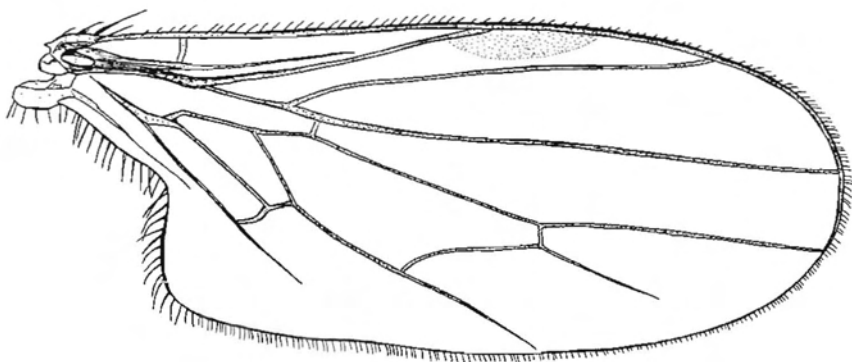


# Dipterists Digest



**Dolichopodidae & Empididae Issue**



**No. 12**

**1992**

**Dipterists Digest** is a popular journal for amateur, semi-professional and professional field dipterists with interests in British and NW European flies. 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 preliminary maps
- records and assessments of rare and scarce species including those new to regions, countries, districts etc
- local faunal accounts, field meeting results and "holiday lists" if accompanied with good ecological/natural history interpretation
- descriptions of species new to science
- notes on identification including deletions, 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, preferably typed double spaced on one side of A4 paper. Style and format should follow articles published in this issue. References should be given in full according to the layout in this issue. Only scientific names should be underlined. Tables should be on separate sheets. Figures should be drawn in clear black ink, about twice their printed size and lettered clearly. Descriptions of new species should include a note of which museum or institution type material is being deposited.

Articles for publication should be sent to the Editor, Dr Graham E. Rotheray, Royal Museum of Scotland, Chambers Street, Edinburgh, Eh1 1JF, UK.

Enquiries about subscriptions, photographs and colour plates should be addressed to the Production Editor, Derek Whiteley, 17 Rustlings Road, Sheffield, S11 7AA, UK.

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Derek Whiteley

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With special thanks to our Guest Editor for this issue, Anthony Bainbridge.

Front cover: *Anthalia beatricella* sp.n. with thanks to Peter Chandler, see p.16.

## THE TWO FORMS OF *EMPIS TESSELLATA* (DIPTERA, EMPIDIDAE)

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Some 45 years ago, Mr J. E. Collin decided to take seriously my schoolboy interests in the Diptera and identified empids for me. At that time, there was little information available and accessible. I sent him what I thought was a distinct species from woods in Bedfordshire, resembling a large *Empis opaca* Meigen from the colour of its legs. I was surprised to have this large, pale-legged empid returned as *Empis tessellata* Fallén which I had already obtained and which had markedly dark femora. Collin explained that a pale-legged form had been recorded by Zetterstedt and Becker from Europe and in his monograph on the British Empididae (Collin, 1961) he referred to my specimens as from "near Luton (Beds) ..... it may prove to be a case of the occurrence of a mutant form in the Diptera". The pale-legged form is quite distinct, with the posterior femora entirely pale and the middle femora darkened at the base beneath. The dark-legged form has the posterior femora occasionally lighter above, especially in the female, but the four posterior femora are heavily infuscated. There are, apparently, no other morphological differences between the two forms.

Following the publication of a preliminary note on the occurrence of the two forms in Bedfordshire (Laurence, 1949), Parmenter (1951) recorded the pale-legged form from Buckinghamshire, Smith (1952) found the pale-legged form in Hampshire, and Hobby & Smith (1961) gave records of the pale-legged form from Berkshire, Dorset, Oxfordshire, Sussex and Worcestershire, with additional records from Italy and Czechoslovakia. So far as I know, nothing further has been published on the occurrence of the two forms of this species.

Significantly, Hobby & Smith (1961) recorded both forms from soil beneath *Quercus* trees in Wytham Wood, Oxfordshire, and one mixed pair in cop (pale-legged male x dark-legged female) was captured with prey by R.B. Freeman in this wood.

In Fancott, Bedfordshire, there was a clear difference in the distribution of the two forms inside and outside two woods in the area (Woodcock Wood and Hipsey Spinney). The proportions of the two forms on the abundant *Anthriscus sylvestris* L. growing in the woods and alongside the hedgerows (this was some 30-40 years ago). Within the woods, 61% of 944 empids counted were the pale-legged form, whereas outside the woods only 9% of the 207 empids counted were pale-legged (Laurence, 1958). Unfortunately coppicing of the woods ceased during the 1950's and it was not possible to continue the investigation due to the overgrowth of the woods and disappearance of the umbellifers. Smith (1952) found that the pale-legged form was 16% of the *E. tessellata* population on *Viburnum* blossom along a roadside, and 66% on *Heracleum* along a shrubby path at King's Somborne, Hants.

Recently I examined water trap collections from Bradfield Wood in Suffolk, made during May, 1991. *Empis tessellata* was an abundant species but all 672 specimens captured belonged to the dark-legged form. The sex ratio of 42% males was comparable to that found on flowers in the Bedfordshire woods, 38% for the pale-legged form and 35% for the dark-legged form. All the specimens of this species I have examined from the far north of

Britain, Orkney and Shetland, belong to the dark-legged form. Is the pale-legged form of *E. tessellata* extinct or is it restricted to the southern counties of England, as the records given by Hobby & Smith (1961) suggest? It is confined to woodlands as its distribution in Bedfordshire suggests? Further captures and counts are called for.

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## RHAMPHOMYIA PLUMIPES (DIPTERA, EMPIDIDAE) IN SCOTLAND

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On 25th May 1991 whilst sweeping *Betula* foliage in Clunes Wood some 10km south west of Inverness, Highland Region (Grid Ref. NH6136) I captured a large, dark female empid which on further examination proved to be a specimen of *Rhamphomyia plumipes* Meigen. According to Collin (1961, *British Flies VI, Empididae*. Cambridge University Press) this species has not previously been recorded from Scotland and indeed, at that time, was known as British on the basis of only two females taken in Suffolk and Yorkshire. Roy Crossley (pers. comm.) has recent English records. There is a literature reference of *R. plumipes* in Scotland from the Isle of Skye in 1905 (Grimshaw, P.H. 1914-16, *Diptera Scotica* VI. The Western Isles. *Annals of Scottish Natural History*.) but this refers to *R. plumipes* Fallén now regarded as a synonym of *Rhamphomyia geniculata* Meigen.

The Clunes Wood specimen was taken by sweeping the foliage of mature *Betula* at a height of between 4 and 5 metres with the aid of a long handled net. In late May the male catkins of *Betula* are opening and female *R. plumipes* presumably feed on the pollen. There tend to be more catkins higher up on the trees and this together with the early flight period may account in part for the lack of records of this species. A small number of apparently rare empids including such species as *R. vesiculosa* (Fallén) and *R. sulcatina* Collin, also feed on *Betula* pollen in the Scottish Highlands.

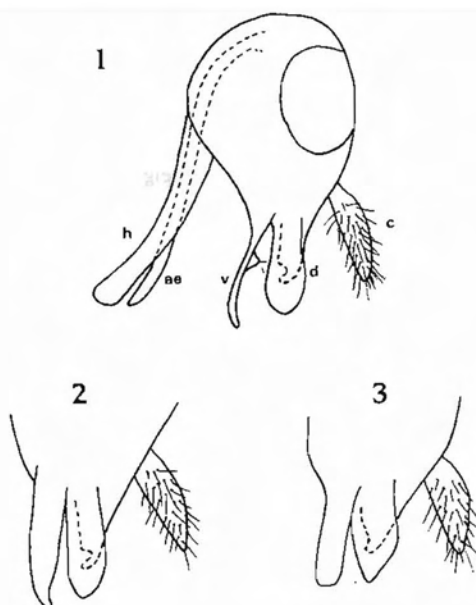
THE MALE GENITALIA OF SOME ARGYRA SPECIES (DIPTERA,  
DOLICHOPIDIDAE)

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The last couplet of the key to *Argyra* in the Dolichopodidae Handbook (Fonseca 1978) separating *A. perplex* Becker from *A. argentina* (Meigen) is unsatisfactory because the external characters on which it is based are ill-defined and variable, and naming even males can be uncertain. The only published figures of male genitalia is Becker (1918) for *A. argentina*, *A. argyria* and *A. perplexa* and Parent (1938) for *A. argentina* and *A. argyria*. However these figures are poor and unhelpful but there are well defined differences which can be seen in pinned specimens if the genital capsule is exerted to expose the appendages before drying. In *A. argentina* (Fig. 1) the ventral lobes of the surstyli, which are anterior to the dorsal lobes in the normal position, are uniformly slender and curved with an inner process bearing a spine. In *A. perplexa* (Fig. 2) they are broad basally and narrow near the tip to an incurved blunt point. There are also differences in the inner process of the dorsal lobe of the surstylus which can only be seen in mounted preparations. The aedeagus and its protecting hypandrium are simple with no distinguishing features.

Records do not suggest a habitat difference between these species, both are widely distributed in Britain, but perhaps *A. argentina* is scarcer and both have a northern and western bias. The female terminalia have not been examined and female *A. argentina* and *A. perplexa* cannot be separated satisfactorily.

*A. argentella* (Zetterstedt) was listed in the synonymy of *A. argyria* by Parent (1938) but is resurrected in Fonseca (1978). The male differs from *A. argyria* in its smaller size, paler legs, shorter 3rd antennal segment, shorter eye hair, and shorter postero-ventral hair on the mid femora, but no distinction can be found between the male genitalia of a series of both species from various parts of Britain. The anterior lobe of the surstylus (Fig. 3) is uniformly broad with a rounded or somewhat truncated tip clearly distinct from both *A. argentina* and *A. perplexa*, but no differences in any structure could be found to separate the most robust *A. argyria* from the smallest *A. argentella*. While this supports the recent opinion of Meuffels et. al. (1989) that the two may not be separate species, males are nevertheless separable on external characters and an appeal in the Empid and Dolichopodid Study Group Newsheet No. 9 for any specimens which do not key easily to either species met with no response. Their similar flight periods precludes the possibility that they represent seasonal variants and, at least in Britain, both are widely distributed with no discernible differences in habitat. It would seem advisable to continue treating them as separate species pending further knowledge.



**Figs. 1-3. *Argyra*, male genitalia, 1, *Argyra argentina*, hypopygium, left side; 2, *Argyra perplexa*, surstylus and cercus, left side; 3, *Argyra argyria/argentella*, surstylus and cercus, left side.**

ae = aedeagus; c = anal cercus; d = dorsal lobe of surstylus; v = ventral lobe of surstylus; h = hypandium

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## FURTHER RECORDS OF *PLATYPALPUS ALTER* (DIPTERA, EMPIDIDAE)

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*Platypalpus alter* was first described by Collin (1961) from three females taken at Loch Garten, Highland Region on 21.vi.1933. The area around Loch Garten consists mainly of mature Caledonian pinewood, the loch itself lying at an altitude of some 220m. The male of the species was described by Smith (1969) from specimens taken by W.O. Steele in Glen Einich in the Cairngorms, Highland Region on 24.vi.1967. The specimens were taken in moss by the side of a dried up stream; no altitude was given. *P. alter* is also known from Northern Europe and the mountains of central Europe (Chvála 1988).

