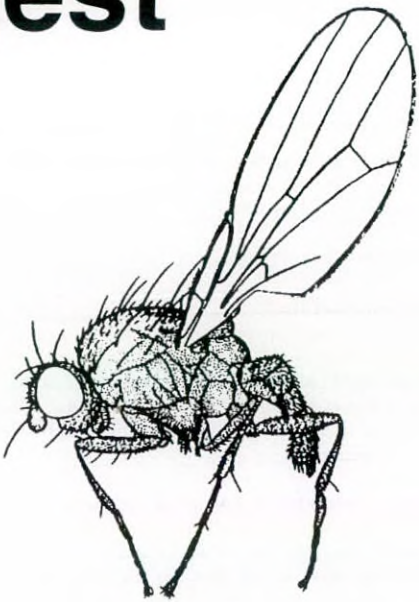
Dipterists Digest

2013 Vol. 20 No. 1

Cover illustration: *Eumerus strigatus* (Fallén), female, photograph by Steven Falk; to illustrate the three articles relating to the genus *Eumerus* in this issue (pages 15-40).

Dipterists Digest



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

The scope of **Dipterists Digest** is:

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

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

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

Style and format should follow articles published in the most recent issue. A short Summary (in the form of an Abstract) should be included at the beginning of each article. References to journals should give the title of the journal in full. Scientific names should be italicised. Authors of scientific names should be given in full and nomenclature should follow the most recent checklist, unless reflecting subsequent changes. Figures should be drawn in clear black ink, about 1.5 times their printed size and lettered clearly. **Colour photographs will also be considered.** Descriptions of new species should include a statement of the museum or institution in which type material is being deposited.

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

Articles and notes for publication should be sent to the Editor at the address given above.
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Dipterists Digest 2013 **20,** 1-2

The ovipositor of *Geomyza subnigra* Drake (Diptera, Opomyzidae)

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Summary
Inaccurate figures of the female ovipositor given by Drake for his new species Geo*myza subnigra* Drake, 1992 are corrected here, and shown with those of *G. breviseta* Czerny, 1928 and *G. bifida* Carles-Tolrá, 1993. The possibility that *G. subnigra* is the same species as *G. bifida* is rejected.

Material

I illustrated the ovipositor of *Geomyza subnigra* Drake when I described it and reproduced the same figures in my review of the British Opomyzidae the following year (Drake 1992, 1993). Since then, David Gibbs and I have both noted that a species that appeared to be *G. subnigra* had a bifid rather than pointed last (eighth) sternite that forms part of the ovipositing apparatus. Closer inspection of several specimens revealed that I had overlooked the bifid tip, so I am taking the opportunity to correct my error to prevent further confusion.

The specimen drawn in 1992 had been collected by pitfall-trapping and had faded in the preservative so that the tip was almost invisible under the binocular microscope that I had used to draw it. The tip of fresh material is indeed bifid and nearly transparent and, at high power under a compound microscope, it has a slightly irregular outline with tiny points (Fig. 1). For completeness, I also illustrate the same sternite for *G. breviseta* Czerny, 1928 (Fig. 2), with which *G. subnigra* had been previously confused, and whose shape is not clear in my 1992 drawing. This also has tiny points on its margin.

Two other European *Geomyza* species have bifid tips to their last sternite. Carles-Tolrá (1993) described *G. bifida* from a single female and named for its bifid last sternite, drawn here from a photograph taken by David Gibbs (Fig. 3). Attention is drawn to this species since it is similar to *G. subnigra* and *G. breviseta* in having a dark brown thorax with three dorsocentral setae. Apart from small differences in the colour of the legs and a possibly erroneous statement that the mesopleuron is bare (it has fine hairs in other *Geomyza*), the description fits that of *G. subnigra* but their last sternites are obviously distinct. Van Zuijlen (1999) illustrated the sternite of *G. annae* Martinek, 1978 which is far more similar to that of *G. subnigra* but they cannot be the same species since *G. annae* belongs to the group with four dorsocentral bristles on an orange thorax (Martinek 1978).

Acknowledgements
I am most grateful to David Gibbs for prompting me to produce this belated correction after he realised that I had made an error, and for his photograph of *G. bifida.*

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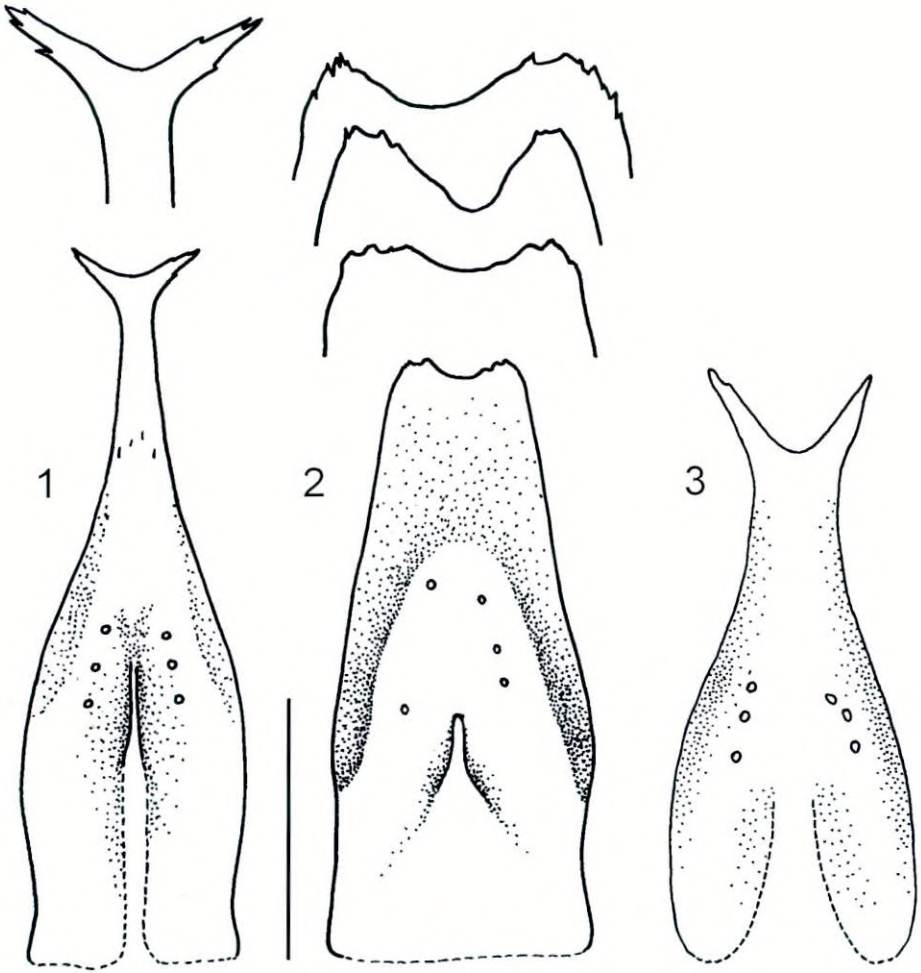
Drake, C.M. 1992. Two new species of *Geomyza* and notes on the *combinata* group (Diptera, Opomyzidae). *British Journal of Entomology and Natural History* **5,** 143-153.



Figs 1-3. Last sternite of female *Geomyza* species. 1 – *G. subnigra* Drake and the tip at higher magnification; 2 – *G. breviseta* Czerny; 3 – *G. bifida* Carles-Tolrá. Scale bar = 0.1 mm for entire sternites; the tips are drawn at twice this magnification.

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Dipterists Digest 2013 **20**, 3-13

Bombylius discolor Mikan and *B. major* Linnaeus (Diptera, Bombyliidae) at an *Andrena cineraria* (Linnaeus) colony (Hymenoptera, Andrenidae)

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Summary
Pupal exuviae of *Bombylius major* Linnaeus, 1758 and *B. discolor* Mikan, 1796 were collected from a hedgebank along a Somerset lane at a large colony of *Andrena cineraria* (Linnaeus, 1758). Nearly half of the exuviae were *B. discolor*, which had not previously been seen as an adult in the area. As the only key to pupal *Bombylius* was based on limited material, a principal components analysis was run to confirm that there were two species. Characters to separate the two species are illustrated. It was estimated that over one hundred of each *Bombylius* species emerged from this colony, and nearly 40 *B. major* from weaker bee colonies along lanes in the area.

Introduction

The solitary ground-nesting bee *Andrena cineraria* (Linnaeus, 1758) is a moderately frequent species in England and Wales, where it can form large aggregations in bare or poorly vegetated ground (Edwards and Telfer 2002). A colony occupies the hedgebank of my Devon garden (ST313061, V.C. 9, Dorset). In the hot early spring of 2011, far more bees emerged than in previous years, prompting me to keep watch for *Bombylius major* Linnaeus, 1758 activity here, since there is no record of this bee being used as a host. Every year I have also noted only one or a few *B. major* in the garden, usually feeding at primrose (*Primula vulgaris*) or lungwort (*Pulmonaria officinalis*), but during an extraordinary hot period of weather that started in early April 2011 I estimated that I saw about ten individuals each day for about two weeks. Several females were seen ovipositing at the *Andrena* bank, usually aiming at some undistinguished leaf and only occasionally at the bee holes, which were extremely numerous, very obvious and often spaced as closely as 4cm. Females continued ovipositing until 20 April, and a few feeding until about 25 April. The prolific emergence presented an opportunity to find pupal exuviae, which were seen after a short search. Both the oviposition and presence of pupal exuviae was strong evidence that *B. major* parasitised *A. cineraria*. Another vast colony of many thousands of *A. cineraria* was present 2km away along a lane bank on the Devon-Somerset border, similar perhaps to the one described by Baldock (2008). In 2011, I found a few bombyliid pupal exuviae here too.

The following year I was passing the Somerset bee colony on a hot March day and, without any planning, decided to collect pupal exuviae from which I could estimate the number of *Bombylius* emerging here. As I relate below, this apparently simple exercise became complicated by the belated discovery that half of the sample consisted of *B. discolor* Mikan, 1796, a species that I had never seen, let alone 2km from home. It gave useful information on separating the two species as pupae and their host preferences.

Methods

The lane along which the study took place runs through arable land on the hill-tops overlooking the town of Chard (ST308078, V.C. 5 – the bee colony was on the Somerset side of the lane) lying on Head deposits approximately where the Lower Chalk and Upper

Greensand meet. The large bee colony occupied about 200m of bank that rises nearly vertically (c. 80°) from the tarmac surface of the lane and is about 1.2m high, topped by a low mixed hedge. Owing to the narrowness of the lane (2.7m wide), passing tractors and trailors shave off some of the vegetation, which is also over-enthusiastically trimmed annually. This reveals intermittent stretches of bare sandy clay from near road level up to about 80cm and these form the principal nesting site of the bees.

I collected bombyliid exuviae along two 30m lengths of bank at either end of the 200m stretch of lane, chosen as the safest places where traffic had not accelerated much. Collections were made on 23, 24 and 30 March, 7 and 11 April 2012. Each section was searched twice, taking nearly an hour.

To estimate the possible resource of *Andrena cineraria* that *Bombylius* may use, all the lanes in four 1km squares that included the study site and my garden were walked on sunny days in early April 2012. The strength of the *Andrena* colonies was subjectively rated as strong, medium or weak, judged by the numbers of bees milling about, the size of bare patches of soil and the presence of nest holes. The extent of each colony was paced out. Seven kilometres of lane were examined in the four map squares.

Table 1. Characters used in Principal Components Analysis.

Character	Description
Thorax length	from tip of anterior spine to tip of wing-case
Abdomen length	tip of wing-case to tip of terminal plate
Cross-sectional area of second abdominal segment (T2 in Fig. 2)	assumed to be an oval whose area was calculated from the height and width of the segment
Subsidiary crotchets of second tergite	both species have ten large primary crotchets; outside of these are small to tiny crotchets often reduced a blunt spines (mean count of both sides)
Tubercle bristles of the first abdominal segment	number of bristles on the lateral tubercle between the tergite and sternite of the first abdominal segment (mean count of both sides)

The specimens were put to one side until mid April after the last collection when only one exuviae was found, and it had been assumed that they were all *B. major*. When they were examined, it became clear that a second species was present; *B. discolor* was the most likely candidate given the season, the presumed host bee and this species' relatively high frequency in Somerset (Drake 1991, Ismay 1999, Gibbs 2004). Ismay (1999) says: "there do not appear to be good published descriptions of the pupae of the two species", and gives 19th and early 20th century references for *B. major*, which I have not seen. Walrecht (1950) could not distinguish the exuviae of the two species that emerged from the same Dutch *Andrena vaga* Panzer, 1799 colony. In his key to Bombyliidae pupae, Alan Stubbs in Stubbs and Drake (2001) said that little material was present to construct the key, so there may have been some uncertainty in the characters used. Therefore, to convince myself that there were two species, a principal coordinate analysis was run using several linear measurements and counts of bristles or spines. Most linear measurements were strongly correlated with each other and those with the largest variance inflation factor were removed successively until the largest value fell below 10, which was still large but probably acceptable for this simple analysis (Zuur *et al.* 2007). The covariance matrix was used on data standardised by the maximum value so that all values fell in the range 0-1; this was done to reduce the influence of larger

absolute measurements compared to the small values for the numbers of bristles and crotchets. The five characters used in the analysis are given in Table 1. The species and sex were assumed on the basis of the key in Stubbs and Drake (2001), in which males are stated to have small pimples just in front of the paired terminal plates on the last sternite.

Results

Differentiation of species

Altogether, 74 exuviae, one damaged uneclosed pupa and one dead larva were collected. PCA was run on 66 intact specimens. The first two axes explained 93% of the variation in this dataset. The two species separated clearly on the first axis and this was most obviously explained by the number of subsidiary crotchets and hairs on the first abdominal tubercle (Fig. 1). The second axis was explained by size, which tended to differentiate the sexes of *B. discolor* but not those of *B. major*. This analysis confirmed two species and pointed to counts of setae and spines being most useful to differentiate them.

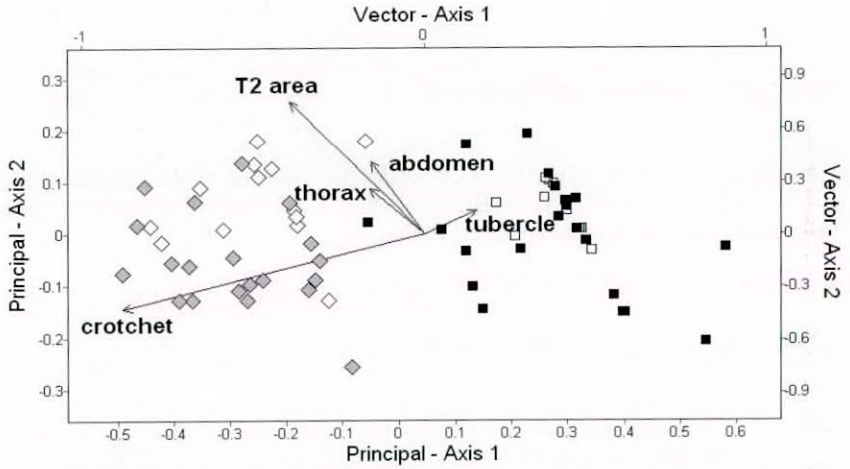

Fig. 1. Principal component analysis plot of the first two axes: *Bombylius discolor* – diamonds; *B. major* – squares; males – grey or black, females – white. Characters are given in Table 1.

Sex and size were examined further by plotting the thorax length against the cross-sectional area of the second abdominal segment. Thorax length was preferred to abdomen or total length as it was less variable, as indicated by smaller coefficients of variation (standard deviation divided by the mean), owing to the abdomen being curled by varying amounts. There was some overlap in the size of the two species although most *B. discolor* were longer and fatter than most *B. major* (Fig. 2). One exceptionally small male *B. discolor* was presumably underfed. Female *B. discolor* tended to be larger than males but *B. major* showed no differentiation between the sexes. These figures from a single colony show that *B. discolor* is no less variable in size than *B. major*, contrary to the assertion by Knight (1967) that *B. discolor* was less variable. In fact, there was greater variation between males and females than between the species, as shown by the larger coefficient of variation of most characters (Table 2).

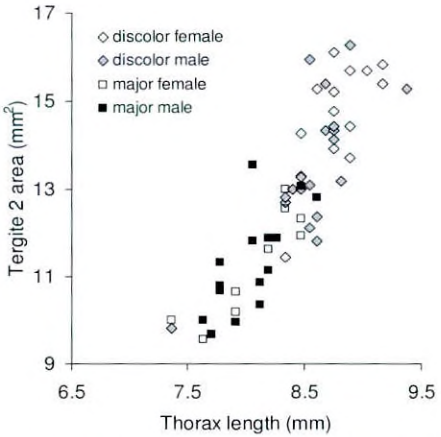

Fig. 2. Thorax length plotted againt the cross-sectional area of second tergite for both sexes of *Bombylius discolor* and *B. major*.

Table 2. Mean values of variables used in PCA and total body length, with 95% confidence limits and minimum to maximum values. Below is the coefficient of variation (standard deviation as a percentage of the mean).

Species	Sex	Body length	Thorax length (mm)	Abdomen length (mm)	Second abdominal segment section (mm^2)	Tubercle setae	Subsidiary crotchets
major	♂	15.3±0.6 (12.5-17.5)	7.8±0.2 (6.8-8.6)	8.1±0.3 (6.3-9.6)	10.4±0.8 (6.9-13.5)	4.0±0.1 (3.5-4.5)	1.2±0.2 (0-2.5)
	♀	15.7±0.4 (14.5-17.0)	8.1±0.2 (7.4-8.5)	8.2±0.3 (7.2-8.9)	11.4±0.7 (9.5-13.0)	4.0±0.1 (3.5-4.0)	1.1±0.1 (1-1.5)
discolor	♂	16.6±0.5 (14.5-18.5)	8.6±0.2 (7.4-9.4)	8.8±0.3 (7.8-9.9)	13.5±0.7 (9.8-16.3)	3.5±0.2 (3-4)	3.5±0.2 (3-4.5)
	♀	17.1±0.7 (14.5-18.5)	8.8±0.1 (8.3-9.2)	9.1±0.4 (7.6-10.1)	14.7±0.7 (11.5-16.1)	3.7±0.2 (3-4)	3.2±0.3 (2-4)
Coefficient of variation							
major	♂	8.9	5.6	9.9	17.7	4.7	46.3
	♀	4.8	4.3	6.3	10	3.8	18.3
discolor	♂	7.4	4.3	7.4	11.3	12.6	13.3
	♀	7	2.7	7.3	8.5	8.8	16.5

The two species can be differentiated by the shape of the plates on the last abdominal segments, which is the character used in Stubbs and Drake (2001), and by the arrangement of the crotchets on the tergites and the long hairs on the first tergite (Fig. 3). The terminal plates

of *B. discolor* are broadly triangular and flat, and have no clear projections although there are fine ridges with a consistent configuration. In *B. major*, the plates are narrower, forming sharp-sided blades with two short triangular flat spikes arising either side of each plate at its base, each protruding in ventral or strictly lateral view, although the arrangement is more easily appreciated in dorso-lateral view. Males have small dimples just in front of these plates but these are absent in females; those of *B. discolor* are rather larger. There is also greater protrusion of the central rugose plate in males but this is not a particularly useful character since the dimples are more obvious. Despite the adult females being strongly dichoptic, there was no difference between the sexes in the head region of the exuviae.

In both species there are ten similarly large crotchets on the second to fourth tergites, but in *B. discolor* up to four subsidiary crotchets of decreasing size make the row tail off either side, whereas in *B. major* there is rarely more than a tiny spine outside of the main crotchets so the row stops abruptly (Fig. 3). The alignment of the bases of the very long somewhat tangled hairs on the front margin of the first tergite is also consistently different, being more or less straight in *B. discolor* but clearly shallowly 'V' shaped in *B. major*. These additional characters were found to be useful for identifying damaged exuviae that had lost the end of the abdomen, and were as easy to appreciate as the terminal plates.

Relationship with Andrena cineraria

Nearly equal numbers of both species were present among the 74 exuviae and one dead pupa, and the rate at which they were found was similar (Table 3). Most exuviae were collected in the last week in March, followed by low returns in the first week in April and then almost nothing. These figures probably represent the second half of emergence periods that began perhaps in mid March, although when the emergence started cannot be judged as it was quite probable that specimens collected in April represented earlier-emerging flies. Many exuviae were probably overlooked but found on subsequent visits since they could survive intact for at least three weeks, as shown by one on my garden bank trapped on leaf litter by the long curled hairs of the first tergite which remained for 17 days until it was lost, presumably dislodged by heavy rain and wind. However, the peak of emergence had probably been reached in late March, as suggested by the position of the exuviae on successive dates – most of those in the first collection (23-24 March) were poking out of the soil, whereas on subsequent visits most were lying on the soil or had fallen on to the road side. Between the first two dates, the bees had become increasingly active, bumbling around in a clumsy fashion on the bare areas and digging out large amounts of soil so that any exvuiae would have been dislodged or even buried. It was therefore likely that the peak emergence was short and occurred just before to just after the 23-24 March collection. Males of both species were more abundant than females in the first collection but thereafter the there was no marked difference in the ratio of males to females.

Density of Bombylius

Some gross assumptions allowed an estimate of the number of each species of *Bombylius* emerging along lanes in the four 1km squares of the local area. The total count of 35 *B. discolor* and 40 *B. major* in 60m of lane represented 0.58 and 0.67 flies per metre of bee colony for each species, respectively.

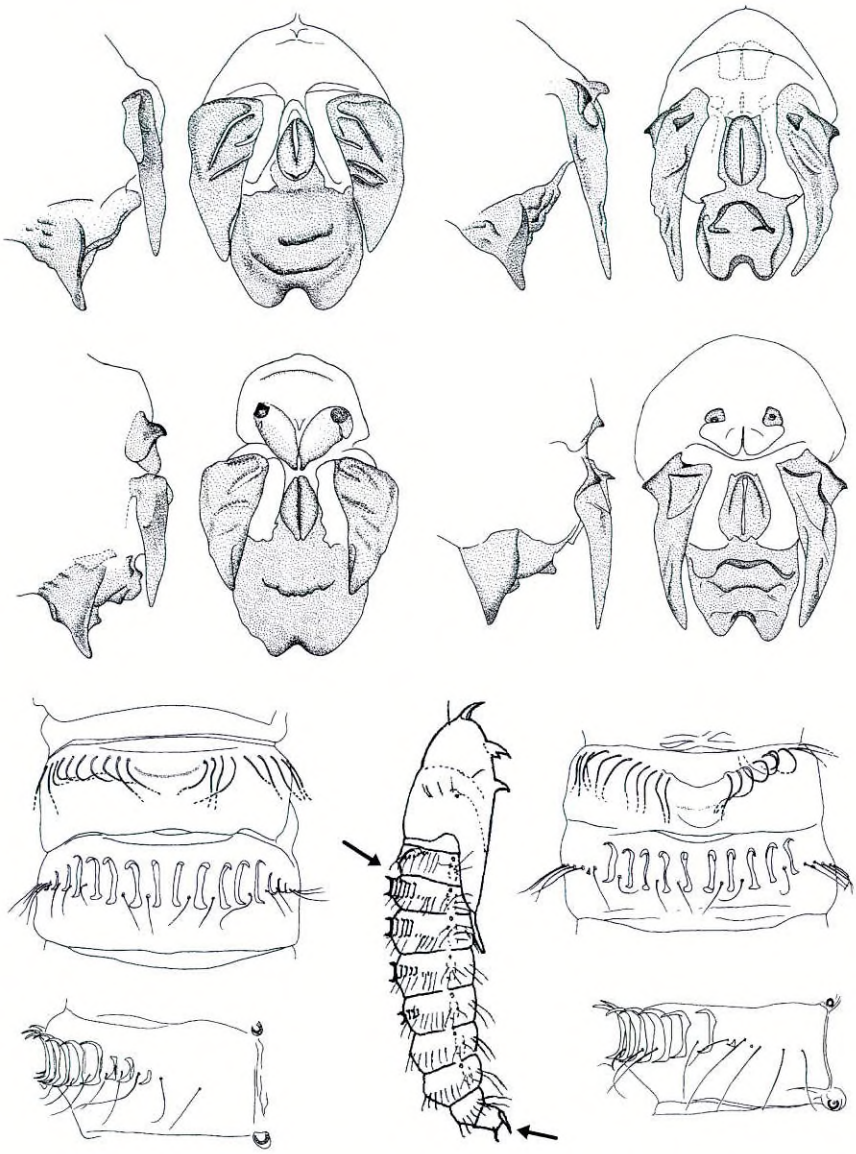

Fig. 3. Terminal segments of abdomen in lateral and ventral view (females above, males below): tergites 1 and 2 in dorsal view and tergite 2 in lateral view of pupal exuviae of *Bombylius discolor* (left) and *B. major* (right); whole pupa with arrows indicating tergites and terminal plates (from Stubbs and Drake 2001). For clarity, only the basal part of each of the long hairs on the first tergite is shown.

Table 3. Number of pupal exuviae of *Bombylius discolor* and *B. major* collected on each date.

Date in 2012	*discolor*		*major*			Total
	♀	♂	♀	♂	?	
23-24 March	1	16	3	11	1	32
30 March	9	3	7	10		29
7 April	3	2	3	3	2	13
11 April	1					1
Total	14	21	13	24	3	75

Table 4 gives the number, strength and total length of *Andrena cineraria* colonies along the lanes. Some gross assumptions were made about the intensity of parasitism: firstly, since *B. discolor* is uncommon, that none of this species would parasitise medium-strength or weak bee colonies, and secondly that *B. major* would parasitise medium-strength bee colonies at about one-fifth the rate recorded at the main strong colony, with some justification from the few *B. major* pupal exuviae retrieved in 2011 and 2012 from the colony of my garden bank, which was rated as a medium-strength bee colony. Weak bee colonies were assumed not to support either fly. Using these assumptions, the single strong bee colony at the main study site supported just over 100 *B. discolor* and about 120 *B. major* and the scattered medium-strength colonies supported another 38 *B. major*. These are minimum values since it is probable that many exuviae were overlooked if pupae had emerged under vegetation rather than in bare ground. All the colonies were found only on the side of the lanes facing south between aspects 140° (south-east) and 240° (south-west); the main colony was the only one to face almost due south (185°).

Table 4. Details of colonies of *Andrena cineraria* and the assumed numbers of *Bombylius* that they supported.

Strength	Number of colonies	Total length (m)	Mean length (m)	*B. discolor*	*B. major*
strong	1	180	180	104	121
medium	9	280	31	-	38
weak	13	80	6	-	

Discussion

This spontaneously divised study not only achieved its original aim of providing a crude estimate of the numbers of bee-flies emerging from *Andrena cineraria* colonies in the lanes around the Devon-Somerset border, but also added some new characters to separate the pupal exuviae of the two *Bombylius* species. The presence of *B. discolor* was unexpected since I had seen only *B. major* in the area. After realising my oversight, I made several return visits to the bee colony and, on 2 May during one of the few respites from cold wet weather of that spring, I watched a *B. discolor* ovipositing along the lane. The long interval between the presumed peak of emergence in the last week in March and this sighting suggested that the flies spend considerable time away from the breeding colony before returning to oviposit, as

noted by Gibbs (2004). This concurs with Ismay (1999), who pointed out that two types of habitat are needed, one suitable for host bees and the other with flowers at which *Bombylius* feed.

