curved to the left of the dorsal lateral line, a male-shaped head, a normal female wing in contour and pigmentation on the left side, and a translucent male wing on the right (Fig. 1). Microscopically the external morphology shows a complex pattern of sexual mosaicism, involving bilateral and bipolar gynandromorphism.

**Head:** the contour is that of a male lacking the elongated face and cheeks of the female. The right side of the frons is occupied by a large compound oval eye of a normal male divided into two parts, the dorsal section filling most of the space with the smaller ventral section at its base bordering the narrow gena. On the left side a heart-shaped eye occupies transversely about 50% of the frons with the curved indented apex bordering the lateral edge. A ventral smaller eye is attached basally above the gena as on the right side of the frons. Both sets of eyes have long interfacetal hairs. The tubercle of the ocellar triangle is irregular in shape with right side more raised than the left. The left and right antenna are identical in structure, each comprising 13 segments with the flagellum consisting of 11 flagellomeres, the distal six being fused into a single segment.

**Thorax:** the uniformly black thorax showed no structural deviations. The anterior and posterior rows of short spines on the dorsal surface are normal in size and distribution.

**Legs:** uniformly black. Front and mid legs show no significant differences; the left front tibia has 7 spines in the apical circle of spines and six on the right tibia. The hind legs, however, are different; the left hind leg is shorter than the right, and less hairy, especially on the femur which on the right side is markedly hairy both dorsally and ventrally. **Wings:** left wing - all cells tinged brown, cells r 1-5 fading towards tips; stigma large and distinct, and all veins are pigmented particularly  $R_1$ ,  $R_4 + 5$ . Length 4.6 mm, maximum width 1.8 mm at cross vein r-m junction with  $R_{4+5}$ ; right wing - almost clear and translucent with faint stigma at the end of  $R_1$ , and veins without pigment. Length 3.9 mm, maximum width 1.3 mm.

**Abdomen:** elongated and swollen resembling that of a normal female but curved to the left side. Pigmented light to dark brown with a distinction between left and right sides of both tergites and sternites. The right half is darker than the left, particularly ventrally on sternites 1-3 and 9, and even on the paler brown sternites 4-8 this colour difference can be detected. On sternite 9 there is a small triangular tubercle on the left side but it is absent on the right. The right half of the abdomen terminates at the posterior margin of sternite 9 but on the left side extends to sternite 10 which is compressed and twisted to the left. Two paired cerci are present and at their base there is a small paired unidentified structure.



**Fig. 1.** Photograph of *Dilophus febrilis* (Linnaeus), gynandromorph preserved in 70% alcohol.

### **Discussion**

*Dilophus febrilis* is a common and widely distributed bibionid in Britain with peaks of abundance in spring, late summer and autumn (Freeman and Lane 1985). In West Cornwall (V.C. 1) it occurs from April to October, with the earliest recorded date of 9 April and the last 7 October. There is a marked dimorphism between the male and female imago notably in body shape and size, head profile and wing coloration. The head of the male is rounded with large, oval holoptic eyes covering most of the frons, and in the lower sector there is attached a secondary smaller eye extending to the cheeks; the female head is longer and narrower with small dichoptic eyes and no attached secondary eye. The wings of the male are translucent and almost colourless with a sharply defined small stigma whilst the wings of the female are larger, distinctly blackish with paler tips and a larger but paler indistinct stigma. The male abdomen is narrow, moderately hairy and with prominent genitalia in contrast to the female abdomen which is longer and broader with few hairs and two small terminal

cerci. These marked morphological differences between the sexes should enable gynandromorphs of this species to be recognised but this case is only the third recorded for *Dilophus febrilis* and the fourth for the Bibionidae.

The first recorded case of a gynandromorph in the Bibionidae was by Zetterstedt (1850) who referred to a specimen of *Dilophus femoratus* (Meigen), evidently a bilateral gynandromorph - "*in quo unum latus colore maris, alterum colore feminae gaudebat*". Vlug (1982) described two identical gynandromorphs in *D. febrilis* in which the left side was predominantly female and the right male. From the detailed description and illustration of these two specimens, it is manifest that the gynandromorph from Marazion, Cornwall is very similar. In each of Vlug's specimens the left side of the head contained anteriorly the small eye of a normal female whilst on the right side the frons was occupied by the large eye of a male. The pigmented left wing was that of a female and the right the translucent wing of a male. The abdomen was enlarged and curved to the left with the postabdominal structures externally female but internally the abdomen contained two spermathecae and a spermathecal duct. These two cases were found in a sample of 40,000 *D. febrilis* obtained by suction trap at Noord Oost Polder, the Netherlands giving a frequency value of 0.005% or 1 in 20,000. This appears to be the only documented frequency of gynandromorphism in a nematoceran species but in the Brachycera, Nihei and Carvalho (2002) recorded a frequency value of 0.075% for a muscid *Polietina orbitalis* (Stein), based on a single gynandromorph found in 1322 field-collected specimens. The internal organs of the *D. febrilis* gynandromorph described above have not been examined and the intact specimen in 70% alcohol has been deposited in the collection of the Natural History Museum, London.

### Acknowledgements

I am indebted to the RSPB for permission to collect in the nature reserve at Marazion Marsh, Cornwall, and to the British Library Research Service for access to Zetterstedt (1850).

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### **A male *Eristalis tenax* (Linnaeus) (Diptera, Syrphidae) in March –**

Whilst hoverfly monitoring in my Peterborough garden on 3 March 2007, I noticed a large *Eristalis* hovering close to the ground. This immediately struck me as odd, indeed an enigma. It looked like *E. tenax* (Linnaeus, 1758), but only females should be on the wing (post-hibernation) at this time of year and these do not hover in this fashion. Newly emerged male *E. pertinax* (Scopoli, 1763) could occur this early but normally hover a metre or so above ground.

It was soon confirmed that it was indeed a male *E. tenax*. A couple of minutes later a similar male was seen hovering very close to crocus flowers and then to go into a flower. I went back to the place of first sighting but the insect was not there so I concluded it was the same individual.

The world is clearly going mad and is no longer obeying the prepared script in *British Hoverflies* – **ALAN STUBBS**, 181 Broadway, Peterborough PE1 4DS

## **The Jenkinson records of *Stomorhina lunata* (Fabricius, 1805) (Diptera, Calliphoridae)**

— In 1901 Francis Jenkinson recorded the capture of five specimens of *Stomorhina lunata* (Fabricius, 1805) (1901. *Entomologist's monthly Magazine* 37, 299-300), an occasional vagrant in this country of which the larvae are well-known to be parasitoids of locust egg pods, made either by himself or members of his household in that year. I have recently been looking through his diaries held at the Cambridge University Library, which have provided more information on these occurrences. The brevity of Jenkinson's note has led to misinterpretation of the records (Clemons, L. 2003 *Entomologist's Record and Journal of Variation* 115, 147-148) and in the light of recent discoveries and the possibility that it may become more frequent in the future, it seems appropriate to clear up any misunderstanding.

The first specimen was taken by Jenkinson in the New Forest, Hampshire, on 26 June; his diaries note that he was collecting at Rhinefields on that day, but he makes no mention of *S. lunata*. The second specimen was taken by his cook and housekeeper Annie Allard on 26 July, whilst she was on holiday in Cornwall at Paul, near Newlyn (SW463271). Jenkinson took the next specimen on 30 August, in a garden at Hindon, near Warminster, Wiltshire (ST911328). He also found it in the Cambridge Botanical Gardens (TL454572) about Asters on 15 September, after having "missed one half an hour before." The last specimen was captured by his servant Bertha Haynes on a Michaelmas Daisy *Aster* species in the garden at Brookside, Cambridge, (TL452575), on 25 September. All the specimens were males, apart from the one at Hindon.

The capture of five specimens spread across four counties suggests a major influx of *S. lunata* during the summer of 1901. However, it is surprising that no one else seems to have seen it that year and Jenkinson was never to encounter it again — **IVAN PERRY**, 27 Mill Road, Lode, Cambridge, CB25 9EN

## ***Stomorhina lunata* (Diptera, Calliphoridae) at Minsmere, Suffolk**

**in 2004** — One female of this species was found in a water trap sample ("dry 4") at grid reference TM47506734 at the RSPB (Royal Society for the Protection of Birds) Reserve at Minsmere, Suffolk. This sample was taken between 26 August and 7 September 2004, in the dry part of a reedbed. The samples were collected by G. Lyons and M. Telfer and this specimen was identified by JW1. We thank the RSPB for commissioning this work and for permission to publish this record — **JOHN W. ISMAY** and **BARBARA SCHULTEN**, 67 Giffard Way, Long Crendon, near Aylesbury, Bucks HP18 9DN, e-mail: schultmay@onetel.com

## ***Stomorhina lunata* (Fabricius, 1805) (Diptera, Calliphoridae) on the Isle of Wight in 2005**

— The Dipterists Forum Autumn Field Meeting for 2005 was held on the Isle of Wight. On the morning of 17 October 2005 some of us explored the cliff slips at St Catherine's Point on the southern coast (SZ493756). Much of the slip has now scrubbed over and in some areas there are a few wooded glades. In one of these I came across a male *Stomorhina lunata* (Fabricius) sunning itself on a bramble leaf. It was in good

condition and nicely marked. No other specimens were noted. This specimen could have travelled over, wind assisted, from North Africa or southern Spain. My thanks to Peter Chandler for the determination – **CHRIS SPILLING**, Cull's, Garfield Lane, Langton Matravers, Dorset, BH19 3HJ

***Stomorhina lunata* (Fabricius, 1805) (Diptera, Calliphoridae) in East Norfolk in 2006** – On 31 July 2006, whilst recording hoverflies on the Catfield Hall Estate, East Norfolk (TG3721) I netted an unfamiliar fly perched on a grass inflorescence that was overhanging a pathway through fen. There was a suggestion of a syrphid with its orange and black marked abdomen, but subsequent inspection beneath a hand lens soon revealed that not to be the case and, lacking appropriate keys to take the matter further, I took the specimen to Dr Tony Irwin, Curator of Natural History at Norwich Museum, for identification. He immediately recognised it as a male of the calliphorid *Stomorhina lunata* (Fabricius).

Laurence Clemons (2003. *Entomologist's Record and Journal of Variation* **115**, 147-148), who took the species himself at Swanscombe, North-west Kent, on 1.ix.2001, collated records of *S. lunata* up to the 1940s and none of these related to Norfolk. The capture of a specimen in east Norfolk at a time of great influx of migrant insects from mainland Europe suggests a possible origin in the Netherlands, where the species has been regularly found over the last five years. Whilst the discovery of a single specimen is no proof of a substantial invasion it does need to be seen in the context of a paucity of dipterists active in the area and it would seem likely that significant numbers of *S. lunata* penetrated the east coast during the searing heat of July 2006, accompanying the more conspicuous migrant butterflies, moths and dragonflies that were widely reported – **STUART PASTON**, 25 Connaught Road, Norwich NR2 3BP

***Stomorhina lunata* (Fabricius, 1805) (Diptera, Calliphoridae) in Peterborough in 2006** – On 14 September 2006 an odd looking fly was seen in my garden on Michaelmas daisy flowers (the 'wild' purple type), *Aster* species. Being familiar with *Stomorhina lunata* on the continent, the identity as a female of that species was easy to confirm once netted. The location is fairly near the city centre and only rarely are any grasshoppers present (just the occasional *Chorthippus brunneus* sighting). The fly has not been encountered in the surrounding countryside; indeed it is the first I have seen on the mainland of Britain – **ALAN E. STUBBS**, 181 Broadway, Peterborough PE1 4DS

***Stomorhina lunata* (Fabricius, 1805) (Diptera, Calliphoridae) in Buckinghamshire in 2006** – On 3 November 2006 I found a brightly-coloured but unfamiliar fly on flowers of a cultivated Chrysanthemum in my garden. In life it looked at first glance like a hoverfly, with its black and yellow abdomen and wings held closed over each other, but under the microscope it keyed out to *Stomorhina lunata* using the key by K. Rognes (1991. Blowflies (Diptera, Calliphoridae) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* **24**). The specimen is a male from Great Kimble,



Buckinghamshire (SP820062, V.C. 24). Rognes (1991), apart from the association with locusts, mentioned that larvae have also been found in termite nests. *Stomorphina lunata* has been regarded as a rare migrant to the British Isles (see above notes), and records elsewhere in northern Europe have also been assumed to be vagrants from populations in southern Europe or northern Africa. However, there have been several British records this year and comments on the Diptera.info website show that it is becoming more frequent in central and northern Europe, so an alternative prey seems increasingly likely – **MARTIN C. HARVEY**, Buckinghamshire and Milton Keynes Environmental Records Centre, Tring Road, Halton, HP22 5PN. Email: mcharvey@buckscc.gov.uk

### **Another site for *Dorycera graminum* (Fabricius, 1794) (Diptera, Ulidiidae) in Essex**

– The RDB3 fly *Dorycera graminum* (Fabricius) was shown as largely confined to South-east England post 1970, particularly North Kent and the upper Thames estuary by J.W. Ismay (2000. *The status, distribution and biology of Dorycera graminum* (Fabricius) (Diptera, Ulidiidae) English Nature Research Reports No. 395), and reported from South Essex by Peter Harvey (2002. The picture winged fly *Dorycera graminum* (F.) (Diptera, Ulidiidae) in abundance at a threatened site in West Thurrock, with records from other sites in South Essex. *Essex Naturalist* (New series) **19**). A further population has been identified at Brightlingsea, North-east Essex (TM075187). This site is an open area of about 10 ha of cattle-grazed permanent pasture on free-draining gravel/sand divided by two post and barbed wire fence runs. *Dorycera graminum* was first noted on the untreated sweet chestnut *Castanea sativa* fence posts in late May 2005 with as many as four or five flies to a post, with courtship wing-waving taking place and some pairs *in copula*. Probably the majority of the two hundred fence posts were occupied by at least one fly at the time of peak activity in June, whilst sweeping adjacent herbage produced only the odd *D. graminum*. Nectar resources on the pasture were scarce, although hawthorn *Crataegus* was flowering 100m or more away.

Apart from courtship behaviour and resting on the posts *D. graminum* also appeared to be egg-laying, which may explain the attraction of the fence posts. Females spent much time probing fissures in the wood of the posts. Probing was not confined to the fence posts and the attached barbed wire was also probed in the gaps between the twisted strands. This probing was reported under laboratory conditions by Ismay (*op. cit.*), but no egg-laying was observed. It was considered that egg-laying on the fence posts may well have occurred when the ovipositor was held in position for a longer period, e.g. ten seconds or more, which happened occasionally, but no eggs could be detected with a hand lens. Most of the probing appeared to be investigation. It seems probable that hatched larvae drop off or crawl to the base of the posts and feed saprophagously at or below ground level, or on the more decayed part of the posts below ground level.