We have carried out trapping in the Scottish Highlands over the last few years which has yielded some further records of *P. alter* and has given some clues in regard to the ecology of this species. Water traps set out at different altitudes and in differing plant communities on Creag Meagaidh NNR, Highland Region, showed that of 30 specimens of *P. alter*, 25 were associated with *Scirpus-Eriophorum* mires at an altitude of 375m. Only 2 males were trapped. They were trapped on grasslands at 790m and 975m. Additional captures were one male was taken in a water trap at 840m in *Racomitrium* heath in the hills above Glen Affric, Highland Region NH2228 between 23.v.1988 and 22.vi.1989 and one female was taken again in a water trap in Lurchers Gully, Cairngorm, Highland Region at an altitude of 740m in *Calluna* heath between 21.vi and 17.vii.1988 (NH9704).

*Platypalpus alter* has also been occasionally taken in Malaise traps operated in Caledonian pinewoods. One male was taken at Amat, Sutherland, Highland Region (NH4689) in June 1989. A single female was taken in the Glen Tanar NNR, Grampian Region (NO4891) in June 1990. At both sites traps were operated within the woodland canopy but the ground flora was still mainly dominated by *Calluna*. The Amat trap was at an altitude of 200m, the Glen Tanar trap at 220m.

Our results would seem to indicate that *P. alter* has a rather wide distribution in the northern part of the Scottish Highlands. The apparent rarity of *P. alter* may be due to the fact that it is centred on mires at middle altitudes at about 400m, a region which has received little attention from entomologists. Occasional individuals, especially males, are found away from this habitat and are to be found occasionally in montane areas and in the upper reaches of native pinewoods.

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**A RECORD OF *ACHALCUS MELANOTRICHUS* (DIPTERA, DOLICHOPIDIDAE)  
FROM EAST SUSSEX**

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On 19.v.1990 a single male of the scarce dolichopidid, *Achalcus melanotrichus* Mik, was swept from a rot-hole about two metres from the ground in a large *Fagus sylvatica* L. (copper-beech) tree. The tree was situated in a small area of woodland near the town centre at Lewes, East Sussex (TQ 419100). Apart from the fact that this appears to be a new vice county record it is worth noting that in this case beech was the probable breeding site. There are several published records for specimens bred from elm detritus but lime and horse chestnut are also recorded.

**A RECORD OF *HERCOSTOMUS PRAETEXTATUS* (DIPTERA,  
DOLICHOPODIDAE) FROM SOUTH HAMPSHIRE**

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On 12.vi.1991 I took two males of the uncommon but distinct dolichopidid, *Hercostomus praetextatus* Haliday, by sweeping along a small shaded stream in West Wood, Netley, South Hampshire, (SU 448092). The site is only a few yards from where the stream flows into Southampton Water but there is no tidal influence at the point where the flies were swept. According to Fonseca (1978, Diptera Orthorrhapha Brachycera. Dolichopodidae. *Handbooks for the Identification of British Insects* 9(5): 1-90.) there are no records for mainland Hampshire.

## KEY TO BRITISH SPECIES OF *EMPIS* S.STR. (DIPTERA, EMPIDIDAE)

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The following key is for the identification of British species and species possibly yet to be discovered in Britain of the subgenus *Empis* s.str. Twenty-five species are included of which 14 are known from Britain. Of the 11 that may be found in Britain 10 have been found in the Netherlands, the best investigated NW European country thanks to the collecting activity of Mr V.S. van der Goot of Amsterdam. The eleventh species, *E. staegeri* Collin, is known from all Scandinavian countries (besides Denmark and central parts of Europe), and its occurrence in northern parts of Great Britain is also possible.

The key covers only a small part of the continental fauna of *Empis* s.str. and it has been prepared for students identifying British species; it cannot be used, therefore, for identification of continental species. Some further species might be found in Britain, mainly as rare strays from France.

Most of the *Empis* s.str. species occur in May and June. The date of capture may help in identification of the few species that appear later in the season as mentioned in the key.

At many of the couplets several characters are given as in such a difficult group identification may cause trouble to students who are not well acquainted with the Empididae. Therefore each section is based on a group of diagnostic characters, to eliminate accidental misidentifications as far as possible.

The species not yet found in Great Britain are given in brackets.

### Key to British species of *Empis* s.str

#### Males

- 1 Halteres black; if somewhat dark brown (*dasyprocta*), then small species, 2.5-3.5mm long, with abdominal pubescence pale . . . . . 2
- Halteres pale; if darkened (*pennipes*), then large species, 4-5mm long, with very long proboscis and abdominal pubescence black . . . . . 9
- 2(1) Abdominal pubescence whitish, anal vein complete . . . . . 3
- Abdominal pubescence black. Small species, 2.5-3.5mm long . . . . . 6

- 3(2) Large species, about 5mm long, with mostly golden yellow (very rarely whitish in Dutch specimens) pubescence on abdomen, coxae, metapleura, humeri and squamae. All metatarsi slender. Aedeagus short and broad at base, concealed within lamellae (late summer species) . . . . . (*serotina* Loew)
- Small species, 2.5-3.5mm long, abdominal pubescence always whitish. Genitalia small and closed, base of short aedeagus usually invisible (*chiptera*-group) . . . 4
- 4(3) Humeri and notopleural (ntpl) depression with minute white hairs besides black bristles. Metapleural (mtpl) bristles exclusively whitish yellow. Mesonotum and dorsum of abdomen rather densely grey to bluish grey; (abdomen) dusted. Wings milk-white,  $mt_1$  and  $mt_3$  swollen, 2 sc . . . . . *chiptera* Meigen
- Humeri and ntpl depression with black hairs. Mtpl bristles black or brown, sometimes mixed with pale bristles, though often pale in N. European populations. Rather subshining black species.  $mt_1$  and  $mt_3$  not very stout, slightly deeper than corresponding tibiae at tip . . . . . 5
- 5(4) Mesonotum shining black when viewed from above; 2 sc. Wings faintly milk-white, halteres black.  $t_2$  with 2 dorsal bristles (near base and at middle) about 3 times as long as tibia is deep, a long preapical bristle, and with 3 av bristles at middle about twice as long as tibia is deep. Hypandrium bare . . . . . *prodromus* Loew
- Mesonotum finely grey dusted from all points of view, 2-4 sc. Wings almost clear, halteres rather brownish, at least on stalks.  $t_2$  with 4-5 long dorsal bristles on basal half besides a preapical bristle, ventrally with shorter bristles arranged in pairs. Hypandrium with long bristly hairs (summer species) . . . . . (*dasyprocta* Loew)
- 6(2) Anal vein complete.  $mt_1$  and  $mt_3$  cylindrical, scarcely stouter than tips of tibiae. Subshining black species, lateral genital lamellae with a long, curved, apical seta. Wings rather milk-white, veins (except C,  $R_1$  and  $R_{4+5}$ ) fine and pale . . . . .  
. . . . . *caudatula* Loew
- 7(6)  $t_1$  dorsally with fine short hairs not longer than tibia is deep.  $t_2$  with 1 or 2 long dorsal bristles at base and in basal third (very rarely 3), otherwise with short hairs, preapical bristles scarcely longer. Aedeagus rather long and very thin apically, free at base. Usually 2 sc (summer species) . . . . . *aestiva* Loew
- (The very similar *E. (Coptophlebia) vitripennis* Meigen has, besides abbreviated vein  $M_1$ , aedeagus yellowish and very stout at base,  $t_2$  with 1-4 dorsal bristles on basal half, and a long preapical bristle.)
- $t_1$  dorsally with bristly hairs much longer than tibia is deep.  $t_2$  usually with 4-5 long dorsal bristles arranged on its whole length. Aedeagus shorter, very narrowed on apical half . . . . . 8

- 8(7) Usually 4 sc.  $mt_1$  and following tarsal segments, and  $mt_2$ , without preapical bristles;  $mt_3$  with short bristly hairs above not longer than metatarsus is deep. Aedeagus short, free at base, hypandrium small. dc 1- to 2-serial, rather short and fine, anteriorly at most as long as the distance between acr and dc . . . . . (levis Loew)
- Usually 2sc.  $mt_1$  with a circlet of strong preapical bristles, 2nd and 3rd tarsal segments with long preapical bristles as long as following tarsal segment;  $mt_2$  with strong preapical bristle;  $mt_3$  with strong dorsal bristles longer than metatarsus is deep. Aedeagus longer, its basal half closed in a large hypandrium. dc irregularly 2- to 3-serial, long and bristle-like, longer anteriorly than the distance between acr and dc. . . . . **praevia** Collin
- 9(1) Labrum very long, about 3 times as long as head is high. Mtpl bristles and abdominal pubescence black. Halteres rather yellowish brown or very darkened. Wings brownish, aedeagus very long and slender. Large species, about 4-5mm long . . . . . **pennipes** L.
- Labrum shorter, at most slightly more than twice as long as head is high (care must be taken with a long labium if porrect). Halteres extensively pale. If doubts as to the length of labrum (*rufiventris*), then mtpl bristles black and abdominal pubescence pale (see section 23) . . . . . 10
- 10(9) Abdominal pubescence pale, at least at base of abdomen, also hairs on prothoracic episterna pale (except *rufiventris*) . . . . . 11
- Abdominal pubescence black or blackish brown, including base of abdomen and prothoracic episterna. Mtpl bristles black . . . . . 24
- 11(10) Front half of mesonotum densely clothed with long, fine pale hairs; acr and dc multiserial, very narrowly separated. Aedeagus very long and thin, evenly bowed. Large species, 5-6mm long . . . . . *decora* Meigen
- Front half of mesonotum with the usual dark bristly hairs; if whitish (*albopilosa*), then anterior quarter of mesonotum base, and acr and dc 2-serial . . . . . 12
- 12(11) Dorsum of abdomen dulled by greyish dust, not shining black. If doubts (*syrovatkai*), the species will be found in both sections . . . . . 13
- Dorsum of abdomen shining black or at least subshining, basal segments sometimes finely pollinose . . . . . 20
- 13(12) 8th tergum with a distinct tubercle on each sides. 7th tergum with corresponding excisions on hind margin. Medium sized species, 3-4mm long (*nigripes*-complex) . . . . . 14
- 8th tergum simple, without tubercles, and no corresponding excisions on 7th tergum . . . . . 17