The estimates of about 100 *B. discolor* and 160 *B. major* emerging along the lanes in this area are probably low since the counts of pupal exuviae were not quantitative and did not include those emerging below vegetation where they could not be easily found. The rate of parasitism by *B. major* of a Swedish colony of *Andrena scotica* Perkins, 1916 was estimated to be 6.1% (Paxton *et al.* 1996), and of a Welsh colony of *Andrena fulva* (Müller in Allioni, 1766) to be 3% (Paxton and Pohl 1999). If the Somerset *A. cineraria* colony were similarly parasitised by *Bombylius*, there would be many hundreds of the fly emerging from just the one large bee colony. Gibbs (2004) collected pupal exuviae at a colony of *Andrena flavipes* Panzer, 1799 near Bristol and assumed that he had found only half of those present, giving an estimate of 60-80 *B. discolor* emerging here, and at another very large colony of *A. flavipes* at Horton, Gower, he estimated many hundreds of *B. discolor*. In the Netherlands, Walrecht (1950) found ten recently vacated pupal exuviae between 11a.m. on one day and 10a.m. the next, but only two in the following period to mid morning on the third day, although these were a mix of *B. discolor* and *B. major*. The fly is clearly frequent where suitable bee-nesting sites occur, but is overlooked and under-recorded. Adults may be mistaken as *B. major* if they cannot be seen at rest since in flight the two species are said to be indistinguishable (Stubbs and Drake 2001); however, the one observed female's abdomen was very clearly black in the rear half with a narrow median line of silver, as described by Verrall (1909), whose opinion is valuble since he had probably seen many more live *B. discolor* than have most contemporary dipterists.

Studies of adult insects that compare results obtained using mark-recapture methods with direct counts invariably conclude that there are many more individuals than are ever seen, and this is true even for conspicuous flies and butterflies (e.g. Ball and Morris 2003, Drake and Baldock 2005, Holloway *et al.* 2003, Pollard and Yates 1993). It is therefore no surprise that the estimated number of a common but not overly obvious bee-fly in my area is far in excess of numbers of adults seen at their presumed host colony. On the visits to the main site in this study, *B. major* was seen only twice and *B. discolor* once, in all cases ovipositing into *Andrena* holes. This is a smaller proportion than seen by Gibbs (2004), who estimated that he saw about one tenth of the flies at one well-studied site. This highlights a frequent issue with the use of flies as indicators of habitat value, which is that powerful fliers that require large amounts of nectar spend little time at their larval sites and far more in flower-rich areas, such as my garden. The main study site lay in arable farmland where flowers were restricted to the lanes, and even here nutrient enrichment ensured that most of the verges were rather poor in flowers. Few are used by bee-flies; for example, the commonest flowers in late March to early April were dandelion (*Taraxacum* agg.) and greater stitchwort (*Stellaria holostea*), and infrequent to rare ones were red campion (*Silene dioica*), wild strawberry (*Fragaria vesca*), common violet (*Viola riviniana*) and bluebells (*Hyacinthoides non-scripta*), of which Knight (1967) listed only common violet and wild strawberry as visited by *Bombylius*. The four 1km squares checked for *Andrena cineraria* colonies included better verges adjacent to pasture within the Blackdowns Area of Outstanding Natural Beauty but here *Andrena* colonies were infrequent. The mismatch between the larval and adult requirements therefore adds considerable uncertainty to a judgement of a fly's commonness.

The main and overriding reason for the existence of the *A. cineraria* colonies away from my garden bank was damage caused by large agricultural vehicles passing through

narrow lanes set out for horse and cart. The main study site is an ancient county boundary of Saxon origin (Wood and Carter 1999) and this may account for the closeness of the hedgebanks that may have been built before even carts were commonplace. A modern tractor can scarcely pass this lane. Wherever the hedgebanks rose almost vertically from the road surface, there were at least weak *Andrena* colonies, but where there was a narrow verge (30cm was sufficient) the bees were rarely seen and then usually only when visiting flowers. Aspect was the second important feature determining the placing of colonies which all occupied banks facing between south-east and south-west. It was concluded that careless driving aided the survival of this uncommon bee-fly. This is a more extreme version of the conclusion reached by Gibbs (2004) that *B. discolor* often depends strongly on man-induced disturbance such as post-industrial features, as well as that produced by stock trampling in pasture.

Bombylius discolor and *B. major* were not the only beneficiaries of man-induced disturbance in these narrow lanes. Three other bee parasites were recorded. The conopid *Myopa testacea* (Linnaeus, 1767) was recorded at the main colony (7 and 11 April 2012) and a while ago at my garden bank (20 April 2002). The oil beetle *Meloe violaceus* Marsham, 1802 (Meloidae) was a frequent species in my garden where it is often found at the *Andrena* colony, and was likely to have parasitised the large study colony. The third and most frequent parasite was the bee *Nomada lathburiana* (Kirby, 1802), which is a cleptoparasite of *A. cineraria* (Edwards and Telfer 2002). Other non-parasitic bees, for example *A. nitida* (Müller, 1776), also used the country lanes, but were relatively scarce in early spring and, being non-aggregate nesters, were unlikely to have been principal hosts of *Bombylius* here.

Stubbs and Drake (2001) cited *Andrena cineraria* and *A. flavipes* as the presumed principal hosts of *B. discolor* and Gibbs (2004) provided overwhelming circumstantial support for this. A confirmed continental rearing from *A. vaga* is irrelevant as this bee is probably extinct in Britain (Falk 1991, Müller 1944). As related by Ismay (1999), nearly a century ago Perkins (1919) saw *Bombylius* (later identified as *B. discolor*) ovipositing at an *Andrena labialis* (Kirby, 1802) colony and Blair (1920) recorded collecting many protruding pupal exuviae of *B. discolor* from an Oxfordshire pit where the common bee *Andrena clarkella* (Kirby, 1802) was frequent, with the implication that this was a possible host of *B. discolor*. Neither supposition has been supported by later observations. The present study supports the contention that *A. cineraria* is an important host for *B. discolor*. Although David Gibbs tells me (*pers. comm.*) that he recorded *B. major* at colonies of *A. cineraria*, the present study appears to give the first published record of *A. cineraria* hosting *B. major*, as *A. cineraria* is not mentioned in the extensive list of hosts by Du Merle (1975), Yates and Greathead (1997) and Boesi *et al.* (2009). The similar numbers of both flies at the main colony strongly suggested that *B. major* is not making merely opportunistic use of *A. cineraria* but may strongly depend upon them in this locality.

I have not examined any other specimens of pupal exuviae of *B. discolor* so cannot comment on the variation in *B. discolor*, described as Forms A and B and illustrated in Stubbs and Drake (2001). It is possible that they are merely due to wear inflicted while the pupa emerges since it presumably relies heavily upon the stout processes of the head, thorax and tip of the abdomen to dig its way out. In my sample, these processes sometimes showed considerable wear that, in isolated specimens, could be interpreted as morphological variation.

Acknowledgements

I thank David Gibbs for discussion about *B. discolor* and Mike Edwards for help with the identification of bees. Duncan Sivell helped in obtaining obscure literature.

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Three fenland flies (Diptera: Chloropidae, Ephydridae and Pipunculidae) found in South Yorkshire – During 2012 numerous visits were made to the Old Moor RSPB reserve near Barnsley for the purpose of recording Diptera and other insects. Amongst a number of flies identified that were new to Yorkshire were three species mainly associated with the fens of eastern England.

Lipara rufitarsis Loew, 1858 (Chloropidae), *Cephalops straminipes* (Becker, 1900) (Pipunculidae) and *Ochthera manicata* (Fabricius, 1794) (Ephydridae) were all found as single males in an area consisting of a series of permanent pools with associated fen/carr habitat. The latter two species were readily determined with reference to characters of the genitalia, using the following works: De Meyer, M. 1989. The West-Palaearctic species of the pipunculid genera *Cephalops* and *Beckerias* (Diptera): classification, phylogeny and geographical distribution. *Journal of Natural History* **23,** 725-765; test keys to *Cephalops* provided by David Gibbs (http://davidjgibbs.webs.com/downloads/Cephalops%20key.pdf) and Irwin, A.G. 1985. British *Ochthera* (Diptera, Ephydridae). *Entomologist's monthly Magazine* **121,** 151-154.

Lipara.rufitarsis was confirmed by reference to M. Chvála, J. Doskocil, J.H. Mook and V. Pokorny (1974. The genus *Lipara* Meigen (Diptera, Chloropidae), systematics, morphology, behaviour and ecology. *Tijdschrift voor Entomologie* **117,** 1-25) in order to rule out the possibility that it might be the allied species *L. pullitarsis* Doskocil & Chvála, 1974.

I would like to thank Martin Drake for making available distributional data for *Ochthera manicata* and Matthew Capper and his team at Old Moor for allowing and encouraging insect recording on the reserve – **JOHN D. COLDWELL,** 16 Railway Cottages, Dodworth, Barnsley, S. Yorkshire S75 3JJ

***Neoleria prominens* (Becker) (Diptera, Heleomyzidae) from the Flannan Islands, Scotland –** I found two males and two females of *Neoleria prominens* (Becker, 1897), collected in the Flannan Islands, among unidentified Heleomyzidae in the collections of the National Museums of Scotland (NMS) at West Granton, Edinburgh. W.A. Page collected the specimens in June 1956. This species occurs in Arctic regions across the Holarctic and on mountains further south in Asia, while in the British Isles it was only known previously from St Kilda. In his key to the British species of the family, where it was included under the name *N. septentrionalis* (Collin, 1923), J.E. Collin (1943. The British species of Helomyzidae (Diptera). *Entomologist's monthly Magazine* **79,** 234-251) gave no details of its distribution and it was probably overlooked in consideration

for conservation status for that reason. Peter Skidmore (2009. A review of the Diptera of the Western Isles of Scotland. *Dipterists Digest (Second Series)* **15,** 99-194) referred to it as a local coastal species, with distribution "Brit. to Dun", and was evidently unaware that it was not recorded elsewhere in the British Isles.

The Flannan Islands (Na h-Eileanan Flannach) lie about 80 km north-east of St Kilda and 34 km north-west of Gallan Head, which is the nearest point on the Outer Hebrides (Isle of Lewis). They consist of three clusters of ten small, vegetated islands, together with a number of skerries, with an area of about 59 ha, mostly made up by two principal islands.

J.E. Collin (1923. Diptera (Orthorrhapha Brachycera and Cyclorrhapha) from Spitzbergen and Bear Island. Results of the Oxford University Expedition to Spitzbergen, 1921. *Annals and Magazine of Natural History* Ser. 9, **11,** 116-123) published the first record of *N. prominens* in the British Isles, based on four males and two females collected by Rev. J. Waterston in June-July 1905 on St Kilda. A male and female from this collection are in the collections of the NMS at West Granton. Waterston collected only on Hirta (Edwards, F.W. and Collin, J.E. 1932. A revised list of the Diptera of St Kilda. *Entomologist's monthly Magazine* **68,** 263-266), the largest island of the St Kilda group. However, D. Lack (1932. Notes on the Diptera of St Kilda. *Entomologist's monthly Magazine* **68,** 262) noted the find of the species on Dun, a small island adjacent to Hirta, on 11 August 1931; a male and female with this data are in the Natural History Museum, London. Also in the latter collection is a pair *in copula* collected at Glen Bay, Hirta in the period 3-17 June 1961 by W.M. Russell, and *N. prominens* was found on St Kilda in 1974 by Tony Irwin (Phil Withers *pers. comm.*).

Members of the genus *Neoleria* are known as carrion feeders in the larval stage (Skidmore, P. 1962. Notes on the Helomyzidae of Lancashire and Cheshire, including records from other parts of north-west England. *Entomologist* **95,** 193-198; 226-236 and Smith, K.G.V. 1975. The faunal succession of insects and other invertebrates on a dead fox. *Entomologist's Gazette* **26,** 277-287). N.A. Weber (1954. Arctic Alaskan Diptera. *Proceedings of the Entomological Society of Washington* **56,** 86-91) collected adults of *N. prominens* from the carcass of a dog in Alaska, which suggests that mammal carrion may be used as larval food. However, breeding information is available from E. Sendstad (1977. Notes on the biology of an Arctic bird rock. *Norsk Polarinstitutts Årbok* **1977,** 265-270), who recorded the emergence of 1000 adults of *N. prominens* during the summer season (22 June to 6 August) from a square metre of deposits of guano below a kittiwake colony on a cliff in Svalbard. This association of *N. prominens* with seabird colonies was supported by S. Hågvar, K. Heller and L. Greve. (2007. *Lycoriella postconspicua* Mohrig, 1985 (Sciaridae, Diptera) new to Svalbard and records of other Diptera from Svalbard. *Norwegian Journal of Entomology* **54,** 55-68), who found adults of *N. prominens* to be associated with the lush vegetation, guano and dead birds around bird cliffs in Svalbard.

This information suggests that *N. prominens* may be primarily dependent on guano deposits below bird colonies for breeding, though development in carrion is likely also to take place. Possible sources of guano and carrion for *N. prominens* on the Flannan Islands and St Kilda include extensive populations of seabirds on the sea cliffs (Anderson, A., Bagenal, T. B., Baird, D.E. and Eggeling, W.J. 1961. A description of the Flannan Isles and their birds. *Bird Study* **8,** 71-88 and Tasker, M.L., Moore, P.R. and Schofield, R.A. 1987. The seabirds of St Kilda. *Scottish Birds* **15,** 21-29). Further sources of carrion on the Flannan Islands include a population of rabbits and crofters from Berneray graze sheep there, while Soay sheep occur on St Kilda – **D. HORSFIELD,** National Museums Collection Centre, 242 West Granton Road, Edinburgh, EH5 1JA

Dipterists Digest 2013 **20,** 15-16

Eumerus sogdianus Stackelberg (Diptera, Syrphidae) new to Britain

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Summary
Eumerus sogdianus Stackelberg, 1952 is recorded for the first time in Britain, from an area of brackish marsh on the Isle of Wight. Notes on the habitat preferences and ecology of the species are given.

During the course of fieldwork on 9 July 2012 at Little Thorness Farm, Isle of Wight, I swept a *Eumerus* species male from the edge of an area of coastal brackish reedbed dominated by common reed *Phragmites australis* and sea club–rush *Bolboschoenus maritimus*. The area was at the seaward end of a large reedbed system, which grades from fresh to brackish water. There are a number of small brackish pools and ditches within the survey area around SZ45799348, and the site is adjacent to a dune–like sandy foreshore.

Microscopical examination of the specimen, particularly the characters of the 4th sternite and terminalia showed it to be *Eumerus sogdianus* Stackelberg, 1952. I swept a second male of this species in the same area on 1 August 2012, suggesting that a population is present.

Identification

Superficially *E. sogdianus* is very similar in appearance to a further European species, *E. consimilis* Šimić & Vujić, 1996. Males of these species may be separated by examining the shape of the 4th abdominal sternite and the genitalia, which were figured for both species by Vujić and Šimić (1999). Speight (2012) gave species accounts for both species. Although the range of *E. consimilis* is poorly known, it seems to be a southern European species on the basis of its known records, so may be less likely to arrive in Britain.

In the field, *Eumerus funeralis* Meigen, 1822, *E. strigatus* (Fallén, 1817), *E. sogdianus* and *E. consimilis* are inseparable, and identification relies on microscopic characters. Identification of males of all British *E. strigatus* group species can be achieved using the key given by Speight *et al.* (2013) in their review of *Eumerus narcissi* Smith, 1928, also in this edition of *Dipterists Digest*. Their key also allows for identification of female *E. funeralis* and *E. sogdianus*, but females of *E. strigatus* and *E. consimilis* are currently inseparable.

Distribution and ecology

Eumerus sogdianus has previously been recorded from nearby continental Europe including France, Belgium, the Netherlands, Germany and Denmark and occurs within central Europe, European Russia and central Asia. Speight (1988) discussed the likelihood that *Eumerus sogdianus* would reach Britain, and its association with potatoes and *Allium* bulbs may have resulted in it being introduced from mainland Europe. Such introduction may have previously taken place with *E. funeralis* and *E. strigatus*.

Preferred habitats include open ground, unimproved pasture, farmland (especially potato fields), sandy soils, particularly coastal dunes, sandy alluvial floodplains and humid unimproved grassland, and the landward edges of *Phragmites* beds in grassland. The location

in which the Isle of Wight specimens were found therefore fits a preferred habitat for this species.

Adults have been recorded visiting white umbel inflorescences (Apiaceae) and biting stonecrop *Sedum acre*. The larva is as yet undescribed, but has been reared from wild carrot *Daucus carota*, potato *Solanum tuberosum* and from *Allium* species. Previous records for the flight period of *E. sogdianus* are for May / June and the end of July / August, so the first specimen taken by the author on 9 July is a little outside the usual periods given.

Acknowledgements

I would like to thank Martin Speight for examining one of the specimens of *Eumerus sogdianus* and confirming my determination, and for providing considerable information on European *Eumerus* species.

Thanks are also due to Nigel Hayward for allowing me access to his land at Thorness, Isle of Wight, and to Ian Boyd and Carol Flux of Natural Enterprise Ltd., which commissioned my survey work on the site.

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***Bryophaenocladius muscicola* (Kieffer) and *Chaetocladius suecicus* (Kieffer) (Diptera, Chironomidae) new to Ireland -** In surface skims for chironomid pupal exuviae of the lower River Bann in Coleraine, Co. Londonderry, Northern Ireland, C854304, on 16 November 2012, were two drowned adult males of *Bryophaenocladius muscicola* (Kieffer, 1906), and on 21 December 2012 an adult male of *Chaetocladius suecicus* (Kieffer in Thienemann & Kieffer, 1916), both species keyed by P.H. Langton and L.C.V. Pinder (2007 Keys to the adult male Chironomidae of Britain and Ireland, Freshwater Biological Association Scientific Publication No. 64). These species have not been previously recorded for Ireland (Chandler, P.J., O'Connor, J.P. and Nash, R. 2008. *An annotated checklist of the Irish two-winged flies (Diptera).* 261 pp. The Irish Biogeographical Society in association with The National Museum of Ireland). Declan Murray has kindly confirmed that they are new to the Irish list - **PETER H. LANGTON,** University Museum of Zoology, Downing Street, Cambridge (address for correspondence: 16, Irish Society Court, Coleraine, Co. Derry, BT52 1GX)

Dipterists Digest 2013 **20,** 17-32

Eumerus narcissi Smith (Diptera, Syrphidae), presence in Europe confirmed, with a redescription of the species

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Summary

Eumerus narcissi Smith, 1928 is redescribed. The species is recorded in Europe for the first time, from France, and a key is provided to distinguish it from other closely-related western European *Eumerus* species. The history of *E. narcissi* in North America is reviewed.

Résumé

Une nouvelle description d'*Eumerus narcissi* Smith est proposée. L'espèce a été récoltée pour la première fois en Europe. Une clé est fournie pour distinguer cette espèce des autres espèces voisines en Europe de l'ouest. L'historique d'*E. narcissi* en Amérique du Nord est passée en revue.

Introduction

The hoverfly genus *Eumerus* is not regarded as indigenous to either the Nearctic or Neotropical regions (Vockeroth *et al.* 1987). But three species have been found in North America, transported there inadvertently by human agency, the earliest known record dating from 1904 (Davidson 1915). Two of these species, *E. funeralis* Meigen, 1822 (in the literature often under its synonym *E. tuberculatus* Rondani, 1857) and *E. strigatus* (Fallén, 1817), are widely distributed and well-known in Europe, where they are believed to be indigenous. Both of them have also been transported to other biogeographical regions and have even reached Australia and New Zealand (Thompson and Vockeroth 1989). The third species occurring in North America is more problematic. When it was discovered in the United States no name could be found for it among known species and Smith (1928) described it as new to science, based on specimens from Santa Cruz, in California, under the name *E. narcissi*, because it was reared from "*Narcissus*" bulbs. *Narcissus* is not indigenous to North America, but was itself introduced there, from Europe. Smith (1928) did not say what species of *Narcissus* was involved, but presumed the origin of *E. narcissi,* also, was "Europe". Latta and Cole (1933) confirmed that *E. narcissi* had reached North America from Europe, recording specimens in the Canadian National Museum that were labelled as having been obtained from *Narcissus* bulbs imported from "France". The Nearctic Catalogue of Diptera (Stone *et al.* 1965) and the Palaearctic Catalogue of Diptera (Peck 1988) have subsequently given *E. narcissi* as occurring in "Europe", without further precision. Until now there have been no precise records of *E. narcissi* from anywhere but parts of North America.

Smith (1928) designated no holotype of *E. narcissi,* and gave no indication of how many specimens were included in his syntype series. Although it is clear from his description that he had several specimens, he clearly pointed out that he could not identify females; therefore all the syntypes should be male. He also stated that from the reared material from Santa Cruz, California, he obtained two species, *E. funeralis* and the new species. A lectotype was subsequently designated by Arnaud (1979), but he also designated a single paralectotype,

which is incorrect, because all of the other specimens of the syntype series automatically became paralectotypes. Because there is no mention of how many specimens Smith examined for his publication, it is not clear how many paralectotypes there are. Specimens with the same labelling as the lectotype are found in several collections and are considered paralectotypes. We have been able to examine the lectotype, plus specimens collected at later dates from the same part of North America. Here we redescribe the species, detail features helpful in separating it from related species, confirm its occurrence in Europe and review its history in North America.

The hoverfly genus *Eumerus* has its highest diversity in the Palaearctic region, where over 160 species are known. With more than 60 species recorded in Europe, *Eumerus* is one of the largest European syrphid genera. It is also the most poorly known of all of the larger European syrphid genera. The most recent key to European species is that of Stackelberg (1961), whose interpretations of certain species are highly questionable and who omitted others, including *E. narcissi*. Seventeen of the *Eumerus* species now known from Europe were not described at the time Stackelberg (1961) produced his key, and since then others have also been added to the European list. *Eumerus narcissi* is one of at least five western European species closely similar to one another morphologically in the adult stage, which can for convenience be referred to as the "*E. strigatus* group", though whether their similarity is phylogenetic or superficial has not been determined. These five species have never been keyed together, and one of them, *E. consimilis* Šimić & Vujić, 1996 has never previously been incorporated into any key. All five of them are included in the key presented here, together with the other *Eumerus* species known from the Atlantic zone of Europe north of the River Loire. Females of *E. strigatus* group species are very similar to each other and it remains particularly difficult to separate females of *E. consimilis, E. sogdianus* and *E. strigatus* from one another - the key to females provided here should be treated with circumspection. It is also necessary to note that, given the poor state of knowledge of the European *Eumerus* fauna, further species at present confused with one or other of the five *E. strigatus* group species included in the key may be present in western Europe.

Materials and methods

The following abbreviations are used here for names of North American institutions.
CAS: California Academy of Sciences, San Francisco, California, USA.
CNC: Canadian National Collection of Insects, Ottawa, Ontario, Canada.
CSCA: California State Collection of Arthropods, California Department of Food and Agriculture, Plant Pest Diagnostics Branch, Sacramento, California, USA.
EMEC: Essig Museum of Entomology, University of California, Berkeley, California, USA.
LACM: Los Angeles County Museum, Los Angeles, California, USA.
UCDC: Bohart Museum of Entomology, University of California, Davis, California, USA.
UCR: Entomology Research Museum, University of California, Riverside, California, USA.
USNM: National Museum of Natural History, Washington D.C., USA.

Material of *E. narcissi* examined:

Lectotype: male (Plate 1), in CAS, carrying the following four labels:
White, rectangular, with printed caption: Santa Cruz Cal
Red, rectangular, with handwritten caption: TYPE Eumerus narcissi Smith
Red, rectangular, with hand-written caption: LECTOTYPE male Eumerus narcissi Smith det. 1974 PH Arnaud & VF Lee
White rectangular, with printed caption: California Academy of Sciences Type No. 4452

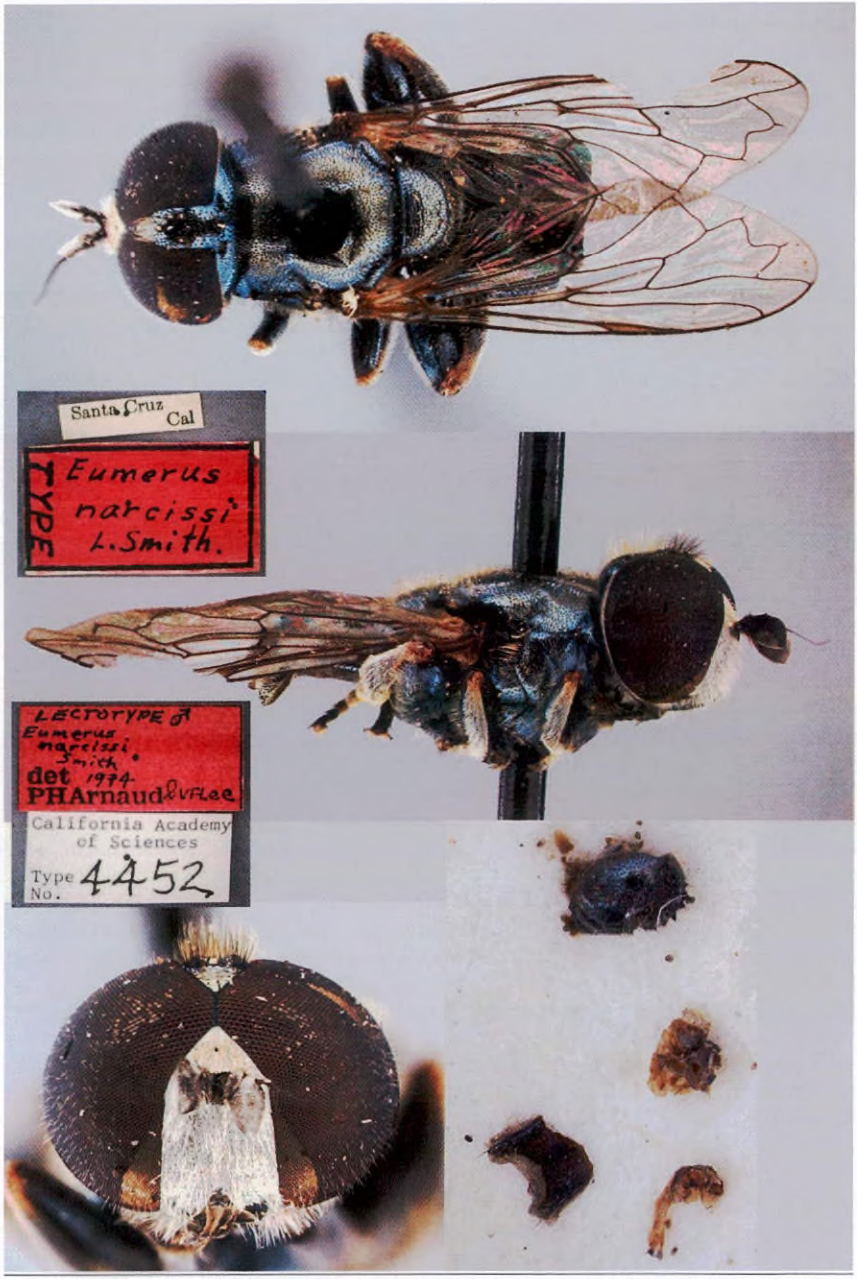

Plate 1. *Eumerus narcissi* **lectotype: top, dorsal view; centre, lateral view; bottom left, head, anterior view; bottom right, male terminalia (dissected); inset, the four labels.**

Other North American specimens:

CAS: 1 male, ID: Bonneville Co., Selander Park 10.5 mi SW Idaho Falls, VIII-17-21-1979; 2 males, same label as the lectotype, and therefore very likely part of the paralectotype series; 1 male, CALIF., Los Angeles Co., Los Angeles, IV-10-1965, F.J. & M. Rindge; 1 male, Los Angeles, VIII-25-29 Cal.; 1 male, USA: CALIFORNIA: Yolo Co., Davis, 6.VI.2004, ex lights, S.D. Gaimari; 1 male CALIF, La Crescenta, Los Angeles Co., VI-26-1994, S.D. Gaimari, Malaise trap; 1 female, Sacramento, Cal, IV-18-1959, S. Miyagawa collector/*Eumerus narcissi* Smith Hull.