My thanks go to Del Smith, Essex Diptera Recorder, for confirming the original identification of *D. graminum*, and to Peter Harvey for information – **DAVID SCOTT**, Ford Farm, Brightlingsea, Essex. CO7 0SA

# ***Chalarus longicaudis* Jervis, 1992 (Diptera, Pipunculidae) new to Britain with a key for the females of the British species of *Chalarus* Walker, 1834**

**DAVID GIBBS**

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

## **Summary**

The discovery of *Chalarus longicaudis* Jervis, 1992 from London, Surrey and Wiltshire is reported. A key to the known females of the British species is provided.

## **Introduction**

*Chalarus* Walker, 1834 is undoubtedly the least well studied genus of Pipunculidae, itself a relatively poorly known family. Jervis (1992) showed just how little was known of them when he described eleven new species, seven of them occurring in Britain. In the last few years another of Jervis's new species, *Chalarus longicaudis*, has come to my notice in British Malaise trap material. In 2006 I obtained further specimens in Wiltshire, indicating that it was quite widespread, at least in southern England.

## **Identification**

Jervis (1992) keyed the European species and provided very full descriptions, illustrations and electron micrographs. However, as this revision is not widely available it seems worthwhile constructing a key for the British species.

Unfortunately Jervis's (1992) work did not succeed in associating males with females in every case. Just eight species were known from both sexes and the male of one more, *C. decorus* Jervis, was later keyed and illustrated by Dunk (1997). Of the 18 taxa now known to occur in Britain, males are still unknown for seven of them and females in two cases.

**Table 1. The *Chalarus* species groups (after Jervis (1992))**

Species	Female	Male	Species	Female	Male
<b>the <i>basalis</i>-group</b>			<b>the <i>parmenteri</i>-group</b>		
<i>C. basalis</i>	known		<i>C. griseus</i>		known
<i>C. fimbriatus</i>	known	known	<i>C. parmenteri</i>	known	
<i>C. gynocephalus</i>		known	<i>C. perplexus</i>	known	
<i>C. juliae</i>	known	known	<b>the <i>spurius</i>-group</b>		
<i>C. pughi</i>	known		<i>C. brevicaudis</i>	known	known
<b>the <i>exiguus</i>-group</b>			<i>C. decorus</i>	known	known
<i>C. argenteus</i>	known		<i>C. holosericeus</i>	known	known
<i>C. clarus</i>	known		<i>C. indistinctus</i>	known	known
<i>C. exiguus</i>	known	known	<i>C. longicaudis</i>	known	
<b>the <i>latifrons</i>-group</b>			<i>C. spurius</i>	known	known
<i>C. latifrons</i>	known	known			

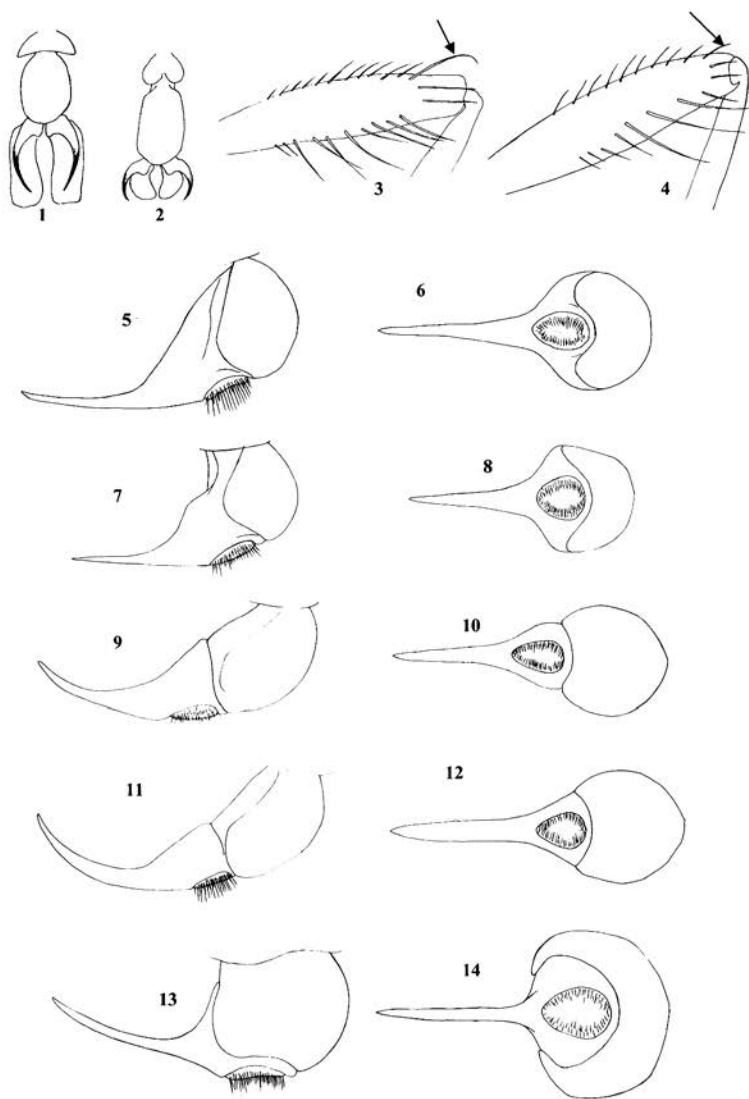


As can be seen from the above table those groups containing males with unknown females also have females with unknown males. For example, could *C. gynocephalus* be the male of the relatively frequent *C. pughi*? Likewise, might *C. griseus* be the unknown male of either *C. parmenteri* or *C. perplexus*? Associating males with females is fraught with difficulty as two or more species can often be found at the same site on the same date. Even where males have been associated with females by Jervis (1992) he does not provide details as to how he made these judgements. In the absence of molecular techniques, only finding pairs *in copula* will fill these gaps in our knowledge. Phylogenetic investigation of this genus, including molecular analysis, is in preparation on the continent which is likely to associate more species with their respective sexes (*C. Kehlmaier pers. comm.*).

#### A Key to female *Chalarus* known from Britain.

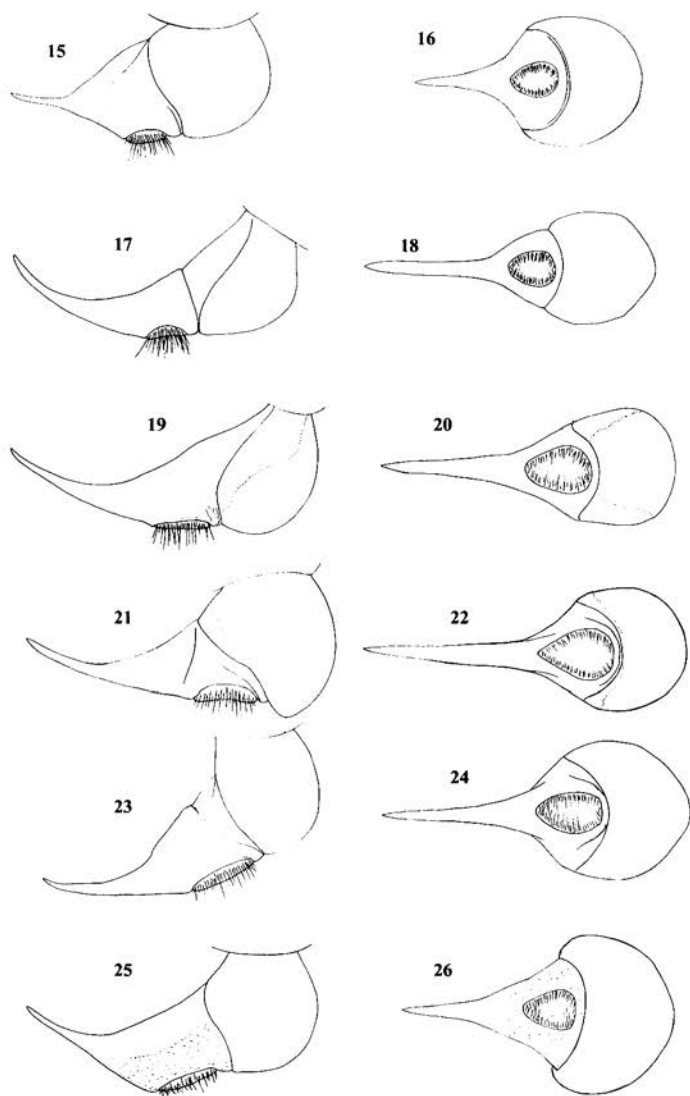
Because so many males are yet to be associated with their females it is felt best that records of British species be based on females only. This key will therefore name only 16 of the 18 named species on the British list; *C. griseus* Coe, 1966 and *C. gynocephalus* Jervis, 1992, known only from males are omitted. There is some variability in the shape of the ovipositor and the relative size of the ommatidia so care is needed when comparing with the illustrations. Terminology of the ovipositor is illustrated in Fig 29.

- 1     Pulvilli on front and middle tarsi conspicuously longer than those on hind tarsi (Fig. 1) ..... 2
- Pulvilli on front and middle tarsi much the same size as those on hind tarsi (Fig. 2).. 5
  
2.     Piercer of ovipositor viewed laterally essentially straight (Figs 5 and 7); apical hair of the posterodorsal series on the hind femora long, extending beyond the tip of the femora, and sharply curved down at its tip (Fig 3) ..... 3
- Piercer of ovipositor distinctly curved towards abdomen (Figs 9 and 11); apical hair of the posterodorsal series on the hind femora short, not extending beyond the tip of the femora, its tip straight (Fig. 4) ..... 4
- [if piercer of ovipositor distinctly curved towards abdomen but apical hair of the posterodorsal series on the hind femora long and sharply curved down at its tip check *C. elegantulus* Jervis]
  
3.     Frons weakly converging, at its narrowest point more than twice the diameter of the largest ommatidia (enlarged eye-facets). Ommatidia relatively smaller (Fig. 37). Piercer of the ovipositor longer and very slightly curved (Figs 5 and 6) ..... *latifrons* Hardy
- Frons conspicuously converging, at its narrowest point narrower than twice the diameter of the largest ommatidia. Ommatidia relatively larger (Fig. 38). Piercer of the ovipositor shorter and essentially straight (Figs 7 and 8) ..... *juliae* Jervis
  
4.     Ommatidia relatively small, the largest about half narrowest frons width in diameter (Fig. 39). Basal two tergites orange brown, at least laterally. Piercer of ovipositor a little shorter and less curved (Figs 9 and 10) ..... *basalis* Loew

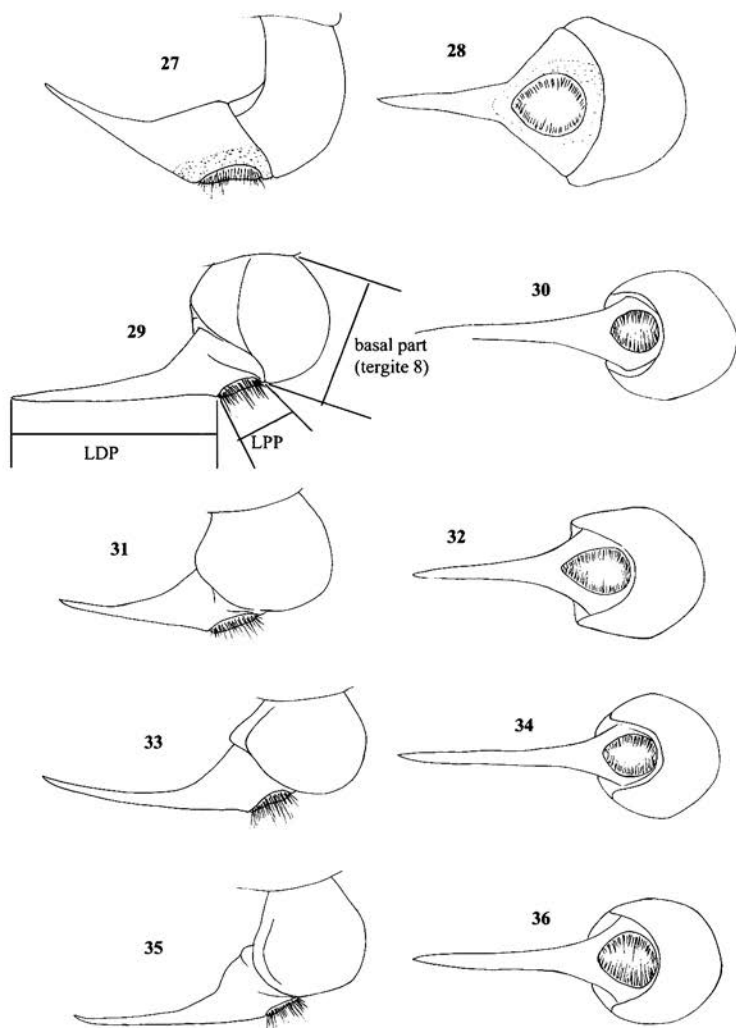


**Figs 1-2. Tip of front tarsi: 1. *C. latifrons*; 2. *C. spurius*. Figs 3-4. Hind femora anterodorsal view: 3. *C. latifrons*; 4. *C. pughi*. Figs 5-14. Ovipositors: 5-6. *C. latifrons*; 7-8. *C. juliae*; 9-10. *C. basalis*; 11-12. *C. pughi*. 13-14. *C. longicaudis*.**

- Ommatidia relatively large, the largest about two-thirds the narrowest frons width in diameter (Fig. 40). Basal two tergites concolorous with the rest of the abdomen. Piercer of ovipositor a little longer and more strongly curved (Figs 11-12) ..... *pughi* Coe
- 5. Apical part of piercer of ovipositor very narrow and fine, basally abruptly widening into ovipositor base (tergite 8) (Figs 13-16) ..... 6
- Apical part of piercer of ovipositor not very narrow and fine, merging more evenly into ovipositor base (tergite 8) (Figs 17-36) ..... 7
- 6. Piercer of ovipositor very long and fine, the tip curving towards the abdomen (Figs 13- 14) ..... *longicaudis* Jervis
- Piercer of ovipositor short, the tip almost straight (Figs 15-16) ..... *brevicaudis* Jervis
- 7. Piercer of ovipositor distinctly curved up towards the abdomen (Figs 17-19) ..... 8
- Piercer of ovipositor straight, or at least not strongly curved up towards the abdomen (Figs 20-36) ..... 9
- 8. Eyes only weakly convergent, the frons relatively broad, conspicuously broader than the largest ommatidia (Fig. 42); hairs and bristles of body and legs normally all pale yellowish; ovipositor (Figs 17-18) ..... *fimbriatus* Coe
- Eyes strongly convergent, the frons at its narrowest point no broader than the largest ommatidia (Fig. 43); hairs and bristles of body and legs all black; ovipositor (Figs 19-20) ..... *parmenteri* Coe
- 9. Eyes only weakly convergent, the frons relatively broad, broader than the largest ommatidia and clearly broader than the gap between the front ocellus and the eye-margin (Fig. 44); thorax and abdomen not covered with silvery-grey dust (except in a rare form of *C. spurius*, check ovipositor shape) ..... 10
- Eyes strongly convergent, the frons narrower or at least hardly broader than the largest ommatidia and clearly narrower than the gap between the front ocellus and the eye-margin (Fig. 45); thorax and abdomen often covered with silvery-grey dust .... 13
- 10. Base of piercer of ovipositor shiny, not dulled by a covering of microscopic pile except for a narrow strip surrounding the anal opening. (ommata larger relative to the width of the frons) ..... 11
- Base of piercer of ovipositor dulled by a covering of microscopic pile (see stippled area in Figs 25-28) (ommata not conspicuously enlarged, smaller than the width of the frons) ..... 12
- 11. Viewed laterally basal part of ovipositor (tergite 8) short and high, a distinct step between basal part and piercer; that part contiguous with the piercer laterally with a bare, shiny strip (Figs 21-22) ..... *decorus* Jervis



Figs 15-26. Ovipositors. 15-16. *C. brevicaudis*; 17-18. *C. fimbriatus*; 19-20. *C. parmenteri*; 21-22. *C. decorus*; 23-24. *C. spurius*; 25-26. *C. indistinctus*.