- 14(13) Aedeagus short and stout, distinctly broadened at tip. Mtpl fan usually composed of black and pale bristles. 4 sc . . . . . **15**
- Aedeagus longer and/or slender, often with bands, tip slender. Mtpl fan composed of mainly pale bristles . . . . . **16**
- 15(14) 8th tergum with a simple round tubercle on each side. Mtpl bristles black, mixed with pale bristles.  $t_2$  with 3 dorsal bristles. Mesonotum with 3 indefinite darker stripes on the lines of bristles . . . . . **nigripes** F.
- 8th tergum with a flattened, spoon-shaped tubercle pointing backwards. Mtpl bristles exclusively black.  $t_2$  with 5 (rarely 4) dorsal bristles. Mesonotum with 2 rather indistinct darker stripes between the lines of bristles (broader than in *nuntia*) . . . . . **(laminata** Collin)
- 16(14) Aedeagus short and straight, stout at base but very slender on apical half, not widening at tip. 8th tergum with a 2-pointed tubercle on each side, the tips pointing forwards and backwards. Mtpl bristles often blackish in northern populations. 4 sc . . . . . **bicuspidata** Collin
- Aedeagus long and evenly slender, with a distinct loop at middle. 8th tergum with a small, simple tubercle on each side. 2 sc . . . . . **planetica** Collin
- 17(13) dc irregularly 2- to 3-serial, usually 3-serial at about middle. Aedeagus short and very stout,  $mt_3$  long bristled above. Abdomen rather subshining black. Large, robust species, about 4-5mm long (see section 21) . . . . . **syrovatkai** Chvála
- dc regularly 2-serial. Aedeagus long and slender or, if short, then with a loop at middle and very slender at tip.  $mt_3$  without strong bristles above . . . . . **18**
- 18(17) Mtpl bristles black. Aedeagus conspicuously long and thick, threadlike, with 3 loops at base. Larger, 4-5mm long . . . . . **(acinerea** Chvála)
- Mtpl bristles pale. Aedeagus not conspicuously long and thin. Generally smaller species . . . . . **19**
- 19(18) Aedeagus short, slightly overlapping genital lamellae, stouter at base and about a loop at middle, apical part slender. Mesonotum with 2 indefinite narrow darker stripes between the rows of bristles when viewed from in front. Legs with a tendency to be brownish, wings clear with dark veins. 4 sc. Larger, 3.5-4mm long **nuntia** Meigen
- Aedeagus long and slender, evenly bowed above body. Mesonotum unstriped, uniformly grey dusted. Legs blackish, wings almost whitish with pale veins. 2 sc. Smaller, less than 3.5mm long . . . . . **(staegeri** Collin)
- (*E. planetica* has veins M and Cu distinctly brown, 8th tergum bears small tubercles at sides, and aedeagus with a loop.)

- 20(12) Mtpl bristles pale (with additional black bristles in *lepidopus*). Aedeagus short, not extending much above genital lamellae . . . . . 21
- Mtpl bristles black. Aedeagus long and slender, evenly bowed; if short (*limata*), then with a loop . . . . . 23
- 21(20) Aedeagus very slender towards tip. acr 2-serial, dc 4-serial, all numerous and very long, hair-like . . . . . 22
- Aedeagus very stout, broadened at tip. acr 2-serial, dc irregularly 3-serial, black, less numerous and bristle-like.  $t_2$  usually with 5 strong black ad bristles, and numerous similar long bristles in a double row ventrally. 4-6 sc. Large species, 4-5mm long . . . . . (*syrovatkai* Chvála)
- 22(21) Smaller, about 3-3.5mm long. Wings almost milk-white, veins whitish, acr and dc mostly pale anteriorly.  $t_2$  with a dense row of at least 10 fine pd bristly hairs more than twice as long as tibia is deep, ad and ventral hairs adpressed and much shorter. 2-4 sc . . . . . (*albopilosa* de Meijere)
- Larger, about 4.5mm long. Wings almost clear with dark veins. acr and dc black.  $t_2$  with 4 rather short bristles antero- and posterodorsally, those in pd row longer, at least as long as tibia is deep, otherwise tibia almost bar. 8-10 sc . . . . . (*lepidopus* Meigen)
- 23(20) Smaller, about 3.5mm long. Aedeagus short, mostly concealed within genital lamellae, and with a loop before tip. Upper lobe of dorsal lamella with a brush of black hairs. Wings clear, abdomen black . . . . . *limata* Collin
- Larger, 4.5-5.5mm long. Aedeagus long and slender, *pennipes*-like, evenly bowed. Dorsal genital lamella simple, long and slender, wings faintly brownish, abdomen yellowish at base . . . . . *rufiventris* Meigen
- 24(10) Smaller, 3-3.5mm long. Genitalia "open", aedeagus long and slender, evenly bowed, *pennipes*-like . . . . . (*melanotricha* Loew)
- Larger species, 4-5mm long. Genitalia "closed", aedeagus short and stout or, if longer and more slender, then with a loop at about middle . . . . . 25
- 25(24) Aedeagus long and slender, with a loop at middle, very thin at tip, and often concealed within lamellae.  $f_3$  with short bristly hairs dorsally much shorter than femur is deep . . . . . (*tanysphyra* Loew)
- Aedeagus short and stout, widening at tip.  $f_3$  with a row of long ad bristles as long as, or longer than, femur is deep . . . . . *woodi* Collin

## Females

- 1 Halteres black, at most dark brown . . . . . 2
- Halteres pale; if brownish (*pennipes*), the species will be found in both sections . . . . . 10
- 2(1) Abdominal pubescence whitish. Anal vein complete, reaching the wing-margin . 3
- Abdominal pubescence blackish . . . . . 6
- 3(2) Large species, about 5mm long. Abdomen, coxae and metapleura covered with golden yellow hairs (often whitish in Dutch specimens).  $f_2$  and  $f_3$  short pennate,  $t_3$  on basal half beneath and  $t_2$  at base ventrally with finer pennation;  $t_1$  dorsally fringed. Humeri with pale hairs and 2 contrastingly black bristle (late summer species) . . . . . (*serotina* Loew)
- Smaller species, 2.5-3.5mm long. Abdominal pubescence always whitish . . . . 4
- 4(3) Humeri and/or at least ntpl depression covered with minute pale hairs besides black bristles. Mtpl bristles exclusively whitish. Wings brownish, broadened. Mesonotum greyish.  $f_3$  fringed above, pennate on apical half posteroventrally, anteroventrally before tip with several long black bristles.  $t_3$  finely fringed above,  $f_2$  similarly fringed above, and posteroventrally on apical half . . . . . *chioptera* Meigen
- Humeri and ntpl depression with exclusively black hairs. Mtpl bristles black or brown, at most mixed with pale hairs (extensively pale in N European *dasyprocta*). Wings not broadened . . . . . 5
- 5(4) Mesonotum rather shining black.  $f_3$  convex above and distinctly fringed, ventrally almost straight and nearly base, covered with minute dark hairs except for longer av bristles towards tip.  $t_3$  stout and distinctly fringed above. Wings faintly brownish, almost clear apically. 2 sc . . . . . *prodromus* Loew
- Mesonotum greyish dusted.  $f_3$  and  $t_3$  rather slender;  $f_3$  pennate beneath, finely fringed above,  $t_3$  without fringes above. Wings uniformly faintly brownish clouded. Halteres with a tendency to be brownish. 2-4 sc . . . . . (*dasyprocta* Loew)
- 6(2) Large species, body about 4-5mm long. Labrum very long, about 3 times as long as head is high. Legs broadly pennate on posterior four femora, hind tibiae, and also on anterior four tibiae dorsally. Colouration of halteres varies from yellowish to dark brown (see section 13) . . . . . *pennipes* L.
- Small species, about 2.5-3.5mm long. Labrum much shorter. Anterior four tibiae without pennation or flattened hairs . . . . . 7



- 7(6) Anal vein complete, reaching the wing-margin. Mesonotum thinly grey dusted. Posterior four femora pennate on both sides;  $f_3$  distinctly convex above, anteriorly before tip with 3-4 long flattened hairs;  $t_3$  without pennation or flattened hairs. Wings faintly yellowish brown at base, clear towards tip . . . . . **caudatula** Loew
- Anal vein incomplete, mesonotum shining black. Legs with other combination of characters . . . . . **8**
- 8(7) Posterior four femora and hind tibiae broadly pennate. 2 sc, wings rather brownish (summer species) . . . . . **aestiva** Loew
- Legs not pennate, covered with ordinary hairs and bristles, no flattened hairs . . **9**
- 9(8) Usually 4 sc, wings brownish.  $f_3$  rather long and slender, practically bare . . . . . (levis Loew)
- Usually 2 sc, wings almost clear.  $f_3$  shorter and stouter, covered with several ad bristly hairs, and similar av hairs on apical third or more, the hairs are not as long as femur is deep . . . . . **praevia** Collin
- 10(1) Legs not pennate, covered with ordinary hairs and bristles, no flattened hairs. Abdominal pubescence pale, at least on basal segments . . . . . **11**
- Legs distinctly pennate, or at least hind legs with flattened hairs . . . . . **13**
- 11(10) Mtpl bristles pale, dc 4-serial. Abdomen polished black. Wings indistinctly brownish, almost clear. Small species, 3-3.5mm long . . (albopilosa de Meijere)
- Mtpl bristles black, or at least partly black, dc 2-serial. Abdomen dull blackish grey, at most subshining . . . . . **12**
- 12(11) Smaller, 3-4mm long. Wings clear.  $f_3$  laterally compressed, twice as deep as hind tibiae, dorsal hairs with a tendency to be flattened . . . . . (laminata Collin)
- Larger, generally over 4mm long. Wings deep brown.  $f_3$  slender, narrowly conical, as deep as hind tibiae . . . . . (acinerea Chvála)
- 13(10) Labrum very long, about 3 times as long as head is high. Abdominal pubescence and mtpl bristles black. Halteres often darkened, wings dark brown. Legs broadly pennate on posterior four femora, hind tibiae, and on mid tibia dorsally; shorter flattened hairs on  $t_1$  and anterior four metatarsi dorsally, and at base of  $t_2$  ventrally. Large species, 4-5mm long . . . . . **pennipes** L.
- Labrum shorter, at most slightly more than twice as long as head is high (care must be taken with a long labium if porrect) . . . . . **14**