CSCA: 4 males, 3 females, Alameda Co., Cal X-22-28/reared from *Narcissus* bulbs/M Leonard collector/No.2882 Cal. Dep. Agr./*E. narcissi* Smith Arnaud '51; 2 males, 2 females, Hayward, Alameda Co., Cal. X-24-28/reared from *Narcissus* bulbs/F.J. March collector/No.28106 Cal. Dep. Agr./*E. narcissi* Smith Arnaud '51; 1 male, Hayward, Alameda Co., Cal. XI-23-28/reared from *Narcissus* bulbs/F.J. March collector/No.28106 Cal. Dep. Agr./*E. narcissi* Smith Arnaud '51; 1 male, Los Angeles Co. Cal. VI.9.30/reared from *Narcissus* bulbs/ Cal. Dep. Agr. No.30369/*E. narcissi* Smith Arnaud '51; 3 males, 1 female, Marysville, Yuba Co., Cal., Nov.1930/reared from *Narcissus* bulbs/in Quarantine from San Francisco/Cal. Dep. Agr. No.30814/*E. narcissi* Smith Arnaud '51; 1 male, Sta Barbara, Santa Barbara Co. Cal., V-4-1932/reared from *Narcissus* bulb, V-17-32/*E. narcissi* Smith Arnaud '51; 3 females, Sta Barbara, Santa Barbara Co. Cal., V-4-1932/reared from *Narcissus* bulb, V-17-32/Woodhams Collector/ Cal. Dep. Agr. No.32437; 8 males, 11 females, Camarillo, Ventura Co., Cal., VII-28-33/reared from *Narcissus* VIII-15-33/Collector E.L. Smith/Cal. Dep. Agr. No.33643/*E. narcissi* Smith Arnaud '51; 1 male, Sacramento, Sacramento Co. Cal. June.17.1946/reared from onion/Cal. Dep. Agr. No.7812410/*E. narcissi* Smith Arnaud '51; 1 female, Sacramento, Sac Co., Cal., 11-VI-1963/Meadow sweeping/I. Savage Collector; 1 female, McKinleyville, Humboldt Co. Cal., VIII-10-1966/R.P. Allen Collector; 1 female, Santa Rosa, Cal. IV-17-1969/R.P. Allen Collector; 1 male, 4 females, CALIF: Sacto Co., Sacramento, VIII-21-1987, S. Zukin coll., *Narcissus* bulbs; 1 male, USA: CALIFORNIA, Los Angeles Co., La Crescenta, base of Eagle Cyn, 750-850m, 34.2383 N, 118.2341W, 26.IV.2002, S.D. Gaimari.

CNC: 6 specimens with the label "*Narcissus* bulbs" and "England 25.X.44" (CNC Diptera# 36282 (male), 36287 (male), 36288 (female), 36289 (female), 36290 (female), 36291 (female)); 4 specimens with the label "ex *Narcissus* France" (CNC Diptera# 36283 (male) (with the label" *Eumerus* cf *narcissi* det. C. Kassebeer 1995"), 36284 (male), 36285 (male), 36292 (female)); 1 male, same label as the lectotype, and therefore very likely part of the paralectotype series. "Santa Cruz Cal/Eumerus/*Eumerus narcissi* Smith det. Latta" (CNC Diptera 36286).

EMEC: 1 male, same label as the lectotype, and therefore very likely part of the paralectotype series.

LACM: 1 male, USA, CA, Los Angeles Co., Santa Monica Mountains, Topanga Canyon, Fernwood, 305m, IV-7.-V.1.1994, 34.079 N, 118.599W, Malaise trap, B.V. Brown, G.H. Hendler, LACM ENT 275502; 1 specimen, USA, CA, Los Angeles Co., Long beach, 33.78N, 118.18W, 10m, R.J. Hamton leg, LACM ENT 271530; 1 specimen, USA, Los Angeles Co., Pasadena, 34.15N, 118.14W, 270m, 30.III.1965, Coovert leg, LAMC ENT 271531.

UCDC: 3 males, San Francisco Co, CA Presidio, III-18, 1953/W.H. Lange Colr; 6 males, 19 females, Davis CA, Yolo Co, V.1.1981/reared from *Narcissus*/W.H. Lange Colr. (one male *E. funeralis* with the same collecting data was amongst this series); 1 male, Mill Valley Cal., Marin Co. V-14. 1961/D.Q. Cavagnaro Collector; 1 male, Sacramento Cal. IV-18-1958/R.B. Hewitt Collector/*Eumerus narcissi* Smith det. Y. Sedman '63.

UCR: 1 male, CA Van Nuys, 7 Oct.1949 ex: *Hippeastrum*/Univ. Calf. Riverside Ent. Res. Museum. UCRC ENT 205012; 1 specimen, USA, CA, Los Angeles Co., Johns Canyon, Rolling Hills Estate, 275m, 24.V.1988, 33.76N, 188.355W, R. Rogers leg.
USNM: 2 males, 2 females, Santa Cruz California, 1928; 1 male, California, Santa Cruz, L. M. Smith; 1 female, Kansas, Douglas Co., 19.Sep.1924, Robert Guntert, reared from bulbs from France.

European specimens examined:
France: Alpes-Maritimes: Biot, UTM 0343.4833, Bois Fleuri, September/October 2010, 3 males and 3 females, Malaise trap adjacent to stream, evergreen oak maquis with a herb-rich ground flora; coll. P. Withers/A. Piton; det. M. Hauser/M.C.D. Speight

Results - Redescription of *Eumerus narcissi* Smith, 1928
The original description of *E. narcissi* is short and based only on the male. The redescription provided here covers both male and female, and of necessity is not based solely on the lectotype. Features of the male, not visible or damaged on the lectotype, are described from other North American specimens. All of the morphological features referred to are defined and figured in Speight and Sarthou (2012), which is available on the Internet.

Features of male
Head: face and frons with white/pale yellow hairs and silvery-pale grey dusting; vertex black, non-metallic, shining, undusted except for an anteromedian patch of grey dusting which does not extend posteriorly to the anterior ocellus.
Eyes: hairy, the hairs white, not very dense and with the longest hairs as long as the diameter of the anterior ocellus; eye suture slightly shorter than the length of the frons in the mid-line and as long as the ocellar triangle; distance from hind ocelli to posterior margin of head capsule more than twice the distance between the front ocellus and the posterior ocelli (Fig. 4a).
Antennae: antennal segment 3 slightly longer than deep, mostly red-brown, with a more or less orange area centrally.
Thorax: mesoscutal hairs upstanding, only slightly reclinate, mostly pale, varying from almost white to pale yellow with a brownish tinge, with a few, scattered, slightly longer black hairs mixed in, the pale hairs as long as tarsomere 3 of the hind leg; two longitudinal stripes of silver-grey dusting extending from the anterior margin of the mesoscutum to the wing-bases; hairs of scutellar disc the same colour as the mesoscutal hairs, upstanding and slightly longer than the hairs on the mesoscutum, the hairs on the posterior margin of the scutellum being as long as tarsomere 2 of the hind leg; mesoscutum very dark bronze, almost black, more or less shining, becoming a more brassy, metallic green posteriorly; scutellum mostly non-metallic bronze; thoracic pleura almost black, only vaguely shining over most of the surface, due to thin grey dusting.
Leg coloration: all femora black, with a very narrowly yellow apical margin; tibiae of fore and mid legs with the basal third yellow/obscurely yellow-brown, elsewhere black; hind tibia yellow/obscurely yellow-brown for basal quarter of length, elsewhere black; basitarsus of fore leg varying from all yellow to black with yellow basal and apical margins; other tarsomeres of fore leg almost black; tarsomeres 1-3 of mid leg more or less yellow/brown, tarsomeres 4+5 black; tarsomeres of hind leg almost entirely black.

Leg ornamentation: mid trochanter with black, bristly hairs antero-ventrally, among the longer pale hairs; hind trochanter simple; hind femur (Fig. 1) ventrally without basal protuberance/bulge and with anterolateral row of 6-7 spines and posterolateral row of 10-12 spines, apically; neither row of spines on the ventral surface of the hind femur is on a ridge; hairs on ventral surface of hind femur approximately one third as long as the maximum depth of the femur; hind tibia without apico-ventral tooth and without ventral cleft, but with a shallow, oblique hollow in the apical half of its length, so that the posterior surface of the tibia appears slightly concave in side view (Fig. 1); basal third of length of ventral surface of hind tibia with a shallow ridge carrying very short, procumbent black spinules; hind tibia and tarsomeres not enlarged and without a dense covering of silver-white hairs; tarsomere 2 of hind leg slightly more than 1.5 x as long as wide; tarsomere 3 of hind leg longer than wide; hair covering of fore and mid legs mostly pale grey, with some black hairs mixed in on the fore and middle femora, dorsally; hind leg mostly pale grey haired, but with black hairs mixed in on the femur dorsally and postero-laterally and on the tibia postero-laterally, towards its base; hind tarsomeres 3-5 predominantly black-haired dorsally; one or two black, bristly hairs may be present, at least postero-laterally, at the apex of each tarsomere of all legs and ventrally on the tarsomeres of the fore and mid legs; hairs on the ventral surface of all tarsi otherwise golden yellow.

Abdomen: tergites without pale (yellowish) or red marks; a pair of silver grey bars of dusting present on each of tergites 2-4; lateral margins of tergites short-haired; sternite 4 (Fig. 5c) wider than long, its posterior margin deeply concave, curving evenly from close to its lateral margins inwards to the midline, but laterally with a short, posteriorly directed, spatulate extension on each side; sternite 4 with short black semi-erect hairs, which are more dense on the apical part of its surface; tergites almost black, more or less shining, but tergites 3 and 4 to a variable extent a metallic, brassy green; hairs on tergites black and partially recumbent across middle third or more of each tergite, elsewhere whitish and partially recumbent, including over the bars of dusting.

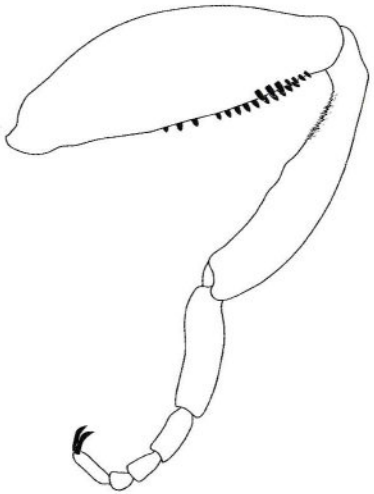

Fig. 1. *Eumerus narcissi*, left hind leg of male, antero-lateral view.

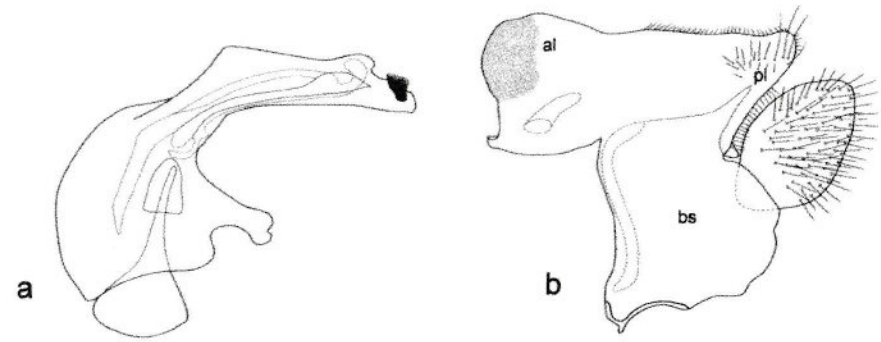

Fig. 2. ***Eumerus narcissi,*** **features of male terminalia; a = theca (epandrium); b = basale and cercus (hypandrium); al = anterior lobe of surstylus; pl = posterior lobe of surstylus; bs = basale.**

Terminalia: genital capsule/tergite 8 with a covering of relatively long white (few) and black (many) hairs; posterior lobe of surstylus of basale (Fig. 2b, pl) not projecting beyond cercus as the digitate or hooked process seen in *E. consimilis, E. funeralis, E. sogdianus* and *E. strigatus* (all figured in Vujić and Šimić 1999); shaft of theca (Fig. 2a) with characteristic shape, elbowed so that the basal and distal halves of its length are almost at a right angle to each other.

Body length: 6-6.5mm.

Features of female

Head: face covered in pale grey dusting; frons lightly grey dusted over most of its surface, with a dense stripe of dusting along each eye (together, the two dust stripes occupy approximately one third of the width of the frons); frons and vertex almost black; vertex undusted, except for a small patch of dusting against the eye on each side, just posterior to the posterior ocellus; ocellar triangle slightly wider than long; distance from hind ocelli to posterior margin of head capsule more than twice the distance between the front ocellus and the posterior ocelli (Fig. 3c).

Eyes: sparsely hairy, some of the hairs as long as (or slightly longer than) a posterior ocellus.

Antennae: antennal segment 2 much shorter than segment three; segment 3 a little longer than deep, varying in colour from deep orange/red to dark brown.

Thorax: two longitudinal stripes of pale grey dusting on the mesoscutum extending posteriorly to as far as the level of the wing bases; lateral margins of mesoscutum without longitudinal stripes of dusting, but a patch of dense grey dusting present just posterior to the transverse suture; hairs on scutellar disc and posterior margin of scutellum upstanding, as long as one third of the length of the scutellum in the mid-line; mesoscutum almost black, varying from entirely non-metallic to slightly metallic (brassy or almost purple) posteriorly; scutellum may be entirely black or show laterally and along posterior margin metallic, brassy green reflections.

Leg coloration: tibiae of all legs predominantly black, but with the basal third of the length of the fore and mid tibiae yellow/yellow-brown and of hind tibia obscurely yellow-brown;

tarsi with basitarsus and tarsomere 2 of fore and mid legs yellow/brown and hind tarsi entirely black.

Leg ornamentation: mid trochanter ventrally usually with black bristly hairs; no baso-ventral protuberance on the hind femur; hind femur ventrally with anterolateral row of 6-7 spines and postero-lateral row of 10-13 spines, apically; neither of the two rows of spines on the ventral surface of the hind femur is on a ridge; basal third of length of ventral surface of hind tibia with a narrow ridge carrying very short, procumbent black spinules; tarsomere 2 of hind leg slightly more than 1.5 x as long as wide; hair covering of fore and mid legs mostly pale grey, with some black hairs mixed in on the fore and middle femur, dorsally; hind leg mostly pale grey haired, but with black hairs mixed in on the femur dorsally and postero-laterally and on the tibia postero-laterally, towards its base; hind tarsomeres with a few black hairs mixed in dorsally; one or two black, bristly hairs may be present, at least postero-laterally, at the apex of each tarsomere of the mid and hind legs and ventrally on the tarsomeres of the fore and mid legs; hairs on the ventral surface of all tarsi otherwise golden yellow.

Abdomen: tergites entirely without pale markings; a pair of broad, transverse bars of silver grey dusting on each of tergites 2–4; no longitudinal furrow and ridge close to each lateral margin of tergite 5, or elsewhere on tergite 5; tergites almost black, but can be vaguely brassy and metallic on tergites 3 and 4; hairs on tergites black and partially recumbent across middle third or more of each tergite, elsewhere whitish and partially recumbent, including over the bars of dusting; tergite 5 almost entirely black haired.

Body length: 7-8mm.

The description of *E. narcissi* provided above should help to separate it from *Eumerus* species other than those of the *E. strigatus* group. Most *E. strigatus* group species are almost indistinguishable from one another, except in features of the male terminalia and the shape of the male fourth abdominal sternite, which have thus been used here, in the key. One feature present in both males and females of *E. narcissi* is a shallow, longitudinal hollow on the hind tibia, which starts on the postero-lateral surface, just beyond the mid-point of the length of the tibia and becomes more ventral apically, making the tibia appear slightly concave in side view, as shown in Fig. 1. This shallow hollow is sufficiently distinctive that it gives the hind tibia an appearance different from the hind tibia of other *E. strigatus* group species, but is so subtle a feature that it is difficult to use as a diagnostic characteristic. But even this subtle feature helps to provide for better separation of females of *E. narcissi* from females of other *E. strigatus* group species than can be achieved for separation of females of *E. consimilis* and *E. strigatus*. Females of the latter two species remain indistinguishable.

The key includes *E. narcissi* and the four species closely similar to it that are known west of the Alps, plus the other ten *Eumerus* species that have been found in the Atlantic zone of Europe, North of the River Loire in France. The colour of the third antennal segment was much used by Stackelberg (1961) for distinguishing groups of *Eumerus* species from one another, but is unfortunately not very constant in some species, including *E. narcissi*. Further, the antennae of specimens in alcohol appear paler than those of dry specimens, to the extent that the central area of the third segment may appear largely orange when wet but brown when dry. Use of the colour of the third antennal segment has consequently been minimised in the key presented here. Where it is referred to, it is based on dry specimens.

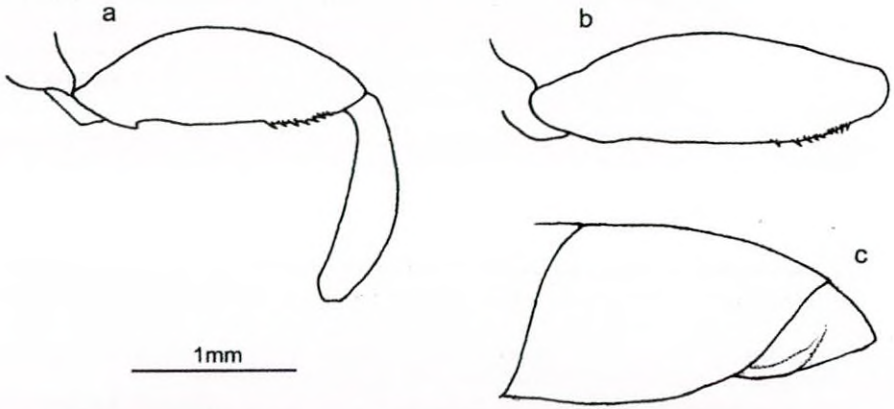

Fig. 3. ***Eumerus funeralis*****, a = parts of left hind leg of male, antero-lateral view; b = left hind femur of female, antero-lateral view; c = abdominal tergites 4 and 5 of female, lateral view.**

Key to the *Eumerus* species known from the European Atlantic zone north of the R. Loire, including *E. narcissi*

1 Tergite 3 partly orange/red (antennae black) **2**
– Tergite 3 entirely without orange or red markings (antennae variously coloured, from a monochrome dark brown to red-brown to largely pale orange) **3**

2 Eyes hairy; tarsi with all tarsomeres entirely black ..... ***tricolor*** (Fabricius, 1798)
– Eyes bare; at least fore and mid tarsi with all tarsomeres partly white (more extensively white ventrally) ..... ***sabulonum*** (Fallén, 1817)

3 Tergite 2 without a pair of silver-grey, transverse bars of dusting, but with a pair of small, yellowish, translucent marks (antennal segment 3 extensively infuscated, but orange/orange-brown in its ventral half; hind femur more than 4 x as long as its maximum depth; male: hind tarsus with all tarsomeres flattened and densely covered in iridescent, adpressed silver hairs which entirely obscure the colour of the tarsomeres; hind tarsomere 3 longer than wide; tergite 4 uniformly black; surstyli globular; female: ocelli in an equilateral triangle, the distance of the hind ocelli from the posterior margin of the head is 2x their distance from the front ocellus) ..... ***flavitarsis*** Zetterstedt, 1843
– Tergites 2 with a pair of transverse, silver-grey dust bars, without translucent yellow marks **4**

4 Ventral surface of hind tibia with a shallow, longitudinal ridge carrying short, black, procumbent spinules (clearly stronger than the surrounding, short, black hairs), in the basal half of its length (as in Fig. 1) **5**
– Ventral surface of hind tibia simply rounded, without a longitudinal ridge bearing black spinules, in its basal half uniformly covered in short black hairs (antennal segment 3

mostly orange, but may be infuscated dorsally; hind femur more than 4x as long as its maximum depth; male: surstyli globular; female: ocelli in an isosceles triangle that is longer than wide; distance of the hind ocelli from the hind margin of the head more than 2x their distance from the front ocellus) ..... ***ornatus*** Meigen, 1822

5 Males (eyes meeting on frons) **6**
– Females (eyes separated) **14**

6 Tergite 4 uniformly dark (apart from the pair of silver-grey dust bars), not paler along its posterior margin **7**
– Tergite 4 with (in addition to the pair of silver-grey dust bars) a transverse, crescent-shaped, dirty white/pale yellow mark, broadest medially, along the posterior margin of the tergite (antennal segment 3 orange; hind tarsus with tarsomeres somewhat flattened, black, with a thin covering of pale hairs which do not obscure the colour of the tarsomeres; hind tarsomere 3 wider than long; surstyli not globular) ..... ***ruficornis*** Meigen, 1822

7 Sternite 3 simple, entire, flat, without any median projection **8**
– Sternite 3 divided into 2 almost separate sclerites, the posterior of which has a matt-black, triangular, blade-like, median projection approximately as long as the basitarsus of the mid leg (antennal segment 3 varying from brown to orange-brown; hind tibia with some long black and long white hairs on its posterolateral surface, which is also hollowed out towards the apical end of the tibia; margin of tergite 3 very short-haired) ..... ***clavatus*** Becker, 1923

8 Hairs on lateral margins of tergites 3 and 4 distinctly shorter than antennal segment 3 is deep **10**
– Hairs on lateral margins of tergites 3 and 4 longer than antennal segment 3 is deep **9**

9 Apical half of the posterolateral surface of the hind tibia with a dense patch of long, mostly black, outstanding hairs, which terminate apically at a transverse cleft across the tibia (antennal segment 3 mostly brown, but centrally orange-brown; legs obscurely yellow brown in the basal third of the fore and mid tibiae, but otherwise nearly all black) ..... ***elaverensis*** Séguy, 1961
– Posterolateral surface of the hind tibia pale (whitish grey) haired, without a patch of outstanding hairs or a transverse cleft (antennal segment 3 varying from monochrome dark brown to largely orange; legs varying from entirely black to extensively yellow) ..... ***pulchellus*** Loew, 1848

10 Base of hind femur without a ventral projection (as in Fig. 1); sternite 4 of various shapes (Figs 5a, c-f) **11**
– Base of hind femur with a ventral projection (Fig. 3a); sternite 4 as in Fig. 5b ..... ***funeralis*** Meigen, 1822

11 Ocelli making an isosceles triangle that is longer than wide, and distance from hind ocelli to posterior margin of head less than twice that to the front ocellus (as in Fig. 4b); hind femur ventrally with anterolateral row of 9 or more spines apically; posterior margin of sternite 4 concave, of various shapes, if in the form of a simple curve

medially then the curve is confined to the medial half or less of the width of the sclerite (Fig. 5a,d,e,f); genital capsule/ 8th tergite covered with light yellowish hairs **12**

– Ocelli (Fig. 4a) making an equilateral triangle and distance from hind ocelli to posterior margin of head capsule more than twice that to the front ocellus; hind femur ventrally with anterolateral row of 6-7 spines apically (Fig. 1); posterior margin of sternite 4 concave, in the form of a simple curve across more than two thirds of the width of the sclerite (Fig. 5c); genital capsule/8th tergite covered almost entirely with black hairs ..... ***narcissi*** Smith, 1928

12 Posterior margin of sternite 4 with a spatulate projection on each side, together these projections occupying one third to one half of the width of the sclerite (Fig. 5a,d,e) .. **13**

– Posterior margin of sternite 4 (Fig. 5f) making a shallow V-shape, coming to a blunt point on each side, without projections (sternite 4 almost twice as wide as long, with a narrow, but deep, median cleft on its posterior margin) ..... ***strigatus*** (Fallén, 1817)

13 Median length of sternite 4 (Fig. 5a) only half that of its maximum length (anterior margin to apex of spatulate projections), due to the presence of a deep median cleft; spatulate projections on sternite 4 angled towards the mid-line, at about 45° to the longitudinal axis of the sclerite (sternite 4 wider than long) ..... ***consimilis*** Šimić & Vujić, 1996

– Median length of sternite 4 (Fig. 5d,e) three quarters/four fifths that of its maximum length, median cleft absent, the middle third of the posterior margin of sternite 4 forming a simple curve; spatulate projections on sternite 4 aligned longitudinally, curving only slightly toward the mid-line (proportions of sternite 4 variable, usually longer than wide, but may be slightly wider than long) ..... ***sogdianus*** Stackelberg, 1952

14 Base of hind femur without a ventral bulge; lateral margin of tergite 5 simple **15**

– Base of hind femur with a shallow, but distinct bulge ventrally (Fig. 3b); anterior half of the lateral margin of tergite 5 with a distinct ridge (Fig. 3c), enclosing a depression (fifth tergite covered with light yellowish hairs) ..... ***funeralis***

15 Hairs on scutellar disc no longer than one quarter the median length of the scutellum **16**

– Hairs on scutellar disc including some as long as one third the median length of the scutellum **18**

16 Ocellar triangle equilateral; eye hairs, at least over the middle of the eye, as long as a posterior ocellus; both surfaces of antennal segment 3 homogeneous, without a shallow, vertical groove **17**

– Ocellar triangle isosceles, distinctly longer than wide (as in Fig. 4d); eye hairs very short, nowhere as long as a posterior ocellus; antennal segment 3 with a shallow, curved, but more or less vertical groove towards the base of the segment, on both of its surfaces (coxae mostly yellow; hind femur < 4x as long as its maximum depth; ventral surface of the hind femur with a posterior row of 9–11 black spines; hind tarsus with the 2nd tarsomere 2x as long as wide) ..... ***clavatus***

17 Ventral surface of the hind femur with 9–11 black spines in the posterior row; hind tarsus with the 2nd tarsomere < 1.5 x as long as wide (antennal segment 3 mostly brown, but centrally may be orange-brown; legs obscurely yellow brown in the basal

third of the fore and mid tibiae, but otherwise nearly all black; hind femur < 4x as long as its maximum depth) ..... ***elaverensis***

– Ventral surface of the hind femur with 13–16 black spines in the posterior row; hind tarsus with the 2nd tarsomere > 1.5 x as long as wide (antennal segment 3 varying in colour from pale orange to dark brown; legs varying in colour from entirely black to showing extensive yellow areas on the tibiae and tarsi; hind femur < 4x as long as its maximum depth) ..... ***pulchellus***

18 Distance from hind ocelli to posterior margin of head less than twice that to the front ocellus; fifth tergite covered in greyish white or greyish white and black hairs **19**

– Distance from hind ocelli to posterior margin of head capsule more than twice that to the front ocellus (Fig. 4c); fifth tergite covered with black hairs (hind femur ventrally with anterolateral row of 6-7 black spines) ..... ***narcissi***

19 Ocelli in the form of an isosceles triangle (Fig. 4d) that is longer than wide **20**

– Ocelli in the form of an equilateral triangle (tergite 5 with greyish-white hairs) ..... ***consimilis*** and ***strigatus***

20 Vertex, posterior to the ocelli, without patches of silver-grey dusting; antennal segment 3 varying from brown to orange with the dorsal edge infuscated; eye hairs as long as a posterior ocellus; hind femur ventrally with an anterolateral row of 3-6 black spines and a posterolateral row of 7-9 black spines (hairs on ventral surface of hind femur less than half as long as the maximum depth of the femur; hind tarsus with the 2nd tarsomere > 2x as long as wide) ..... ***ruficornis***

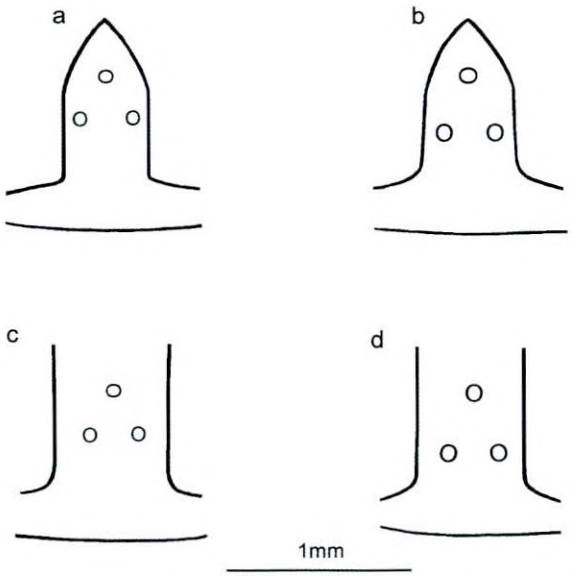

Fig. 4. ***Eumerus*** **species, vertical region of head, diagrammatic, to show disposition of ocelli: a,c =** ***E. narcissi*****; b,d =** ***E. sogdianus*****; a,b = males; c,d = females.**

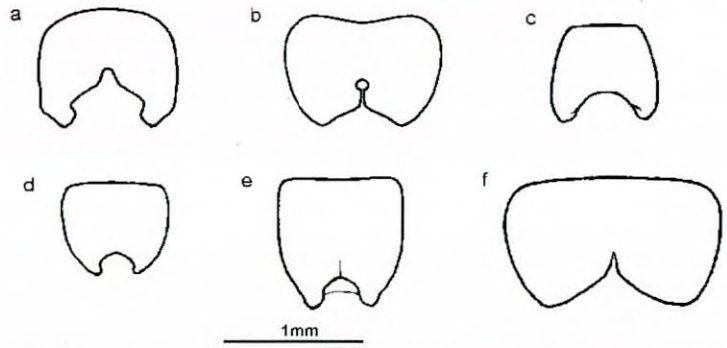

Fig. 5. ***Eumerus*** **species, male abdominal sternite 4, diagrammatic; a =** ***E. consimilis*****; b =** ***E. funeralis*****; c =** ***E. narcissi*****; d,e =** ***E. sogdianus*****; f =** ***E. strigatus*****.**

– Vertex, posterior to the ocelli, with a patch of silver-grey dusting on each side, against the eyes; antennal segment 3 brown/red-brown; eye hairs shorter than a posterior ocellus; hind femur ventrally with anterolateral row of 9 or more spines and a posteroventral row of 15–17 black spines (hairs on ventral surface of hind femur less than half as long as the maximum depth of the femur; hind tarsus with the 2nd tarsomere 2x as long as wide) ..... ***sogdianus***

History of *Eumerus narcissi* in North America

Smith (1928) reared an undisclosed number of *E. funeralis* and the syntype series of *E. narcissi* out of *Narcissus* bulbs collected in Santa Cruz, California. Latta and Cole (1933) listed several specimens in CNC: "six specimens bearing the label 'Ex *Narcissus*, France' " (according to Skevington and Nowell (*pers. comm.*), there are only four of these specimens in the CNC collection (CNC #: 36283, 36284, 36285 and 36292)); "two specimens labelled 'Ottawa, Ont., VIII-28, 1925, Ex *Narcissus*, France' " (neither of these specimens is in the CNC collection (Skevington and Nowell *pers. comm.*)).