Figs 27-36. Ovipositors: 27-28. *C. holosericeus*; 29-30. *C. clarus*; 31-32. *C. argenteus*; 33-34. *C. exiguus*; 35-36. *C. perplexus*.

- Viewed laterally basal part of ovipositor (tergite 8) rounded, no strong discontinuity between basal part and piercer, basal part entirely covered in microscopic pile, no bare shiny areas (Figs 23-24) ..... *spurius* (Fallén)
- 12. In lateral view piercer conspicuously angled just after anal opening (Fig. 25); basal part of ovipositor (tergite 8) wider than long; anal opening relatively narrow, oval (Fig. 26) ..... *indistinctus* Jervis
- In lateral view piercer not so obviously angled just after anal opening (Fig. 27); basal part of ovipositor (tergite 8) longer than wide (view directly above the longest axis of tergite 8, in a strictly dorsal view, as in Fig. 28, this tergite appears wider than long); anal opening relatively broad, rounded (Fig. 28) ..... *holosericeus* (Meigen)
- 13. Ommatidia enlarged but only moderately so, no larger than the width of the frons at its narrowest point (Fig. 45) ..... 14
- Ommatidia clearly enlarged, usually conspicuously larger than the width of the frons at its narrowest point (Fig. 46) ..... 15  
[this character might be very difficult to judge accurately without reference material for comparison]
- 14. Piercer of ovipositor with distal section (distal end of anal opening to tip, LDP) relatively longer compared to proximal section (basal part to distal end of anal opening, LPP), LDP/LPP = 2.74-3.5 (Figs 29-30.) ..... *clarus* Jervis
- Piercer of ovipositor with distal section relatively shorter compared to proximal section, LDP/LPP = 1.93-1.95 (Figs 31-32.) ..... *argenteus* Coe
- 15. Thoracic dorsum with silvery grey pruinescence; interdorsocentral and intra-alar setae long and mostly confined to presutural area. Abdominal dorsum with most setae long. Ovipositor Figs 33-34 ..... *exiguus* (Haliday)
- Thoracic dorsum with fawn pruinescence; interdorsocentral and intra-alar setae short, the intra-alar setae mostly confined to presutural area. Abdominal dorsum with most setae short. Ovipositor Figs 35-36 ..... *perplexus* Jervis  
[despite being placed in different groups by Jervis (1992), these two seem to be very similar. I have taken the characters from Jervis because I have seen too few specimens to confirm them myself]

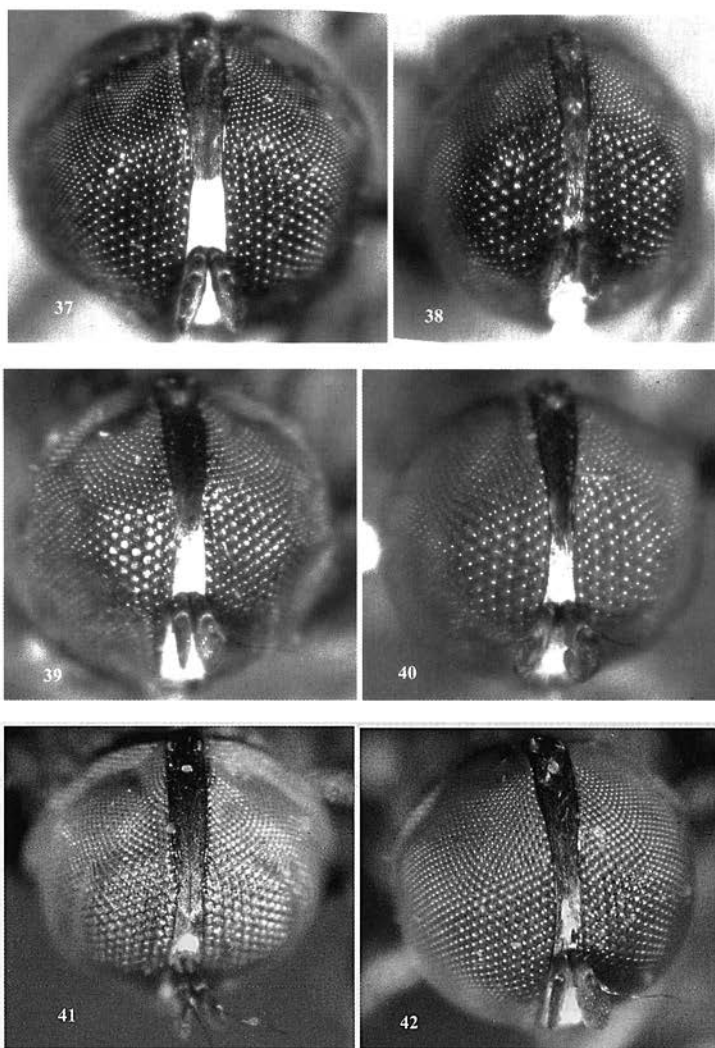
### ***Chalarus longicaudis* Jervis, 1992**

Female

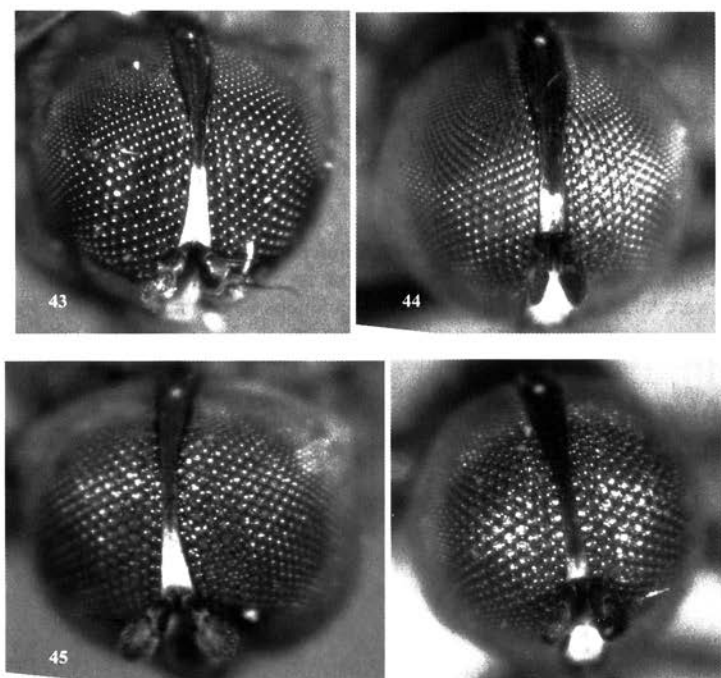
Measurements: wing length 2.4-2.6mm (n=5); body length 2.1-2.3 (n=5).

**Description:** A small, all dark species.

**Head** (Fig. 41); frons blackish grey, from the narrowest point to the antennal bases covered in silver dusting, slightly converging from ocelli to narrowest point, then just perceptibly widening to antennal bases. A pair of proclinate, black ocellar setae.



Figs 37-42. Heads from front. 37. *C. latifrons*; 38. *C. juliae*; 39. *C. basalis*; 40. *C. pughi*; 41. *C. longicaudis*; 42. *C. fimbriatus*.



**Figs 43-46. Heads from front. 43. *C. parmenteri*; 44. *C. spurius*; 45. *C. clarus*; 46. *C. perplexus*.**

*Frons* laterally with a uniserial row of proclinate fronto-orbital setae, varying from just 3 each side to 9-10 each side continuing to the narrowest point. Face wider than lower frons, silver dusted. Antennae black, pedicel with 3-4 long setae dorsally, 2-3 ventrally. First flagellomere oval, taller than long. Arista black. Ommatidia moderately enlarged, the diameter of the largest about equal to half the width of the frons at its narrowest part.

*Thorax*: mesonotum grey-brown dusted, all setae dark. Dorsocentrals uniserial, about 9-10, postsuturals long and clearly differentiated, becoming smaller presuturally and barely distinguishable from general vestiture. Interdorsocentrals scattered presuturally, petering out postsuturally, few or none in posterior half; 2 notopleurals, 1 supra-alar, 2 strong postalar, interalar area with scattering of small setulae presuturally. Scutellum with 4 strong marginals and a few small setulae dorsally. Haltere yellow with darker stem; wing as in other members of the genus.

*Legs*: blackish with front knees obscurely paler yellowish. Pulvilli short, barely exceeding claws in dry material. All setae black, posterodorsal row on front femur short and



fine, hairs no longer than depth of femur. Posteroventral row on mid femur long and strong, longest hairs conspicuously longer than femur. Anterodorsal row on hind femur long and strong, 3-5 hairs on distal half of femur only.

*Abdomen*: grey-brown dusted, lateral setae longest on tergite 1, about as long as half the width of tergite 1. Tergite 2 about 2.5 times wider than long. Ovipositor with basal part short and rounded. Piercer with proximal section abruptly contracting to a long, needle-like distal part, in lateral view gently curved up towards abdomen (Figs 13-14).

### Habitat and biology

Captures to date do not indicate any habitat preferences. The London specimen is from an urban brown-field site, the Surrey individual from an extensive deer park and the Wiltshire specimens were taken in a glade in secondary deciduous woodland where they were feeding from honeydew on sycamore *Acer pseudoplatanus* leaves. In France it has been reared from the leafhopper *Empoasca vitis* (Goethe, 1875) (Hemiptera, Cicadellidae) taken from *Helianthus* and *Trifolium* (Jervis 1992). So far adults have been found in June and July in Britain and until August on the continent.

### Distribution

Jervis (1992) reports this species only from Belgium, France and Sweden and it has subsequently been recorded in Germany, Spain and Switzerland ([www.faunaeur.org](http://www.faunaeur.org)). In Britain it is known only from southern England, London, Surrey and Wiltshire, but is likely to be much more widespread.

### Material examined

UNITED KINGDOM, **London**, Gargoyles Wharf, River Thames, TQ2675, VC17, 1♀, 14 June-18 July 2001 Malaise trap (leg. C.W. Plant; det. D.J. Gibbs). **Surrey**, Richmond Park, TQ1972, VC17, 1♀, 1-30 June 2003 Malaise trap (leg. G.A. Collins; det. D.J. Gibbs). **Wiltshire**, Longleat Center Parcs, ST8443, VC8, 3♀, 14 July 2006, sweep-netted (leg. and det. D.J. Gibbs).

GERMANY, Hans-Watzlik-Hain, Bayer-Wald Nat. Pk., 700m, 49°06'00"N 13°14'00"E, 1♀, 23 July-13 August 2001, Malaise trap (leg. M. Kuhlmann; det. D.J. Gibbs).

### Acknowledgements

I would like to thank Colin Plant and Graham Collins for making their specimens available to me. Also Barry Collins for commissioning the work at Longleat and the staff at Center Parcs who facilitated my visits.

### References

- Dunk, K. von der 1997. Key to Central European species of Pipunculidae (Diptera). *Studia dipterologica* **4**, 289-335.
- Jervis, M.A. 1992. A taxonomic revision of the pipunculid fly genus *Chalarus* Walker, with particular reference to the European fauna. *Zoological Journal of the Linnean Society* **105**, 243-352.

## A preliminary account of the fauna of Pipunculidae (Diptera) of continental France

PHIL WITHERS

40 Montée du Cimetière, Sainte Euphémie, 01600, France  
phil.withers@wanadoo.fr

### Summary

An annotated list of the Pipunculidae present in France is provided. A total of 109 species are recorded for mainland France, with one (*Tomosvaryella disjuncta* Becker) being new to Europe.

### Résumé

Une liste annotée de Pipunculidae de la France est fournie. 109 espèces sont connues de la France continentale dont une (*Tomosvaryella disjuncta* Becker) est nouvelle pour l'Europe.

### Introduction

Flies of the family Pipunculidae are immediately recognizable by their almost spherical heads, their small size (wing length <10mm) and their hovering flight. Their larvae are mostly internal parasitoids of different leaf-hopper families, and some have a considerable effect on populations of pest Auchenorrhyncha.

The French fauna has been very little studied, in part due to a major setback, the absence of adequately illustrated faunistic works. This gap in European coverage has been progressively filled by the publication of important revisions of most genera (see below for citations). De Meyer (1991) compiled a list of French species without localization from various sources; other faunistic information for France is scattered in various publications and on-line resources, for example De Meyer *et al* (1993), De Meyer (1996), Kehlmaier (2005). Fauna Europaea indicates 40 species as present in France.

The objective of the present paper is to place on record those species which are authentically French, either based on my own collecting over more than 15 years, principally in the Rhône-Alpes region, or those which European colleagues have identified from their collections. Many are new to France. Pipunculid specimens are only infrequently encountered, often in low numbers, and it is generally not possible to collect a lot of material in a single season. For this reason, the following list does not claim to be comprehensive: it is merely a preliminary account to enable an appreciation of the range of species, pending a fuller national treatment. The French fauna currently comprises 109 species, of which one (*Tomosvaryella disjuncta* Becker) is newly recorded for Europe.