- 14(13) Abdominal pubescence and mtp1 bristles black. Medium-sized species, generally about 3.5-4.5mm long . . . . . 15
- Abdominal pubescence pale, at least at base of abdomen, mtp1 bristles pale or black . . . . . 17
- 15(14) Posterior four femora broadly pennate on both sides . . . . . 16
- No distinct pennation; posterior four femora with slender flattened hairs, those on  $f_3$  ventrally before tip the longest, at most as long as femur is deep . . . . . (melanotricha Loew)
- 16(15)  $t_3$  with subequal distinct pennation dorsally, and on basal half ventrally.  $t_1$  and  $mt_1$  with ordinary bristly hairs dorsally,  $t_2$  fringed above. Wings light brown . . . . . woodi Collin
- $t_3$  short pennate dorsally, ventrally on basal half with very short flattened hairs.  $t_1$  and  $mt_1$ , similarly like  $t_2$ , with small flattened hairs dorsally. Wings brown with distinct dark stigma . . . . . (tanysphyra Loew)
- 17(14) Legs strongly pennate, also on fore femora and mid coxae. Front half of mesonotum densely clothed with fine, long pale hairs; acr and dc multiserial, very narrowly separated. Large species, 5-6mm long . . . . . decora Meigen
- Fore femora and mid coxae with only ordinary hairs and bristles, no pennation. Front margin of mesonotum bare; acr and dc 2-serial, widely separated . . . . . 18
- 18(17) Hind femora pennate; legs more or less pennate also on mid pair, clothed with flattened hairs . . . . . 19
- Femora without pennation or flattened hairs, but  $t_3$  with dorsal pennation about as long as tibia is deep, and with shorter fringes ventrally on basal half. Mesonotum light grey dusted, dorsum of abdomen shining black. Larger species, about 4.5mm long . . . . . (lepidopus Meigen)
- 19(18) Fore legs with only ordinary hairs or bristles, no pennation or flattened hairs. Medium-sized, rather darker grey dusted species, 3-4mm long . . . . . 20
- Fore tibiae and/or fore metatarsi dorsally with distinct flattened hairs; if doubts, a species with somewhat broadened brown wings and 2 sc (*planetica*) belongs here 23

- 20(19) Mesonotum unstriped, or with 2 indefinite darker stripes between the rows of bristles. Abdomen covered with pale hair. 2 sc, if 4 sc, then outer pair small, less than half length of the inner pair . . . . . 21
- Mesonotum (viewed from above) with 3 indefinite darker stripes on the lines of bristles. Dorsum of abdomen with some additional black hairs. 4 sc, outer pair long, not very much shorter than the inner pair . . . . . 22
- 21(20) 2 sc, mesonotum uniformly dark grey, no stripes. Mtpl bristles often black. Legs blackish;  $f_3$  and  $t_3$  with long dorsal pennation about as long as corresponding femora and tibiae are deep. Wings almost clear (distinctly brown in *planetica*). Generally smaller, about 3-3.5mm long . . . . . (*staegeri* Collin)
- 4 sc, outer pair small; mesonotum with 2 indefinite darker stripes between the rows of bristles. Mtpl bristles exclusively pale. Legs rather light brown;  $f_3$  with much shorter pennation, and  $t_3$  only fringed above (as in *nigripes* and *bicuspidata*). Wings faintly brownish. Generally larger, about 4mm long . . . . . *nuntia* Meigen
- 22(20) Mtpl bristles mostly black, often with additional pale bristles.  $t_3$  dorsally with fairly long flattened hairs, and some additional long simple bristles. Dorsum of abdomen with numerous black hairs . . . . . *nigripes* F.
- Mtpl bristles mostly pale, rarely with additional black bristles.  $t_3$  dorsally with more uniform short pennation (or short flattened hairs), often mixed with several longer, flattened bristly hairs. Dorsum of abdomen predominantly with pale hairs . . . . . *bicuspidata* Collin
- 23(19) Large species, about 4.5mm long. Posterior four femora and tibiae broadly pennate . . . . . 24
- Smaller species, about 3-3.5mm long. Legs less distinctly pennate . . . . . 25
- 24(23) Larger, 4.5-5.5mm long, mtpl bristles black.  $t_1$  dorsally with long flattened hairs,  $mt_1$  without pennation or flattened hairs. Wings light brownish. Mesonotum dull grey, abdomen brownish, shining . . . . . *rufiventris* Meigen
- Smaller, about 4-4.5mm long, mtpl bristles pale, rarely with additional 2-3 black bristles.  $t_1$  with flattened hairs dorsally on apical half only, with  $mt_1$  distinctly fringed on its whole length. Wings darker brown. Abdomen subshining black . . . . . (*syrovatkai* Chvála)
- 25(23) 2 sc, thorax and abdomen dull dark grey. Mtpl bristles pale, with additional black bristles. Wings brownish, somewhat broadened . . . . . *planetica* Collin
- 4 sc (outer pair small), thorax and abdomen subshining black. Mtpl bristles black. Wings very dark brown, not broadened . . . . . *limata* Collin

**ANTHALIA BEATRICELLA SP.N. AND TWO OTHER ADDITIONS TO THE  
BRITISH LIST OF OEDALEINI (DIPTERA, EMPIDIDAE)**

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The genera dealt with here were included by Collin (1961) in his heterogeneous "Hybotinae". In Chvála's (1983) work they are referred to a tribe Oedaleini in his subfamily Ocydromiinae. The tribe is characterised by the presence of vein M2 (i.e. three veins from the discal cell) and the antennal style (arista) shorter than the third antennal segment. Where the biology is known they develop in rotten wood (as do some genera of Ocydromiini such as *Leptozepe*, but an uncommon habit in the Hybotidae). Collin (1961) recognised 7 species of *Oedalea* and 4 of *Euthyneura* as British but with the addition of *Euthyneura inermis* (Becker) (Cole, 1987) and *Oedalea ringdahli* Chvala (McLean, 1991; MacGowan, 1991; Plant, 1991) and 3 more here, including a third genus *Anthalia*, we have 16 species of Oedaleini.

*Oedalea* is recognised by its flattened and strongly spinose hind femora, its elongate third antennal segment and downward projecting proboscis. It is predacious on small insects and there are no records of flower visiting. On the other hand, *Euthyneura* and *Anthalia* are flower feeding and apparently not insectivorous. British species of both genera may be found in numbers by sweeping tree blossom such as *Crataegus* and *Prunus padus* L. in favourable localities (typically ancient woodland, although the commoner *Euthyneura* species are more widespread in woodland). Downes & Smith (1969) discussed the flower visiting habits of several species and considered that they were probably all pollen as well as nectar feeders.

*Euthyneura* and *Anthalia* have the hind femora usually simple (a few spinose bristles near the tip beneath in *E. halidayi* Collin), the third antennal segment shorter and broader and proboscis projecting diagonally forwards (more strongly in *Euthyneura*). *Anthalia* differs from *Euthyneura* in its smaller size, shorter proboscis and most notably in wing venation (second basal cell narrower apically with its closing vein more oblique; M2 abbreviated in all European species).

Oedaleini have a paucity of specific structural characters even in male genitalia; as Chvála (1983) remarked under *Oedalea*, speciation may have been recent. However, they have developed a variety of colour characters of wings, legs and bristles, which may be used to separate the species.

***Anthalia* Zetterstedt**

Chvála (1983) recognised only one European species of *Anthalia*, *A. schoenherri* Zetterstedt, which was recorded from Scandinavia, N.W. USSR and North America. Chvála later (1984) recognised a second European species, transferring the Spanish *Oedalea brevicornis* Strobl to *Anthalia*, although it differed in having a longer two segmented antennal style as in some of the other ten North American species.

The British specimens and some Czech specimens kindly forwarded to me by Dr. Chvála, are considered here to represent a distinct species, differing most obviously from *schoenherri* in the paler leg colouration (largely yellow with hind femur and fore/hind tibiae dark on apical half or more), and vein M2 less abbreviated; male genital structure also differs in several respects. It has a very short one-segmented antennal style in the male (as in *schoenherri*) but in the female this style is absent. Because of this female character, confusion with *Euthyneura myricae* (known only from the female) is therefore possible but Collin figured the wing of *myricae*, which has the typical venation of *Euthyneura*. Examination of a Finnish pair of *A. schoenherri* has shown its female too lacks a style but its third antennal segment is more truncate with denser apical hairs. Also vein M3+4 is distinctly abbreviated although less so than M2, while in the British species it almost reaches the margin.

*A. schoenherri* was recorded as regularly visiting *Sorbus aucuparia* L. by Tuomikoski (1952) and searching *S. aucuparia* blossom in Scotland may prove productive. North American *Anthalia* are recorded from a variety of flowers including those of herbaceous plants.

#### *Anthalia beatricella* sp. n.

MALE. Body black, largely grey dusted with halteres and legs mainly yellow. Eyes broadly in contact on frons, from ocellar triangle nearly to base of antennae, with upper facets enlarged. A pair of long ocellar bristles, upper postoculars practically as strong. Antennae black, third segment broadly ovate, with a very short blunt apical style (Fig. 1). Proboscis short with shorter black palpi, rounded apically with long preapical bristle.

Thorax shining black, thinly grey dusted. Notopleural area and pleura more strongly grey dusted. All hairs and bristles black. Acrostichals all very short, irregularly 4-6-serial, in a broad stripe narrowly separated from dorsocentrals, which are mostly equally short, irregularly 4-serial. Broad preescutellar area is bare, but bordered by 1 pair of long preescutellar dc and preceding pair of dc about half length of preescutellars; series of short supra-alars. One long humeral. Two strong notopleurals (each with weaker bristle behind). One posthumeral. One long postalar. Two pairs scutellars, inner pair long and parallel to divergent.

Wings (Fig. 3) clear with faintly yellowish veins, stigma yellowish. Vein M2 abbreviated but reaching more than two thirds of its length to costa; vein M3+4 almost reaching margin. Squamae yellowish with pale hairs. Halteres yellow with only base of stem brownish.

Legs mainly pale yellow, only hind femora with apical half indistinctly brown and hind tibia brownish towards tip. Fore tibiae enlarged from near base, spindle shaped broader than hind tibiae on apical half. Most leg bristles short, black hind femora with series of longer dorsal (longer on basal half) and anteroventral bristles, 2 longer strong preapicals in latter series, longer than tibial diameter.

Abdomen black, thinly grey dusted with long pale hairs on sides of tergites, becoming darker apically, bristles on apical margins of tergites and sternites longer. Genitalia small, black, upturned, differing in detail from *schoenherri*, eg aedeagus not bifid apically (figs. 4-6).

Body 1.7 mm. Wing 1.85-2.1 mm.

**FEMALE.** Apart from sexual characters, antennal style is missing and legs are darker (fore legs also having distinct markings) (female *schoenherri* has squamae and halteres yellowish and coxae/femora lighter brown).

Eyes widely separated, all facets equal. Frons broader than third antennal segment, shining black. Face narrower, dull black. Third antennal segment broadly ovate, tapered apically to a bluntly rounded tip without vestige of style (Fig. 2).

Wings as in male, M2 reaching at least three quarters of its length to margin. Squamae and halteres as male.

Coxae, trochanters and middle femora and tibiae entirely pale yellow. Fore femur largely brown, but yellow at base and tip, fore tibia yellow on basal half, brown on apical half. Hind femur brownish on most of apical two thirds, broadly yellow at base, but only narrowly yellow at tip, hind tibia brown on apical half to two thirds, yellow basally. Fore and hind tarsi brown, mid tarsi obscurely yellowish. Chaetotaxy of legs as in male, also enlarged fore tibia.

Abdomen shining dark brown, thinly grey dusted; tergites 1-2 and sternites 1-3 more or less translucent yellowish. Abdomen usually appearing yellow laterally because membrane between tergites and sternites broadly exposed when distended by eggs. Apical segments forming a telescopic ovipositor. Body 2.1-2.4 mm, wing 2.0-2.3 mm.