Further specimens listed by Latta and Cole (1933), which we have not been able to locate, were from Whittier, California and one collected "on June 18, 1930.... at the Oregon Bulb Farms, Boring, Oregon, near Portland, with a long series of *E. tuberculatus*". Also in 1933 Blanton and Spruijt published hundreds of *Eumerus* records from their collection in the laboratory at Babylon (New York State), among them a pair of *E. narcissi* collected in spring 1931 from a greenhouse on Long Island, New York. The authors stated that "These were very likely brought from the West Coast with bulb material. Evidently this species has not as yet become established on Long Island". We have not seen that pair of *E. narcissi* specimens, or the single male referred to by Latta (1934) "collected at Morning Sun, Iowa, by Helen Latta from flowers near a bed of naturalised daffodils".

Finally, Telford (1975) listed three specimens we have not seen, from Olympia, Washington, which are housed in the University of Oregon State collection. There do not appear to be more recent published records of *E. narcissi* in North America, but the material we have examined (see above) includes more recently collected specimens.

Putting together the published information and the additional, unpublished records represented by specimens we have examined, the known history of *Eumerus narcissi* in North America is one of repeated introductions of the species with *Narcissus* bulbs, to various parts of the continent, firstly from Europe and subsequently from other locations within North America. By the time Smith (1928) described the species, it appears to have already become naturalised in California, where subsequent records indicate it has persisted. Indeed, the Californian records of a specimen reared from a bulb of *Hippeastrum* (commonly known as amaryllis) and one reared from onion, suggests that *E. narcissi* may have extended its range of larval host plants to include a very widely cultivated house plant native to the Neotropics and an agriculturally important crop.

What remains unclear is the extent to which records of *E. narcissi* from north of California are from ephemeral populations hatching from recently-planted bulbs, but unable to persist away from the controlled environment of bulb farms. Similarly, due to the nature of many of the records – specimens reared from bulbs – information on the flight period of *E. narcissi* in North America is open to various interpretations. Nonetheless, one can deduce that adults of the species occur in California from rather early in the year, in March, then peak in April/May but persist through to June, and occur again later in the year, from August to November.

Discussion

It is strange enough that a supposedly European syrphid species might first be described from North America, let alone that it might then remain unrecorded from anywhere in Europe for nearly 100 years, only to turn up on the French Riviera. Or is this train of events so strange? Narcissi have been transported to various parts of the world by man, either as decorative plants or for their medicinal properties, for hundreds of years. *Narcissus tazetta*, thought to be the host plant for the larvae of *E. narcissi* (Latta and Cole 1933) has been naturalised for so long in Japan and China that it appears indigenous there and has become a "folk" plant, known as the "Chinese sacred lily". Its natural range is believed to be in N. Africa, southern Europe and the Near East. It is a Mediterranean zone plant in Europe, valued as a source of an essential oil, and cultivated in S.E. France for this purpose. One of its cultivars is known as 'Soleil d'Or'. Latta and Cole (1933) suggested that "*E. narcissi* may have been introduced into California in shipments of Soleil d'Or from France. As nearly all the Soleil d'Or are grown in California and, since most of the importations from France consist of that variety and Paper Whites, which is an unpreferred host, a French species (i.e. *E. narcissi*) could be localised in California".

The other two *Eumerus* species that have been imported to North America by man, *E. funeralis* and *E. strigatus*, both of which use various *Narcissus* species, and other plants (e.g. *Allium*, *Solanum tuberosum*) as larval hosts, are now recorded from coast to coast in North America, from Canada to California, and are well-nigh cosmopolitan. Indeed, it is less surprising that three *Eumerus* species have been found in North America than that only three have been reported there. The Afrotropical *E. obliquus* Fabricius, 1805 is now found in Brazil (Marinoni and Morales 2007), Australia (Ferguson 1926, Neboiss 1957) and Europe. In Europe, it is following on the heels of its invasive host-plant *Opuntia ficus-indica*, as it spreads round the Mediterranean coast. The Asian *E. figurans* Walker, 1859 is now a pest of ginger and *Narcissus* bulbs in Hawaii (Hardy 1964).

Given that transport of *Eumerus narcissi* by man would seem so easy in North America, it is surprising there is so little evidence for transport of the insect around Europe. The presence of confirmed specimens of *E. narcissi* in CNC labelled as originating in

Narcissus bulbs from "England" in 1944 demonstrates that such movements have on occasion occurred and gone unnoticed, at least during the first half of the 20th century. At this point in time it would be virtually impossible to ascertain whether those bulbs had been grown somewhere in Britain, or were in transit from elsewhere, when sent from "England" to Canada. However, it is unlikely they originated in France at that time, since the country was then under occupation and export of French bulbs to anywhere in Britain would seem extremely unlikely during 1944. A case of the occurrence of a Mediterranean syrphid in Britain that was detected is that of the olive-tree hoverfly *Scaeva mecogramma* (Bigot, 1860), once recorded in Scotland (Stubbs and Falk 2002). If there are horticultural establishments in, for instance, Britain or the Netherlands, maintaining *Narcissus tazetta* under cultivation, it is conceivable that they periodically experience minor infestations of *E. narcissi* but assume they are one or the other of the well-known "lesser bulb flies" *E. funeralis* and *E. strigatus*, and don't verify which syrphid species is actually involved. From what is so far known of *E. narcissi* it would seem unlikely that it could become naturalised in parts of Europe away from the Mediterranean zone, so field records from as far north as England would not be expected. But to accept that *E. narcissi* has been found in the wild only in southern France and parts of North America is to assume the published records of *E. funeralis* and *E. strigatus* from all around the world are in every case correct. This might not be a reasonable assumption, given the difficulties of separating *E. funeralis*, *E. narcissi*, *E. sogdianus* and *E. strigatus*, and the lack of references to *E. narcissi* outside North America, since its original description. If it is present in European collections, the identification difficulties could easily have led to it remaining unidentified or being misidentified, whether collected in Europe or elsewhere. In addition, the data available about the flight period of the naturalised *E. narcissi* population in North America indicate that, in Europe, any indigenous population of the species might be on the wing primarily rather early in the spring and in the autumn, and only in Mediterranean parts of the continent. This could be expected to further reduce the likelihood of records. Finally, it is necessary to question whether *E. narcissi* is native to Europe at all. There is insufficient information to judge whether, in S.E. France, it is indigenous, naturalised or dependent on bulb farms producing *Narcissus tazetta*. Since *E. narcissi* had evidently been transported by man's activities to far-flung corners of the globe before it was described, where it originated may never be known.

It is to be hoped that drawing attention to the presence of this enigmatic insect in Europe will bring to light more data on it and where it occurs. Despite having been reared from "*Narcissus*" bulbs on a number of occasions there is still little information on the range of *Narcissus* species used by the larvae, and none on the developmental stages themselves. Whether the larvae or puparia can be distinguished from those of *E. funeralis* and *E. strigatus* remains unknown. Information about the habits and habitats of *E. narcissi* in the wild is similarly meagre.

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Brachyopa silviae Doczkal & Dziock, *Chrysotoxum gracile* Becker and *Eumerus pusillus* Loew (Diptera, Syrphidae) new to France

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Summary

The hoverflies *Brachyopa silviae* Doczkal & Dziock, 2004, *Chrysotoxum gracile* Becker, 1921 and *Eumerus pusillus* Loew, 1848 are recorded from France for the first time.

Introduction

The French syrphid list is longer than that for any other European country. But additions to the French list are still being made regularly. The present note adds three species. With other recent additions (Tissot *et al.* 2013), the French list will top 530 species before the end of 2013, amounting to nearly 60% of the known European syrphid fauna. It may be no coincidence that the three species added here were all found in the extreme south of France, which, for syrphids, is arguably the least-prospected part of the country.

Methods

Together with the records, brief notes are provided for the three species treated here, to indicate how they may be identified and in what circumstances they were found. Nomenclature follows Speight (2012). Determinations were carried out by one of us (MS). Where possible, localities given are accompanied by UTM grid co-ordinates. Morphological terminology follows Speight and Sarthou (2012).

The following abbreviations have been used in the records:
coll. = collected by; JG = Joseph Garrigue; MS = Martin C.D. Speight; M.t. = Malaise trap; VS = Veronique Sarthou.

Results

Brachyopa silviae Doczkal & Dziock, 2004

Material examined: Lozère: Parc National des Cevennes: Les Barges, 12-26 May 2011, female, M.t., coll. MS/VS

This species was described from central Germany (Doczkal and Dziock 2004), and there have been no further published records until now. *Brachyopa silviae* is a *B. insensilis* group species, with no detectable sensory pit on the third antennal segment. It can be distinguished from other members of that group by the key provided by Doczkal and Dziock (2004), and from all currently known European *Brachyopa* species by the key in Speight and Sarthou (2012). Its habitat preferences are as yet not well known. It has been found in humid *Quercus/Carpinus* forest and *Fagus* forest. Malec (2013) records *B. silviae* from a number of localities within and around forest dominated by *Fagus*, but with other tree species also present. The Cevennes locality where it was collected is neutrophilous *Quercus* forest adjacent to mesophilous *Fagus* forest.

Chrysotoxum gracile **Becker, 1921**

Material examined: Ardèche: Forêt de Païolive: RNR Grads de Naves, 31T 05909 49169, 19 May 2009, male and female, coll. MS; Bildon 31T 05973 49192, 24 May-26 June 2010, M.t., female, coll. VS/MS; R. Granzon gorge, Chibasse, 31T 05921 49155, 8-30 September 2010, female, M.t., coll. VS/MS; Combe de Bouze, 31T 05921 49155, 8 September-4 October 2010, M.t., female, coll. VS/MS. **Lozère:** PN des Cevennes: Roquedols, 31T 05354 48892, 29 May-5 June 2012, M.t., male, coll. VS/MS; 31T 05360 48898, 12-26 June 2012, male, 24 July-7 August 2012, female, M.t., coll. VS/MS; Marquaire, 31T 05480 48909, 16 May-7 June 2011, male, 24 June 7 July 2011, female, M.t., coll. VS/MS.

Chrysotoxum gracile was described from Spain almost a hundred years ago and subsequently recorded from FYR Macedonia (Glumac 1972). The Macedonian records have been confirmed by Ante Vujić (*pers. comm.*), based on re-examination of the type material of *C. gracile*. His interpretation of the species provides the basis for use of the name *gracile* here. Until now, no records of *C. gracile* have been published from parts of Europe between Spain and the Balkans. The following combination of features helps to distinguish the species from other European *Chrysotoxum*:

Male. Frons black, partly grey-dusted; hairs on upper parts of eyes longer than a posterior ocellus; antennal segments 1 and 2 together longer than segment 3 and first segment longer than second (viewed from above); hairs on scutellar disc longer than half the length of the scutellum; legs entirely yellow, the tibiae paler yellow than the tarsi and the hind femur paler yellow in the basal half than in the apical half; wings with a brownish smudge posterior to the stigma; yellow marks on the tergites separate from any yellow markings on their lateral margins, the yellow marks on tergite 3 being as deep as those on tergite 4; abdominal sternite 4 less than 3 x as wide as long and surstyli of genitalia symmetrical.

Female. The features of the antennae, legs, wings and abdominal tergites are the same in the female as in the male, but the scutellar hairs are so short as to be virtually absent. The general appearance of the female is shown in Plate 1.

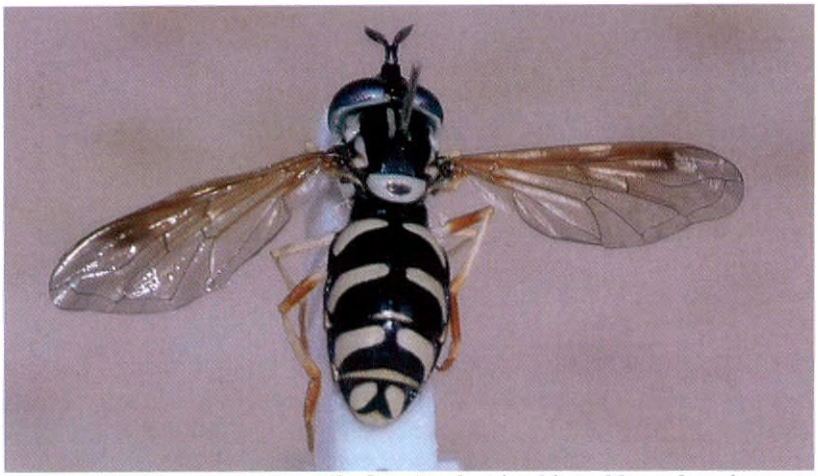

Plate 1. *Chrysotoxum gracile*, female, showing bitonal leg coloration.

Chrysotoxum gracile is included in Sack's (1928-32) keys, but there it is indicated that the body of this species is "schlanke wie *C. lineare*", which is a bit misleading, since the abdomen of *C. gracile* is marginally narrower than in *C. festivum*, but not so narrow as in *C. lineare*. *Chrysotoxum gracile* is not included in more recent identification keys, so a provisional key to European *Chrysotoxum* species with which *C. gracile* might be confused is provided here. European species in which the third antennal segment is distinctly longer than the first two segments combined are not covered by the key, because they are not likely to be confused with *C. gracile*. Resolution of the status of the taxon *Chrysotoxum latifasciatum* Becker, 1921 probably requires genetic investigation and is beyond the scope of the present note. Its separation from *C. octomaculatum* Curtis, 1837 is not addressed in the key.

Provisional key to European *Chrysotoxum* species with which *C. gracile* might be confused

1 Antennal segment 3 shorter than segments 1 + 2 together, or no longer than 1 + 2 together **2**
- Antennal segment 3 distinctly longer than segments 1 + 2 together ..... other European *Chrysotoxum* species not covered by the key

2 Males (eyes meeting on frons) **3**
- Females (eyes separated) **15**

3 All hairs on scutellar disc much shorter than half the median length of the scutellum .. **4**
- At least some of the hairs on the scutellar disc longer (often much longer) than half the median length of the scutellum **5**

4 Lateral margins of tergites 1-5 entirely black; abdomen no wider than head (pale markings on tergites not reaching side margins) ..... ***lineare*** (Zetterstedt, 1819), male
- Lateral margins of tergites 1-5 partly yellow; abdomen distinctly wider than head (anterior margin of yellow markings on anterior half of tergite 2 convex, only roughly parallel with the anterior margin of the tergite for at most half their width, curving gradually towards the posterior as they approach the lateral margins of the tergite; antennal segment 1 distinctly longer than antennal segment 2) ..... ***parmense*** Rondani, 1845, male (*partim*)

5 Yellow transverse marks on abdominal tergite 3 as deep as the yellow marks on tergite 4 ..... **6**
- Maximum depth of the yellow bars on tergite 3 less than half the depth of the yellow bars on tergite 4, or reduced to minute spots, or even absent ..... ***bicinctum*** (Linnaeus, 1758), male

6 Abdominal sternite 4 more than 4 times as wide (at anterior margin) as long (median length) and surstyli of terminalia extremely asymmetrical ..... ***cautum*** (Harris, 1776), male (*partim*)
- Sternite 4 at most 3 times as wide (at anterior margin) as long (median length) and surstyli symmetrical **7**

7 Frons yellow, entirely undusted; eye hairs sparse and shorter than the length of a posterior ocellus (eye suture half as long as the frons in the mid-line; legs entirely yellow) ..... ***parmense*** Rondani, male (*partim*)

\- Frons black, partly or mostly dusted yellow-grey; eye hairs dense on upper part of eye and longer than a posterior ocellus **8**

8 The pair of transverse yellow markings (banana or boomerang-shaped) on each tergite separate from any yellow marking on the lateral margins of the tergite, on tergites 2-4 (sometimes reaching side margins on tergite 5) **9**

\- The pair of transverse yellow markings (banana or boomerang-shaped) on each tergite reaching yellow marks on the lateral margins of the tergite, on at least tergite 4 (and often on tergites 2, 3 and 5 also) **13**

9 Legs entirely yellow **10**

\- Legs with at least the fore and mid femora black basally **12**

10 Antennal segment 1 longer than antennal segment 2 (viewed from above); legs with tarsi slightly darker yellow than the tibiae and the apical half of the hind femur slightly darker yellow than the basal half (frons yellow-haired; scutellar disc yellow-haired; wing with a dark smudge below the stigma; ventral surface of rolled-over margin of tergites partly yellow) ..... ***gracile*** Becker, 1921, male

\- Antennal segment 1 shorter than antennal segment 2, or the same length as segment 2 (viewed from above); legs of uniform yellow colour throughout **11**

11 Ventral part of rolled-over margin of tergites 2-4 black, or almost entirely black (on tergite 4 may be yellowish for less than 50% of the length of the tergite); wings with a brownish smudge in the marginal and submarginal cells, posterior to the stigma ..... ***festivum*** (Linnaeus, 1758), male

\- Ventral part of rolled-over margin of tergites 2-4 at least 50% yellow on each tergite; wing without brownish smudge, though anterior half of wing membrane may be generally yellowish ..... ***elegans*** Loew, 1841, male (*partim*)

12 Ventral part of rolled-over margin of tergites entirely black; outer, lateral surface of antennae with antennal segment 1 longer than antennal segment 2 (mesoscutum entirely yellow-haired; hypopleuron usually entirely black; wing membrane usually with a brown smudge behind and apical to the stigma; hind femur usually all yellow; abdomen in dorsal view wider than head; anterior half of sternite 3 usually with no hairs longer than one sixth the length of the sternite) ..... ***vernale*** Loew, 1841, male

\- Ventral part of rolled-over margin of tergites 3 and 4 (at least) partly/mostly yellow; outer, lateral surface of antennae with segment 1 the same length as, or shorter than, segment 2 (all femora vaguely, but progressively darkened in basal sixth of length; mesoscutum usually entirely yellow-haired, though black hairs may be intermixed on the disc or just above the wing-bases; hypopleuron usually with a yellow mark; wing membrane usually without dark markings, vaguely yellowish) ..... ***elegans*** Loew, male (*partim*)

13 Anterior margin of yellow markings on anterior half of tergite 2 straight and parallel with anterior margin of tergite, except on the outer sixth of their width, where they bend abruptly towards the posterior ..... ***verralli*** Collin, 1940, male

- Anterior margin of yellow markings on anterior half of tergite 2 convex, only roughly parallel with the anterior margin of the tergite for at most half of their width, curving gradually towards the posterior as they approach the lateral margins of the tergite **14**

14 Tergite 4 (and usually tergite 3 also) with the transverse, basal, black band interrupted before the side margins of the tergite by a yellow, longitudinal streak and resuming again along the actual margin of the tergite (legs entirely yellow) ..... ***octomaculatum*** Curtis, 1837, male

- Tergites 3 + 4 with the basal black band reaching the lateral margins of the tergites uninterrupted ..... ***elegans*** Loew, male (*partim*)

15 Yellow transverse marks on abdominal tergite 3 as deep as the yellow marks on tergite 4 ..... **16**

- Maximum depth of the yellow bars on tergite 3 less than half the depth of the yellow bars on tergite 4, or reduced to minute spots, or even absent (usually, hairs on scutellar disc all much shorter than median length of scutellum, though occasionally a few longer hairs may be present on scutellar margin) ..... ***bicinctum*** (Linnaeus), female

16 Hairs on scutellar disc very short, none of them longer than one third of the median length of the scutellum **19**

- Some (or all) of the hairs on the scutellar disc at least as long as half the median length of the scutellum **17**

17 Tergite 6 with a median, longitudinal, membranous cleft down entire length; most of the hairs on the scutellar disc almost as long as the length of scutellum in the mid-line ..... ***cautum*** (Harris), female

- Tergite 6 without a median, longitudinal, membranous cleft; most of hairs on scutellar disc shorter than half the median length of the scutellum **18**

18 Anterior margin of yellow markings on anterior half of tergite 2 straight and parallel with anterior margin of tergite, except on the outer sixth of their width, where they bend abruptly towards the posterior ..... ***verralli*** Collin, female (*partim*)

- Anterior margin of yellow markings on anterior half of tergite 2 convex, only roughly parallel with the anterior margin of the tergite for at most half of their width, curving gradually towards the posterior as they approach the lateral margins of the tergite ..... ***elegans*** Loew, female

19 The pair of transverse yellow markings (banana or boomerang-shaped) on each tergite reaching the side margins of the tergite, on at least tergite 4 (and often on tergites 2, 3 and 5 also) **23**

- The pair of transverse yellow markings (banana or boomerang-shaped) on each of tergites 2-4 not reaching the side margins of the tergite (sometimes reaching side margins on tergite 5) **20**

20 Legs entirely yellow **21**

- Fore and mid femora black at base **22**

21 Antennal segment 1 shorter than antennal segment two (viewed from above), or no longer than antennal segment two; scutellar disc usually partly black-haired; femur, tibia and tarsomeres of all legs of a uniform yellow colour; body length 12-15mm (wings with a brownish smudge behind the stigma; pale marks on tergite 2 reaching into the posterior half of the tergite only in the apical quarter or fifth of the length of the pale marks) ..... ***festivum*** (Linnaeus), female

- Antennal segment 1 longer than antennal segment 2 (viewed from above); scutellar disc entirely, or almost entirely, yellow-haired; tarsomeres of all legs a darker yellow than the corresponding tibiae (which are whitish-yellow); hind femur pale yellow in the basal half of its length and mid-yellow in its apical half (wings with a brownish smudge behind the stigma) ..... ***gracile*** Becker, female

22 Tergites 2-4 together < 2x as long as their maximum width (wings entirely covered in microtrichia; pale marks on tergite 2 reaching into posterior half of tergite in apical third/half of the length of the pale marks) ..... ***vernale*** Loew, female

- Tergites 2-4 together > 2x as long as their maximum width (all femora black at base) ..... ***lineare*** (Zetterstedt), female

23 Mesoscutal and scutellar hairs short but distinct; 2nd basal cell of wing with 0-20% of surface bare of microtrichia; the two pale (grey), longitudinal dust stripes on the mesoscutum extending posteriorly only as far as the wing bases (i.e. not reaching back to anterior margin of postalar calli) **24**

- Mesoscutal hairs so short the disc appears bare; scutellar disc bare; the two pale (yellow-grey) dust stripes on the mesoscutum extending posteriorly almost to same level as the posterior margin of the postalar calli; 2nd basal cell 50% bare of microtrichia (pale marks on tergite 2 bending away from anterior margin of tergite in outer half of their width) ..... ***parmense*** Rondani, female

24 Mesoscutum predominantly yellow-haired, and entirely yellow-haired anterior to the transverse suture, but with patch of black setae close to lateral margin, just posterior to transverse suture; 2nd basal cell of wing with 5-20% of surface bare of microtrichia; basal black bands on tergites 3 & 4 usually interrupted just before lateral margin of the abdomen by a yellow streak, the lateral margin of each tergite being black in the basal half ..... ***octomaculatum*** Curtis, female

- Mesoscutum almost entirely covered in black hairs, some yellow hairs intermixed anterior to transverse suture and patch of mostly yellow hairs just above lateral margin, posterior to transverse suture; 2nd basal cell of wing with 0-5% of surface bare of microtrichia; basal black bands on tergites 3 and 4 reaching the lateral margin of the abdomen uninterrupted ..... ***verralli*** Collin, female (*partim*)

In the field, *C. gracile* appears closely similar to *C. festivum*, but is generally smaller in size (body length 9.5-12mm).

The two French localities where *C. gracile* has been found are rather different in character. The Forêt de Païolive is an extensive tract of karstic *Quercus pubescens* savanna, with both open areas of sub-xeric grassland and patches of more closed-canopy forest, within the Mediterranean zone. The Cevennes National Park is centred on the massif of Mt Aigoual,

and ranges from above 1500m to below 200m, with humid, montane habitats on north-facing slopes and dry, sub-Mediterranean habitats on its southern flanks. Geographically, it is very close to the Mediterranean, but most of its area is far from Mediterranean in character. Geologically, too, it is quite heterogeneous, reflecting volcanic origins. The Malaise trapping, which resulted in the *C. gracile* records, was carried out on the sides of narrow, forested valleys, clothed in neutrophilous/acidophilous *Quercus* forest and humid/mesophilous *Fagus* forest, aspect and geology dictating which sort of forest predominated. In addition forestry activities have much modified the forest character. This mélange of habitats makes it difficult to ascribe habitat-association data to *C. gracile*, based on the Cevennes records. Suffice it to say, the species was collected in small, open areas within *Quercus petraea* forest, both in humid situations and where the forest was tending toward a drier, more Mediterranean character, with adjacent *Q. pubescens* and mesophilous *Fagus* forest.

***Eumerus pusillus* Loew, 1848**

Material examined: Pyrenées-Orientales: Jardin Méditerranéen, Banyuls-sur-Mer, 31T 05097 47024, 18 March-2 April 2012, male; 4-18 September 2012, female, M.t., coll. JG/MS

Eumerus pusillus is among the more distinctive European species of the genus, on account of one feature. In both sexes the hind tibia has a very sharp, transverse cleft posteriorly, in the apical half of its length (see Fig. 1). In the male, that feature, backed up by an absence of projections of any sort on the hind trochanter, femur or tibia, abdominal tergites not marked with red, eyes meeting on the frons for an appreciable distance (the eye suture is as long as the median length of the frons) and orange third antennal segment, is sufficient to separate it from males of other European species. That feature is similarly diagnostic in the female, accompanied by an abdomen not marked with red, orange third antennal segment and an absence of translucent marks on tergite 2. In addition, longitudinal, grey, mesoscutal dust stripes are more or less absent in this species.