Species already recorded from France are indicated in the species list by \*

### Introduction française

Les mouches de la famille Pipunculidae sont immédiatement reconnaissables par leur tête presque globulaire, leur petite taille (la longueur des ailes mesurant <10mm) et leur vol stationnaire. Les larves sont pour la plupart les parasitoïdes internes de différentes familles

de punaises, dont certains ont sûrement un effet considérable sur le dépeuplement de quelques espèces d'Auchenorrhyncha nuisibles.

La faune française a été très peu étudiée, en partie à cause d'un échec important dû à l'absence d'ouvrages faunistiques portant des illustrations suffisamment précises. Cette lacune européenne a été progressivement comblée par la publication de révisions importantes de la plupart des genres (voir ci-dessous pour les citations). De Meyer (1991) a compilé de plusieurs sources une liste sans localités, des espèces françaises; d'autres informations sur la faune de France sont très dispersées: entre autre peut être cité les publications de De Meyer *et al* (1993), De Meyer (1996), Kehlmaier (2005). La base de données Fauna Europaea indique 40 espèces présentes en France.

Le but de ce présent ouvrage est simplement de mettre en évidence les espèces définitivement françaises, soit que j'ai récoltés personnellement pendant plus de quinze ans, principalement en région Rhône-Alpes, soit que mes collègues européens ont identifiés dans leurs collections. Un grand nombre d'espèces sont nouvelles pour la France. Les spécimens de Pipunculidae n'étant pas très fréquemment rencontrés, et souvent seuls, il n'est pas possible de ramasser beaucoup d'individus dans une saison. Pour cette raison, la liste des espèces ci-dessus n'a pas la prétention d'être exhaustive; elle n'est qu'un premier essai pour mieux comprendre la variété d'espèces, en attente d'une éventuelle publication sur la totalité de la faune. La faune française est actuellement de 109 espèces, dont une (*Tomosvaryella disjuncta* Becker) est nouvelle pour l'Europe.

Les espèces déjà connues pour la France sont indiquées par \*.

## Material

Material contributing to this paper is held in the collections of the following institutions or individuals. All records unmarked refer to specimens in the authors' collection:

MHNG: Musée Histoire Naturelle Genève (Bernhard Merz); MHNN: Musée Histoire Naturelle Neuchâtel (J.-P. Haenni), MHNP: Muséum National d'Histoire Naturelle, Paris, MHNU: Natural History Museum, Berlin, MTKD: Natural History Museum, Dresden, NHM: Natural History Museum, London, NMMA: Natural History Museum, Altenburg, UMO: University Museum, Oxford, CK: Christian Kehlmaier; CP: C.J. Palmer, DG: David Gibbs; ME: M. Ebejer, MK: M. Kozánek, PC: P.J. Chandler.

## Species List

### CHALARINAE

**CHALARUS** Walker (key work: Jervis 1992) (*Many species of Chalarus are only known in one sex; care should therefore be taken when identifying specimens of this genus*)

\**C. brevicaudis* Jervis — BRETAGNE, Rennes, vi-ix.02; CHARENTES MARITIMES, St. Fort sur Gironde, 15.viii-4.ix.00 CK; RHÔNE, Lamure-sur-Azergues, Forêt de la Cantinière, 15.viii.05 (Jervis records a paratype specimen from HAUTES PYRENNÉES, Castelnau-Magnoac).

*C. decorus* Jervis — RHÔNE, Cublize, Lac des Sapins, 1.viii.93.

*C. exiguus* (Haliday)/*C. holosericeus* (Meigen) — RHÔNE, Charnay, 2.viii.91 (these two species are only separable in males on details of the pupa).

*C. fimbriatus* Coe — AVEYRON, Bois de Plagnolle, Nauviale, 14.viii.98 CP; CHARENTES MARITIMES, St. Fort sur Gironde, 18.v-22.vi.03 CK; RHÔNE, Lamure-sur-Azergues, Forêt de la Cantinière, 21.v.03, Île de Chèvre, 24.viii.93.

*C. gynocephalus* Jervis — DOUBS, Vallée de la Loue, Omans, 2.vi.94 MHNN.

\**C. indistinctus* Jervis — AVEYRON, Bois de Plagnolle, Nauviale, 14.viii.98 CP; DRÔME, Aleyrac, 5.ii.05 (Jervis records specimens from HAUTES PYRÉNÉES, Lannemezan; HÉRAULT, Lunel; LOIRET, La Ferté-St. Aubin).

\**C. juliae* Jervis — AIN, Certines, Forêt de la Réna, 17.v.93, 20.vii.03; CHARENTES MARITIMES, St. Fort sur Gironde, 22.vii-26.viii.01 CK; RHÔNE, Cublize, Lac des Sapins, 15.viii.91. (The holotype female is from HAUTE GARONNE, Montréjeau; paratype material is from HAUTS DE SEINE, Sevres; INDRE ET LOIRE, Château La Vallière; LOIRE ET CHER, Mantoire sur le Loire; SAÔNE ET LOIRE, Sennecy-le-Grand; SEINE ET MARNE, Fontainebleau; YONNE, Joux la Ville).

\**C. latifrons* Hardy — AVEYRON, Bois de Plagnolle, Nauviale, 14.viii.98 CP; BRETAGNE, Rennes and Le Rheu, vii-vii.02; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

\**C. longicaudis* Jervis — BRETAGNE, Rennes, vi-ix.02. (the holotype female is from VIENNE, Vivonne; a paratype female is from HAUTES PYRÉNÉES, Lannemezan).

*C. parmenteri* Coe — AIN, St. Jean de Thurigneux, 8.v.05; 8.vii.05.

*C. pughi* Coe — CHARENTES MARITIMES, St. Fort sur Gironde, 20.vii-15.viii.00, 15.viii-4.ix.00, 4-25.ix.00, 22.vii-26.viii.01, 14.vii-17.viii.03 CK; MOSELLE, Forêt de Gendersberg, Hanville, 14.viii.01 CP; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

\**C. spurius* (Fallén) — BRETAGNE, Rennes, vi-ix.02; CHARENTES MARITIMES, St. Fort sur Gironde, 15.viii-4.ix.00, 27.v-22.vii.01, 22.vii-26.viii.01, 18.v-22.vi.03 CK; GARD, Camprieux, Mont du Bois, 7.viii.02 MHNN; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

#### **JASSIDOPHAGA** Aczél (key work: Kehlmaier 2006)

*J. beatricis* Coe — RHÔNE, Cublize, Lac des Sapins, 21.vi.92; Lamure-sur-Azergues, Forêt de la Cantinière, 14.vi.92.

\**J. fasciata* Roser — AIN, St. Jean de Thurigneux, 23-29.iv.05, 29.iv-6.v.05, 6-13.v.05.

\**J. villosa* (von Roser) — De Meyer 1991: locality unrecorded.

#### **VERRALLIA** Mik (key work: Kehlmaier 2006)

\**V. aucta* Fallén — ALPES MARITIMES, Thorenc, 14.vi.94 MHNN; BOUCHE DU RHÔNE, Les Baux de Provence, 23.v.93; DRÔME, Rioms, 3.vi.06; GARD, Ginestens, Forêt de l'Aigonal, 22.vii.04 MHNN; SAVOIE, Aussois, 12.vii.04; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

## NEPHRO CERINAE

**NEPHROCERUS** Zetterstedt (key work: Grootaert and De Meyer 1986) (*Recent work by Koenig and Young (2007) has shown that north American species of Nephrocerus are parasitoids of adult Tipulidae*)

\**N. flavicornis* Zetterstedt — CHARENTES MARITIMES, St. Fort sur Gironde, 18.v-22.vi.03 CK. (Grootaert and De Meyer 1986); HAUTES PYRÉNÉES, Lourdes).

\**N. scutellatus* (Macquart) — ALPES DE HAUTE PROVENCE, Voix, 8.vi.94 MHNN; AUDE, Belcaire, 20.vi.91, MHNN, Campagna-de-Sault, 20.vi.91 MHNN; RHÔNE, Lamure-sur-Azergues, Forêt de la Cantinière, 19.v.93; HAUTE SAVOIE, Lully, 17.v.93, Vulbens, 29.v.93, Vertraz-Monthoux, 28.iv.94; VAR, Les Maures Collobrières, Vallon des Vaudrèches, 10.vi.94 MHNN, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG; VAUCLUSE, Mont de Luberon, 3.vi.95 MHNN. (The holotype specimen is from France, but has no data).

## PIPUNCULINAE

**CEPHALOPS** Fallén (key work: De Meyer 1989)

\**C. aeneus* Fallén — RHÔNE, St. Laurent d'Oingt, 5.v.96 (De Meyer, 1989: ARDÈCHE).

\**C. carinatus* (Verrall) — De Meyer 1991: locality unrecorded.

*C. conjunctivus* Collin — BOUCHE DU RHÔNE, Les Baux de Provence, 23.v.93; PROVENCE, Forcalquier, 3.vi.00 ME, DG.

*C. obtusinervis* (Zetterstedt) — ISÈRE, Les Granges de Freydière, 31.v.94; RHÔNE, Charnay, 20.viii-5.ix.91; SEINE ET MARNE, Le Gros Fouteau, Forêt de Fontainebleau, 20.v.89 PC.

\**C. (Beckerias) pannonicus* Aczél — CHARENTES MARITIMES, St. Fort sur Gironde, 20.vii-15.viii.00, 15.viii-4.ix.00, 27.v-22.vii.01 CK; 22.vii-26.viii.01 ; 14.vii-17.viii.03.

*C. penultimus* (Ackland) — CHARENTES MARITIMES, St. Fort sur Gironde, 15.viii-4.ix.00, 22.vii-26.viii.01, 22.vi-14.vii.03 CK.

\**C. perspicuus* (De Meyer) — CHARENTES MARITIMES, St. Fort sur Gironde, 27.v-22.vii.01, 14.vii-17.viii.03 CK. (De Meyer 1989: holotype of synonym *subflavus* Becker: St. Jean (département unrecorded)).

*C. semifumosus* (Kowarz) — AIN, St. Jean de Thurigneux, 13-27.v.05, 27.v-4.vi.05, 1-12.vi.05, 10-17.vii.05, 17-24.vii.05, 26.vi-2.vii.06, 16-24.vii.06; MOSELLE, Forêt de Gendersberg, Hanville, 13-14.viii.01 CP; RHÔNE, Charnay, 23.viii.97.

\**C. signatus* (Becker) — ALPES DE HAUTE PROVENCE, Lavagne, 8.vi.94 MHNN; DORDOGNE, Jumilhac, 21.ix-25.x.06. (De Meyer 1989: the Becker collection has a specimen from Jouy, département unrecorded).

*C. straminipes* (Becker) (= *chlorionae* (Frey); see Kehlmaier and De Meyer 2005) — AIN, St. Jean de Thurigneux, 13.v.98; ALPES DE HAUTE PROVENCE, Lavagne, 8.vi.94 MHNN; RHÔNE, Charnay, 21.vii-16.viii.91, 20.viii-5.ix.91, 22.vii.97.

*C. subultimus* Collin — AIN, St. Jean de Thurigneux, 13-27.v.05, 27.v-4.vi.05, 4-12.vi.05, 10-17.vii.05, 17-24.vii.05, 9-23.ix.06; ISÈRE, Le Sappey en Chartreuse, 15.vi.06; RHÔNE, Charnay, 23.v-31.vii.97.

\**C. ultimus* (Becker) — AIN, St. Jean de Thurigneux, 21-22.vii.99; AVEYRON, Bois de Plagnolle, Nauviale, 14.viii.98 CP, L'Hospitalet de Larzac, 5.viii.02 MHNN; BRETAGNE, Rennes, vi-ix.02; CHARENTES MARITIMES, St. Fort sur Gironde, 20.vii-15.viii.00 CK, 15.viii-4.ix.00, 4-25.ix.00, 25.ix-26.xi.00, 27.v-22.vii.01, 22.vii-26.viii.01, 14.vii-17.viii.03; HAUTE SAVOIE, Reignier, 28.viii.92; PYRÉNÉES ORIENTALES, Valmy, Argeles-sur-Mer, 18.viii.00 CP; RHÔNE, Charnay, 20.viii-5.ix.91, Lamure-sur-Azergues, Forêt de la Cantinière, 15.viii.05. (De Meyer 1989: recorded from St. Front, département unspecified).

*C. varius* (Cresson) — CHARENTES MARITIMES, St. Fort sur Gironde, 15.viii-4.ix.00, 27.v-22.vii.01 CK.

\**C. vittipes* (Zetterstedt) — HAUTE SAVOIE, Salève, 27.vii.00; MOSELLE, Forêt de Gendersberg, Hanville, 14-16.viii.01 CP; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

### **CEPHALOSPHERA** Enderlein (key work: De Meyer 1989)

\**C. furcata* (Egger) — De Meyer 1991: locality unrecorded.

*C. germanica* Aczél — HAUTE SAVOIE, Salève, 10.vii.00 MHNG.

### **CLARAEOLA** Aczél (key work: Kehlmaier 2005)

*C. halterata* (Meigen) — RHÔNE, Cublize, Lac des Sapins, 10.viii.91, Lamure-sur-Azergues, Forêt de la Cantinière, 9.vi.03.

*C. clavata* (Becker) — AIN, St. Jean de Thurigneux, 12-13.vii.05; BOUCHES-DU-RHÔNE, Meyreuil, 30.vii.35 NHM.

### **CLISTOABDOMINALIS** Skevington (key work: Kehlmaier 2005)

*C. dilatatus* (De Meyer) — AIN, St. Jean de Thurigneux, 27.v-4.vi.05; AVEYRON, Bois de Plagnolle, Nauviale, 14.viii.98 CP.

\**C. ruralis* (Meigen) — AIN, St. Jean de Thurigneux, 28.viii-4.ix.05, 31.viii.9.ix.06, St. Jean de Niost, 25.vi.00; ARDÈCHE, Vals les Bains, 3-12.ix.04 DG; BRETAGNE, Billiers, 6.ix.90, Sarzeau, 6.ix.90, Rennes and Le Rheu, vi-ix.02; DORDOGNE, Jumilhac, 21.ix-25.x.06; GARD, Beaucaire, 22.v.93; HAUTE SAVOIE, Seyssel, 13.viii.95, Le Pas d'Echelle, 25.viii.00 MHNG; HÉRAULT, Montpellier, St. Jean de Cuculles, 14.vi.94; LOT, Labastide-Murat, 24.vi.80 PC; RHÔNE, Charnay, 20.viii-5.ix.91.

*C. tumidus* (De Meyer) — ARDÈCHE, Vals les Bains, 9.ix.04 DG.

### **DASYDORYLAS** Skevington (key work: Kehlmaier 2005)

*D. filiformis* Kehlmaier — PYRÉNÉES ORIENTALES, Valmy, Argeles-sur-Mer, 18.viii.01 CP.