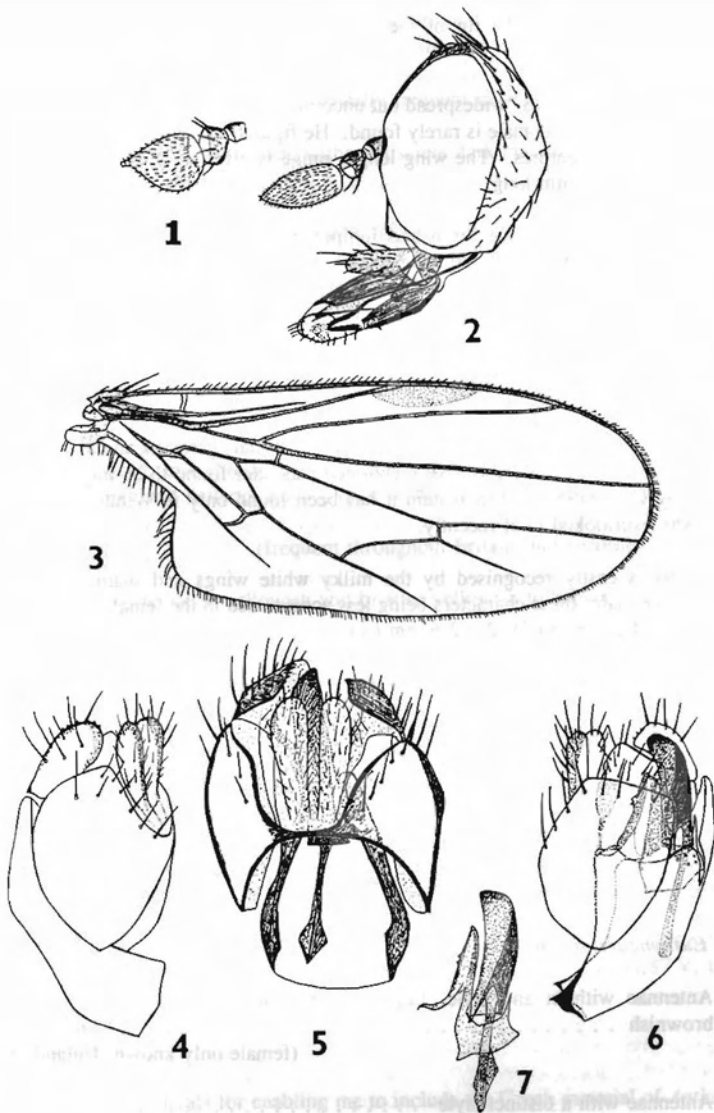
Holotype ♂: Berks, Windsor Forest, near Badger's Brook, at *Crataegus* flowers, 23.v.1988 (P. J. Chandler), deposited in Natural History Museum, London.

Paratypes: locality as holotype, 30.v.87 ♀, 31.v.87 ♂, 2 ♀, 7.vi.87 2 ♀, 15.v.88 2 ♀, 5.vi.88 6 ♀, 20.v.90 18♂, 23 ♀, 27.v.91 ♂ (all above at *Crataegus* flowers); 13.vi.87, 2 ♀ at *Prunus padus* flowers); Norfolk, Old Buckenham Fen, 9.vi.90 ♀ swept in woodland (all P. J. Chandler); Yorks, Castle Hill Wood, Helmsley, 21.vi.83 ♀ (I. F. G. McLean); Czechoslovakia: Kozlov, 2 km east, meadow near Picetum, 49.24 N/15.41 E, 340 m., 27.v.66, 4 ♀ (Bartak); Nova Rabyne, 49.49 N/14.26 E, 280m, 9.vi.87, at *Spiraea* flowers, 1 ♂ (Bartak).

#### ***Oedalea hybotina* (Fallén), new to the British Isles**

A female was swept from birch foliage with a male of *O. stigmatella* Zetterstedt at Morrone Birkwood NNR, Aberdeenshire, on 14th July 1991 and was readily recognised as *O. hybotina* from Chvála's (1983) Scandinavian key.

In Collin's key it runs to *O. apicalis* Loew, a local southern species of ancient woodland, agreeing in the dark apical half of the hind femora and thickened antennal style, as well as the mainly clear stigma with brown base and tip. However, it has an incomplete brown



Figs. 1-7. *Anthalia beatricella* sp.n., 1, male antenna; 2, female head; 3, wing; 4, male genitalia, right lateral view; 5, male genitalia, dorsal view; 6, male genitalia, left lateral view; 7, aedeagus in lateroventral view.

preapical wing band from the tip of the stigma, while *apicalis* has the entire wing tip darkened.

Chvála (1983) recorded it as "widespread but uncommon in Scandinavia" and Central Europe and he commented that the male is rarely found. He figured the entire female, male genitalia and other diagnostic features. The wing length range is given as 3.8-4.2 mm; the Scottish female has wings 4.6 mm long.

Morrone Birkwood is an open birch and juniper wood on a north facing slope west of Braemar. It is therefore not a surprising locality for a species with a mainly Scandinavian and continental distribution. However, I understand from Paul Beuk (pers. comm.) that *O. hybotina* has recently been added to the Dutch List.

### ***Euthyneura albipennis* (Zetterstedt), new to the British Isles**

This was considered by Chvála (1983), who figured the male genitalia and antenna, as a rare northern species (the British record he mentioned was later found to be *inermis* (Becker) as confirmed by Cole (1987) but in Britain it has been found only in Windsor Forest, Berks, where it was overlooked until recently.

*E. albipennis* is easily recognised by the milky white wings and mainly silvery dusted abdomen in the male, these characters being less accentuated in the female. The wing length ranges from 2.4-2.7 mm (♂), 2.3-2.6 mm (♀).

Material examined: Berks: Windsor Forest, 3.vi.80 ♀; 31.v.87 ♀; 7.vi.87 ♂, 2 ♀; 13.vi.87, 2 ♀; 14.vi.87, 2 ♂, 2 ♀, 15.v.88 ♂ ♀; 22.v.88 3♂; 12.vi.88 ♀; 27.v.91 ♂ (mostly at *Crataegus* flowers; all P. J. Chandler).

A new key is presented to the European species of *Euthyneura*, all of which are now known from Britain. As Collin (1961) and Chvála (1983) indicated *E. myrtillic* Macquart, which is the commonest species and not confined to older woodlands, is variable in leg colour and some Scottish males are generally darker with almost black legs, blackish halteres and infuscated wings with darker veins.

### **Key to *Euthyneura* species**

- 1 Antennae without any style. Legs light brown. Thoracic hairs whitish, bristles brownish . . . . . *myrica* Haliday  
(female only known, Ireland; not seen)
- Antennae with a distinct style . . . . . 2



- 2 Wings with dark stigma and lighter brown shade from it across wings, fading at discal cell. Legs mainly yellow. Thoracic hairs and bristles pale . . . . . *gyllenhali* (Zetterstedt)  
(locally frequent in woodland throughout Britain)
- Wings with yellowish stigma and without discrete dark markings on wing membrane. Legs more or less darkened . . . . . 3
- 3 Wings entirely milky white (more strongly in male). Abdominal tergites mainly silvery dusted in male (female with tergite 1 and bases of other tergites narrowly silvery dusted). All hairs and bristles pale. Male legs black except pale yellow first two segments of hind tarsi; female legs mainly yellow, tip of hind femur and hind tibia darkened . . . . . *albipennis* (Zetterstedt)
- Wings clear greyish to yellowish, sometimes brownish, never milky. Abdomen not silvery dusted . . . . . 4
- 4 Thoracic hairs brown and stronger bristles black, although longer abdominal hairs whitish. Legs and halteres usually dark in male, yellow in female but variable in both sexes . . . . . *myrtilli* Macquart  
(frequent throughout Britain; not recorded from Ireland)
- Thoracic hairs white to yellowish and bristles yellowish to brown . . . . . 5
- 5 Hind femur with small dark spinose bristles beneath near tip. Male femora yellow (3 dark apically), tibiae and tarsi mostly dark; female legs yellow. Halteres dusky on knob . . . . . *halidayi* Collin  
(local in woodland, including carr, in England, Scotland and Ireland)
- Hind femur simple (as in other species of genus). Halteres yellow. Femora and tibiae yellow except tip of femur 3, most of tibia 3, all tarsi dark . . . . . *inermis* (Becker)  
(reared by Cole (1967) from rotten wood in Oxon; seen from Hants, "New Forest", vi.1902 ♀ (D. Sharp, Cambridge University Museum); New Forest, Eyeworth Wood, around decayed wood and at *Crataegus* flowers, 2.vi.85 ♀, 6.vi.87 2 ♂, 2 ♀ (P. J. Chandler); Berks, Windsor Forest, mostly at *Crataegus* flowers, some around wood or at *Prunus padus* flowers, 21.v.87 ♀, 30.v.87 ♀, 7.vi.87, 4♀, 13.vi.87 ♀, 14.vi.87 ♂♀, 29.v.89 ♂ (P. J. Chandler)).

#### Acknowledgements

I am grateful to Milan Chvála for enabling me to include the Czech material of *Anthalia* and to Ian McLean for referring his Yorkshire capture to me. Several other collectors and Museums have kindly provided records of *Euthyneura* species. The new species is named for my friend Bee Blackwell to acknowledge her help in many ways.

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## REEDMARSHES: A POORLY APPRECIATED HABITAT FOR DOLICHOPODIDAE

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At first sight, reedmarshes are not particularly appealing. The dense and nearly unpenetrable reed vegetation suggest that interesting or rare insects are unlikely to be encountered. This attitude has led to the fact that until recently, strikingly few data were present on the occurrence of dolichopodid flies in reedmarshes.

However in the paper we report results of recent survey work showing that reedmarshes are excellent sites for dolichopodids.

### Material and methods

From 1984-1990, several reedmarsh areas were sampled in Flanders (Belgium) by means of pitfall, white water or Malaise traps. During this period, a total of 190 traps were operating according to the details given by Pollet *et al.*, (1989). The water trap methodology used is explained in Pollet *et al.*, (1989). In most of the 5 regions investigated, several individual sites were sampled. In the present paper, however, yields are considered per region.

The specimens collected were identified on the basis of keys by Parent (1938), Fonseca (1978), Pollet (1990), Meuffels & Grootaert (1990) and some unpublished keys by H. Meuffels. Nomenclature is according to Meuffels & Grootaert (1987). Material is preserved in 70% alcohol. Some is deposited in the Royal Belgian Institute of Natural Sciences and the rest is in my private collection.

### Results and discussion

One hundred and seven species were collected, which is more than a third of the total Belgian dolichopodid fauna.