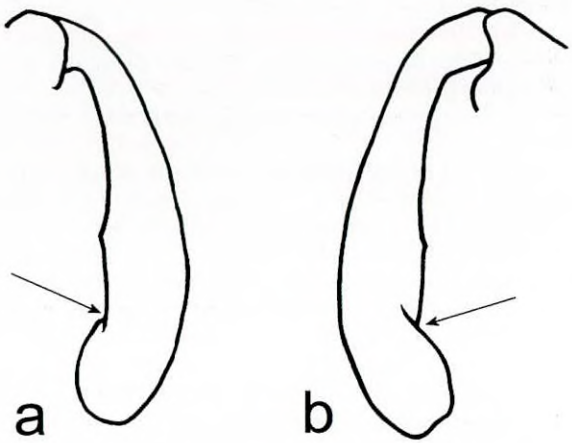

Fig. 1. *Eumerus pusillus*, hind tibia of female; a = anterolateral view; b = posterolateral view; arrows indicate cleft (see text).

In Europe, *E. pusillus* is strictly a Mediterranean zone species, known from Portugal, Spain, Italy, the Balkan Peninsula and various Mediterranean islands. Its presence in Mediterranean parts of France might thus be expected, though there has been an absence of records until now. It has been reared from the massive bulb of the geophyte *Urginea maritima*, known as the sea squill (Ricarte *et al.* 2008). The Banyuls locality yielded one specimen from each of two Malaise traps, located in slightly different situations. One trap was in maquis of wild olive (*Olea europaea*), with stony, open patches and thickets of prickly pear (*Opuntia ficus-indica*). The other was in an ancient olive orchard, where the ground vegetation is regularly cleared to reduce the danger of fires. Neither location (or the surround) supports the sea squill and *E. pusillus* may there be using some as yet unknown alternative plant host.

Acknowledgements

We are grateful to Ante Vujić (Novi Sad) for information about *Chrysotoxum gracile* and for confirming its identity as recognised in this note, and to Antonio Ricarte and Axel Ssymank for their helpful comments on an earlier version of this text. Axel Ssymank also brought to our attention the publication by Franz Malec. Jean-Francois Holthof (Association Païolive) kindly maintained the Païolive Malaise traps and collected the samples from them. We also thank ONF personnel Thomas Barnouin, Michel Deschanel, Olivier Vinet and the late Christian Jarentowski, who, together with Grégoire Gautier of the Parc National des Cevennes, maintained the traps and collected the samples at the Cevennes localities.

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Dipterists Digest 2013 **20**, 41-42

Phylidorea heterogyna (Bergroth) (Diptera, Limoniidae) rediscovered at Fenn's, Whixall & Bettisfield Mosses NNR in Shropshire (V.C. 40) during 2012

PETE BOARDMAN

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In a review of known records of the rare cranefly *Phylidorea heterogyna* (Bergroth, 1913), in which I detailed its known distribution in Great Britain to that date (Boardman 2005), I surmised that it would still occur on Fenn's, Whixall & Bettisfield Mosses NNR after first being recorded there by Cyril Wallace Pugh in August 1936. It had not subsequently been re-found. In 2004 I had spent several unsuccessful hours searching for it and repeated searches unsuccessfully in subsequent years.

Fig. 1. The habitat of *Phylidorea heterogyna*

I decided to give it another try during 2012 in the build-up to the second edition of the Shropshire cranefly atlas (Boardman *in prep.*) and visited the site on 7 September along with Invertebrate Challenge students Jim Cresswell and Keith Fowler. The weather was dry and warm and we searched several likely areas around the Shropshire part of the site. Just after lunch I waded out into an area of restoring hand-cut bog that was last cut some 50 years ago and cleared of scrub in 2003, when it was also dammed up as part of the bog restoration work carried out by Natural England at the site (Joan Daniels *pers. comm.*). The area was still very recognisably hand-cut and dominated by *Sphagnum cuspidatum* and *Eriophorum angustifolium* in the previously cutover parts of the bog, and *Eriophorum vaginatum* on the topographically higher eroding peat baulks (Fig. 1). It can be described as M2 poor fen using the NVC classification of vegetation types (Elkington *et al.* 2001). Several *P. heterogyna* of both sexes were swept from the edges of the baulks just centimetres above the *Sphagnum* surface, confirming the continued presence of this uncommon fly at Fenn's, Whixall & Bettisfield Mosses some 76 years after its discovery there.

It is a local and rarely recorded species, of which there are no other recent British records.

Acknowledgements

I would like to thank Dr Joan Daniels of Natural England for permission to survey on Fenn's, Whixall & Bettisfield Mosses NNR and my two companions on the day who shared my enthusiasm for such a tiny fly.

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Tanyptera nigricornis (Meigen) (Diptera, Tipulidae) in Cheshire –

A single female *Tanyptera nigricornis* (Meigen, 1818) was knocked into a sweep-net from the aerial branches of a collapsed section of a large open-grown veteran oak tree in Tatton Park (SJ7481) on 19.v.2011. A large and well-developed tipulid larva, presumed to be the same species, was later found amongst frass and other decay debris beneath loose bark on an aerial dead branch of the same collapsed tree on 3.x.2011 – unfortunately it did not rear through. This appears to be the first report of this species from Cheshire (J. Kramer *pers. comm.*). I am grateful to Alan Stubbs for pointing out that my specimen was actually *T. nigricornis* rather than *T. atrata* (Linnaeus) as originally assumed, after it was exhibited under that name at the 2011 Annual Exhibition of the British Entomological and Natural History Society. The survey was commissioned by the local office of the National Trust – **KEITH N.A. ALEXANDER,** 59 Sweetbrier Lane, Heavitree, Exeter EX1 3AQ, keith.alexander@waitrose.com

First European record of a forcipomyiine midge (Diptera, Ceratopogonidae) feeding on a cranefly (Diptera, Limoniidae), and first record of an *Atrichopogon* species exhibiting this behaviour – On 10 June 2012, whilst taking part in a survey for aphids (Aphidoidea) on the Dundreggan Conservation Estate in Glen Moriston, Inverness-shire, in the Scottish Highlands, AWF photographed a cranefly with a small fly attached to it (shown below), on an eared willow bush (*Salix aurita*) at NH33131479. The midge was apparently feeding at the basal part of the abdomen of the cranefly. The specimens were taken and subsequently sent for identification to PJC, who confirmed the cranefly as a female *Helius longirostris* (Meigen, 1818) (Limoniidae), and sent the ceratopogonid to Patrycja Dominiak (University of Gdansk, Poland). She identified it as a female *Atrichopogon*, with characteristics similar to *A. fuscus* (Meigen) and *A. hirtidorsum* Remm (the latter is unrecorded from the British Isles, but doubtfully a distinct species), but noted that its spermatheca was a little smaller than those of these species and was unable to identify it positively to species level.

This appears to be the first European record of a forcipomyiine midge feeding on a cranefly, and the first anywhere of an *Atrichopogon* species exhibiting this behaviour (Art Borkent *pers. comm.*). There are a few records of midges in the genus *Forcipomyia* (which, together with *Atrichopogon*, forms the subfamily Forcipomyiinae) feeding on craneflies in the tropics. A photograph of this activity, showing a limoniid cranefly with a midge perched on its thorax, appeared on p. 27 of the recent book *Flies. The Natural History and Diversity of Diptera* by Stephen A. Marshall (2012. 616 pp, 2325 colour photographs. Firefly Books Ltd). The identity of the species involved was not determined but is likely to be a *Forcipomyia* species. The author Stephen Marshall informed PJC that he took that photograph at a high altitude biological station (Wayqecha) in Peru, and he had also previously observed similar behaviour in Venezuela (his photograph of the latter is included on p. 147 of B.V. Brown *et al.* (Eds) 2009. Manual of Central American Diptera Vol. 1, 714 pp. NRC Research Press, Ottawa). Both his obervations involved unidentified limoniids with maculated wings.

The few previously published observations of midges feeding on craneflies have all been of *Forcipomyia* species in the tropics, and there are only three published records in which either the midge or cranefly was identified (Art Borkent *pers. comm.*). *Forcipomyia tipulivora* Macfie, 1936 was described from a female feeding on a *Tipula* species (referred to as cf. *T. demeijerei* Edwards, 1915) taken at light in New Guinea, which was found on its thorax contrary to the title of the paper (Macfie, J.W.S. 1936. Four species of Ceratopogonidae (Diptera) from the wings of insects. *Proceedings of the Royal Entomological Society of London* (B) **5**(12), 227-230). He referred to a previous record (Edwards, F.W. 1933. XX. Diptera Nematocera from Mount Kinabalu. *Journal of the Federation of Malay States Museums* **17,** 223-296) of the midge *Forcipomyia* (as *Lasiohelea*) *equitans* (Edwards, 1933) found in North Borneo with its proboscis inserted into the scutellum of the cranefly *Trentepohlia pennipes* (Osten-Sacken, 1888) (Limoniidae). Macfie (*op. cit.*) also found in the Natural History Museum, London, collection an unidentified midge with its proboscis inserted into the thorax of a Nigerian limoniid *Toxorhina nigripleura* (Alexander, 1920) (as *Ceratocheilus longirostris* Wesche, 1910). This association is thus known from the Neotropical, Afrotropical and Oriental Regions, and can be deduced to be much more widespread than these few observations suggest.

The large genera *Forcipomyia* and *Atrichopogon* include species that are well-known to feed on haemolymph by piercing the wing veins of many insects, including species that specialise in Lepidoptera, Neuroptera and Odonata. Others feed at the intersegmental membranes of Orthoptera, Phasmatodea and Coleoptera, particularly Meloidae (oil beetles) and Oedemeridae, or on caterpillars. However, the host associations of most species of these genera worldwide are unknown. Art Borkent has commented (e-mail 8 January 2013): "One of the huge gaps in knowledge and a profound mystery within the Ceratopogonidae is the large numbers of individuals of Forcipomyiinae (*Forcipomyia* + *Atrichopogon*) found throughout the planet, most of which are females with biting mouthparts, and the relatively few observations of them actually feeding." Now that we know that craneflies are hosts for an *Atrichopogon* species, it is hoped that there will be further such observations, and a positive identification of the species involved can be made.

We are indebted to Patrycja Dominiak for identification of the midge, to Art Borkent whose cataloguing of the worldwide literature on Ceratopogonidae has ensured that all relevant published observations have been taken into account, and to them and to Stephen Marshall for helpful discussion – **ALAN WATSON FEATHERSTONE,** Trees for Life, The Park, Findhorn Bay, Forres IV36 3TZ and **PETER J. CHANDLER,** 606B Berryfield Lane, Melksham, Wilts SN12 6EL

Dipterists Digest 2013 **20,** 45-51

Polietes meridionalis Peris & Llorente (Diptera, Muscidae) new to Britain

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Summary
Polietes meridionalis Peris & Llorente, 1963 is added to the British list and is compared with *Polietes lardarius* (Fabricius, 1781).

Introduction

Polietes lardarius (Fabricius, 1781) is a common and widespread species in Central and Northern Europe (Hennig 1963: 911-913; Pont 1986: 86; Pont 2005). Larvae live in cow dung, where they feed on the dung (Skidmore 1985: 178-181). It is widely distributed throughout the British Isles. It has a long flight period and can be particularly noticeable in autumn on the flowers of ivy (*Hedera helix*) and even on mild winter days. In their revision of Palaearctic Muscini, which appeared at the same time as the final parts of Hennig's monograph of the Palaearctic Muscidae, Peris and Llorente (1963: 215) described *Polietes meridionalis* as a southern, largely Mediterranean vicariant of *Polietes lardarius*, and this species has subsequently been found to be widespread in the Mediterranean subregion, also extending into the warmer parts of lowland Central and West Europe (Pont 2005).

Polietes meridionalis has been recognised for several years by the present authors independently, and also by several other British dipterists, as occurring in the south of England, where it is commonly found together with *Polietes lardarius*. It was also recently mentioned by Boardman (2012: 182), as "a second *Polietes* species". The localities enumerated below are those that are known to us; we have made no attempt to check series of British *P. lardarius* in the Natural History Museum, London, or in other museums, but material in the National Museums of Scotland and Ireland have kindly been checked by David Horsfield and Jim O'Connor respectively. Counties and localities are listed alphabetically. The following abbreviations are used in this enumeration of specimens:

BENHS – British Entomological and Natural History Society, Reading.
HB – H. Bentley personal collection.
NMD – National Museum of Ireland, Dublin.
NMS – National Museums of Scotland, Edinburgh.
OUMNH – Oxford University Museum of Natural History, Oxford.
SJF – S.J. Falk personal collection.

British records of *Polietes meridionalis*

Buckinghamshire: Farnham Royal, SU9683 (E.B. Basden), 1♀ (NMD).
Cornwall: Helford, 1/7.vii.1928 (H.W. Andrews), 1♀ (BENHS); Porthtowan, 22.ix.1982 (S.J. Falk), 1♂ (SJF).

East Sussex: Abbots Wood, 7.vi.1874 (G.H. Verrall), 1♂ (OUMNH); same locality, 14.v.1882, 1♀ (OUMNH); Cradle Hill NNR, 28.vi.2007 (S.J. Falk), 1♀ (SJF); Lewes, Ranscombe House, on ivy *Hedera helix*, 14.x.1867 (G.H. Verrall), 1♂ (OUMNH); Lewes, South Malling, on ivy, 31.x.1866 (G.H. Verrall), 1♀ (OUMNH); Mount Caburn, 19.v.2008 (S.J. Falk), 1♀ (SJF).
Essex: Benfleet, 27.v.1950 (C.O. Hammond), 1♂, 1♀ (BENHS).
Hampshire: Harbridge Farm, Ibsley, 17.vii.1981 (S.J. Falk), 1♀ (SJF); Keyhaven Marshes, SZ311920, cattle-grazed marshland, 13.v.2012 (H. Bentley), 1♂, 1♀ (HB).
Kent: Chattenden Wood, 9.vi.1906 (H.W. Andrews), 1♂ (BENHS); Darenth, 8.vi.1912 (H.W. Andrews), 1♂ (BENHS); Dartford, 6.vi.1909 (J.W. Yerbury), 1♂, 1♀ (OUMNH); Eltham, 19.vi.1930 (H.W. Andrews), 1♂ (BENHS); Farningham, 27.viii.1927 (H.W. Andrews), 1♂ (BENHS); Harrietsham, TQ850514, dense *Castanea sativa* woodland, 4.vi.2010 (H. Bentley), 1♂ (HB); King's Wood, Harrietsham, TQ852512, on horse dung, 26.vi.2011 (H. Bentley), 1♂, 1♀ (HB); Langley, near Maidstone, TQ815517, 19.ix.2009 (H. Bentley), 1♂ (OUMNH); Nackholt Wood near Ashford, TR061430, ivy *Hedera helix* flowers, 21.ix.2010 (H. Bentley), 1♂ (HB); Thames Marshes, Belvedere, 27.v.1943 (H.W. Andrews), 1♀ (BENHS).
Oxfordshire: Oxford, Brasenose, 12.vi.1915 (A.H. Hamm), 1♂ (OUMNH); Oxford, Shotover, 12.vi.1904 (A.H. Hamm), 1♂ (OUMNH); Yarnton, 3.vi.1926 (J. Collins), 1♀ (OUMNH).
Pembrokeshire: Orielton Field Centre, 6.vi.1982 alongside *P. lardarius* (S.J. Falk), 1♀ (SJF).
Shropshire: Preston Montford, 9-20.xii.2011, and Church Farm, 18.xii.2011 (P. Boardman) (see Boardman 2012: 182).
Warwickshire: Edgbaston Pool, Birmingham, 7.x.2009 (S.J. Falk), 1♂ (SJF); Ufton Fields, 9.vi.1991 (S.J. Falk), 1♂ (SJF); Wainbody Wood, Coventry, 22.vi.1991 alongside *P. lardarius* (S.J. Falk), 1♀ (SJF).
Wigtownshire: Corsemalzie, Whauphill, NX4049, 21.vi.1899 (J.G. Gordon), 1♂, 1♀ (NMS).

Irish records of *Polietes meridionalis*
Dublin: Lambay Island, vi.1906, 1♂ (NMD).
Waterford: Tramore, 27.vii-1.viii.1918 (R. Scharff), 1♂ (NMD).
Wexford: Ballyteige, S9504, 26.v.1987 (J.P. O'Connor), 1♀ (NMD).

Polietes meridionalis has clearly been present in the southern counties of England for many years – the first specimen recorded above dates from 1866, in Ireland since 1906 and the only Scottish record is from 1899. With the reality of global warming beginning to affect the British fauna, it can be expected that the species will become more abundant and will expand its range northwards. The species can clearly exploit a similar variety of situations to *P. lardarius* in Britain and occurs syntopically with it at some of the sites noted above.

It evidently has a more restricted distribution in the British Isles than *P. lardarius*. From Scotland only two old specimens of *P. meridionalis* from the extreme south-west have been identified, while *P. lardarius* is widely distributed in Scotland. Most localities for *P. lardarius* are in the lowlands, or at low altitude, with the most upland sites being Rannoch, Braemar, Aviemore and Beinn Eighe, the latter in Wester Ross being the most northerly for which specimens have been examined (David Horsfield *pers. comm.*). It is also recorded from the Western Isles (**Ebudes**: Canna, Islay and Rum) and from Orkney (Skidmore 2009).

In Ireland *P. meridionalis* appears to be restricted to the south-east coast from Dublin to Waterford. This is in contrast to the general distribution in Ireland of *P. lardarius*, as confirmed by 27 specimens examined (NMD and BENHS) from the following counties: Carlow, Clare, Cork, Dublin, Galway, Kildare, Mayo, Waterford, Wexford and Wicklow (Jim O'Connor and Peter Chandler *pers. comm.*).

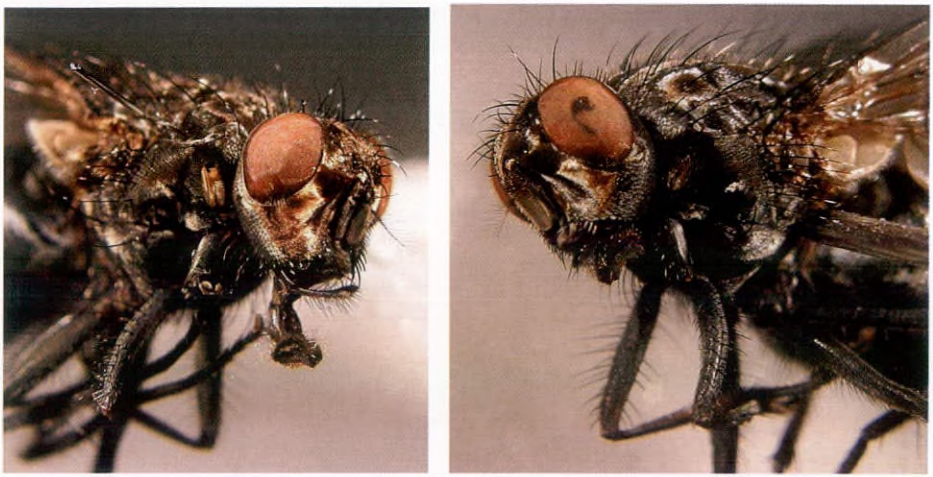

Fig. 1. Head and part of the scutum of the female of *Polietes meridionalis* Peris & Llorente (left), showing the pale postgenal setae, and *P. lardarius* (Fabricius) (right).

Distinctions between *P. lardarius* and *P. meridionalis*

The two species *P. lardarius* and *P. meridionalis* can be separated as follows (based on Peris and Llorente (l.c.), Hennig (l.c.) and Gregor *et al.* (2002: 33)):

- Anterior spiracle yellowish-white or white. Postgena with some long pale setae (Fig. 1, left). Pruinosity on parafacial and anterior part of gena whitish-yellow or golden. Male: hind tibia with a series of anteroventral setae, usually 4-5, from middle to apex; head, when seen in lateral view, with the parafacial at level of insertion of arista always broader than width of postpedicel ..... ***meridionalis*** Peris & Llorente

- Anterior spiracle grey or greyish-black, never white or yellow. Postgena with all setae black (Fig. 1, right). Pruinosity on parafacial and anterior part of gena grey or silvery-white, rarely with some brown. Male: hind tibia with a row of 6-7 anteroventral setae; head, when seen in lateral view, with the parafacial at level of insertion of arista not as broad as width of postpedicel especially in smaller males ..... ***lardarius*** (Fabricius)

Care needs to be taken with some of these characters as the number of anteroventral setae on the hind tibia is very variable, especially in females, and the width of the parafacial is much wider in females than males. However, in *P. meridionalis*, the narrowest part of the

parafacial is 1.2 times (male) or 1.5 – 1.75 times (female) the width of the postpedicel, as opposed to 1.0 times (male) or 1.25 times (female) in *P. lardarius*.

As a confirmatory character for males, we have found that there is a small difference in the conformation of the lower calypter in these two species (Fig. 2). This is best seen when the fly is set like a butterfly, with the wings extended at right angles from the body. In *P. lardarius*, the lower calypter is of the typical '*Phaonia*-type', with the hind margin diverging from the margin of the scutellum at right angles (Fig. 2, left). In *P. meridionalis*, on the other hand, the lower calypter diverges from the scutellum at a much narrower angle and appears to form a precursor stage of the "*Musca*-type" of calypter (Fig. 2, right).

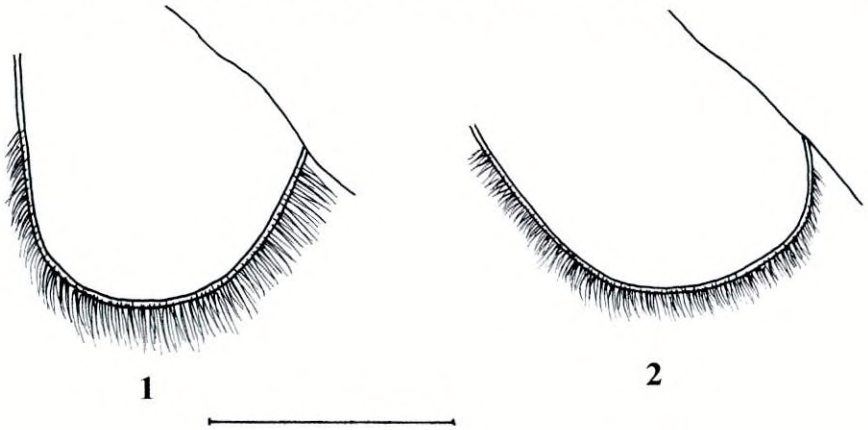

Fig. 2. Male lower calypter of *Polietes lardarius* (Fabricius) (left) and *P. meridionalis* Peris & Llorente (right). Scale line: 1 mm.

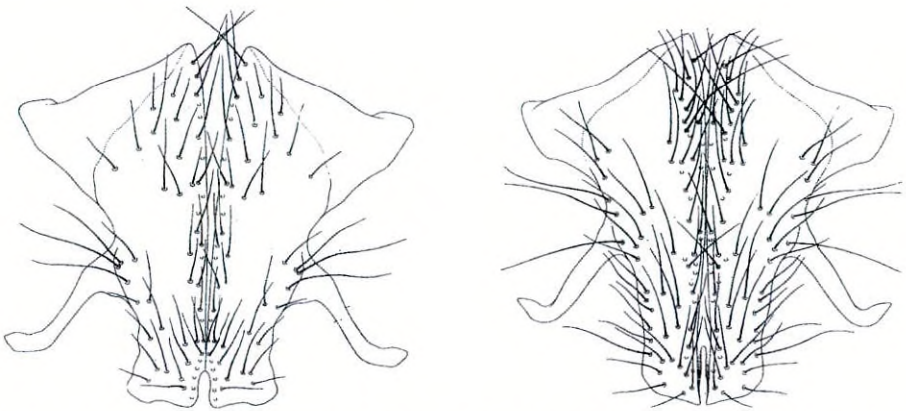

Fig. 3. Male cercal plate of *Polietes lardarius* (Fabricius) (left) and *P. meridionalis* Peris & Llorente (right) (from Peris and Llorente 1963).

A further confirmatory character for males is found in the shape of the male cercal plate. As shown in the original description (Peris and Llorente 1963: figs 9-10), each half of this plate has a weakly concave apical margin in *P. lardarius*, whereas the apex in *P. meridionalis* is more sloping and rounded (Fig. 3). This distinction has been confirmed by dissection of Scottish specimens of both species (David Horsfield *pers. comm.*).

General distribution of *P. meridionalis*

Peris and Llorente (l.c.) described *P. meridionalis* from Spain, with additional localities in Hungary, Italy and Morocco. Additional references to the European occurrence of this species, which were incorporated into the *Fauna Europaea* entry (Pont 2005), include the following:

Bulgaria	Lavčiev and Takhirov (1977: 64); Lavčiev and Zhelyazova (1978: 22); Lavčiev (2003: 27). Adults fly from April to November.
Croatia	The locality Fiume given by Peris and Llorente (l.c.) is now in Croatia.
Cyprus	Pont (1991: 75).
Germany	Danielzik (1997: 5); Teschner in Schumann *et al.* (1999: 162). These are both checklist entries.
Hungary	Mihályi (1975: 211); Papp (2001: 411). Adults fly from May to June and September to October
Italy	Pont (in Gorodkov *et al.*, in Minelli *et al.* 1995: 11). Checklist, in South Italy and Sicily.
The Netherlands	Prijs in Beuk (2002: 329). Checklist.
Portugal	Pont and Báez (in Carles-Tolrá Hjorth-Andersen 2002: 212). Checklist.
Spain	Lyneborg (1970: 52); Rubio (1978: 117); Gonzáles-Mora (1989: 54); Rojo and Marcos-Garcia (1990: 369-376); Romero *et al.* (1992: 78); Pont and Báez (in Carles-Tolrá Hjorth-Andersen 2002: 212), checklist).
Turkey	Pont (1991: 75).
Ukraine	Lavčiev (1971: 224). Crimea.

Rubio (1978: 117) reported that the larvae are coprophagous at first, becoming carnivorous later. Rojo and Marcos-Garcia (1990: 369-376) described the immature stages.

Acknowledgements

We are grateful to Howard Bentley for his records of *P. meridionalis* and to several other colleagues for their comments on *P. lardarius* and *P. meridionalis*. We also thank David Gibbs, David Horsfield and Jim O'Connor for determining the *Polietes* specimens in the BENHS, National Museums of Scotland and National Museum of Ireland collections respectively.

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Lispocephala pallipalpis (Zetterstedt) (Diptera, Muscidae) new to Scotland from Easter Ross and Easterness

– Specimens of *Lispocephala pallipalpis* (Zetterstedt, 1845) were collected by one of us (MM) in 2012 at sites near Inverness in north-east Scotland and these were sent to DH and SF for confirmation. DH and SF confirmed a total of twelve specimens (eight males and four females) as *L. pallipalpis*.

The first capture by MM was of two males, which were taken on 5 March 2012 at the edge of Blackmuir Wood, Strathpeffer (NH478573, V.C. 106, East Ross). Subsequently, on the following dates, the following specimens were taken at Strathpeffer: 18 March (two males), 22 March (two males, one female), 18 May (one female) and 27 May 2012 (one female), all close to the edge of Blackmuir Wood (NH478574 and NH476573). On 22 March 2012, two males were also taken at Millnain (NH504592) near Strathpeffer, by the edge of a mixed wood close to the River Peffer. A single female was taken on 25 March 2012 at Belladrum (NH523421, V.C. 96, Easterness), at the edge of Black Wood, situated west of Inverness and about 16 km south of Strathpeffer in an area known as The Aird. The altitudinal range of the finds was 20-107 metres. Most flies were basking on tree-trunks or wooden fences on the edge of mixed woodland, while one was found indoors near the edge of a wood.