*D. horridus* (Becker) — AIN, St. Jean de Thurigneux, 2-8.vii.06, 8-16.vii.06; BRETAGNE, Concarneau, 14.vii.28 MHNG; EURE, Evreux, 23.v.13 MHNP; RHÔNE, Charnay, 23.viii.97.

*D. holosericeus* (Becker) — ARDÈCHE, Vals les Bains, 3-12.ix.04 DG; VAR, Cavaliers, Gorges du Verdon, 17.v-13.vi.03 MHNG, CK.

*D. roseri* (Becker) — AIN, St. Jean de Thurigneux, 9-23.ix.06; ALPES MARITIMES, Le Bar sur Loup, 13.vi.94 MHNN.

**DORYLOMORPHA** Aczél (key work: Albrecht 1990)

*D. (Dorylomyza) albitarsis* (Zetterstedt) — JURA, Chapelle-en-Bois, Lac des Mortes, 30.v.92.

*D. (D.) clavifemora* Coe — AIN, Lac-tourbière de Cérin, 7.v.00.

*D. (D.) hungarica* (Aczél) — DOUBS, Lac de Remoray, 5.vi.93 MHNN; DRÔME, Lus-la-Croix-Haute, 7.vi.94 MHNN.

\**D. (D.) infirmata* (Collin) — DOUBS, Lac de Remoray, 5.vi.93 MHNN; MOSELLE, Forêt de Gendersberg, Hanville, 13.viii.01 CP.

\**D. (Dorylomorpha) aczeli* Hardy — RHÔNE, Charnay, 21.vii-16.viii.91 (Albrecht records unlocalised material in Paris collections).

\**D. (D.) confusa* (Verrall) — AIN, St. Jean de Thurigneux, 12.vi.06; HAUTE SAVOIE, Mont Saxonnet, 12.vii.90 MHNG. (Albrecht records unlocalised material in Paris collections).

\**D. (D.) extricata* (Collin) — AIN, St. Jean de Thurigneux, 10.v.06; ISÈRE, Monestier, iv.62 MHNG; RHÔNE, Charnay, 7.v.95 (Albrecht records unlocalised material in Paris and Basel collections).

\**D. (D.) imparata* (Collin) — ISÈRE, Le-Sappey-en-Chartreuse, 29-31.v.94 (Albrecht records unlocalised material in Paris collections).

\**D. (D.) rufipes* (Meigen) — (Albrecht records unlocalised material in Paris and Basel collections).

\**D. (Dorylomyia) incognita* — (Verrall) (Albrecht records unlocalised material in Brussels collections).

\**D. (Pipunculina) maculata* (Walker) — (Albrecht records unlocalised material).

**EUDORYLAS** Aczél (key work: Kehlmaier 2005)

*E. arcanus* Coe — AIN, Marais de Lavours, 8.v.02.

*E. blascoi* De Meyer — HAUTES ALPES, Gap, 11.vii.90 MK.

*E. coloratus* (Becker) — DORDOGNE, Jumilhac, 13.vii-5.viii.06, 5-28.viii.06; DOUBS, Amathay-Vesigneux, 1.viii.00.

*E. elephas* (Becker) — VOSGES, Quieux, 2-10.viii.90 UMO.

*E. fluviatilis* (Becker) — PYRÉNÉES-ORIENTALES, Valmy, Argeles-sur-Mer, 18-19.viii.00 CP.

*E. furvulus* Collin — PYRÉNÉES ORIENTALES, Saillagousse, 10.ix.99 MHNG.

*E. fuscipes* (Zetterstedt) — AIN, Certines, Forêt de la Réna., 20.vii.93, St. Jean de Thurigneux, 29.vii.04, 13-27.v.05, 12-18.vi.05, 26.vi-3.vii.05, 3-10.vii.05, 10-17.vii.05, 24-31.vii.05, 4-11.ix.05, 26.vi-3.vii.06, 8-16.vii.06, 5-16.viii.06; CHARENTES MARITIMES, St. Fort sur Gironde, 15.viii-4.ix.00 CK; RHÔNE, Lamure-sur-Azergues, Forêt de la Cantinière, 12.vi.93; Sarcey, 12.vi.96; SEINE ET OISE, Forêt de Rambouillet, 3.vi.71 PC.

*E. fuscus* (Zetterstedt) — AIN, St. Jean de Thurigneux, 28.viii-4.ix.05; ARIEGE, Ax-les-Thermes, 8.vii.90 MK; AUDE, R. Rebenty, Marsa, 14.viii.94 NHMA; CHARENTES MARITIMES, St. Fort sur Gironde, 15.viii-4.ix.00 CK; HAUTE SAVOIE, Le Pas de l'Echelle, 25.viii.00, Les Bossons, Chamonix, 22.vi.00 MNHG, CP; RHÔNE, Charnay, 23.viii.97.

*E. gemellus* Kehlmaier — VAR, Pont de l'Artuby, Gorges du Verdon, 12.v-13.vi.03 MHNG, CK.

*E. goennersdorfensis* Dempewolf & Dunk — AIN, St. Jean de Thurigneux, 16-24.vii.06, 24-30.vii.06.

*E. inferus* Collin — VAR, Pont de l'Artuby, Gorges du Verdon, 17.v-13.vi.03 MHNG, CK.

*E. jenkinsi* Coe — CHARENTES MARITIMES, St. Fort sur Gironde, 22.vi-14.vii.03 CK; DORDOGNE, Jumilhac, 21.ix-25.x.06; ISÈRE, Le-Sappey-en-Chartreuse, 15-18.v.93; RHÔNE, Charnay, 8-18.vii.93, 28.viii.97, 23.v-31.vii.92; Lamure-sur-Azergues, 28.ix.91, Glay, 18.vi.02, St. Laurent d'Oingt, 5.v.96; SEINE ET MARNE, Le Gros Fouteau, Forêt de Fontainebleau, 20-21.ix.97 PC.

*E. longifrons* Coe — AIN, Certines, Forêt de la Réna, 4.vi.03; Bourg-en-Bresse, vi.76 MNHP; AUDE, R. Rebenty, Joucou, 14.viii.94 NMMA; RHÔNE, Charnay, 23.v-31.vii.92, 17.vi.95.

*E. montium* Becker — AIN, St. Jean de Thurigneux, 16-24.vii.06; CHARENTES MARITIMES, St. Fort sur Gironde, 20.vii-15.viii.00, 22.vii-26.viii.01 CK.

*E. nemoralis* Kozánek — AVEYRON, Causse du Larzac, La Cavalerie, 13.vii.93 MHNN.

\**E. obliquus* Coe — AIN, St. Jean de Thurigneux, 4-12.vi.05, 12-18.vi.05, 26.vi-2.vii.06; ALPES MARITIMES, Sospel, 13.vi.94 MHNN; AVEYRON, L'Hospitalier de Larzac, 5.viii.02 MHNN; BRETAGNE, Rennes vi.02; CHARENTES MARITIMES, St. Fort sur Gironde, 20.vii-15.viii.00, 22.vii-26.viii.01 CK; LOT, Saint-Martin-en-Vers, 23.vi.80 PC; RHÔNE, Charnay, 1.ix.96; Glay, 25.vi.02; VAR, Pont de l'Artuby, Gorges du Verdon, 17.v-13.vi.03 MHNG, Barbentone, La Montagnette, 5.vi.95, Les Maures, Ganfaron, 9.vi.94 MHNN.

*E. obscurus* Coe — AIN, Lhuis, 24.v.05 CP; ARDÈCHE, Chauzon, 24-25.vii.95; AVEYRON, L'Hospitalier de Larzac, 5.viii.02 MHNN; HÉRAULT, Bois du Capucin, Claret, 14.vi.94 MHNN;



RHÔNE, Charnay, 20.viii-5.ix.91; VAR, Pont de l'Artuby, Gorges du Verdon, 17.v-13.vi.03 MHNG.

*E. okalii* Kozánek & Kehlmaier — VAR, Cavaliers et Pont de l'Artuby, Gorges du Verdon, 17.v-13.vi.03 MHNG, CK.

\**E. pannonicus* (Becker) — VAR, Cavaliers et Pont de l'Artuby, Gorges du Verdon, 17.v-13.vi.03 MHNG, Le Trayas, 25.vii.32 NHM; Digne (département incertain), vi.1908 MTKD.

*E. restrictus* Coe — AUDE, R. Rebenty, Marsa, 14.viii.94 NMMA.

*E. slovacus* Kozánek — AVEYRON, Larzac, La Blaquerie, 5.viii.02 MHNN; ISÈRE, Le Sappey en Chartreuse, 22-29.vii.92, 15.vi.06.

*E. subfascipes* Collin — DOUBS, Omans, Vuillafans, 25.v.94 MHNN; HAUTES ALPES, Gorges de la Méruges, 17.vii.05 MHNN; RHÔNE, Charnay, 23.v-31.vii.92; Claveisette, 22.v.92.

\**E. subterminalis* Collin — BOUCHES DU RHÔNE, Arles-Gare, 24.v.93; DORDOGNE, Jumilhac, 13.vii-5.viii.06, 5-28.viii.06; EURE ET LOIRE, Dangeau, 3.vi.71 PC; ISÈRE, Le-Sappey-en-Chartreuse, 15-18.v.93, 15.vi.06; LANDES, Léon, 10.vii.01 MHNN; RHÔNE, R. Azergues, 4.viii.91; SAVOIE, Queige, 8.viii.93; VAUCLUSE, Caromb, Lac d'Isty, 30.v.95; VOSGES, Quieux, 2-10.viii.90 UMO.

\**E. terminalis* (Thomson) [recorded as French in Fauna Europaea, source unknown]

*E. unicolor* (Zetterstedt) — AVEYRON, Coraus, 21.vii.96 MHNN.

*E. venturai* Kehlmaier — PYRÉNÉES ORIENTALES, Estagel, 18.vi.91 MHNN.

*E. vorderdunki* Dempewolf — VOSGES, Quieux, 2-10.viii.90 UMO.

*E. wahisi* De Meyer — HÉRAULT, Montpellier, 30.vi-5.vii.82 MHNN.

\**E. zermattensis* (Becker) — AIN, St. Jean de Thurigneux, 13-27.v.05, 14-21.v.06, 26.vi-2.vii.06, 31.viii-9.ix.06; ARDÈCHE, Vals les Bains, 3-12.ix.04 DG; AUDE, R. Rebenty, Joucou, 9.vii.95 NMMA; BRETAGNE, Rennes and Le Rheu, vi-ix.02; DORDOGNE, Sainte Nathalie, Sarlat, 13.viii.93 CP; DOUBS, Quingey, 1.vii.90 MK; ISÈRE, Le-Sappey-en-Chartreuse, 22-29.viii.92; PROVENCE, Bras d'Asse, 4.vi.00 ME; RHÔNE, Charnay, 23.v-31.vii.92, 21.vii-16.viii.91, 1-8.vii.91; SAVOIE, Queige, 8.viii.93; VAR, Cavaliers, Gorges du Verdon, 17.v-13.vi.03 MHNG.

*E. zonatus* (Zetterstedt) — DEUX SÈVRES, Le Gault des Adjots, 25.vi.80 PC; RHÔNE, Lamure-sur-Azergues, Forêt de la Cantinière, 16.vii.95; VAUCLUSE, Mont Ventoux, 19.vii.05 MHNN.

*E. zonellus* Collin — AIN, St. Jean de Thurigneux, 12-18.vi.05, 26.vi-3.vii.05, 4-11.vi.06, 26.vi-2.vii.06; ISÈRE, Le-Sappey-en-Chartreuse, 29-31.v.94; PROVENCE, Bras d'Asse, 4.vi.00 ME; RHÔNE, Sarcey, 13.vi.96.

**MICROCEPHALOPS** De Meyer (key work: De Meyer 1989)

*M. opacus* (Fallén) — CHARENTES MARITIMES, St. Fort sur Gironde, 20.vii-15.viii.00 CK.

**PIPUNCULUS** Latreille (key works : Kozánek 1981 and Kuznetsov 1991)

(*Specimens of this genus are among the most difficult to determine: different keys often give different results, and there is a great need for a Europe-wide revision. The key works should be used with caution*)

\**P. calceatus* von Roser — AUDE, Campagna-de-Sault, 20.vi.91 MHNN.

\**P. campestris* Latreille — AIN, St. Jean de Thurigneux, 23.v.98, 13-27.v.05, 24-31.vii.05, 10.v.06; AISNE, Forêt de St. Gobain, Septvaux, 14.v.97 CP; BRETAGNE, Rennes and Le Rheu, vi-ix.02; CHARENTES MARITIMES, St. Fort sur Gironde, 20.vii-15.viii.00, 15.viii-4.ix.00, 4-25.ix.00, 27.v-22.vii.01, 22.vii-26.viii.01, 18.v-22.vi.03, 14.vii-17.viii.03 CK; DRÔME, Chalancon, Col des Ronstans, 11.vii.99 MHNG; HAUTE SAVOIE, Salève, 10.vii.00 MHNG; ISÈRE, Vénérieu, 2-13.v.05; MORBIHAN, Stivel, 26.vi.80; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

*P. fonsecai* Coe — DOUBS, Lac de Remoray, 5.vi.93 MHNN; GARD, Dourbes, 16.vii.93 MHNN; ISÈRE, Le Sappey en Chartreuse, 22-29.viii.92.

*P. spinipes* Meigen — AUDE, Bugarach, 15.vi.06 CP; CHARENTES MARITIMES, St. Fort sur Gironde, 18.v-22.vi.03 CK; ISÈRE, Le Sappey en Chartreuse, 22-29.viii.92, Vénérieu, 2-13.v.05; RHÔNE, Charnay, 23.v-3.vii.92, 1.ix.96, Glay, 18.vi.02.

*P. tenuirostris* Kozánek — AIN, St. Jean de Thurigneux, 5-16.viii.06.

*P. thomsoni* Becker — ISÈRE, Séchillienne, Lac Luitel, 30.v.94; SEINE ET MARNE, Vereux-les-Sablons, 2.vi.95 CP; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

*P. varipes* Meigen — ALPES MARITIMES, Le Bar sur Loup, 14.vi.94 MHNN; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

*P. zugmayeriae* Kowarz — HAUTE SAVOIE, Salève, 27.vii.00 MHNG.

**TOMOSVARYELLA** Aczél (key work: Földvári and De Meyer 1999)

*T. cilifemorata* (Becker) — HAUTES ALPES, Névache, Vallée de la Clarée, 6.viii.99; PROVENCE, Bras d'Asse, 4.vi.00 ME; SEINE ET MARNE, Fontainebleau, 22.vii.46 (MHNP); VAUCLUSE, Caromb, Lac de Paty, 30.v.95; Argent (département unknown), 5.vi.? (MHNP).