Only species with 40 or more specimens gathered in at least one area are considered further in this paper. These are listed in Table 1. The following species were found less abundantly:

*Achalcus cinereus*, *A. flavicollis*, *A. thalhammeri*, *Argyra argentina*, *A. argyria*, *A. diaphana*, *Asyndetus latifrons*, *Campsicnemus compeditus*, *C. lumbatus*, *C. magius*, *Chrystous cilipes*, *C. neglectus*, *C. monochaetus*, *C. palustris*, *C. suavis*, *Chrysotimus molliculus*, *Diaphorus oculatus*, *Dolichopus agilis*, *D. campestris*, *D. claviger*, *D. diadema*, *D. excisus*, *D. festivus*, *D. griseipennis*, *D. lepidus*, *D. notatus*, *D. sabinus*, *D. signifer*, *D. simplex*, *D. strigipes*, *D. subpennatus*, *D. urbanus*, *Hercostomus celer*, *H. chrysozygos*, *H. nanus*, *H. silvestris*, *H. verbekei*, *Hypophyllus obscurellus*, *Hydrophorus bipunctatus*, *H. praecox*, *Medetera abstrusa*, *M. jacula*, *M. saxatilis*, *M. truncorum*, *Nodicornis nodicornis*, *Rhaphium antennatum*, *R. appendiculatum*, *R. commune*, *R. crassipes*, *R. laticorne*, *R. nasutum*, *Sciapus laetus*, *S. lobipes*, *S. platypterus*, *S. wiedemanni*, *Syntormon aulicus*, *S. denticularis*, *S. pumilus*, *S. monilis*, *S. tarsatus*, *Teuchophorus monacanthus*, *T. nigricosta*,

*Thinophilus versutus*, *Thrypticus bellus*, *T. smaragdinus*, *Xanthochlorus ornatus* and *X. tenellus*.

**Table 1.** Dolichopodid species with a total catch of over 40 specimens trapped in reedmarsh areas in Flanders (Belgium) during 1984-1990.

Dolichopodid species	sites*	Dolichopodid species	sites*
<i>Achalcus (flavissimus)</i>	-K--	<i>D. unguilatus</i>	B+++
<i>A. vaillanti</i>	+K++	<i>D. Wahlbergi</i>	+--0-
<i>Argyra elongata</i>	B++-	<i>Hercostomus aerosus</i>	B-+-
<i>A. leucocephala</i>	+++0-	<i>H. assimilis</i>	BKM+-
<i>A. vestita</i>	BK++	<i>H. blankaartensis</i>	B+---
<i>Bathycranium bicolorillum</i>	BK+0+	<i>H. chalybeus</i>	BK+-
<i>Campsicnemus armatus</i>	+K-Z	<i>H. metallicus</i>	B---
<i>C. curvipes</i>	BKM++	<i>H. plagiatu</i>	-K--+
<i>C. picticornis</i>	BK++Z	<i>H. praeceps</i>	-K-+-
<i>C. scambus</i>	BKM++	<i>Lamprochromus elegans</i>	BK+-
<i>Chrysotus gramineus</i> group	BK+0-	<i>Micromorphus albipes</i>	+K+-
<i>Dolichopus brevipennis</i>	++-Z	<i>Poecilobothrus ducalis</i>	---Z
<i>D. latilimbatus</i>	BK+-	<i>P. nobilitatus</i>	B+--+
<i>D. linearis</i>	-K--	<i>Rhaphium caliginosum</i>	++++Z
<i>D. longicornis</i>	+K++	<i>R. fasciatum</i>	BK+-
<i>D. longitarsis</i>	-K--	<i>Sympynus pulicarius</i>	BK+-
<i>D. nubilus</i>	BK++Z	<i>Syntormon pallipes</i>	BK+Z
<i>D. pennatus</i>	BK+-	<i>Teuchophorus calcaratus</i>	-+M+-
<i>D. plunipes</i>	BKM+Z	<i>T. spinigerellus</i>	BK+M-
<i>D. popularis</i>	BK+-		

\* B = De Blankaart N.R. (Woumen), K = Het Meetjeslandse Krekengebied, M = Het Molsbroek N.R. (Lokeren), O = De Oude Landen N.R. (Ekeren), Z = De Zoutekreek (Zandvoorde); capital letters indicate the collection of 40 or more specimens, + = less than 40 specimens collected, - = no specimens collected

Not all of the species captured can be termed true reedmarsh-inhabiting species. They can roughly be divided into the following ecological groups. A first group consists of eurytopic species i.e. species which are found in a great variety of habitat types (*C. curvipes*, *C.*

*picticornis*, *C. scambus*, *C. gramineus*, *D. brevipennis*, *D. longicornis*, *D. plumipes*, *D. unguatus*, *P. nobilitatus*, *R. caliginosum*). These species are among the most common species in western Europe. It must be remarked that in most reedmarshes, *D. unguatus* is found in very low numbers whereas in humid woodland, this is one of the dominant dolichopodids. A second group comprises species from humid woodland habitats: *A. leucocephala*, *D. pennatus*, *D. popularis*, *D. wahlbergi* and *H. metallicus*. Their occurrence in the reedmarshes could always be related to the presence of adjacent willow carrs. *D. nubilis* and *D. latilimbatus* have been encountered abundantly in all kinds of humid places such as marshlands and woodlands. Although both species are mostly found together, the latter seems to show a preference for canopied habitats. *T. calcaratus* is mainly found on the banks of small stagnant pools, whereas *C. armatus* and *S. pallipes* are most numerous in marshlands bordering brackish to saline waterbodies. *H. aerosus* is the only species of the subgenus *Gymnopternus* which seems to prefer heathland habitats (Pollet *et al.*, in press) and has only been collected in marshlands on sandy soils.

Only the following Dolichopodidae can be considered as true reedmarsh-inhabiting species: *A. vaillantii*, *A. elongata*, *A. vestita*, *H. assimilis*, *H. blankaartensis*, *L. elegans*, *M. albipes*, *P. ducalis*, *R. fasciatum* and *T. spinigerellus*. These species proved to prefer rather dense vegetations of common reed to more open or wet reedmarshes (Pollet, in prep). *B. bicolorellum*, *H. chalybeus* and *H. plagiatus* show their main distribution in reedmarshes too. However, they can also be found in fair to large numbers in humid deciduous woodlands and willow carrs. The ecology of the remaining species is still largely unknown: *D. linearis* and *H. praeceps* are mainly known from reedmarshes, but they have also been found in fair numbers in gardens and woodland habitats. In Germany, the latter species is rather common in cereal crops (Prescher, pers. comm.). *D. longitarsis* and *A. (flavissimus)* were collected in high numbers at one site only and thus far, their abundance could not unequivocally be explained.

## Discussion

Apart from the reasons mentioned above not to enter reedmarshes, perhaps the most important one is the fact that it is almost impossible and certainly not very practicable to use a sweepnet to collect flies in reedmarshes. And still this seems to be the most widespread collecting method among dipterists. However, it is clear that because of its unstandardized character, it should not be applied in thorough ecological studies. The most convenient way to get a reliable idea of the composition of dolichopodid faunas in reedmarshes is achieved by using water traps. It still has to be investigated at what height they preferably should be installed. In any case, when installed at soil surface level, large quantities of species and specimens can be collected (Pollet, in press).

It is obvious that reedmarshes show not only remarkably rich dolichopodid communities, but also a high number of rare species. Eight species recorded here are listed by Shirt (1987) (*D. signifer*, *D. agilis*, *P. ducalis*, *D. linearis*, *H. plagiatus*, *S. versutus*, *C. compeditus*, *C. magius*). Moreover, most of the true reedmarsh species are entirely restricted to these habitat types. Some of these stenotopic species appear to be specialised in their requirements eg *H. blankaartensis* occurs in reedmarshes with an open tree canopy only. *D. longitarsis* appears to be confined to reedmarshes neighbouring willow carrs. The presence of some

untypical reedmarsh species could be related to their strong affinity to environmental variables such as salinity (*C. magius*, *D. diadema*, *D. sabinus*, *D. strigipes*) and pH (*C. compeditus*). From the point of view of nature conservation, reedmarshes are undoubtedly of considerable importance for the survival of a large number of stenotopic dolichopodid species. For this reason, if for no other, these dolichopodid paradises should be protected.

### Acknowledgements

Many thanks are due to Mr K. Decler, Dr L. De Bruyn and Mr G. Haghebaert who provided me with dipteran material from D. Blankaart Nature Reserve, De Oude Landen Nature Reserve and De Zoutekreek respectively. I am also much indebted to Mr J. Cleppe for allowing me to perform a large scale sampling campaign within Het Meetjeslandse Kreekengebied area. This is a contribution of the Royal Belgian Institute for Natural Sciences. This research has financially been supported by the National Fund for Scientific Research (NEWO, Belgium).

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## TACHYPEZA FENNICA (DIPTERA, EMPIDIDAE) NEW TO BRITAIN

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On 18 June 1989 at Rassal NNR, a relict Ash (*Fraxinus excelsior* L.) wood on a small limestone area at Kishorn, Wester Ross (VC 105) I swept a large female *Tachypeza* sp. from rough vegetation under the canopy. Milan Chvála examined the specimen and identified it as *Tachypeza fennica* Tuomikoski, a species hitherto unknown in Britain. Males of the species can be readily distinguished from the closely related *Tachypeza heeri* Zetterstedt by using the keys in Chvála (1975) but females are more difficult and may be distinguished by the paler proboscis and the slight convergence of the discal and cubital veins at the wing margin.

The occurrence of *T. fennica* in Britain is perhaps not surprising as it has a wide distribution extending from Sweden and Finland across northern Russia to Japan, and also in central Europe where it may be found even in lowland areas (M. Chvála, pers. com.). With the exception of *Tachypeza nubila* (Meigen) which is common and widespread, the other representatives of *Tachypeza* are little known in Britain. *Tachypeza fuscipennis* (Fallén) has been reported from five English localities (Collin, 1961) while *Tachypeza truncorum* (Fallén) and *T. heeri* are known from a few localities in Scotland (Collin 1961; McLean, 1984). The paucity of records for these species may be due in part to the fact that they are seldom encountered by sweep netting and must usually be sought by intensive searching of the bark at the base of trees.

It is noteworthy that *T. fennica*, *T. truncorum* and *T. heeri* have similar and characteristically boreal distributions and it is possible that other north European *Tachypeza* sp. (particularly *Tachypeza winthemi* Zetterstedt may yet be found in Scotland.

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## LAMPROCHROMUS STROBLI (DOLICHOPIDIDAE) CONFIRMED AS A BRITISH SPECIES

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In his monograph of Dolichopodidae, Parent (1938) gives "Angleterre" under the distribution of both *Lamprochromus elegans* Meigen and *Lamprochromus strobli* Parent. This is the only evidence that *L. strobli* occurs in Britain. The species is in the current check list of British Diptera (Kloet & Hincks, 1976) even though there are no known British specimens. Fonseca (1978) includes a key to both *Lamprochromus* species but for *L. strobli* adds the statements, "reputedly British, but no British specimens or authentic British records have been found".

On 4.vi.1987 a series of dolichopids, identified as *Rhaphium fasciatum* Meigen were collected by sweeping short vegetation growing under a *Salix fragilis* L. tree in a small area of woodland near the town centre at Lewes, East Sussex, (TQ 419099). However when they were critically examined several months later, two males came out as *L. strobli* using the key in Fonseca (1978). The determination was subsequently confirmed when a male of *L. elegans* was borrowed and compared with the Lewes specimens of *L. strobli*.