No references were found to records of *L. pallipalpis* in the Scottish Insects Record Index maintained at the National Museums of Scotland Collection Centre at West Granton, Edinburgh. The identities of all specimens of *Lispocephala* in the Diptera collections at West Granton were checked but no specimens of *L. pallipalpis* were found. Previous records of the species in Britain are from nine counties, all in England and mainly in the south (Devon, Somerset, Dorset, Wiltshire, Hampshire, Surrey, Herefordshire, Berkshire and Cambridgeshire). There are seven post-1960 records (d'Assis-Fonseca, E.C.M. 1968. Muscidae. *Handbooks for the Identification of British Insects*, **10**(4b), 1-119. Royal Entomological Society of London; Falk, S., Pont, A.C. and Chandler, P.J. 1995. *Review of the Scarce and Threatened Flies of Great Britain. Species Status 5. Calyptratae*. Unpublished draft; Oxford University Museum of Natural History collections: Adrian Pont *pers. comm.*).

J.E. Collin (1963. The British species of *Lispocephala* (Diptera, Anthomyiidae). *Entomologist* **96,** 277-283) and d'Assis-Fonseca (*loc. cit.*) gave the flight period as April to June which is extended to March by these Scottish records.

Two other species of *Lispocephala* were taken in north-east Scotland by MM and confirmed by DH. A male *Lispocephala alma* (Meigen) was taken on 9 March 2012 at Blackmuir Wood on the edge of Strathpeffer (NH478573). *Lispocephala spuria* (Zett.) was represented by a male taken at Strathpeffer (NH478574) and another at Millnain (NH504592), both on 22 March 2012.

The occurrence of *L. pallipalpis* in Scotland is a significant northward extension of the known range in Britain but is not surprising because the species is widespread in western, central and northern Europe. The species was originally described from Luleå Lappmark and other localities in northern Sweden while there are records from Austria, ?Corsica, Czech Republic, France, Germany, Hungary, Norway, Slovakia, Spain, Sweden, Switzerland, Russia (Siberia) and Japan (Honshu) (Pont, A.C. 1986. Family Muscidae. pp. 57-215. **In** Soós, Á. and Papp. L. (Eds) *Catalogue of Palaearctic Diptera Scathophagidae – Hypodermatidae*. **11**. Elsevier, Amsterdam; and Adrian Pont *pers. comm.*).

The species may be identified using the keys given by d'Assis-Fonseca (*loc. cit.*). However, the keys and descriptions of differences given by Collin (*loc. cit.*) are also useful, especially the illustrations of the fifth abdominal sternites of the males of *L. alma* and *L. pallipalpis*. Males of the latter lack a cluster of 3-4 stout bristles, thickened at the base, which occur on each side of the fifth abdominal sternite in the common and widespread *L. alma*.

We are grateful to Adrian Pont for his confirmation of the identity of two males and a female of *L. pallipalpis* and for providing information on past records – **DAVID HORSFIELD,** National Museums Collection Centre, 242 West Granton Road, Edinburgh, EH5 1JA, **STEVEN FALK,** 10 Fishponds Road, Kenilworth, CV8 1EX and **MURDO MACDONALD,** 'Tigh nam Beithe', Strathpeffer, Ross & Cromarty, IV14 9ET

New county records of *Mydaea ancilla* (Meigen) (Diptera, Muscidae) from Scotland – I have been able to find only one published record of *Mydaea ancilla* (Meigen, 1826) in Scotland. This record is from Red Burn on the Isle of Skye (V.C. 104, North Ebudes) by A. Godfrey on 9 July 1991 (Skidmore, P. 2009. A review of the Diptera of the Western Isles of Scotland. *Dipterists Digest* (*Second Series*) **15,** 99-194). Details of new county records are given below.

On 5 August 2012 a female specimen of *M. ancilla* was taken by Murdo Macdonald in a garden in Strathpeffer (NH478574, V.C. 106, East Ross), which lies about 20 km north-west of Inverness. I have captured two specimens of *M. ancilla* in southern Scotland. The first of these was of a female taken on flowers in sand dunes at Tentsmuir (NO500242, V.C. 85, Fife) on 4 June 1993. The second capture was of a male taken in mixed woodland in the Hermitage of Braid, a gorge in Edinburgh (NT2570, V.C. 83, Edinburgh) on 17 May 1998. These four records suggest that *M. ancilla* is likely to be widely distributed in Scotland and may occur in a range of habitats.

The Scottish Insects Record Index was consulted at the National Museums of Scotland (NMS) at West Granton in Edinburgh. E.C.M. d'Assis-Fonseca (1968. Diptera Cyclorrhapha Calyptrata. Section (b). Muscidae. *Handbooks for the Identification of British Insects*, **10**(4b), 1-119) gave records in Britain only for England from the south coast north to Yorkshire and Lancashire. S. Falk, A.C. Pont and P.J. Chandler (1995. *Review of the Scarce and Threatened Flies of Great Britain. Species Status 5. Calyptratae*. Unpublished draft) also gave no Scottish records for *M. ancilla*. No Scottish specimens of *M. ancilla* were found in the Diptera collections at the NMS at Granton. This species is widely distributed in Europe, including Sweden and Finland (Pont, A.C. 1986. Family Muscidae. pp. 57-215. **In** Soós, Á. and Papp. L. (Eds) *Catalogue of Palaearctic Diptera Scathophagidae – Hypodermatidae*. **11**. Elsevier, Amsterdam), so its occurrence in Scotland, even in the north, is not surprising – **DAVID HORSFIELD,** National Museums Collection Centre, 242 West Granton Road, Edinburgh, EH5 1JA

Dipterists Digest 2013 **20,** 53-56

Some records and the habitat of Stenomicridae (Diptera)

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Summary
Records of *Stenomicra cogani* Irwin, 1982 and *Podocera delicata* (Collin, 1944) are given; *S. cogani* is more often found in Norfolk fens where large species of *Carex* are a dominant component of the vegetation. Several species of *Carex* are likely hosts for both flies. *Cladium mariscus* may also be a host of *S. cogani*.

Introduction

As part of an exhibit at the Dipterists Forum's annual meeting at Bristol Museum in 2012, I included specimens of the two British Stenomicridae under the jocular title 'Which entire fly family with British authorities can dance on the head of a pin?' This exhibit was prompted by finding the rarer species frequently at one site in 2012, and gave an opportunity to remark on the involvement in this tiny family of minute flies of three British dipterists, James E. Collin, Tony Irwin and Brian Cogan. But it also made me to look at my records to see whether they would provide any ecological information on this relatively poorly known family. For many years, British dipterists have associated the flies with large species of *Carex* (sedges), for instance Godfrey (1994, 2000). Roháček (2009) gave the most convincing evidence that *Carex* and *Scirpus sylvaticus* (wood club-rush) are the principal host plants. His records included rearing both *Stenomicra cogani* Irwin and *Podocera delicata* (Collin) from these plants.

Here I present some records and, for numerous sites sampled in Norfolk fens, some analysis of the occurrence of the two species in relation to dominant plants.

Methods

Over the last ten years I have collected standardised samples by either sweep-netting and pooting flies for a total of 10 minutes at each sampling point or using a vacuum sampler for 3 minutes, usually along an irregularly shaped loop less than 20 metres across. I made a brief description of the habitat and dominant plants at each sampling point (for example, 'tall reed and mixed tall herb by ditch in fen'). Field notebooks were re-examined to list additional information about conspicuous plants, which were usually identified only to genus although often with some indication about their abundance. I usually counted the number of individuals of each fly species. Some of the earlier records given below appear without locality data in Drake (2004).

Results

I have records of *S. cogani* from 132 samples, which included a few duplicates where sweep-netting and vacuum sampling where used at the same point, or when return visits were made. Most (88%) records were made between 2007 and 2012 from Norfolk's Broadland at 35 separately named fens covering an area from the Yare valley and Rollesby Broad in the south to the northern end of the Ant valley and eastward to Horsey Mere. Records elsewhere were: Northamptonshire: six samples from two marshes along the River Nene, (Ashton, between TL051880 and TL055877, 15-16.vii.2002; Wadenhoe, TL007831, 16.vii.2002); Hampshire;

one from Greywell Fen (SU718506, 9.vii.1996); Wiltshire: one from water meadows at Britford (SU167273, 19.vi.2002); Dorset: two from seepage fens at Woolcombe Farm, (SY553961, 30.vi.1987) and Frome St Quintin (ST579040, 9.vii.1987); Somerset: one each from grazing marsh ditches at Catcott Moor (ST407409, 29.vi.2012) and Langmead (ST367335, 17.vi.1983); Herefordshire: six from ponds and ditches at Moccas Park, (between SO345427 and SO349425, 26.vi.2002, 27.vii.2002); Gwent: two from grazing marsh ditches on clay at Wentlooge Level, (ST272826, 19.vi.1985 and ST261827, 2.vii.1985).

I have nine Norfolk records for *P. delicata* and one from Northamptonshire (Drake 2004), and all but one being singletons and female. Norfolk records were Whitlingham Marsh bordering the River Yare (six samples, one with a male, between TG277081 and TG282079, 12.vii.2012, in *Carex* fen and swamp, and tall *Phragmites* with scrub), Hickling Broad (TG413208, 23.vi.2007) in tall *Cladium mariscus* (saw sedge) and *Phragmites* (reed); Sutton Fen bordering the River Ant (TG368234, 21.vii.2000 in dense *Phragmites* and tall *Carex* with *Thelypteris* (marsh fern), and 29.vi.2008 in tall mixed vegetation in a *Phragmites* bed. The single female from Northamptonshire was from *C. acutiformis* and *Glyceria maxima* (reed sweet-grass) swamp at Wadenhoe by the River Nene (TL007831, 16.vii.2002).

Most of the records were obtained by vacuum sampling (73% of *S. cogani* records and 80% of *P. delicata* records) so, although sweep-netting was relatively inefficient at locating them, the flies were still susceptible to capture using a net.

There was an apparent difference in the sex ratio of captured individuals. Of 317 individuals of *S. cogani* that were sexed and counted (that is, in nearly all samples), 192 (61%) were males, whereas only one of the ten individuals of *P. delicata* was a male.

Using 367 samples from Norfolk fens, I analysed the occurrence of both species of Stenomicridae in relation to five dominant plant genera. *Stenomicra cogani* was found most frequently where *Phragmites* was present, but this is hardly surprising as the plant was noted in 80% of samples and was probably present in more at a low density (Fig. 1). *Cladium mariscus* and *Carex* were the next most frequently recorded plants where *S. cogani* was found, followed by small occurrences of *Juncus* (rushes) and *Typha* (reedmace). However, when ranked by the proportion of samples containing *S. cogani*, *Carex* was the most important genus: about one third of samples (35%) where *Carex* was noted contained *S. cogani*, and less than 28% for other plants. The moderately high proportion of samples containing the fly where *Cladium* was noted (28%) may suggest that this huge member of the Cyperaceae may also be a host plant.

From field notes, it was possible to divide the occurrence of the plants into clearly dominant or merely present but in large enough quantities to have been worth mentioning, bearing in mind that there was no necessity in any of these surveys to have recorded the vegetation at all. *Stenomicra cogani* was not significantly associated with any of these plants when no account was taken of their abundances, although there was significantly fewer occurrences of the fly where *Juncus* was an important component of the vegetation ($\chi^2 = 5.72$, 1df, $p<0.05$). However, when the subset of samples where each plant was clearly dominant was considered, the occurrence of *S. cogani* in samples with dominant *Carex* was only just not significant ($\chi^2 = 3.65$, 1df, $p<0.10$), whereas all other χ^2 values were far smaller. This implied that *S. cogani* was more likely to be found where *Carex* was abundant, whereas no other plant provided an indication of its presence.

There were too few samples to allow statistical testing of the association of *P. delicata* with plants, but it was fairly obvious from nearly half the samples (four out of nine) coming from areas dominated by *Carex* that this plant was an important component.

Sedges were only rarely identified beyond genus in any of my surveys, but those present where *S. cogani* was found were *C. riparia/acutiformis* (not easily separable by a non-specialist) at nine sites, *C. paniculata* at four sites and *C. pseudocyperus* at one site. The dominant sedge in the extensive sedge swamp at Whitlingham Marsh where *P. delicata* was frequent was *C. riparia* (Murray 2010).

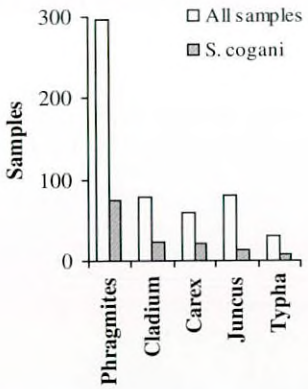

Fig. 1. Number of samples containing each plant and those with *Stenomicra cogani*.

Discussion

Merz and Roháček (2005) and Roháček (2009) collated ecological data on Stenomicridae. They concluded that *S. cogani* was associated repeatedly with several large species of *Carex* and *Scirpus sylvaticus* and only rarely from stands of other plants (*Glyceria maxima*, *Typha*). Rearing records were from *C. elongata* and *S. sylvaticus*. *Podocera delicata* was similarly most strongly associated with large *Carex* and especially *C. paniculata* but less often with other *Carex*. It was reared from *C. vesicaria*.

Circumstantial evidence, such as presented here in my results, also implicates sedges but which of the ten species listed by Roháček (2009) are most important has still to be established. The two species from which Roháček reared the flies may be dismissed as unimportant to British populations: *C. elongata* is sparsely distributed in Britain (Jermy *et al.* 2007) and *C. vesicaria* is uncommon in southern Britain, although it is a minor constituent of a tall-herb fen plant community (S27, *Carex rostrata-Potentilla palustris* tall-herb fen) that occurs in fens in Norfolk and Wales where *P. delicata* has been recorded (Rodwell 1995). Most of the other sedges on which Stenomicridae have been found are large with a tufted or tussocky form (*C. rostrata* has a less dense stem base), and this characteristic may be as important as the species itself to the flies, at least to the more catholic *S. cogani*. The nearly significant association of *S. cogani* with *Carex* when it was clearly a dominant component of the vegetation also suggested that the quantity of the plant was important to this species. If this is correct, the common and widespread *Carex nigra* seems an improbable host as it is moderately small, not especially tufted and has an exceptionally wide ecological tolerance, and in the Norfolk fens, at least, it is a rare plant (Harding *et al.* 2010). Of the remaining species on Roháček's list that are most likely to support populations of *S. cogani* in Britain are *C. acuta*, *C. acutiformis*, *C. elata*, *C. paniculata*, *C. pseudocyperus*, *C. rostrata* and *C. riparia*. There is a slender possibility that *Cladium mariscus* may be used since *S. cogani* was

present at a moderately high proportion of sites where it was present, and it has the proposed characteristics exhibited by the other Cyperaceae of being large and densely tussocky. Diptera were usually conspicuously scarce at sites with abundant saw-sedge, particularly at commercially cut beds, and this was not thought to be just due to the difficulty of effectively sampling this unpleasant plant. It would be a small point in the plant's favour if an uncommon fly was making use of it.

The range of hosts of *P. delicata* is probably narrower than that of *S. cogani*, as suggested by Roháček (2009), who proposed that *C. paniculata* was the main host. However, in Norfolk fens, this plant is moderately restricted and was certainly absent from the parts of the three fens where *P. delicata* was found. These samples were taken from areas that were known to support *C. riparia* in abundance (Whitlingham Marsh) and *C. pseudocyperus* (Sutton Fen), although other large *Carex* species may also have been present. The latter sedge was recorded as a habitat for *P. delicata* by Godfrey (1994).

A final point of interest to emerge from my records was the uneven sex ratio. This is more likely to reflect a difference in susceptibility to capture than a genuine difference in sex ratio. It may be a characteristic of the family as differences have now been found in three species, including the non-British *S. soniae* Merz & Roháček, males of which were caught mainly in Malaise traps whereas females were caught using a wide range of traps (Merz and Roháček 2005). This suggests that the family may show some marked behavioural differences between the sexes.

Acknowledgements

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Dipterists Digest 2013 **20,** 57-61

Macronychia agrestis (Fallén) (Diptera, Sarcophagidae) new to Britain, with notes on the other British *Macronychia* species

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Summary

Macronychia agrestis (Fallén, 1810) is reported as new to Britain from Lullington Heath National Nature Reserve in East Sussex and a key to distinguish it from other *Macronychia* species is provided.

Introduction

On 25 August 2003, two *Macronychia* males were swept from the flowers of wild parsnip *Pastinaca sativa* at Lullington Heath National Nature Reserve, at approximately TQ540014. The initial impression was that these were the scarce *M. polyodon* (Meigen, 1824), but on checking the specimens against the keys in Pape (1987), Povolný and Verves (1997), also against *Macronychia* material in the Natural History Museum, London, plus the author's collection, it was concluded that the material represented *M. agrestis* (Fallén, 1810). The appearance closely resembles *M. polyodon* but the other two British *Macronychia* species, *M. griseola* (Fallén, 1820) and *M. striginervis* (Zetterstedt, 1838), are very different in appearance. In 2011, the Lullington material plus some *M. polyodon* material obtained from other sites in Sussex and Warwickshire were sent to Thomas Pape at the University of Copenhagen for checking. He concluded that the Lullington material represented *M. agrestris*.

A new key to the four British species of *Macronychia*

1 Basicosta yellow. Body heavily dusted with dark markings restricted to four inconspicuous and shifting presutural thoracic vittae and faint markings on the tergites. Tergite 1+2 without marginal bristles. Female ovi-larvipositor inconspicuous and retractile. A rather small (wing length 5–6mm), stockily-built species ..... ***griseola*** (Fallén)

\- Basicosta dark. Mesonotum with five distinct dark vittae. Tergites with a conspicuous pattern of black and pale grey markings; tergite 1+2 often with marginals. Usually larger species with wing length typically 6-10mm **2**

2 Wings strikingly elongate (typically 9–10 mm) and narrow, somewhat infuscate at the apex. Lower calypter very large and about twice as long as the scutellum. Abdomen relatively elongate with tergite 4 the broadest and much broader than tergite 1+2, especially in the female. Female ovi-larvipositor permanently exerted to form a rigid black spine ..... ***striginervis*** (Zetterstedt)

\- Wings not exceeding 8 mm in length and not conspicuously narrow. Lower calypter smaller, only about 1.5 times as long as the scutellum. Abdomen much shorter, with tergite 1+2 broader than the fourth. Female ovi-larvipositor short and truncated **3**

3 Tergite 1+2 and tergite 3 with strong median marginals. Median stripe of tergite 3 is narrow at its anterior end (much less than width of hind tibia) and tending to widen substantially in posterior half ..... ***agrestis*** (Fallén)

- Tergite 1+2 without median marginals, tergite 3 occasionally with some weak ones. Median stripe of tergite 3 is usually broader at its anterior end, at least equal to the width of the hind tibia ..... ***polyodon*** (Meigen)

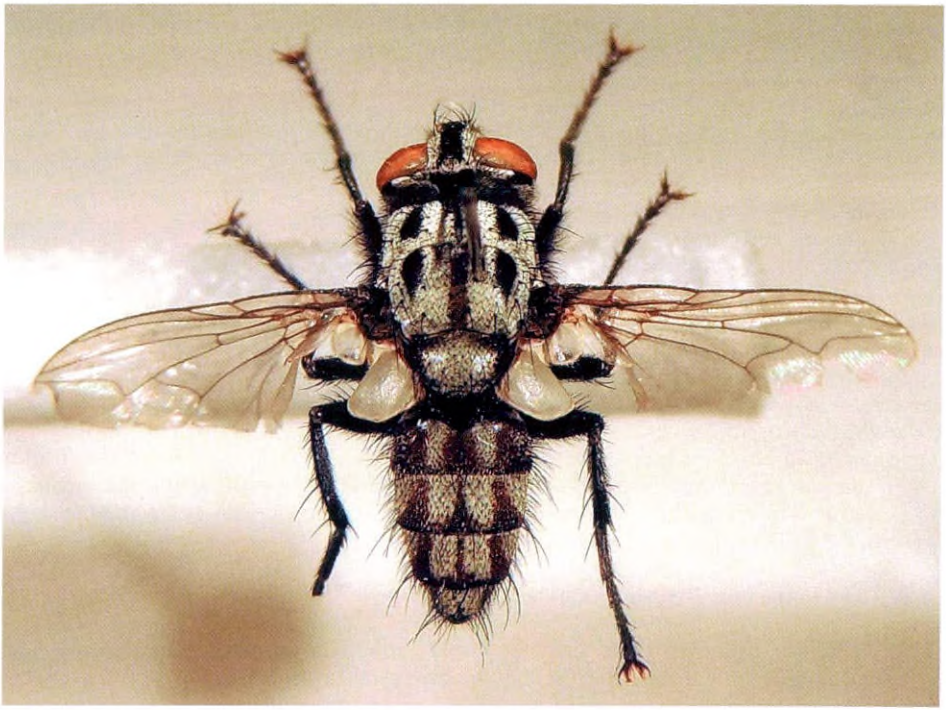

Fig 1. ***Macronychia agrestis*** **male from Lullington Heath, dorsal view.**

Notes on the four British species of *Macronychia*

All four British *Macronychia* species are scarce to rare in Britain and primarily associated with crabronid wasps; the larvae are cleptoparasites in the nests. The British distribution is based on Falk *et al.* (in prep.) plus recent personal encounters. European distribution is taken from the Fauna Europaea website: www.faunaeur.org. The beyond Europe distribution and foreign biological details are taken from Povolný and Verves (1997) and Pape (1987).

M. agrestis (Figs 1-2)

Closely resembling *M. polyodon*, with similar male genitalia, though perhaps averaging slightly larger in size and usually with less extensive dark markings. Larvae are reported to be cleptoparasites in the nests of the crabronid wasp genus *Psenulus*. The known British site (Fig. 3) features chalk grassland and chalk heath with scattered scrub and adjacent woodland. Elsewhere in Europe, this species is recorded from Austria, Belgium, the Czech Republic,

Danish mainland, Estonia, Finland, French mainland, Germany, Hungary, Poland, Sardinia, Sweden, Switzerland, the Netherlands and Ukraine. Beyond Europe, it extends eastwards to the Altai Mountains.

Fig 2. Same specimen of *M. agrestis* taken in oblique side view.

M. griseola

A relatively small, grey-dusted species that lacks strong markings. It favours sandy habitats such as coastal dune, heathland and soft rock cliffs in the southern half of Britain as far north as Staffordshire, Cambridgeshire and Norfolk, and is best obtained by sweeping sparse vegetation and low flowers. The larvae are recorded as cleptoparasites in the nests of the crabronid wasp genus *Oxybelus* and adults fly in June and July. It is classified as Red Data Book Category 3 (Nationally Threatened) by Falk (1991) and Lower Risk (Nationally Scarce) by Falk *et al.* (in preparation). Elsewhere in Europe, this species is recorded from Austria, Belgium, the Czech Republic, Danish Mainland, French mainland, Germany, Hungary, Poland, Slovakia, Sweden, Switzerland, the Netherlands and Ukraine. Beyond Europe, it extends eastwards to China and Taiwan.

Fig 3. A wild parsnip patch at Lullington Heath, the site that produced the records.

M. polyodon

Larvae are cleptoparasites in the nests of various crabronid wasps including *Crabro*, *Crossocerus*, *Ectemnius*, *Oxybelus* and *Pemphredon*. They are also reported to use the nests of some bumblebees *Bombus* (Apidae). The author has mainly encountered adults on umbellifer (Apiaceae) flowers, though visits to Asteraceae and Euphorbiaceae are reported abroad. The flight period extends from March to September. It has been recorded at scattered British localities as far north as Norfolk, Warwickshire and Staffordshire with two older records from Scotland: Culbin Sands and Logie, both in Elgin. Habitats include post-industrial land, heathland, scrubby grassland and woodland edge. It is classified as Red Data Book Category 3 by Falk (1991) and Lower Risk by Falk *et al.* (in prep.). There is one old Irish record, from Co. Offaly in 1924 (Chandler *et al.* 2000). Elsewhere in Europe, this species is recorded from Andorra, Austria, Belgium, Bulgaria, the Czech Republic, Estonia, Finland, French mainland, Germany, Hungary, Italian mainland, Malta, Republic of Moldova, Norwegian mainland, Poland, Romania, Slovakia, Spanish mainland, Sweden, Switzerland, the Netherlands and Ukraine. Beyond Europe, it extends eastwards to Japan. The material examined is surprisingly variable in appearance, ranging from large specimens (wing length 8mm) that are relatively pale to those that are small (wing length 5mm) and relatively dark. All *M. polyodon* material at the Natural History Museum was screened for *M. agrestis* in 2012, but only the former species was found.

M. striginervis

One of our most distinctive calyptrate flies (figured beautifully on Plate 47 of Colyer and Hammond 1951, as *M. ungulans* (Pandellé, 1895)) due to the very elongate wings. This feature is rarely ever alluded to in keys. *Macronychia striginervis* is a cleptoparasite of *Ectemnius* wasps in dead wood, perhaps especially *E. cavifrons* (Thomson, 1870). Adults fly from May to September. It is widespread but localised in Britain as far north as Yorkshire and is classified as Nationally Scarce by Falk (1991) and Lower Risk by Falk *et al.* (in prep.). Adults can be encountered in a range of habitats including woodland edge, hedgerows, heathland, coastal dunes and even gardens. Females often bask on wood or foliage, and both sexes will visit the flowers of umbellifers. There are only two Irish records, from Co. Wicklow in 1994 and from Co. Kildare in 2006 (Chandler *et al.* 2008). Elsewhere in Europe, this species is recorded from Austria, the Czech Republic, Danish mainland, Estonia, Finland, French mainland, Germany, Hungary, Italian mainland, Madeira, Republic of Moldova, Norwegian mainland, Poland, Romania, Slovakia, Sweden, Switzerland, the Netherlands and Ukraine. Beyond Europe, it is widespread in the Palaearctic region, and has even been recorded from the Afrotropical region.

Photographs of all these species can be found on the author's Flickr site by searching on 'Steven falk Flickr collections' and drilling down the taxonomically arranged folders.

Acknowledgements

Thanks are due to Thomas Pape for confirming identification and providing further information on *Macronychia*; the Natural History Museum, London for allowing me to check their material of *M. agrestis* and *M. polyodon*, and English Nature/Natural England for permitting the surveying of Lullington Heath NNR.

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Fruit flies (Diptera, Drosophilidae) and orchids – On 31 August 2012, Neil Hulme, the conservation adviser to the Sussex Branch of Butterfly Conservation, was in the southern part of Rewell Wood (SU9807), north-west of Arundel, East Sussex when he noticed many small flies that had gathered around a flower spike of a violet helleborine orchid *Epipactis purpurata*. There were around 50 individuals on the spike. These were still in attendance in lower numbers when he paid his last visit to the plants almost two weeks later and also during interim visits made by several of his friends. The flies were identified by John and Barbara Ismay as *Hirtodrosophila cameraria* (Haliday, 1833) (Drosophilidae).

There were 14 males and 1 female in a sample collected and Mark Colvin (an entomologist from Bioguard Environmental, who sent specimens to Oxford University Museum and the Royal Botanic Gardens, Kew) wrote that a colleague at Kew said of the photographs taken by Colin Knight "I do not think they show pollination, only a visit to the nectar-like liquid in the stigma of the helleborine." Helleborine orchid species are usually self-pollinated or pollinated by wasps in Britain.