*T. cilitarsis* Strobl — BOUCHE DU RHÔNE, Les Baux de Provence, 21.v.93.

*T. coquilletti* (Kertész) — AIN, St. Jean de Thurigneux, 8-16.vii.06; HAUTE SAVOIE, Monnettier, 1.vii.99.

*T. disjuncta* (Becker) — ARDÈCHE, Vals les Bains, 9.ix.04 (New to Europe: known hitherto only from Egypt; 1♂ leg. D.M. Ackland, in coll. DG).

*T. freidbergi* De Meyer — ALPES MARITIMES, Sospel, 12.vi.94 MHNN; RHÔNE, Charnay, 21.vii-18.viii.91, 20.viii-5.ix.91.

\**T. frontata* (Becker) — De Meyer 1991: locality unrecorded.

\**T. geniculata* (Meigen) — AIN, St. Jean de Thurigneux, 13-27.v.05, 18-26.vi.05, 3-10.vii.05, 10-17.vii.05, 9-23.ix.06; ALPES MARITIMES, Nice, 11.vi.94 MHNN; BRETAGNE, Rennes and Le Rheu vi-ix.02; HÉRAULT, Montpellier, St. Jean de Cuculles, Claret, Bois du Capucin, 14.vi.94 MIINN; RHÔNE, Charnay, 2.viii.91, 25.vi.93, Claveisolles, 22.v.93.

*T. hortobagyiensis* Földvári & De Meyer — DORDOGNE, Jumilhac, 13.vii-5.viii.06; LOIRE, Nièvres, 1.viii.92.

\**T. kuthyi* Aczél — ARDÈCHE, Vals les Bains, 9.ix.04; AVEYRON, Nant, 9.vii.02 MHNN, Cornus, La Fageole, 22.vii.97 MHNN; BRETAGNE, Rennes and Le Rheu, vi-ix.02; DORDOGNE, Jumilhac, 5-28.viii.06; HAUTES ALPES, Col du Lautaret, 17.vi.94 MHNN; HAUTE SAVOIE, Monettier, 1.vii.99 MHNG, Salève, 10.vii.00 MHNG; ISÈRE, Séchilienne, Lac Luitel, 30.v.94; RHÔNE, Charnay, 21.vii-16.viii.91, 14.v.94, Cublize, Lac des Sapins, 21.vi.92; VAR, Cavaliers, Gorges de Verdon, 17.v-13.vi.03 MHNG.

\**T. littoralis* (Becker) — CALVADOS (?), Colleville, vii.1903 (coll. Paris).

*T. minima* (Becker) — GARD, Beaucaire, 22.v.93; HAUTES ALPES, Vars, 20.ix.83 MHNN; HÉRAULT, Montpellier, St. Jean de Cuculles, 30.vi-5.vii.82 MHNN; ISÈRE, Le Sappey en Chartreuse, 29-31.v.94; RHÔNE, Charnay, 20.viii-5.ix.91.

*T. mutata* (Becker) — VAUCLUSE, Caromb, Lac de Paty, 30.v.95.

*T. palliditarsis* (Collin) — DRÔME, Chalancon, Col des Ronstans, 11.vii.99 MHNG.

*T. resurgens* (De Meyer) — VAUCLUSE, Caromb, Lac de Paty, 30.v.95.

\**T. sylvatica* (Meigen) — AIN, St. Jean de Thurigneux, 2-8.vii.06, 8-16.vii.06, 16-23.vii.06; ARDÈCHE, Vals les Bains, 9.ix.04 DG; BOUCHE DU RHÔNE, Les Baux de Provence, 31.v.93; DORDOGNE, Jumilhac, 13.vii-5.viii.06; DOUBS, Vallée de la Loue, Vuillafens, Lac de Remoray, 5.vi.93 MHNN; HAUTES ALPES, La Meige, 2400m., 2.viii.99; HÉRAULT, Montpellier, St. Jean de Cuculles, 29.vi.82 MHNN; ISÈRE, Le Sappey en Chartreuse, 22-29.viii.92, 15.vi.06; RHÔNE, Charnay, 21.vii-19.viii.91, 21.v-31.vii.92, 8-18.vii.93; SAVOIE, Queige, 8.viii.93.

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## BOOK REVIEW

**Fauna Helvetica 14. Limoniidae & Pediciidae de Suisse. Sigita Podenas, Willy Geiger, Jean-Paul Haenni & Yves Gonseth. Centre Suisse de cartographie de la faune. Schweizerische Entomologische Gesellschaft. 2006. 375pp. Hardback £35**

Willy Geiger's book on the subfamily Limoniinae, Volume 8 in the *Insecta Helvetica* series (pp131), was published in 1986. Since it covered a smaller number of species, in just 20 genera and subgenera, each species was dealt with in some depth. The keys were directly to species level and there was a description, in French, of each species in the text, with some comments about the ecology of the genera. Very useful drawings of wings and genitalia accompanied the text.

Podenas *et al.* in this recent publication, cover 57 genera in 4 subfamilies of the Limoniidae, and therefore follow a different strategy. The keys, in both French and English, first separate the two families Limoniidae and Pediciidae from similar families, and then separate the genera of these two families, for all of the Swiss species. Only clearly discontinuous variables are used, which is a great help. The final step, from genus to species, is taken using an excellent set of drawings, by Sigita Podenas, of the wings and genitalia.

The distribution maps, showing the country in relief, occupy 164 of the 375 pages of the book, and they will serve to encourage crane-fly recording in Switzerland. There is a map for each species, two per A5 page, and each has two bar charts accompanying it which give some useful ecological data. One bar chart gives the mesoclimate, or thermic level where the species has been found, ranging from very cold to very torrid (on p. 195, for 'rough' read harsh or 'raw'). The second chart shows the phenological data. There are also six pages of useful references.

The book is very well produced and a pleasure to use, with clear print on good paper and a predominantly white hardback cover which will show marks easily, unless covered with brown paper soon after purchase.

In the twentieth century, apart from the work of Edwards (1938), Coe (1950) and Stubbs (1997-2001) in the UK, only Pierre in 1924 (*Faune de France* 8) has produced keys that attempted to cover some of the European Pediciidae, Limnophilinae, Chioneinae and Dactylolabinae. Even Lindner's 'Die Fliegen der palaearktischen Region', and the *Manual of Palaearctic Diptera* edited by Papp and Darvas, have omitted these groups. This book is therefore a very valuable addition to the literature of European Diptera, and especially for those of us outside the universities' networks, for whom access to the relevant scientific papers is difficult.

**JOHN KRAMER**

## **Craneflies (Diptera) from the Pierre Vérots Nature Reserve, St Jean de Thurigneux, Ain, France**

**JOHN KRAMER AND PHIL WITHERS**

31 Ashtree Road, Oadby, Leicester LE2 5TE, England, johnkramer@tiscali.co.uk  
40 Montée du Cimetière, Sainte Euphémie, 01600, France, phil.withers@wanadoo.fr

### **Summary**

Records of craneflies (Diptera: Tipulidae, Cylindrotomidae, Limoniidae) taken from a Malaise Trap and water traps, operated by PW, in the Pierre Vérots Nature Reserve, Ain, France from April 2005 to June 2006, are presented. Also visits were made from 11 to 16 June 2006 when samples were taken from a number of sites in the Reserve, by sweeping. Fifty species have been recorded, including two species new to France.

### **Introduction**

Records are presented here of the crane fly fauna (Diptera: Tipulidae, Cylindrotomidae and Limoniidae) of the Pierre Vérots Nature Reserve, Ain, France. This Reserve covers some 150ha of woodland surrounding three lakes: Étangs Praillebard, Riquet and Boufflers. It is situated in the south west of the Département of l'Ain, about 25km due north of Lyon centre.

The lakes are characteristic of the region of the Dombes plateaux, and have been used since the 15<sup>th</sup> century for a very unusual system of crop rotation. A water stage, used for the cultivation of fish and frogs for about 5 years, was alternated by years of cereal cultivation during the drained period. Those in the reserve are still drained periodically, but not planted with cereals.

### **Material and Methods**

The material examined was mainly taken from a Malaise Trap and water traps, operated by PW from April 2005 to June 2006. Visits were also made from 11 to 16 June 2006 by both authors and others including Mick Parker, who also contributed records, when samples were taken from a number of sites in the Reserve, by sweeping.

The site where the Malaise trap was located during 2005 (N45°56.875 E004° 55.318) was near mixed woodland, dominated by silver birch *Betula pendula* and oak *Quercus*. There are considerable amounts of dead wood nearby. In 2006 the traps were situated in an open area close to a small pond, reed beds and a lake margin. The substrate by the lake (Étang Bouffler) is sandy. Water traps were located near the Malaise trap in each year.

### **Sites sampled using sweep nets**

1. Margin of the Étang Riquet (N45°56.574 E004° 54.984): water crowfoot *Ranunculus* species, rushes, sedges, reeds.
2. Margin of the Étang Bouffler.
3. Grassland with trees, near the northern gate (N45°56.959 E004° 55.144).
4. Carr with dyke (N45°56.511 E004° 54.954): drying alder *Alnus* carr, *Callitriche* lying on decomposing leaves.

5. Margin of the Étang Biscoux, in the Bois de la Champaye (N45°56.808 E004° 55.713).
6. Margin of the Étang de Vernange, in the Bois Brûlé (N45°56.860 E004° 55.557): dense alder carr with *Epilobium*, nettles *Urtica* and grasses.

Bearings were taken using a Garmin eTrex Vista GPS, with an accuracy of about 10m.

## Results

In addition to works cited below, identification was assisted using keys by Edwards (1938), Mannheims (1980), Pierre (1924) and Stubbs (1996-2001). Most of the Limoniidae can also now be determined using the recent work of Podenas *et al.* (2006). For previous knowledge of the French fauna, Soós *et al.* (1980) and the websites Fauna Europaea (Oosterbroek 2005) and Catalogue of Craneflies of the World (Oosterbroek 2006, CCW) were consulted.

## Species New to France

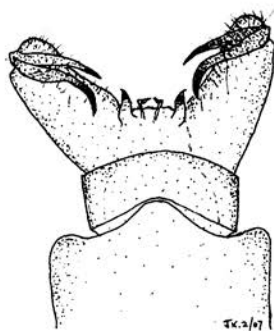
1. *Achyrolimonia neonebulosa* (Alexander, 1924) (male genitalia, Fig 1.) – Collected by PW in a water trap (N45°56.875 E004° 55.318), between 4-12 June 2005. This has been recorded previously in semi-dry *Quercus* forest in Italy (Starý, J. 2002 in CCW). Oaks are present in the vicinity of the trap and the soil within 100m of the trap shows a range of water content (identification using Geiger 1986). Although not yet recorded from the British Isles this species is now known to be widespread in the Holarctic Region (references in CCW).



**Fig. 1. *Achyrolimonia neonebulosa* (Alexander): male genitalia, ventral view.**

2. *Erioptera squalida* Loew, 1871 (male genitalia, Fig. 2) - Collected from the margin of the Étang Vernange, by sweep-net JK, 11 June 2006, JK 12 June 2006 (identification using Coe 1950.). The larvae and pupae are root-piercing for the purpose of gaseous exchange. The

larvae are recorded from 0.1–1.0m depth from the margins of eutrophic lakes with dense emergent macrophytes (Przhiboro 2003). This species is known only from Europe but is widespread within the continent.



**Fig. 2. *Erioptera squalida* Loew: male genitalia, ventral view.**

#### **Species of the Pierre Vérots Reserve according to their larval habitats**

##### **a) Species with Aquatic Larvae**

LIMONIIDAE (CHIONEINAE): *Erioptera squalida* Loew (see above)

##### **b) Marshland Species with Larvae in the more or less saturated organic mud of Lake Margins and Marshes**

It is clear that the larvae of some species are better able to tolerate water loss, and therefore can obtain food from drier soils. There is a gradation of soil water content and a gradation of tolerance, but little work has been done on this aspect to species level. As with many aquatic organisms, the availability of oxygen may well also play an important part in their distribution. Many larvae are free-living and burrowing, as follows:

TIPULIDAE: *Nigrotipula nigra* (Linnaeus).

LIMONIIDAE (CHIONEINAE): *Erioptera fusculeta* Edwards, *E. griseipennis* Meigen, *Ilisia maculata* (Meigen), *Molophilus griseus* (Meigen), *M. ochraceus* (Meigen), *Ormosia lineata* (Meigen), *O. nodulosa* (Macquart), *O. pseudosimilis* (Lundström), *Symplecta hybrida* (Meigen).

LIMONIIDAE (LIMNOPHILINAE): *Euphyllidorea dispar* (Meigen), *Limnophila pictipennis* (Meigen), *Neolimnomyia nemoralis* (Meigen), *Phyllidorea ferruginea* (Meigen), *P. longicornis* (Schummel), *Pilaria discicollis* (Meigen), *Pseudolimnophila lucorum* (Meigen), *P. sepium* (Verrall).

LIMONIIDAE (LIMONIINAE): The habitat of larvae of Limoniinae is in marshland and wet woodland, often living in silken tubes (Crisp and Lloyd 1954): *Dicranomyia mitis* (Meigen), *D. modesta* (Meigen), *D. tristis* (Schummel), *Helius flavus* (Walker), *H.*



*longirostris* (Meigen), *Limonia macrostigma* (Schummel), *L. nigropunctata* (Schummel), *L. phragmitidis* (Schränk), *L. stigma* (Meigen).

**c) Grassland Species with larvae in wet or drier grassland** (Brindle 1960)

TIPULIDAE: *Tipula vernalis* Meigen, *T. varipennis* Meigen, *T. oleracea* Linnaeus.

**d) Species with larvae in drier grassland on a more sandy substrate**

TIPULIDAE: *Nephrotoma appendiculata* (Pierre), *N. cornicina* (Linnaeus), *N. flavescens* (Linnaeus), *N. flavipalpis* (Meigen), *N. quadrifaria* (Meigen).

**e) Woodland Species with larvae in dry or more or less wet decaying wood** (Brindle 1960)

TIPULIDAE: *Ctenophora pectinicornis* (Linnaeus), *Dictenidia bimaculata* (Linnaeus), *Tanyptera atrata* (Linnaeus).

LIMONIIDAE (LIMNOPHILINAE): *Austrolimnophila ochracea* (Meigen), *Epiphragma ocellare* (Linnaeus).

LIMONIIDAE (LIMONIINAE): *Achyrolimonia decemmaculata* (Loew), *A. neonebulosa* (Alexander), *Neolimonia dumetorum* (Meigen), *Rhipidia uniseriata* Schiner.