Repeated searches for further specimens of *L. strobli* have been unsuccessful but the following notes on the habitat are worth recording. The site consists of about four acres of woodland, about half of which is dominated by *S. fragilis* with several springs which appear slightly alkaline. Both chalk and peat deposits are present in the subsoil. A variety of fenland Diptera are found in the wetter parts of the woodland including the three superficially similar species *Rhaphium fasciatum*, *Lamprochromus elegans* and *L. strobli*. These all have the base of the abdomen partly translucent yellow and therefore care must be exercised if specimens are identified in the field.

Fonseca (1978) separates the two species of *Lamprochromus* using differences in the third antennal segment and treats both sexes together in the same key. The characters below serve to separate males of the two *Lamprochromus* species.

### *L. elegans* males

Tip of 3rd antennal segment sharply pointed, apical angle very acute (about 30°, Fig.1).

Third antennal segment with pubescence long and sparse.

Arista inserted near base of 3rd antennal segment.

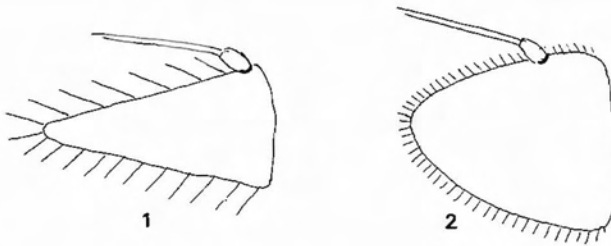
### *L. strobli* males

Tip of 3rd antennal segment bluntly rounded, apical angle less acute (about 45°, Fig.2).

Third antennal segment with pubescence short and dense.

Arista inserted a third from base of 3rd antennal segment.





Figs. 1-2. Third antennal segment of male *Lamprochromus*, 1, *L. elegans*; 2, *L. strobli*.

#### Acknowledgements

I am grateful to Peter Dyte for much helpful information on *L. strobli* and to Ivan Perry for the loan of a male *L. elegans*.

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## CHEETHAM AND KOWARZ DOLICHOPOIDS AT LEEDS CITY MUSEUM

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In the spring of 1991 I was able, through the kindness of Adrian Norris, Assistant Curator of Natural History, Leeds City Museum, to examine the Brachycera section of the Museum's Diptera collection.

Of particular interest to me was the family Dolichopodidae which is represented by more than 1,100 specimens of 175 species. Like the majority of the collection, the dolichopodid section is based upon that of C. A. Cheetham (1875-1954), a well known Yorkshire amateur naturalist who, in the best tradition of his generation, was something of an all-rounder, but with specialist interests in biology and dipterology.

In addition to the Cheetham material, the dolichopodid collection contains specimens from the collection of R. H. Meade (1914-1899), who was an eminent Bradford surgeon, and in addition to his interest in diptera he was a leading arachnologist of his day. There are also fairly recent specimens collected by Mrs E. C. Broadhead of Leeds.

Finally, and of great interest, are specimens collected by Raddatz and Kowarz, principally in Austria, between 1864 and 1879. There are 275 Kowarz specimens in the main collection, including 16 bearing additional Raddatz labels, representing in all, 136 species. These include such British rarities as *Dolichopus melanopus* Meigen, *D. plumitarsis* Fallén, *Hercostomus sahlbergi* (Zetterstedt), and *Acropsilus niger* (Loew). In addition to the British collection, there are 110 Kowarz specimens of non-British dolichopodids, some of which are named. The Kowarz material is direct pinned in butterfly fashion and the majority of the specimens are in immaculate condition.

Amongst the Cheetham specimens there are several of historical interest which deserve mention. Four specimens were standing in the collection, without det. labels, under *Sciapus maritimus* Becker. Reference to the recent paper by Mueffels & Grootaert (1990) enabled them to be correctly identified as follows:-

*Sciapus zonatulus* (Zetterstedt) 1 ♀, Allerthorpe, Yorkshire 21.vi.25; *Sciapus constrictans* (Wiedemann) 1 ♂, Allerthorpe, Yorkshire 21.vi.25 (these two are pinned on to the same celluloid mount, and in order to avoid damage they have not been disturbed).

*S. zonatulus* (Zetterstedt) 1 ♂, Allerthorpe, Yorkshire 2.vii.27; *S. zonatulus* (Zetterstedt) 1 ♂, Doncaster, Yorkshire 1.vii.37.

A further two male specimens standing under *S. maritimus*, (leg. E. C. Broadhead, Alwoodley, Leeds, August 1978), proved to be *Sciapus constrictans* (Wiedemann).

Fonseca (1978) quotes only two known British records for *Dolichopus cilifemoratus* Macquart. In recent years this species has been discovered to be widespread and quite common in drainage dykes in the complex of water meadows which make up the Derwent Ings National Nature Reserve in central Yorkshire. Additionally, it has been reported from

Cambridgeshire and possibly another site in southern England. A single male, (no det. label), was found in the series of *D. festivus* Haliday. This had been by Cheetham 25/6/19 at Bubwith, Yorkshire, possibly in one of the meadows which now forms part of the Derwent Ings NNR.

A single male of *Dolichopus subpennatus* Fonseca, first described in 1976 and taken by Cheetham at Crag Wood, Rawdon nr. Leeds on 30.vi.20, was found in the series of *Dolichopus pennatus* Meigen. This constitutes the earliest known record for the species in Yorkshire, but no doubt there are other early specimens similarly lurking in collections up and down the country.

Finally, there are two male specimens of *Rhaphium lanceolatum* Loew collected by Cheetham 1.vii.32, bearing the locality code "A" on the label. This is presumably Austwick, and I believe that these are the specimens which form the record referred to by Fonseca (1978; p55) where he states, "reputed to have been taken at Austwick (Yorks.), but it has not been possible to verify this record".

Study facilities are available at Leeds City Museum, and any dipterist wishing to examine the collection should apply to Adrian Norris, Assistant Curator of Natural History, Leeds City Museum, Municipal Buildings, Leeds LS1 3AA.

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## THE DISTRIBUTION OF *APHROSYLUS MITIS* (DIPTERA, DOLICHOPIDIDAE)

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*Aphrosylus* species are found only in the intertidal zone. In Britain we have four species. Two are about 4mm in length or more, and the remaining two, including *Aphrosylus mitis* Verrall, are small being about 1.5mm long or less. *A. mitis* is readily distinguished from the other small species, *Aphrosylus ferox* (Haliday) using the key in Fonseca (1978). However, in addition to the characters used by Fonseca (1978) *A. mitis* has the antennae uniformly dark, and the ventral apex of the front tibia bears a simple bristle which is less than one fifth as long as the basitarsus, whereas in *A. ferox* the basal segment of the antenna is yellow, and the prolongation and stout spur at the apex of the fore tibia are together nearly half as long as the basitarsus. These features occur in both sexes.

*A. mitis* is rare (RDB 3 status in Shirt (1987) and Falk (1991). Fonseca (1978) gives only four localities: R. Deben, Suffolk; Walton-on-Naze, Essex; and Buckler's Hard, and Lepe, both in Hants. In addition Parmenter found a female at Flatford, Suffolk on 16.vii.1951, which is now in the BM(NH), and Spooner found the species at Wembury, Devon; and Looe, Cornwall in 1954 (Anon., 1957). All these captures were made before 1955, and all the specimens were taken in June or July. More recently Hinton, (1967) reported this species from Walton Bay in the Severn Estuary, Avon, but we know of no subsequent published records from the UK.

However, a male was taken at Thorney Island, Sussex (SU 767036) on 1.vi.1990 by CED who, on 21.viii.1983, also found the species still present at Buckler's Hard Quay. RHP has found *A. mitis* in 15 localities in West Cornwall, all located in the estuarine systems of the River Hayle, the Helford River, and the Fal and Truro Rivers. These localities are listed in Table 1, with details of both *A. mitis* and *A. ferox* recorded at each. Away from the estuaries a number of sea coast sites, including sheltered bays and harbours, were searched specifically for *A. mitis* particularly over the intertidal barnacle zone. Although *A. ferox* was found at several of these sites and was occasionally common, *A. mitis* was not located.

These records not only extend the known distribution of the species, but also extend the flight period to early October. This suggests that more than one generation a year may occur. Fig. 1 shows the known distribution of *A. mitis* in the UK.

Overseas *A. mitis* appears to be known only from northern France. Parent (1927) reported it from Fermanville at the north end of the Cotentin peninsula (Manche); and indicated that the species also occurred in Calvados, but gave no detailed locality (Parent 1938). Haghebaert & Grootaert (1991) have recently taken it in a saltmarsh at Ambleteuse (Pas de Calais). Tsacas (1959) found *A. mitis* in the estuary of the Penzé River, Finistère, and C.E.D. has taken it at Carantec on 23.vi.1986, and at the Pointe du Binde, Logonna Daoulas

on 19.vi.1986 (both Finistère).

Table 1. - Records of *Aphrosylus mitis* in West Cornwall with details of *A. ferox* captured at the same localities

Estuary and locality	Grid ref. SW/	Date	<i>A. mitis</i>		<i>A. ferox</i>	
			♂	♀	♂	♀
<b>River Hayle</b>						
Carnsew Pool, Hayle	566374	20.vii.90	-	1	2	1
Copperhouse, nr Hayle	557377	1.viii.90	2	3	2	1
<b>Helford River</b>						
Gillan Harbour, St Anthony-in-Meneage Tremayne Quay, nr Helford	784256	10.vii.91	1	6	12	8
	735260	28.vii.90	2	1	1	-
		3.x.90	1	1	-	-
Helford Creek, Helford	758260	28.viii.90	1	1	-	-
		5.x.90	-	-	2	-
<b>Fal and Truro Rivers</b>						
Mylor quays, Mylor Churchtown	820354	19.vii.91	8	12	-	12
Mylor Creek, Mylor Bridge	805359	19.vii.91	-	1	-	-
Restronguet Passage	814373	26.vii.91	2	4	7	3
Loe Beach, Feock Devoran, Restronguet Creek	828381	17.ix.91	1	3	2	2
	798389	26.vii.91	-	1	-	-
King Harry Ferry, Trelissick	841396	31.vii.91	-	-	6	5
		3.ix.91	-	1	1	1
King Harry Ferry, Philleigh side	843396	31.vii.91	-	1	-	-
Roundwood Quay, Trelissick	838403	20.viii.91	1	-	4	7
Lamouth Creek, Trelissick	834401	20.viii.91	-	2	-	2
		3.ix.91	-	2	-	2
Malpas, nr Truro	845428	20.viii.91	-	1	-	-

Is *A. mitis* genuinely rare, or merely under-recorded? It is, after all, a very tiny fly and some dipterists ignore intertidal habitats. In this respect perhaps the known distribution of *A. ferox* is relevant because this species is about the same size as *A. mitis* and is also found in the intertidal zone. In contrast to *A. mitis*, *A. ferox* is known to be much more widely distributed and often fairly numerous. We have been noting locality records for several years without making a special effort, but those already accumulated emanate from over fifty 10km