Hirtodrosophila cameraria is widespread in Britain and its larvae are found in fungi. The violet helleborine is a plant mainly confined in Britain to southern England and the Midlands. The plant is quite scarce in most areas and the opportunities for *H. cameraria* to visit it must be relatively few. The closely related and commoner broad-leaved helleborine *Epipactis helleborine*, does not seem to have the same attractive powers. A.R. Clapham, T.G. Tutin and D.M. Moore (1987. *Flora of the British Isles. Third edition.* Cambridge University Press) described *E. helleborine* as 'scentless' and *E. purpurata* as 'slightly fragrant', though there are probably many chemical signals from these plants that humans would be unable to detect. Interestingly Neil Hulme has pointed out *H. cameraria* (or possibly similar species) can sometimes be identified on photographs of *E. purpurata* flowers available on the Internet.

The attraction of *Hirtodrosophila* species and other flies of their family to certain orchid flowers has also been recorded from the cloud forests of Ecuador and one of these orchids, *Dracula lafleurii*, has flowers with a distinct mushroom smell.

Some of these drosophilids are involved in pollination but seemingly not *Hirtodrosophila* species (Endara, L. and Grimaldi, D. 2010. Lord of the Flies: pollination of *Dracula* orchids. *Lankesteriana* **10,** 1-11). David Grimaldi (*pers. comm.*) informed me that "there are certain epiphytic orchids in the neotropics, principally of the genus *Dracula*, that mimic tiny mushrooms in appearance and in odour." He has many more unpublished records of Drosophilidae visiting orchid flowers, including many of *Hirtodrosophila* species visiting *Dracula* orchids in numbers in Ecuador.

However, A. Jakubska-Busse and M. Kadej (2011. The pollination of *Epipactis* Zinn, 1757 (Orchidaceae) species in Central Europe – the significance of chemical attractants, floral morphology and concomitant insects. *Acta Societatis Botanicorum Poloniae.* **80**(1), 49-57), in an extensive study in central Europe, recorded no drosophilids visiting *Epipactis*. In the future closer scrutiny of *Epipactis* flowers may reveal other associations between the orchids and drosophilids, or invertebrates from other families.

I am grateful to Neil Hulme, Lorena Endara and David Grimaldi for their help in preparing this note – **PATRICK ROPER,** South View, Churchill Lane, Sedlescombe, East Sussex TN33 0PF

Dipterists Digest 2013 **20**, 63-68

Botria subalpina (Villeneuve) (Diptera, Tachinidae) new to Britain from Scotland

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Summary
Botria subalpina (Villeneuve, 1910) is newly recorded from Britain, based on specimens taken from Easter Ross and South Morar in Scotland. Modifications to keys in Belshaw (1993) to accommodate the species are provided and key characters are described.

Introduction

On 22 March 2012 at Dalreoch Wood (NH67, V.C. 106, East Ross) one of us (MM) found three males of a dark, grey-coloured tachinid that could not be satisfactorily keyed using Belshaw (1993). Dalreoch Wood is a large north-easterly facing mixed deciduous and conifer wood near Alness on Scotland's east coast on the north side of the Cromarty Firth. All individuals were basking on tree-trunks or stones on the edge of a forest ride. The specimens were sent down to the National Museums of Scotland at West Granton, Edinburgh where DH keyed them, using Tschorsnig and Herting (1994), as *Botria subalpina* (Villeneuve, 1910) and then compared the specimens with the description in Mesnil (1944-1975). Hans-Peter Tschorsnig of the Staatliches Museum für Naturkunde, Stuttgart, confirmed one of the male specimens as *B. subalpina*.

An unidentified female tachinid in the collection of DH also proved to be *B. subalpina*. This was taken in South Morar (V.C. 97, Westerness) on 2 June 1994 within oak-birch woodland in Glen Beasdale (NM719851), which is located on the west coast of Scotland overlooking the Sound of Arisaig, southeast of Mallaig. CR confirmed this specimen as *B. subalpina*.

Villeneuve (1910), in his original description of *B. subalpina*, mentions that he has a female example of this species (taken in April) sent to him by Colbran J. Wainwright and taken in the vicinity of Birmingham. Mesnil (1944-1975) pointed out that Wainwright (1928) seemed to have forgotten about this species in his publication on British tachinids. Based on Villeneuve's record, Verrall (1912) included *B. subalpina* (as *Bothria*) as one of a hundred new species introduced as British in his paper. However, the specimens that Wainwright sent to Villeneuve were taken in Switzerland (Wainwright 1912). Wainwright stated that Villeneuve had unfortunately failed to note the labels on the pins of the specimens and believed that Wainwright had taken them near his home town, which was Birmingham.

Botria subalpina has a European distribution of northern and central Europe, including Finland, Sweden, Austria, Saxon Bergland (Germany), French Jura and Switzerland in the Alps (Mesnil 1944-1975). According to Tschorsnig *et al.* (2004) and Herting and Dely-Draskovits (1993) *B. subalpina* is widely distributed in central, western and northern Europe, and east, central and northwest Russia and Mongolia. This is an early spring species, which Mesnil (1944-1975) mentioned as occurring in April in Sweden and June in Finland while

Villeneuve (1910) mentioned May in Saxony. Tschorsnig (*pers. comm.*) mentions specimens from Austria and Germany collected as early as 13 and 15 March.

Fig. 1. Head of female in profile view.

Description of key characters

Botria subalpina has a body length of about 6-8 mm and the body coloration is blackish with grey markings of pollinosity. The abdominal tergites have a shifting pattern of silvery-grey

pollinosity, which extends to the posterior edge. The tibiae, palps and at least the posterior two-thirds of the scutellum are yellow.

The edge of the mouth is not projecting forwards (Fig. 1). Upwardly pointing frontal bristles extend down below the insertion of the antenna on to the parafacialia. Below the frontal bristles hairs extend further down on to the parafacialia, leaving the lower part of the parafacialia bare. There are strong hairs on the facial ridge, which extend almost two-thirds of the way up above the vibrissa and meet or overlap slightly with the hairs below the frontal bristles. The gena is wider than the parafacialia at the level of the antennal base. The eyes have long, dense hairs. The first two antennal segments are dark-reddish. The arista is thickened for about the basal two-thirds of its length. Three to five rows of black setulae occur behind the postocular row of bristles (always black). Behind the black setulae are white or yellowish hairs on the back of the head, which extend down to below the posterior mouth edge. The frons in the female is just short of the eye-width, while the frons in the male is about 0.6 times eye width.

Fig. 2. Dorsal view of scutellum and abdomen of male.

The mediodorsal depression of abdomen 1+2 reaches the posterior margin of the syntergite (Fig. 2). There is an irregular group of generally three to six moderately strong median bristles on abdominal tergites 3 and 4. The basal and subapical marginal scutellar bristles are strong, divergent and 2.25-3 times the length of the scutellum. The lateral bristles are a little less strong at about 2-2.5 times the length of the scutellum. These bristles are much stronger than the apical bristles, which are often missing and, when present, are hair-like and neither crossed nor raised.

Prosternal setae are present. There are three intra-alar bristles, and three presutural and four postsutural dorsocentral bristles. There are four strong postpronotal (humeral) bristles, with three of the bristles forming a shallow triangle with another bristle in front. The prealar bristle is longer and stronger than both notopleural bristles. A few hairs are present at the anterior end of the katepimeron (barette).

The cross-veins (r-m and m-cu) of the wings are darkened. On the wing veins there are only two to three bristles, which are confined to the node of R_{4+5} and do not extend towards the r-m crossvein. Vein M is sharply angled before the wing margin, while cell r_{4+5} is open.

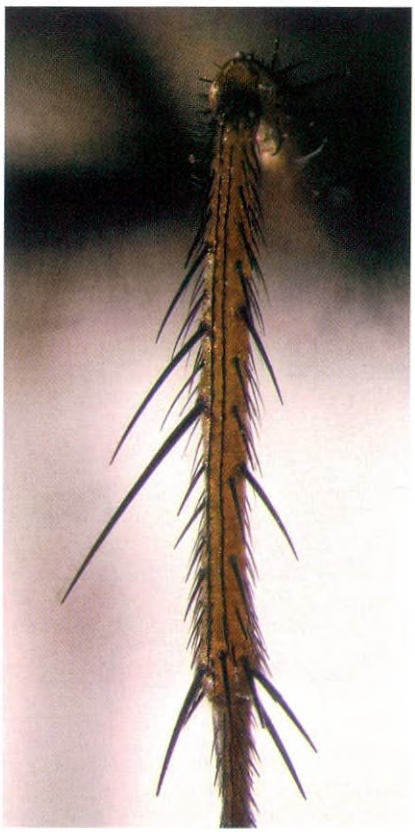

Fig. 3. Middle tibia of female in dorsal view with anterodorsal bristles to the left.

The middle tibia has three strong anterodorsal bristles, which decrease in length towards the base of the tibia (Fig. 3). The dorsal spur on the fore tibia is much longer than the anterodorsal spur.

Identification

The following modifications to Belshaw's key should enable *B. subalpina* to be determined among British tachinids:

28 Abdomen 3 and 4 with median discal bristles, either a pair (Fig. 32) or an irregular group. [Parafacial area with hairs on the upper part meeting or overlapping with strong hairs running up the facial ridge, thorax with 3 or 4 postsutural dorsocentral bristles] **29a**

\- Abdomen 3 and 4 without median discal bristles. [Parafacial area without hairs, occasionally 1 or 2 hairs present just below the parafrontal bristles, thorax with 4 postsutural dorsocentral bristles] ..... ***Parasetigena silvestris*** (p. 63)

29a Tibia orange. Thorax with 4 postsutural dorsocentral bristles. Around 3-6 irregular median discal bristles on abdominal tergites 3 and 4. Aristal thickening extending to more than half of aristal length, up to two-thirds aristal length. Apical scutellar bristles missing or hair-like, not crossed, 0.4-1.0 as long as the length of the scutellum ..... ***Botria subalpina***

\- Tibia grey-brown to black. Thorax with 3 postsutural dorsocentral bristles. A pair of strong median discal bristles on abdominal tergites 3 and 4. Aristal thickening less than half of the length of the arista, around one third to almost half aristal length. Apical scutellar bristles fine, though strong and crossed, about 1.0-1.3 times the length of the scutellum ..... ***Phorocera*** (p. 54)

Systematics

The genus name that has been in use is *Bothria* (Herting and Dely-Draskovits 1993). However, Rondani (1856, 1862) made a nomenclatural mistake, giving two original spellings of this genus-group name: *Botria* and *Bothria*. Strictly applying the ICZN Code, Rondani (1862) acted as "First Reviser" and selected *Botria* as the correct original spelling (O'Hara *et al.* 2011).

Acknowledgements

Thanks are due to Hans-Peter Tschorsnig for confirming the identification of a male *B. subalpina* and for providing information on the name change of *Bothria* to *Botria*. We are grateful to Richard M. Lyszkowski of the National Museums of Scotland for preparing the figures.

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Dipterists Digest 2013 **20**, 69-72

Egle concomitans (Pandellé) (Diptera, Anthomyiidae) new to Britain

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Summary
Egle concomitans (Pandellé, 1900) is added to the British List from Cambridgeshire. Details are given of how it can be separated from other British species of *Egle*, and of its known distribution and possible host plants.

Introduction

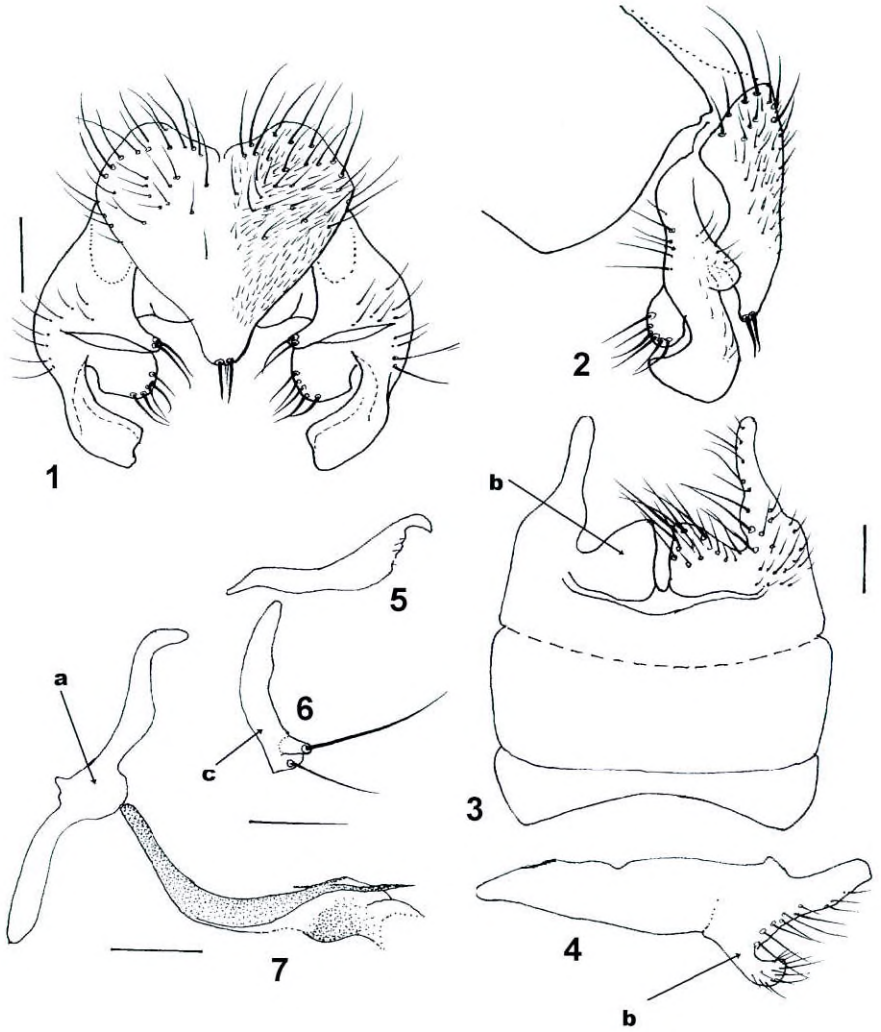
On 22 May 2012, whilst collecting at Fulbourn Fen Nature Reserve, Cambridgeshire (TL528564), IP swept an unusual looking male anthomyiid from ground vegetation. On examination it appeared to resemble a species of *Lasiomma* or even an *Anthomyia* of the "*liturata* group", but the genitalia did not match any known species and it was sent to DMA who identified it as *E. concomitans* (Pandellé). Fulbourn Fen NR covers an area of 31ha (76 acres) and lies just to the east of Cambridge. It consists of unimproved, herb-rich meadows, surrounded by mature hedges and blocks of deciduous woodland. Part of the Reserve is normally quite wet, fed by calcareous water from the south and this gives rise to fen vegetation with sallows (*Salix* species) in one of the meadows, merging to wet woodland with ash *Fraxinus excelsior*, alder *Alnus glutinosa* and aspen *Populus tremula*. The meadows are lightly grazed by cattle during the summer and are noted for their populations of marsh orchids *Dactylorchis* species.

Identification

Ackland (1969) provided a key to the Palaearctic species of *Egle* known at the time, later adding *E. subarctica* Huckett, 1965 (Ackland 1989) and subsequently *E. lyneborgi* Ackland & Griffiths, 2003 (Ackland 2003) to the British List. A comprehensive review of the genus *Egle* in Europe and neighbouring areas, including a key to females, was provided by Michelsen (2009), who included *E. concomitans*, having previously (Michelsen 1988), proposed its transfer from *Lasiomma* Stein. Morphologically *E. concomitans* differs from all other known Palaearctic *Egle* species in lacking extended mouth parts, with haustellum less than half as long as fore tibia and in having the lower facial margin less projected, in profile lying well behind the fronto-parafacial angle. It also has, along with the European *E. myricariae* Grossman, 1998, a pair of large inner basal lobes on sternite V (Figs 3b and 4b), which project ventrally. Other genital characters are: the pregonite (Fig 6c) is long and narrow, with 2 strong setae apically, and in common with other *Egle* species the basiphallus (Fig 7a) is very small. Without dissection, the structure of sternite V in the male is characteristic for *E. concomitans* within the British species.

The lack of a projecting lower facial margin makes it difficult to run down in most existing generic keys, although the presence of this character is not an apomorphous one for the genus *Egle*. For a full treatment of the monophyly and relationships of *Egle*, together with adult feeding habits and mouthpart structures, Michelsen (2009) and Griffiths (2003) provided comprehensive information. Because of its atypical appearance it may have been overlooked

as a species of *Egle* in this country, although in the male at least, the distinctive genitalia should alert dipterists that something unusual was involved.



Figs 1-7. ***Egle concomitans*** **(Pandellé), male genitalia and sternite V. 1, cercal plate and surstyli, caudal view/dorsal view; 2, lateral view; 3, sternite V, ventral view; 4, lateral view; 5, postgonite; 6, pregonite; 7, aedeagal complex, lateral view (scale line 0.1mm),**

Discussion

Most species of *Egle* have an intimate relationship with willows *Salix* species (Salicaceae). Adults can be found feeding at the catkins and unusually amongst Anthomyiidae, have been found to take pollen as well as nectar. Larvae feed on the developing seed capsules and when heavily infested, a single catkin may contain several individuals of more than one species. In *E. myricariae*, known only from the Tyrol, Austria, the host is the German tamarisk *Myricaria germanica* (Grossmann 1998) and although this plant is from a different family (Tamaricaceae), its flowers and seeds are reminiscent of willow catkins. Larvae of *Egle* have at times been found in the female catkins of poplars *Populus* species (Salicaceae). Gäbler 1958) found what he identified as larvae of *E. ciliata* (Walker, 1849) (as *E. muscaria* (Fabricius, 1777)) in aspen *Populus tremula*, although Michelsen (2009:12) questioned whether they were indeed *E. ciliata*. Griffiths (2003:2290) found larvae in catkins of American aspen *P. tremuloides* in Edmonton, Alberta, though he does not comment on their identity.

The host plant of *E. concomitans* is unknown. In North America, adults have been found on willow catkins in spring, but visit other flowers later in the season and have also been captured on moose dung and in traps baited with liver and carrion. As *E. concomitans* appears to be less intimately associated with willows than most other species of *Egle*, Michelsen (2009) speculated that larvae may develop in the female catkins of poplars *Populus* species. In view of this it may be significant that there were three large poplar trees (probably *P. x canadensis*), close to where the first British specimen was found. Despite spring being late in 2012, the date of capture (22 May) was considerably later than IP had encountered *Egle* in East Anglia before, further suggesting that the host plant is unlikely to be a willow *Salix* species. It seems quite possible that all previous records of *Egle* larvae from *Populus* are referable to *E. concomitans*, although further work is needed to confirm this. Since this paper was written *Egle concomitans* has been recorded as new to the Netherlands (van Erkelens 2013), three males being captured on the trunk of *Populus alba* (*op. cit.*: 6, 11; and *in litt.*). This is further evidence that *E. concomitans* is associated with *Populus* species.

Distribution

E. concomitans is a widespread Holarctic species reaching the northern border of the Oriental Region, although it appears to be rare in Europe, where it is known from Germany, the Czech Republic, Slovakia, Hungary, Switzerland and Finland. The British record indicates that it is probably under-recorded and likely to be far more widely distributed in Northern Europe than was previously thought. In North America it is widespread and often abundant in the boreal forest and in floodplain forests of the northern prairies (Griffiths 2003).

Acknowledgements

IP would like to thank the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire for allowing him to collect Diptera at Fulbourn Fen Nature Reserve. DMA thanks Verner Michelsen for ongoing discussions on all aspects of European Anthomyiidae.

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A new Berkshire locality for *Xylomya maculata* (Meigen) (Diptera, Xylomyidae) – Among reared specimens donated to the British Entomological and Natural History Society in 2012 by the late Peter Dyte, was a male of *Xylomya maculata* (Meigen, 1804). This had emerged on 4 June 2009 from wood debris collected on 13 April 2009 from a rot hole in a sycamore *Acer pseudoplatanus* trunk at Maidenhead Thicket, Berkshire (SU652811), a mixed woodland to the west of Maidenhead town, that is administered by the Royal Borough of Windsor and Maidenhead and the National Trust. This striking but elusive species is most often recorded by rearing from rot holes in old trees and previous records have been from oak *Quercus* and beech *Fagus* (Stubbs, A.E. and Drake, M. 2001. *British Soldierflies and their allies*. British Entomological and Natural History Society, Reading). This occurrence suggests that it may use a wider range of trees and that the nature of the rot hole and consistency of its contents may be more important.

The British distribution of this species is restricted to three areas of southern England, centred on the ancient forest areas of Epping, Windsor and the New Forest, with some Middlesex sites between the first two of these areas. In the Windsor Forest area it is also known from Virginia Water and Silwood Park, and the present record provides a northerly extension to its range in that district, situated about 10km from the Windsor Forest site at Highstanding Hill. A recent assessment of its status has suggested a decline in records, with only three other hectads, one in each of the three site clusters, since 1990 (Martin Drake *pers. comm.*), so the present record is significant in suggesting that it might also be found in other woodlands in this general area – **PETER J. CHANDLER,** 606B Berryfield Lane, Melksham, Wilts SB12 6EL

Dipterists Digest 2013 **20,** 73-78

Egle suwai Michelsen (Diptera, Anthomyiidae) new to Britain, with notes on other *Egle* species and a key to British males

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Summary
Egle suwai Michelsen, 2009 described from Denmark and Sweden, is recorded from Britain. It belongs to the *Egle minuta* species group, which contains four species in Britain. Figures of the male genitalia of these species are given, with notes on their distribution as known at present. A key to British *Egle* males, with illustrations, is also included. Females of most species are recognised and figured from micro-photographs by Michelsen (2009), but are not included in this paper as females of the *minuta* group are insufficiently recognised amongst British material, and no drawings are yet available.

The *Egle minuta* species group

In Europe this species group contains *E. minuta* (Meigen, 1826), *E. parva* Robineau-Desvoidy, 1830, *E. lyneborgi* Ackland & Griffiths, 2003, and *E. suwai* Michelsen, 2009. The first two species are relatively common, and males can be recognised from external characters. *Egle lyneborgi* was described jointly from Europe and the Nearctic region, and was added to the British List by Ackland (2004: 84) from Oxfordshire and Berkshire, based on examination of the male genitalia of specimens previously determined as *E. minuta*. *Egle suwai* was described from Denmark and Sweden, and at present is the least common of the four species, so its known British distribution is also restricted to *Egle minuta* group material that has been dissected. It was first recorded from near Barnsley in Yorkshire by John Coldwell (2011), based on a specimen sent to me; at the time I knew of a few specimens from Berkshire, and told John that it had not been recorded from Yorkshire, but omitted to say that it was not yet on the British List.

Taxonomy of the *E. minuta* species group

Small species, with wing length 2.5-4.0 mm. Male: sternite V of simple shape as in Fig. 18, without setal tufts posterolaterally on basal plate or at base of processes. Cerci not strikingly narrow or elongated in caudal view (Figs 1, 4, 7, 10). Female: sternite VIII wholly reduced. Cerci broadly rounded and distally bare.

Egle minuta (Figs 4, 5, 6)

The males of this species can only be reliably separated from the other three by characters in the key. If the epandrium is visible in undissected specimens and some small setulae can be detected laterally, this will generally point to *E. minuta*. In examining the surstylus the broader base alongside the cerci is distinctive, and the narrower distal part of the cerci can only be confused with *E. parva*, which has a more projected facial margin, with biserial genal setulae. It is a common and widely distributed Holarctic species, associated with a range of flowering *Salix* species. I have found it on the top of the Cairngorm mountains at 3000 ft. Griffiths records it from Canada in the Banff National Park at 3,900m.

Egle parva (Figs 7, 8, 9)
A common species in Britain. Males can be separated from *E. minuta*, *E. lyneborgi* and *E. suwai* by the characters in the key. Undissected males can generally be recognised by the more produced facial margin bearing biserial genal setae (Fig. 20). It is also slightly larger on average than *E. minuta*, with wing length reaching 4.4 mm. It is restricted to the Palaearctic region.

Egle lyneborgi (Figs 1, 2, 3)
The male of this species has the cerci not constricted medially but parallel-sided, and wider than in *E. minuta*; the distal part is slightly tapering. The narrower base of the surstylus along the cerci, and the broader surstylus in lateral view coupled with the much wider pregonite and postgonite without a transverse ridge (Fig. 3B) separate it from *E. minuta* and *E. suwai*.

The British paratypes (10 males) of this species (Griffiths 2003: 2359) were all from Oxfordshire (V.C. 23): Whitecross Green Wood, Nuneham Courtney, and Shotover Country Park; Berkshire (V.C. 22): Lashford Lane LNR, Cothill NNR, and Bagley Wood. All are in OUMNH.

In 2011 John Coldwell recorded it from Cortonwood and Haigh in Yorkshire (Coldwell 2011). Recently he sent me the following records: Lower Carr Green (SE328090), 19.iii.2011, roadside near ex-colliery spoil heap, 1 male; Old Moor RSPB Reserve (SE431024), 6.iv.2011, old railway line, NE of reserve, 1 male; Old Moor RSPB Reserve (SE423021), 19.iii.2012, rough grassland S of reserve, 4 males; Adwick Washland (SE471022) 15.iii.2012, wash land, 3 males; Dodworth (SE315058), 22.iii.2012, ex-colliery spoil heap, 2 males; Low Barugh (SE320088), 28.iii.2012, abandoned canal, 1 male.

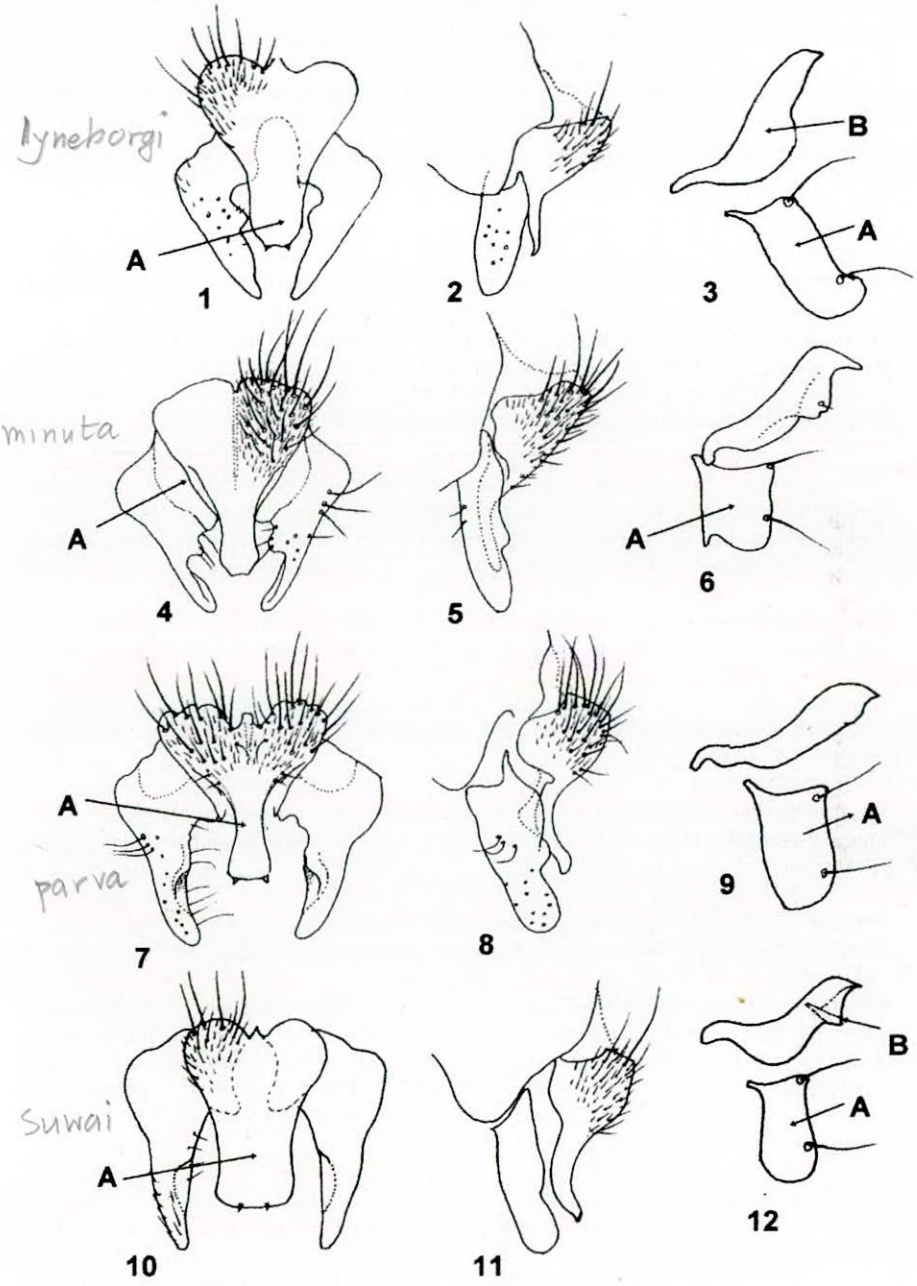
Egle lyneborgi will probably prove to be widespread in Britain, though in lesser numbers than *E. minuta*.