**f) Woodland Species with Larvae that feed in decaying leaves** (Crisp and Lloyd 1954)

TIPULIDAE: *Tipula fascipennis* Meigen, *T. lunata* Linnaeus

**g) Woodland Species with Larvae feeding in wet mosses** (Brindle 1967)

CYLINDROTOMIDAE: *Diogma glabrata* (Meigen)

**Modes of Larval Nutrition:**

Most craneflies in their larval stage live in vegetable detritus of some form or other, often within a soil environment. Since many species may emerge from the same square metre of soil, how the resources are partitioned amongst the larvae is an interesting question, which the microscopic examination of mouthparts and of gut contents will help us to answer. They may feed on decaying plant remains, fungi, algae, or other small invertebrates, or a mixture of these. The larvae of the Chioneinae and Limoniinae are feeders on decaying vegetation and algae (Crisp and Lloyd 1954). The known larvae of the subfamily Limnophilinae are secondary consumers, their prey probably including other cranefly larvae. Xylophagous species probably rely on fungi for their nourishment, while grassland species can feed on grass roots, or on living mosses, as well as decaying vegetation in the humus.

**Implications for Conservation**

It can be seen that all of the major biotopes to be found on the nature reserve provide habitats for the cranefly community. Fallen trunks and branches provide dead-wood habitats for a number of species, as do the fungi which depend on rotting wood. The site is rich in marshland habitats and these perhaps could be increased by sloping some of the vertical sides of dykes and ponds. Well-shaded wet woodland, which can be lost if a site is 'opened

up' to the drying action of the sun, is also an important habitat for other crane-fly species in the Reserve.

### Acknowledgements

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## APPENDIX I

### A Checklist of Species from the Reserve with the Sites where they were found

#### Abbreviations used:

PW – Phil Withers, JK – John Kramer, MJP – Mick Parker, MT – Malaise Trap, WT – water trap; (f) – female only recorded. \*\*\* – species new to France.

#### TIPULIDAE:

- Ctenophora pectinicornis* (Linnaeus) - JK.12.vi.06. Margin of Étang Vernange
- Dicthenidia bimaculata* (Linnaeus) - JK.11.vi.06
- Tanyptera atrata* (Linnaeus) - MT.7-14.v.05, MT.14-21.v.05
- Nephrotoma appendiculata* (Pierre) - MT.30.iv-7.v.06, PW.10.v.06, MT.7-14.v.06, MT.14-21.v.06, MT.28.v-4.vi.06, MT.4-11.vi.06, JK.14.vi.06, MT.21-28.v.06
- Nephrotoma cornicina* (Linnaeus) - MT.10-17.vii.05
- Nephrotoma flavescens* (Linnaeus) - JK.14.vi.06
- Nephrotoma flavipalpis* (Meigen) - WT.4-12.vi.05
- Nephrotoma quadrifaria* (Meigen) - WT.4-12.vi.05, MT.18-26.vi.05, MT.10-17.vii.05, MT.4-11.vi.06, JK.14.vi.06
- Nephrotoma quadristriata* (Schummel) - MT.17-24.vii.05 (f), 24-31.vii.05 (f)
- Nigrotipula nigra* (Linnaeus) - JK.11.vi.06
- Tipula fascipennis* Meigen – MT/WT.4-12.vi.05, MT.18-26.vi.05, MT.10-17.vii.05, MT.4-11.vi.06, JK.14.vi.06
- Tipula lunata* Linnaeus - MT.10-17.vii.05, MJP.11.vi.06, JK.14.vi.06
- Tipula vernalis* Meigen - MT.23-30.iv.06, MT.30.iv-7.v.06, MT.7-14.v.06, MT.14-21.v.06
- Tipula varipennis* Meigen - MT.7-14.v.06
- Tipula oleracea* Linnaeus - JK.14.vi.06 (f)

#### CYLINDROTOMIDAE:

- Diogma glabrata* (Meigen) – MT.12-27.xi.05

#### LIMONIIDAE: CHIONEINAE:

- Erioptera fusculentata* Edwards – JK.12.vi.06. Margin of Étang Vernange
- Erioptera griseipennis* Meigen - MT.30.iv-7.v.06, MT.7-14.v.06
- Erioptera squalida* Loew - JK.11.vi.06, JK.12.vi.06. Margin of Étang Vernange \*\*\*
- Ilisia maculata* (Meigen) - JK.12.vi.06. Margin of Étang Vernange
- Molophilus griseus* (Meigen) - MT.13-27.v.05, PW.27.v.05, WT.4-12.vi.05, MT.10-17.vii.05, MT.17-24.vii.05, MT.24-31.vii.05, MT.30.iv-7.v.06, MT.28.v-04.vi.06, JK.14.vi.06

*Molophilus ochraceus* (Meigen) - JK.12.vi.06  
*Ormosia lineata* (Meigen) – PW.23.iii.05, MT.30.iv-7.v.06  
*Ormosia nodulosa* (Macquart) - JK.12.vi.06, 14.vi.06  
*Ormosia pseudosimilis* (Lundström) - PW.27.v.05  
*Symplecta hybrida* (Meigen) - JK.12.vi.06. Margin of Étang Vernange

#### LIMONIIDAE: LIMNOPHILINAE:

*Austrolimnophila ochracea* (Meigen) - JK.14.vi.06  
*Epiphragma ocellare* (Linnaeus) – MT.13-27.v.05, JK.14.vi.06  
*Euphyllidorea dispar* (Meigen) - MT.21-28.v.06, 12.vi.06  
*Limnophila pictipennis* (Meigen) - MT.13-27.v.05, MT.23-30.iv.06, PW.10.v.06, JK.14.vi.06  
*Neolimnomyia nemoralis* (Meigen) - JK.12.vi.06. Margin of Étang Vernange  
*Phyllidorea ferruginea* (Meigen) - MT.23-30.iv.06, MT.30.iv-7.v.06, MT.14-21.v.06, MT.28.v-04.vi.06, MT.4-12.vi.05, JK.11.vi.06, JK.14.vi.06, MT.4-11.vi.06  
*Phyllidorea longicornis* (Schummel) - JK.14.vi.06(f), JK.12.vi.06. Margin of Étang Vernange  
*Pilaria discicollis* (Meigen) - JK.14.vi.06 (f)  
*Prionolabis hospes* (Egger) - PW. 23.iv.05, JK.14.vi.06(f), MT.11-23.iv.06  
*Pseudolimnophila lucorum* (Meigen) - MT.10-17.vii.05, JK.12.vi.06  
*Pseudolimnophila sepium* (Verrall) – PW.10.v.06, JK.12.vi.06

#### LIMONIIDAE: LIMONIINAE:

*Achyrolimonia decemmaculata* (Loew) - PW.6.v.05  
*Achyrolimonia neonebulosa* (Alexander) - WT.4-12.vi.05 \*\*\*  
*Dicranomyia mitis* (Meigen) – PW.10.v.06  
*Dicranomyia modesta* (Meigen) - MT.10-17.vii.05, MT.17-24.vii.05, MT.28.v-04.vi.06, JK.14.vi.06  
*Dicranomyia tristis* (Schummel) - MT.29.iv-06.v.05, WT.4-12.vi.05, MT.17-24.vii.05  
*Helius flavus* (Wälker) - MT.28.v-04.vi.06, JK.11.vi.06, JK.14.vi.06  
*Helius longirostris* (Meigen) – MT.12-18.vii.05, 24.vii.05, MT.30.iv-7.v.06, MT.7-14.v.06  
*Limonia macrostigma* (Schummel) - JK.14.vi.06  
*Limonia nigropunctata* (Schummel) - WT.4-12.vi.05  
*Limonia phragmitidis* (Schrank) - MT.30.iv-7.v.06, MT/WT.4-12.vi.05, JK.11.vi.06, JK.14.vi.06  
*Limonia stigma* (Meigen) - JK.11.vi.06, JK.14.vi.06  
*Neolimonia dumetorum* (Meigen) – MT/WT.4-12.vi.05, MT.29.iv-06.v.05, PW.27.v.05, MT.18-26.vi.05, MT.10-17.vii.05, MT.24-31.vii.05, MT.12-18.vii.05, MT.10-17.vii.05, JK.11.vi.06, JK.14.vi.06  
*Rhipidia uniseriata* Schiner – PW.8.v.05 (bred from rot hole debris), MT.3-10.vii.05, JK.14.vi.06

## BOOK REVIEWS

**The European Families of the Diptera. Identification, diagnosis, biology. 2006. pp 1-205, some 600 illustrations. By Pjotr Oosterbroek. Published by KNNV-Uitgeverij, Utrecht. Price 59.95 Euros (if ordered online from: <http://www.knnvuitgeverij.nl/www2/indexUK.htm>), £40 (+ £4.50 postage) if ordered via Pemberley Books**

A number of keys to families of Diptera already exist, including some relevant particularly to the British fauna such as those in *Flies of the British Isles* (C.N. Colyer and C.O. Hammond 1951, 2nd edition 1968) and the Aidgap key by Denis Unwin, and others with a wider coverage such as those in the Nearctic and Palaearctic Manuals. All such keys are used with varying success, dependent on interpretation of characters that are sometimes difficult to observe and whether the key characters used apply to all genera included within the family concerned.

This new work addresses these issues both in the selection of characters that can be readily appreciated and in endeavouring to ensure that all genera not conforming to the prevailing diagnostic characters of their family are included separately in the key. The groundwork for this was done with the appearance in 2005 of its forerunner written in Dutch (*De Europese families van muggen en vliegen (Diptera)* by P. Oosterbroek, H. de Jong and L. Sijstermans. KNNV Uitgeverij). This earlier work had benefitted from previous testing by Dutch and Belgian dipterists.

The present work began as a direct English translation so has the same basic layout and employs most of the same figures as the Dutch work. It has, nevertheless, become further improved as testing of the English version was carried out by more than 30 mainly European dipterists from many countries, resulting in detailed changes both to the keys and supporting text. The opportunity was also taken to update the work and to enhance the family accounts with new information on biology and additional references. The number of families recognised has also increased to 132 from 129 in 2005.

Because of the European coverage there are 22 families included that have no representatives in the British fauna, but some of these may in future be found here. There are also some differences in family composition from the 1998 British checklist: Brachystomatidae is split from Empididae; Helcomyzidae and Heterocheilidae are split from Dryomyzidae and *Malacomylia* is included in Coelopidae; Trixoscelididae, Chiropteromyzidae and Cnemospithidae are split from Heleomyzidae; Gasterophilidae and Hypodermatidae are split from Oestridae. Spaniidae, separated more recently, is here retained within Rhagionidae.

The book has a short introduction explaining the basis for the work, a section detailing the classification of the families recognised in the keys and a very useful section on terminology which should provide access to the keys by users with little or no prior knowledge of Diptera.

The identification part of the work is set out as a single dichotomous key of 220 couplets, following the style of the Dutch work. This may be a slight deterrent to beginners but is mitigated by the copious clearly labelled illustrations that are usefully placed alongside the relevant key couplets.

The keys are followed by descriptions of each family arranged in alphabetical order. These are illustrated by typical examples and provide an account of the diagnostic characters and range of size and form in each family, a summary of the larval biology and a list of the more important key works. The references are preceded by a useful list of the latest national checklists for European countries and details of the Fauna Europaea website.

Testing that has been carried out, both before and since publication, both by beginners and more experienced dipterists has confirmed the ease of use of the keys and that users can be confident in the result obtained. This has already become an essential resource for the identification of Diptera and should also be instrumental in attracting much needed future recruits to the study of flies.

**PETER CHANDLER**

**Chvála, M. 2005. The Empidoidea (Diptera) of Fennoscandia and Denmark. IV. Genus *Hilara*. *Fauna Entomologica Scandinavica* 40. Pp.1-233. ISSN 0106-8377. £69.00**

This fourth volume by Milan Chvála on the Empidoidea of Fennoscandia covers the difficult genus *Hilara* Meigen, 1822. The previous three volumes included the families Hybotidae, Microphoridae, Atelestidae and the genus *Empis* of the family Empididae. The present volume considers 90 of the 173 European species of *Hilara* including all British species.

The book begins with a short general part on morphology of the adults, classification, life history (including feeding habits, epigamic behaviour, phenology) and zoogeography. This is followed by the major part containing the key to species and a chapter with details on every species. The book concludes with a catalogue of distribution of species within Fennoscandia, a detailed bibliography and an index.

The key to species should make identification of this difficult genus easier, in particular since it is backed by excellent figures of the basitarsi and male genitalia of all species. Additional characters have been illustrated, where necessary. The chapter with details for each species is divided into 12 species groups. For each of these groups the key characters are given. These short descriptions are followed by very detailed ones of every species, which are very useful in confining identification. The latter concludes with notes on their distribution and biology including their epigamic behaviour.

One small criticism is that the morphological description in the general part is rather short and without figures. This makes it necessary for workers to refer to earlier volumes. A more comprehensive coverage of the morphology would have enabled this book to stand alone.

I recommend this excellent book to everybody working on Empididae and believe it is an essential reference. Although rather expensive it is hoped that this work will encourage more workers to tackle this difficult group.

**BARBARA SCHULTEN**

***Parapsectra uliginosa* Reiss, 1969 (Diptera, Chironomidae) new to Ireland and association of exuviae of *Procladius* Pe1 (*sensu* Langton) with *P. simplicistilus* Freeman, 1948**

**DECLAN A. MURRAY and JAN-ROBERT BAARS**

School of Biology and Environmental Science, Science Research Centre - West, University College Dublin, Belfield, Dublin 4, Ireland.

*e-mail:* declan.murray@ucd.ie janrobert.baars@ucd.ie

**Summary**

The brachypterous tanytarsine chironomid species *Parapsectra uliginosa* Reiss, 1969, recently recorded from Scotland, is now also added to the list of Irish Chironomidae. The association of exuviae of the tanyptodine *Procladius* Pe1 (*sensu* Langton) with *P. simplicistilus* Freeman, 1948 is confirmed.

**Introduction**

During a study of remote oligotrophic waterbodies at altitudes greater than 300m, supported by The Heritage Council of Ireland, surface water collections on exposed leeward shorelines in spring and summer 2005 yielded copious material of chironomid pupal exuviae and pharate and emerged adults. Based on examination of these collections, records of four species new to the Irish fauna have recently been given (Murray and Baars 2006). The present paper provides information on a fifth new Irish record and confirms an association between *Procladius* Pe1 (*sensu* Langton 1984, 1991 and Langton and Visser, 2003) and *P. simplicistilus* Freeman, 1948 from the material examined.