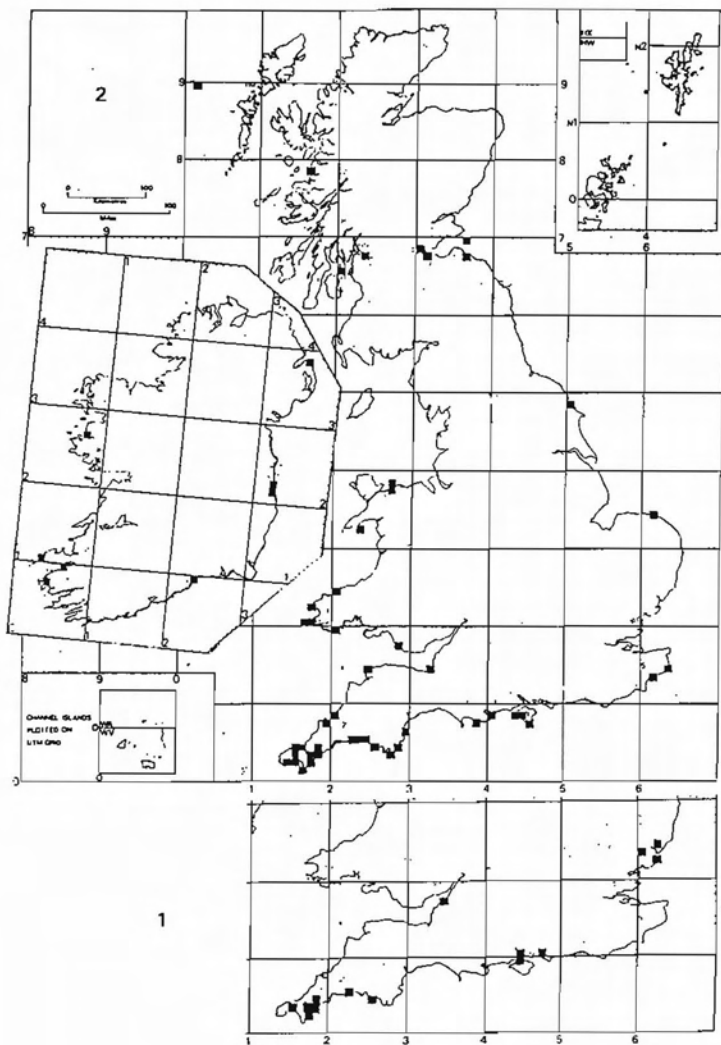
squares. These records show that this species is moderately widespread in the UK (Fig. 2), and they include several offshore islands like Grassholm, Skokholm St. Kilda, and the Isle of May. The capture dates range from 2 June to 10 September.

Overseas *A. ferox* is known from the Atlantic coasts of Europe from Norway: near Bergen (Dahl, 1961); Netherlands (Parent, 1938); Belgium (Bequaert, 1955); N. France Pas-de-Calais, Calvados, Manche, Finistère, and Morbihan (Parent, 1938; Tsacas, 1959); N. Spain: Santander (C.E.D.); Portugal: Lisboa and Algarve (C.E.D.); S. Spain: Cadiz (Parent, 1928) and in the Mediterranean from S. France: Bouches-du-Rhône (Timon-David, 1944).

Since *A. mitis* appears to be truly rare, perhaps the ecological requirements of this species are narrower than those of *A. ferox*. Both species occur in estuaries, and both seem to tolerate a range of salinities. Thus, in Hants *A. mitis* has been reported from Lepe near the mouth of the Beaulieu River, as well as from Bucklers Hard Quay about 4 km upstream; and in Finistère this species has been found in Carantec near the mouth of the Penzé River as well as at the railway bridge near Penzé itself, about 5 km upstream. Salinity changes in estuaries are complex, depending for example on the season and the state of the tide. Fortunately, these salinity changes have been studied during work on other organisms at two of the locations where *A. mitis* has been found. Young (1949) provides a convenient summary of the data. Some of the specimens from which Verrall (1912) described *A. mitis* came from "the sides of the River Deben, in Suffolk, about halfway between Woodbridge and the mouth of the river". It appears from Serventy's study on *Gammarus* that the salinity at this region of the Deben estuary ranges from about 30g/litre (i.e. about 3.0% total salts in solution) at low water to 33g/litre at high water. These figures can be compared with sea water which has a salinity of about 35g/litre. From data obtained during Bassindale's study of invertebrates on the southern shores of the Severn Estuary, the salinity level of Walton Bay, where Hinton found *A. mitis*, would be about 26-27g/litre in summer and 15-20g/litre in winter. These data suggest that larvae of *A. mitis* can tolerate a wide range of salinities and that salinity tolerance is not a major feature restricting the occurrence of the species.

Although most records of *A. mitis* are from estuarine localities, this species has also been reported from rocky sea shores, and *A. ferox* is frequently found in such situations. Spooner took both species on intertidal rocks at Wembury and at Looe. He mentioned that the two species occurred together, but *A. mitis* was much less frequent than *A. ferox*.

On rocky shores, harbour walls, breakwaters etc *Aphrosylus* adults are particularly frequent on areas covered by acorn barnacles (*Crustacea: Cirripedia*), but the relationship with barnacles is not fully understood. Roubaud (1903) found dolichopodid larvae which he attributed to *Aphrosylus celtiber* Hal. in the barnacle *Balanus balanoides*. The characters used at that time to distinguish the adults of *A. celtiber* and *A. raptor* are now known to be unreliable, but Roubaud's description shows the larvae were undoubtedly those of an *Aphrosylus*, and their size indicates one of the larger species. Roubaud suggested a commensal relationship between barnacle and fly. Certainly not all *Aphrosylus* larvae develop within barnacles because others have reported larvae of this genus from intertidal habitats less closely associated with barnacles. Thus Spooner found the larvae of *A. celtiber* "amongst the fauna of *Pygmaea pumila*, tufted algae and barnacle shells" and those of what



Figs. 1-2. Distribution of *Aphrosylus*, 1, the 10km squares from which *Aphrosylus mitis* is known in the U.K.; 2, some 10km squares from which there are U.K. records of *Aphrosylus ferox*.

were probably *A. ferox* from "tufted weeds on rocks" (Anon. 1957). Crothers (1966) found larvae of *Aphrosylus* sp. "under patches of *Lichina pygmaea*" and Hinton (1967) reported collecting larvae of what was probably *A. celtiber* at "up to 20 larvae/sq.ft. on barnacle covered rock".

In view of the association of *Aphrosylus* with acorn barnacles, and the recent discovery of *A. mitis* in estuaries in West Cornwall, the distribution of acorn barnacles in this vice-county may be pertinent. The upper shore of rocky coasts, between mean neap high tide and mean spring high tide levels, is occupied by a distinct barnacle zone except on coasts exposed to extreme wave action or where the substrate is unsuitable for barnacle attachment. This zone is dominated by three species - *Chthamalus montagui*, *C. stellatus* and *Balanus balanoides*, but in more sheltered areas, particularly estuaries, a fourth species, *Elminius modestus* is widespread often at the expense of native species. *Elminius modestus*, originating from Australasia, became established along the south coast of Britain in the 1940s and has since spread around the coasts of England and Wales. It prefers brackish water, and hence favours harbours and estuaries where freshwater inflows reduce salinity. *E. modestus* was first recorded in the Fal estuary in 1947 and the Helford River in 1963, and it now occurs in the upper reaches of these estuaries some 12 and 9 km inland respectively. On the seaward coasts of the estuaries *E. modestus* co-exists with *Chthamalus* but in the upper reaches with increased brackish conditions and higher turbidity, it becomes progressively the dominant species until it is the only barnacle present at some sites.

In West Cornwall, with one possible exception, all the sites at which *A. mitis* has been found (Table 1) are at, or close to, colonies of *Elminius*. The exception is the muddy shore at Lamouth Creek, Treliisick where, with *A. ferox*, it has been taken on two occasions from floating and attached brown seaweed (*Fucus* spp.) at high water. This site is about 500 m from large colonies of *Elminius* on Roundwood Quay at the mouth of Lamouth Creek where both *A. mitis* and *A. ferox* occur.

Colonies of *E. modestus* with their associated fauna and flora may well provide a niche for the development and metamorphosis of *A. mitis* and probably *A. ferox* also. It is even possible that the invasion of estuaries by *E. modestus* has increased the microhabitats suitable for these flies. The numerous spaces formed by the plates of living and dead barnacles and other organisms associated with them would protect *Aphrosylus* larvae from water movements, desiccation, and extremes of temperature.

The larval stages of *Aphrosylus mitis* are unknown. Although the adults have been found in association with a diversity of substrates ranging from rocky shores to soft estuarine mud, the species has a very restricted world distribution. Moreover many distribution records are old. Only three of the six recorded sites in northern France, and eight of the fourteen 10km squares shown in Fig 1 are based on post 1960 captures. In view of the developmental pressures on estuarine and coastal habitats this rare species may be endangered.

#### Acknowledgements

We are grateful to those who have sent us distribution records and would welcome more for all species of the genus. The National Trust kindly gave permission for collecting at



Lamouth Creek, Trelissick, Cornwall.

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**TWO RECENT EAST SUSSEX RECORDS FOR *PLATYPALPUS EXCISUS*  
(DIPTERA, EMPIDIDAE)**

**P. J. HODGE, 8 Harvard Road, Ringmer, Lewes, East Sussex BN8 5HJ**

I have taken this species on two occasions. The first time was on 21.ix.1986 when a single female was swept off short turf at Deep Dene, Wilmington, (TQ 5402). The second time was on 6.ix.1988 when sweeping short turf just west of Bridgwick Pit, Malling Hill, Lewes, (TQ 430112). Deep Dene is a SSSI and Malling Hill is part of the Malling Down Sussex Wildlife Trust Reserve. The fly appears to require very short turf on calcareous grassland. Although its rarity is no doubt partly due to this restricted habitat, it could also be under recorded if its flight period is mainly in September.



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## Corrections to Dipterists Digest No. 12 the Dolichopididae & Empididae Issue

### The two forms of *Empis tessellata* (Diptera, Empididae)

B.R. Laurence

p.1, fourth paragraph, second sentence should read:

"It was easy to count the proportions of the two forms on the abundant *Anthriscus sylvestris* L. growing in the woods and alongside the hedgerows (this was 30-40 years ago)."

p.2, first paragraph, delete final two sentences and substitute with:

"Is it possibly another species, although the existence of one cross-mated pair and the absence of any apparent morphological difference other than leg colouration, would suggest that this is not so. There appears to be a gap in knowledge here and things are more organised with the Recording Scheme today than they were in the 1950's."

### Cheetham and Kowarz Dolichopids at Leeds City Museum

Roy Crossley

p.30, second paragraph, fifth line substitute "bryology" for "biology".

p.30, third paragraph, second line "R.H Meade (1914-1899)" should be "R.H. Meade (1814-1899)".

The Editor is solely responsible for the need to correct these papers and apologises to the authors concerned.