***Parapsectra uliginosa* Reiss, 1969 - new to Ireland**

Langton and Ruse (2006) recently reported *Parapsectra uliginosa* Reiss, 1969 (Chironominae, Tanytarsini) new to Britain based on collections from Loch an Lagain in the Scottish Highlands. Two other *Parapsectra* species are known from Britain: *P. nana* (Meigen, 1818), syn *Tanytarsus* (*Micropsectra*) *monticola* Edwards, 1929 and *P. chionophila* (Edwards, 1933), syn *Tanytarsus* (*Micropsectra*) *chionophilus* Edwards, 1933 (Chandler 1998, 2004a; Sæther and Spies 2004). Until now only one of these, *P. nana*, has been recorded from Ireland (Ashe *et al.* 1998, Chandler 2004b; Sæther and Spies 2004).

During the study on remote upland Irish waterbodies a single adult male of *P. uliginosa* was obtained in a littoral surface water collection taken on 29/04/05, from Lough Nabrack, 384 m.a.s.l., in the Croghnagapple uplands, Co. Leitrim (Irish National Grid reference G 860 477). This small lake (area 0.04km<sup>2</sup>) is surrounded for the most part by peaty soils and is naturally highly acidic with pH values recorded in spring and summer 2005 ranging between 3.75 and 4.5. The adult male of *P. uliginosa*, characterised by reduced wings, is readily distinguished from other known *Parapsectra* species. The specimen from L. Nabrack has been slide-mounted and is incorporated into The Heritage Council Collection of Irish Chironomidae (slide # 867) deposited in the National Museum of Ireland, as part of a contemporaneous Heritage Council funded project in 2005.



Reiss (1969) drew attention to the highly brachypterous condition of the adult male of *P. uliginosa* with the notation that "it is most probably incapable of flight". Females possess normal wings, facilitating dispersal, but Reiss (*op. cit.*) remarked that copulation very likely took place on hard substrates or on the water surface. *P. uliginosa* was described from material collected in small bodies of standing waters in high-lying moors in Germany (records from a *Sphagnum* pond about 1.0m in diameter near Seefeld lake at 800 m.a.s.l. leg. August Thienemann, May 1938; from a 1.5m deep 40m long pond at the Rote Moor, Rhön/Hessen, leg. F. Reiss and E.J. Fittkau, May 1968 and from a pond at the head of the Wasserkuppe, leg. E.J. Fittkau, April 1953). In addition to the recent record from Scotland by Langton and Ruse (2006), the species is also known from Slovakia, Romania and Norway (Sæther and Spies, 2004). The habitat for the new record from Ireland concurs with existing records and provides further evidence of a preference for standing acidic waters. Larvae of *Parapsectra* species, including *P. uliginosa*, are considered cold stenotherms (Cranston *et al.* 1989; Reiss 1969) and while existing records suggest that larvae of *P. uliginosa* are confined to standing waters, larvae of *P. nana* are found in source headwaters of well aerated mountain streams, such as the Altahoney River in western Ireland, which provided the first Irish record of that species (Fahy and Murray 1972).

#### **Association of *Procladius* Pe1 (*sensu* Langton) with *P. simplicistilus* Freeman**

Langton (1984) recognised distinct pupal exuviae of *Procladius* (Tanypodinae) characterised by strong, dense, points on the abdominal tergites (particularly on tergite IV). In the absence of positively associated adult specimens to provide specific identification, Langton (*op. cit.*) designated the exuviae as *Procladius* Pe1. The identity of this taxon has remained unclear in subsequent determination keys of Langton (1991) and Langton and Visser (2003). During the present study, pupal exuviae, pupae and adult males and females of *Procladius* were collected from four upland waterbodies. The pupal exuviae and pupae obtained were identified as *Procladius* Pe1 from Langton (1991) and Langton and Visser (2003) and Dr Langton (pers. comm.) has examined and kindly confirmed the identification of these exuviae as *Procladius* Pe1. The associated adults have been identified as *Procladius simplicistilus* Freeman, 1948, first reported from Ireland by Murray (1972). Voucher adult male (ImM) and pupal exuviae (pe) material is deposited in The Heritage Council Collection of Irish Chironomidae in the National Museum of Ireland (NMI), Dublin.

#### **New records of *Procladius simplicistilus* Freeman from Ireland.**

**Co. Leitrim**, L. Sandy, IGR G891448, 28/04/05, adult male and female and associated pupal exuviae (voucher specimens, #67 ImM and #68 pe, in The Heritage Council Collection of Irish Chironomidae, NMI); L. Natire, IGR G966340, 14/04/05, pe; L. Nabrack, IGR G860477, 29/4/05, pe; **Co. Tipperary**, Black Lough, IGR R738771, 4/05/05, pe.

#### **Acknowledgements**

The authors gratefully acknowledge support from Heritage Council Wildlife Grants WLD/2005/13974 to M. Kelly-Quinn and WLD/2005/13985 to D.A. Murray. We thank Maria Callanan for assistance with fieldwork, Professor Thomas Bolger, Head of School of



Biology and Environmental Science, University College Dublin, for facilities provided and Dr J.P. O'Connor, National Museum of Ireland for pertinent comment.

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## The current status and distribution of *Acrometopia wahlbergi* (Zetterstedt, 1846) (Diptera, Chamaemyiidae) in Britain

M.A. HOWE and E.A. HOWE

Countryside Council for Wales, Maes-y-ffynnon, Penrhosgarnedd, Bangor, Gwynedd, LL57 2DW

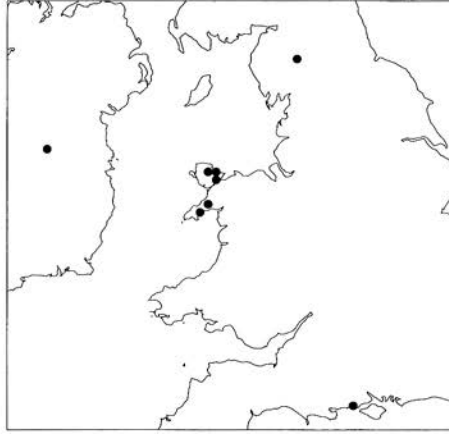
### Summary

The status and distribution of *Acrometopia wahlbergi* (Zetterstedt, 1846) are discussed. New data on its occurrence in Wales are presented and an association with slender sedge *Carex lasiocarpa* is suggested.

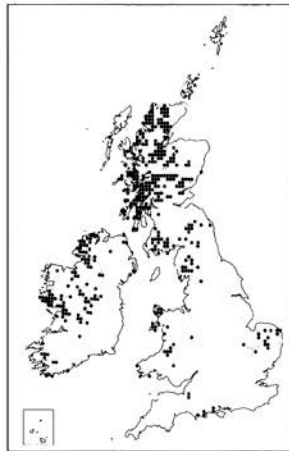
The RDB2 chamaemyiid fly *Acrometopia wahlbergi* (Zetterstedt, 1846) is a distinctive and readily recognised fly despite its small size, being completely bluish-grey in colour apart from its yellow legs and having a triangular head with the frons projecting forwards. The only representative of the genus in Britain, it was first recorded by Sir C.H. Andrewes in 1967 at Cliburn Moss National Nature Reserve in Westmorland (V.C. 69) from boggy ground dominated by bogbean *Menyanthes trifoliata* and cranberry *Vaccinium oxycoccus* (Andrewes 1968). Its European distribution is not well known but it has been recorded from Germany (Cogan 1978) and more recently from Scragh Bog in Westmeath, Ireland. Roháček (1985) stated that it is widespread but generally rare in the Palaearctic region from Central Europe to the Far East. The fly was recorded for the first time in Wales during a survey of the fens of Anglesey and Caernarvonshire in 1976, with records from Cors Erddreiniog National Nature Reserve and Cors Goch NNR (both V.C. 52) and Cors Geirch NNR (V.C. 49) made by J.W. Ismay, M.J. Morgan and A.E. Stubbs (Ismay *et al.* 1978). Populations were highly localised within the available area of fen habitat, with all specimens taken from sedge-rich vegetation. A further locality on Anglesey, Cors Bodeilio NNR, was added in 1980 by I.F.G. McLean.

Over the last decade or so, MAH and EAH have regularly recorded adults of *Acrometopia wahlbergi* at these Welsh stations (Cors Bodeilio NNR in 1995; Cors Erddreiniog NNR in 1995, 1997, 1999, 2000 and 2003; Cors Geirch NNR in 1995, 1998, 1999 and 2000; Cors Goch NNR annually between 1993 and 2006). We have also found adults at Cors Gyfelog NNR (V.C. 49) in 1995, 1997, 1999 and 2000. They are on the wing from mid-June to mid-August and always occur in small numbers, rarely more than 20 individuals, although they can occur in numerous discrete colonies at a site. Adults are always associated with stands of slender sedge *Carex lasiocarpa* in botanically-rich, open fen conditions. *Carex lasiocarpa* is a rhizomatous perennial which "grows in reed-swamps and other vegetation at the edges of lakes, pools and slow-flowing streams and rivers, and in flushes and wet hollows in fens; it can also colonise old peat cuttings and drainage channels" (Preston *et al.* 2002) and generally occurs in nutrient-poor water which can be base-rich or base-poor. It is widespread in Scotland and western Ireland, with more fragmented distributions in north-west England, East Anglia, the New Forest, Dorset and Wales (Fig. 2).

A visit to Cliburn Moss NNR in August 1996 by MAH refound *Acrometopia wahlbergi*, where it was also associated with small stands of fen dominated by *Carex lasiocarpa* (Howe and Howe 2001). A 1995 record by I. Perry from Wootton Coppice in the New Forest seemed to contradict this association but MAH and EAH found five adults in beds of slender sedge in July 1996. Scragh Bog also supports extensive stands of *Carex lasiocarpa*.



**Fig. 1.** Distribution of *Acrometopia wahlbergi* (Zetterstedt) in the British Isles. © DMAP



**Fig. 2.** Distribution of the slender sedge *Carex lasiocarpa* in the British Isles. © BSBI

Whilst the biology of *Acrometopia wahlbergi* is unknown, it is thought that larvae are likely to be predators of scale insects associated with Poaceae or Cyperaceae (Falk and Ismay in preparation). Extensive searches at the Welsh localities have failed to find any scale insects on *Carex lasiocarpa* and attempts to rear adults from collected sedges have been unsuccessful. Wider searches of stands of slender sedge in the UK may locate additional populations of the fly.

### Acknowledgements

We thank Ivan Perry for providing us with details of his record from Wootton Coppice, Dr. Alan Morton for the use of the DMAP software and Alex Lockton of BSBI for supplying the distribution map of slender sedge.

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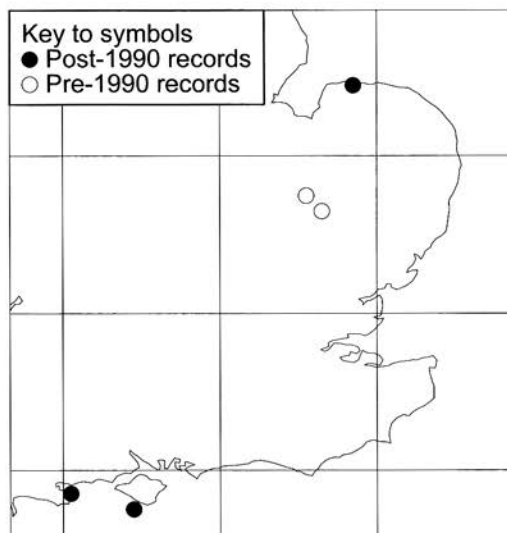
### ***Parochthiphila spectabilis* (Loew, 1858) (Diptera, Chamaemyiidae)**

**on the Isle of Wight** - Although it occurs widely in central and southern Europe and central Asia (Tanasiytshuk, V.N. 1968. Palaearctic species of the genus *Parochthiphila* (Diptera, Chamaemyiidae). *Entomological Review, Washington*, **47**, 388-399), the chamaemyiid fly *Parochthiphila spectabilis* has a very restricted distribution in Britain (Fig. 1) where it has been accorded RDB1 status (Shirt, D.B. 1987. *British Red Data Books: 2. Insects*. Peterborough, Nature Conservancy Council).

Recent records are confined to Chippenham Fen NNR in Cambridgeshire and Holkham NNR in Norfolk (Falk, S.J. and Ismay, J.W. (in preparation) Review of the Scarce and Threatened Flies of Great Britain. Acalypratae. Peterborough, Joint Nature Conservation Committee) and to Studland and Godlingston Heath NNR in Dorset where adults are associated with stands of common reed *Phragmites australis*. At the latter site,

small numbers of adults were swept from sparse *Phragmites* in flushed acid bog conditions at SZ026843 on 24 July 1996 by MAH and EAH, and on 1 and 3 July 1998 by Ivan Perry, Andy Godfrey, MAH and EAH (Howe, M.A., Parker, M.J. and Howe, E.A. 2001. A review of the Dipterists Forum summer field meeting in Dorset, 1998. *Dipterists Digest (Second Series)* **8**, 135-148). The larvae are likely to be predatory upon scale insects and, in Europe, adults have been reared from *Chaetococcus phragmitis* (Falk and Ismay *ibid.*).

During a visit to coastal soft cliff sites on the south-west coast of the Isle of Wight (V.C. 10) in summer 2005, we recorded enormous numbers of *Parochthiphila spectabilis* from perched, open *Phragmites* reedbeds. Hundreds of adults were swept from *Phragmites* at Whale Chine (SZ468783) on 29 July and 2 August, with 4 adults recorded in a smaller reedbed at SZ471781 on 2 August. At Blackgang Chine (SZ483769) on 2 August, *Parochthiphila spectabilis* was the most abundant insect encountered and adults were present in their thousands. The only other numerically common dipteran in the reedbeds was the chloropid *Platycephala planifrons* (Fabricius, 1798), the larvae of which are stem borers in *Phragmites* (Ismay, J.W. 1999. The British and Irish genera of Chloropinae (Dipt. Chloropidae). *Entomologist's monthly Magazine* **135**, 1-37). The habitat looked very suitable for the much rarer *Platycephala umbraculata* (Fabricius, 1794), a species associated with perched reedbeds on coastal soft cliffs in Dorset, but unfortunately none was found.



**Fig. 1. British distribution of *Parochthiphila spectabilis* (Loew) © DMAP.**

We thank Dr. I.F.G. McLean for confirming our identification of *Parochthiphila spectabilis* and providing useful literature details, and Dr. Alan Morton for the use of the DMAP software – **M.A. HOWE** and **E.A. HOWE**, Countryside Council for Wales, Maes-y-ffynnon, Penrhosgarnedd, Bangor, Gwynedd, LL57 2DW

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