Egle suwai (Figs 10, 11, 12)
The male of this species has the apical extension of the cerci parallel-sided to the tip, and somewhat wider than in *E. lyneborgi*. The postgonite has a transverse ridge (Fig. 12B).

Egle suwai was described from 31 males and 2 females caught in Denmark and Sweden. In Britain only four males have so far been identified: S.W. Yorkshire (V.C. 63), Haigh (SE307116), 11.iv.2010, ex-colliery waste ground, 1 male, J.D. Coldwell; Old Moor RSPB Reserve (SE431024), 6.iv.2011, 1 male, J.D. Coldwell; Berks (V.C. 22), Lashford Lane LNR, 12.iv.1989, 1 male, D.M. Ackland; Bagley Wood, 28.iii.1965, 1 male, D. M. Ackland.

This species may prove to be widely distributed in Britain, though much less common than the other three species of the *E. minuta* species group. No other characters apart from those mentioned for the male genitalia have so far been found. The two British specimens from Berkshire recorded above were identified from dissections of over 50 males of *E. minuta*, so it will be a time-consuming process to discover its actual distribution.

Figs 1-3, *Egle lyneborgi*: 1, cerci and surstyli, caudal view; 2, lateral view; 3, gonites. Figs 4-6, *Egle minuta*: 4, cerci and surstyli, caudal view; 5, lateral view; 6, gonites. Figs 7-9, *Egle parva*: 7, cerci and surstyli, caudal view; 8, lateral view; 9, gonites. Figs 10-12, *Egle suwai*: 10, cerci and surstyli, caudal view; 11, lateral view; 12, gonites.


lyneborgi
A
1
2
B
A
3
minuta
A
4
5
A
6
A
parva
7
8
A
9
Suwai
A
10
11
B
A
12

1 Proboscis short, haustellum less than half as long as fore tibia. Lower facial margin less projected, in profile lying well behind fronto-orbital angle ..... ***concomitans*** (Pandellé, 1900)

– Proboscis more or less extended, haustellum more than half as long as fore tibia. Lower facial margin more projected, at level with or reaching more or less beyond fronto-parafacial angle **2**

2 Notopleuron around posterior seta with more than 3 accessory setulae. Hind tibia with apical pd-seta **3**

– Notopleuron bare, exceptionally (only some *E. parvaeformis*) with 1-3 accessory setulae. Hind tibia without apical pd-seta **4**

3 Head about as long as high, parafacial widened downwards, haustellum and palp as long as largest diameter of eye. Apical extension of cerci wider and shorter, emarginate at tip (Fig. 13). Thorax more blackish, longitudinal vittae not so distinct. Body with thicker hairing, especially on abdomen and hind femora ..... ***ciliata*** (Walker, 1849)

– Head distinctly higher than long, parafacial widened upwards or parallel-sided, haustellum and palp shorter than largest diameter of eye. Apical extension of cerci narrower and longer, pointed at tip (Fig. 14). Thorax more grey, with distinct longitudinal vittae. Body hairing less dense ..... ***brevicornis*** (Zetterstedt, 1838)

4 Hind tibia without av-setae. Prealar seta short, at most two-thirds as long as posterior notopleural seta. Posterior margin of sternite V with two small setose protuberances (Fig. 15) ..... ***inermis*** Ackland, 1970

– Hind tibia with 1–4 av-setae. Prealar variable, but usually more than half as long as posterior notopleural seta. Posterior margin of sternite V without two small protuberances **5**

5 Hind femur on middle third with some strikingly long pv-setae that by far exceed femoral depth (Fig. 19) ..... ***rhinotmeta*** (Pandellé, 1900)

– Hind femur with short pv-setae **6**

6 Sternite V basal to posterior lobes with a pair of dense setal tufts (Figs 15, 16, 17) **7**

– Sternite V basal to posterior lobes at best with a few distinct, short setae **8**

7 Notopleuron frequently with 1–3 accessory setulae. Sternite V (Fig. 16) normal-sized, with setal tufts consisting of less than 10 setae and setulae. Distiphallus unremarkable ..... ***parvaeformis*** Schnabl

– Notopleuron without accessory setulae. Sternite V (Fig. 17) enlarged, with setal tufts consisting of more than 20 setae and setulae; posterior lobes with a slightly expanded, rounded tip. Distiphallus bugle-shaped (Fig. 22) ..... ***steini*** Schnabl in Schnabl & Dziedzicki, 1911

8 Prealar seta longer than posterior notopleural seta. Posterior lobes of sternite V at raised inner margins armed with a series of coarse setulae ..... ***subarctica*** (Huckett, 1965)

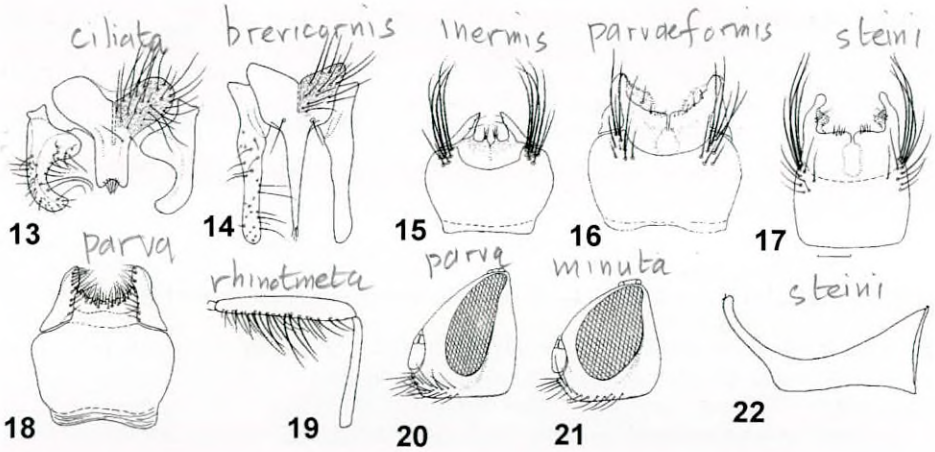


Fig. 13, *Egle ciliata*, cerci and surstyli. Fig. 14, *Egle brevicornis*, cerci and surstyli. Fig. 15, *Egle inermis*, sternite V. Fig. 16, *Egle parvaeformis*, sternite V. Fig. 17, *Egle steini*, sternite V. Fig. 18, *Egle parva*, sternite V. Fig. 19, *Egle rhinotmeta*, left hind femur. Fig. 20, *Egle parva*, male head, lateral view. Fig. 21, *Egle minuta*, male head, lateral view. Fig. 22, *Egle steini*, distiphallus.

– Prealar seta not exceeding length of posterior notopleural seta, usually shorter. Posterior lobes of sternite V different **9**

9 Epandrium with setulae on lateral parts; surstyli broad-based alongside margins of cerci (Fig. 4A). Pregonite barely wider than long (Fig. 6A). Head as in Fig. 21 ..... ***minuta*** (Meigen, 1826)

– Epandrium bare on lateral parts; surstyli narrow-based alongside margins of cerci (Figs 1, 7, 10). Pregonite much wider than long (Figs 3A, 9A, 12A) **10**

10 Sternite V with setulae along hind marginal incision relatively long and uninterrupted (Fig. 18). Apical extension of cerci constricted basally (Fig. 7A). Head (Fig. 20) in profile with lower margin more produced, facial margin somewhat in front of parafrontal angle. Lower margin of gena with two rows of setulae ..... ***parva*** Robineau-Desvoidy, 1830

– Sternite V with setulae along hind marginal incision relatively short and interrupted latero-basally. Apical extension of cerci not constricted basally (Figs 1A, 10A) **11**

11 Surstyli in lateral view relatively broad. Apical extension of cerci often tapering on distal third (Fig. 1A). Postgonite without anterior transverse ridge (Fig. 3B) ..... ***lyneborgi*** Ackland & Griffiths, 2003

– Surstyli in lateral view relatively narrow. Apical extension of cerci not tapering on distal third (Fig. 10A). Postgonite with anterior transverse ridge (Fig. 12B) ..... ***suwai*** Michelsen, 2009

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My thanks to Verner Michelsen (Copenhagen) for allowing me to base my key on his 2009 one, and for many taxonomic discussions and help he has given me. Also to John Coldwell for sending me material and records.

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Michelsen, V. 2009. Revision of the willow catkin flies, genus *Egle* Robineau-Desvoidy (Diptera: Anthomyiidae), in Europe and neighbouring areas. *Zootaxa* **2043**, pp 1-76. Magnolia Press.

Notes on Irish Diptera (Anthomyiidae, Chloropidae, Carnidae) including *Anthomyia imbrida* Rondani new to Ireland - Recently PJC identified some Irish Diptera collected by JPOC and this material yielded several interesting records. Voucher specimens will be deposited in the National Museum of Ireland.

Anthomyia imbrida Rondani, 1866 (Anthomyiidae): 1♀ swept from coastal cliffs near the village of Dunmore East, Co. Waterford (X6999), 14.viii.2010. New to Ireland. A list of Irish anthomyiids was provided by P.J. Chandler, J.P. O'Connor, R. Nash and D.M. Ackland (2006. The Irish Anthomyiidae (Diptera). *Dipterists Digest (Second Series)* **12**(2005), 107-127), who reported 93 species.

Oscinimorpha minutissima (Strobl, 1893) (Chloropidae): 1♂ swept, Craywell, New Ross, Co. Wexford (S7228) on 9-10.viii.2010, in an overgrown area in a small public park on a steep hill; *O. minutissima* was recorded as new to Ireland by J.W. Ismay *et al.* (2001. Additions to the Irish List of Chloropidae (Diptera), with notes on the A.H. Haliday collection. *Dipterists Digest (Second Series)* **8,** 53-64), based on 2♀ collected on the sand dunes at Murrough in the Burren, Co. Clare on 2.vii.1975.

Meoneura flavitarsis Collin, 1930 (Carnidae): 1♂ swept, Oaklands Wood, Co. Wexford (S7125), 4.viii.2008, on vegetation beside a small stream in an opening in the woodland. This species was first recorded from Ireland at Killaun Bog, Co. Offaly in September 2000 by P. Withers (2002. Thirty-nine species of Diptera new to Ireland, including a species of Psychodidae new to the British Isles. *Dipterists Digest (Second Series)* **9,** 113-119) - **PETER J. CHANDLER,** 606B Berryfield Lane, Melksham, Wilts SN12 6EL, UK and **JAMES P. O'CONNOR,** Emeritus Entomologist, National Museum of Ireland, Kildare Street, Dublin 2, Ireland

Dipterists Digest 2013 **20,** 79-85

On the first record from Britain of *Parachironomus elodeae* (Townes) (Diptera, Chironomidae)

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Summary

Details are given of the first record from the British Isles, Europe and the Palaearctic region of a species of non-biting midge (Chironomidae), *Parachironomus elodeae* (Townes, 1945). Adults of both sexes have been caught with an emergence trap on Cardiff Bay, Wales. Aspects of distribution, ecology and systematics are discussed, including identification issues with some other species in the genus.

Introduction

Cardiff Bay is a 200 hectare sheltered freshwater bay created by the construction of a barrage, completed in 1999, across the former estuaries of the Rivers Taff and Ely. For background information and real-time environmental data from several localities in the Bay, including one near the collecting site of the material reported on here, see http://www.cardiffharbour.com/.

In 2004, the Cardiff Harbour Authority (CHA) began a programme of monitoring adult non-biting midges (Chironomidae) emerging from the bay, to help manage nuisance problems caused by these insects. During identification work for that project, the junior author discovered specimens that could be assigned to the genus *Parachironomus* Lenz (subfamily Chironominae, tribe Chironomini) but that did not fit any member species previously reported from Europe. Representative specimens were sent to the senior author, who identified them as *P. elodeae* (Townes, 1945), a species formerly known from North America only.

The new record was published in the Fauna Europaea web database (Sæther and Spies 2011). Details and discussion are presented for the first time here.

Material of *P. elodeae*

5♂ and 1♀: UNITED KINGDOM, Wales, Cardiff Bay, inner harbour near Britannia Quay, monitoring site "IH2", sticky-board emergence trap about 12 m from shore, 20.vii–3.viii.2006, leg. CHA personnel.

1♂ and 1♀ slide-mounted, 1♂ pinned (Fig. 1), all at ZSM (Zoological Collections of the State of Bavaria in Munich, Germany); 3♂ on pieces of sticky board except for their slide-mounted genitalia (Fig. 2), all at National Museum of Wales, Cardiff, UK.

Identification of *P. elodeae*

For definitions of morphological terms, see Sæther (1980).

The adult males from Wales conform to the original description in Townes (1945, as *Harnischia elodeae*). The colour pattern (*op. cit.*: 153 and 157, versus present Fig. 1), especially the distribution of darker sections on the legs, matches very closely, as do the following meristic data (from Townes 1945 *op. cit.*: 156, versus new values based on the

present material between brackets): wing length from origin to tip 3.70 mm (3.72 mm; length from arculus to tip is 3.24 mm); antennal ratio 3.40 (3.42); fore leg ratio 1.25 (1.23); fore tarsus with a long beard (beard noticeable on tarsomeres 2 and 3, max. beard ratio 5.5).

Fig. 1. Adult male of *Parachironomus elodeae* on pinned piece of sticky board (photograph by M. Spies; partially overlapping adjacent midges edited out for clarity). Scale bar: 1.5 mm.

Additional comparisons could be made with digital images of the dry-pinned holotype (except for the genitalia slide-mounted by Townes). These show that the fore tarsal beard is not long by current standards, but similar to that on the new specimens in length and distribution. The thoracic setation does not appear to be significantly different either (present material in brackets): lateral antepronotals present (19, a relatively high number in *Parachironomus*); acrostichals c. 16 (20); dorsocentrals c. 35, mostly in irregularly double row (36, similarly arranged); prealars in a relatively extensive row (15, row up to 3 setae across). An interesting, potentially diagnostic feature of the Welsh specimens, the distinct light green median stripe in the acrostichal region of the anterior mesoscutum (Fig. 1), could

not be confirmed or ruled out from the holotype in its dry and apparently somewhat bleached condition.

The identification also passes testing with one of the most critical criteria, the male genitalia (Townes 1945: fig. 177, drawn from the holotype, versus present Fig. 2). The single most diagnostic feature here (see also the issues section below) is the superior volsella, which is straight digitiform without significantly widened parts or any dorsal, lateral or apical lamellar projection, and has its (usually 2) setae arising from relatively large, subapical pits.

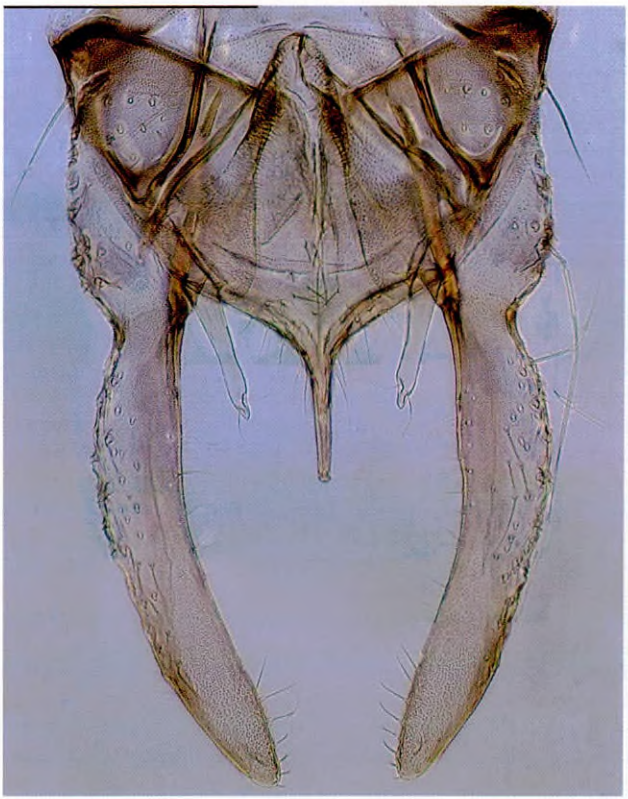

Fig. 2. Adult male genitalia of *Parachironomus elodeae* (photograph series and composite image by S.J. Bolton).

Adult females of *P. elodeae* were recorded by Townes, but described merely as "similar to the male except for the usual sexual differences" (*op. cit.*, p. 157). Given the extremely poor knowledge of females in *Parachironomus* and related genera (see also the discussion section), a differential diagnosis of the slide-mounted specimen would require extensive revisions far beyond the scope of the present paper.

Issues with other *Parachironomus* species

Among the known West Palaearctic congeners, males of *P. elodeae* are most similar to those of *P. biannulatus* (Staeger, 1839), from which they can be distinguished most readily by features of the superior volsella. The senior author has verified with type material (Zoological Museum of the University of Copenhagen, Denmark) that the adult male of *P. biannulatus* has been identified correctly in Langton and Pinder (2007). In this species, the superior volsella shows a distinct bend, and a characteristic dorsolateral lamella that begins in the proximal half of the volsella and ends at considerable distance from the apex. In most slide mounts this lamella is partly to entirely crumpled onto the volsellar surface (as in Lehmann 1970: fig. 4 and in Langton and Pinder 2007: fig. 223B) but can be detected by careful examination.

In contrast to the adult male, the pupal morphotype keyed as *P. biannulatus* in Langton and Visser (2003) was misidentified. Specimens individually reared from the larval or pupal stage (e.g. from Lake Constance, 1962/1963, leg. F. Reiss; at ZSM) show beyond doubt that such exuviae belong to *P. vitiosus* (Goetghebuer, 1921) instead. In turn, the pupal morphotype keyed as *P. vitiosus* in Langton and Visser (2003) belongs to *P. cinctellus* (Goetghebuer, 1921). Ever since the original descriptions of the latter two species, the only reliable feature for separating their adults has been live coloration, which is only expressed on specimens that have fully hardened after emergence from the pupal skin. One consequence of this recognition is that *P. cinctellus* has been occurring in the British Isles after all, contrary to Langton and Visser (2003), but confirming several earlier listings of British Chironomidae.

The pupa of *P. biannulatus* is identified here from direct examination of several individual life-stage associations (1♂ with associated pupal exuviae: GERMANY, Slesvig-Holstein, Schluensee, 1953, leg. I. Müller-Liebenau; at ZSM. 1 pharate ♂ in exuviae with assoc. larval skin, 1 pharate ♂ in exuviae: RUSSIA, Rybinsk Reservoir area, egg-mass rearing 21.vi–13.ix.1961, leg. A.I. Shilova); see also Shilova (1968). In the key to pupae by Langton and Visser (2003) these specimens run to *P. mauricii* (Kruseman, 1933), primarily on account of the hook row on abdominal tergite II showing a medial gap. However, European *Parachironomus* pupae include more than the above two morphotypes in which the hook row is interrupted at least in a considerable share of the known specimens; one example is *P. kuzini* Shilova, 1969. Among such pupae, *P. biannulatus* is characterised by exuvial lengths of about 5-7 mm, abdominal segment II armament similar to that described for '*P. mauricii*' by Langton and Visser (2003), and by the presence on segment VIII of 4-7 conspicuous anal comb spines, some of which end in more than a single apical point.

In connection with the above recognitions concerning *P. biannulatus* and *P. vitiosus*, the respective larval morphotypes are not as presented in Moller Pillot (2009: 165 and 174), where the larva of the latter species was assigned to the former due to a pupa misidentified after Langton and Visser (2003). Instead, the larva of *P. vitiosus* is the one already diagnosed under this name before (e.g. Pinder and Reiss in Wiederholm 1983, Moller Pillot 1984). In turn, according to the material of *P. biannulatus* reported above, the larva of this species is the one described by Shilova (1968). Consequently, contrary to statements in the corresponding texts by Moller Pillot (2009), results of Shilova (1965, 1968) and derived data in the eastern European literature can be far more valid than some of their equivalents in more recent western works. As in the present work, relevant material can and should be examined wherever it is still accessible, irrespective of its sites of collection and deposition, and published data must not be dismissed without such evidence-based evaluation.

A search for pupal exuviae near the Cardiff Bay collecting site of *P. elodeae*, in the summer of 2007, found *P. frequens* (Johannsen, 1905), *P. gracilior* (Kieffer, 1918) [often

reported under the invalid name *P. arcuatus*], and a single specimen (9.viii.2007, leg. S.J. Bolton; at ZSM) that keys to *Parachironomus* 'Pe4' in Langton (1991). The identification of the same taxon as *P. varus* (Goetghebuer, 1921) [= 'Pe4'] in Langton and Visser (2003) looks questionable, as the underlying two exuviae reportedly are 7 and 10mm long and have abdominal "sternite II with an anterior and a posterior transverse point band indicated", whereas several exuviae of *P. varus* at ZSM (e.g. 1♂ with associated exuviae: NETHERLANDS, Utrecht, 27.xii.1950, leg. and det. M. Goetghebuer) are all around 5mm long and lack transverse bands on sternite II. It would be too speculative to assume that the single exuviae from Cardiff Bay might represent the currently unknown pupa of *P. elodeae* (Townes); given our insufficient knowledge of these midges; even in western Europe, alternative relationships appear equally likely. No such hypothesis can be evaluated as long as individual associations of at least the pupal and adult male stages are not available for all relevant morphotypes. However, the evidence suggests that – as in the case of '*P. mauricii*' mentioned above – pupae of more than a single species may key to '*P. varus*' sensu Langton and Visser (2003). Therefore it is recommended to treat *P. varus* (Goetghebuer) and *P.* Pe4 sensu Langton (1991) separately.

Discussion

Seven of the nineteen other species of *Parachironomus* recognised in Europe have been regarded as Holarctic or amphi-Atlantic in distribution (Spies 2000, Sæther and Spies 2013); thus, the increase to 8 out of 20 species by the addition of *P. elodeae* is no outstanding step. On the other hand, we are unaware of any other record of *P. elodeae* from Britain, Europe or the Palaearctic region. In more than five years of sampling around Cardiff Bay the species was taken in very low numbers at a single locality and during one 2-week period only. An explanation could be that following the freshening of the bay taking effect in 2001, quite significant changes from one year to the next were observed in the water that might have resulted in merely short-term appearances of species with relatively narrow ecological ranges. Alternatively, single-spot occurrences of small populations near ocean harbours or airports always raise the possibility of animals having been imported by ship or airplane (Sublette and Mulla 2000).

It would not be surprising, however, if *P. elodeae* has been present but unrecognised in the western Palaearctic. The pupae and larvae are sufficiently known for fewer than half of the European species of *Parachironomus*, because their living quarters are not often among those sampled in standard aquatic studies. For instance, the junior author did not recover any *Parachironomus* larvae in benthic samples from Cardiff Bay, despite also finding adults of *P. biannulatus*, *P. digitalis* (Edwards, 1929), *P. frequens*, *P. gracilior* and *P. vitiosus* in emergence samples.

A major reason for the problems with pupal identifications discussed in the issues section is that the classification of adult male *Parachironomus* in the Palaearctic region is not as reliable as it has been assumed from Lehmann (1970). Imprecise published treatments, unrevised type material and the shortage of associations with other life stages have resulted in many misidentifications. Consequently, it is not unlikely that *P. elodeae* was collected in Europe before but erroneously recorded under another name, e.g. as *P. biannulatus*. By the same token, and as in other cases like this, the fact that *P. elodeae* has now been identified on one side of the Atlantic many decades after its first discovery on the other side, does not by itself prove a recent range extension, nor that the evolution of the biological species must have originated on the same side as the corresponding scientific taxon and name.

The benthic biodiversity levels around the inner harbour trap site were among the

highest found throughout Cardiff Bay (Shannon-Wiener index 1.0-2.0). These are ascribed to the composition of the bottom substrate, which usually had lots of dead organic material (twigs, plants, etc.) assumed to have been carried there by the rivers Ely and Taff. The benthic fauna included high proportions of oligochaete worms, and of midge larvae belonging to the genera *Procladius* and *Cryptochironomus*. In contrast, bottom areas farther to the west of the inner harbour were very low in organic material, showed lower biodiversity (Shannon-Wiener index 0.3-0.5) and very low numbers of *Procladius* and *Cryptochironomus*, the chironomid community being dominated by species of *Polypedilum* and *Chironomus* instead.

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Records of *Allocladius arenarius* (Strenzke) and *Hydrosmittia ruttneri* (Strenzke & Thienemann) (Diptera, Chironomidae) for Britain

– *Allocladius arenarius* (Strenzke, 1960) and *Hydrosmittia ruttneri* (Strenzke & Thienemann, 1942) have been recorded from Britain without locality data, *Allocladius arenarius* as *Pseudosmittia arenaria* in Langton, P.H. and Pinder, L.C.V. 2007. *Keys to the adult male Chironomidae of Britain and Ireland.* Freshwater Biological Association Scientific Publication No.64., and *Hydrosmittia ruttneri* in Ferrington, L.C. and Sæther, O.A. 2011. A revision of the genera *Pseudosmittia* Edwards, 1932, *Allocladius* Kieffer, 1913, and *Hydrosmittia* gen. n. (Diptera: Chironomidae, Orthocladiinae) *Zootaxa* **2849,** 1-314. This note is to put on record such data for these species as are known to us. *Allocladius arenarius*: ENGLAND, Bedfordshire, Stewartby Lake, TL0142, 18.vi.1998 (LPR); *Hydrosmittia ruttneri*: SCOTLAND, Highlands, River Ba, NN309494, 25.v.1981 (PHL); Lochan na Lairige, NN602393, 25.v.1981 (PHL); River Linne nam Beathach, Victoria Bridge, NN271423, 25.v.1981 (PHL); rivulet on Ben Lawers, NN672422, 27.v.1981 (PHL); Lochan nan Cat, NN647425, 27.v.1981 (PHL); Loch Loyal, NC616506, 28.v.1981 (PHL); Loch Assynt, NC235241, 28.v.1981 (PHL); outflow of Loch Hope, NC474604, 28.v.1981 (PHL); Loch Naver, NC6136 (LPR). The species may be identified using Ferrington, L.C. and Sæther, O.A. 2011 (*loc. cit.*) – **PETER H. LANGTON,** University Museum of Zoology, Downing Street, Cambridge (address for correspondence: 16, Irish Society Court, Coleraine, Co. Derry, BT52 1GX) and **LES P. RUSE,** Centre for Research in Ecology, Whitesands College, Roehampton University, Holybourne Avenue, London SW15 4JD

Ophiomyia longilingua (Hendel) (Diptera, Agromyzidae) new to Britain

– As part of ongoing survey work of grasslands for Wessex Water, meadows beside Sutton Bingham Reservoir (ST5411) in Somerset (V.C. 5) were sampled in 2011. The sweep-net samples included large numbers of Diptera, with 243 species identified from four days fieldwork, including 20 species of Agromyzidae. Amongst these was a single all black species, which proved to be a male *Ophiomyia longilingua* (Hendel, 1920) caught on 13 July 2011 (retained in author's collection).

The male of *Ophiomyia longilingua* is quite distinct from most British members of the genus because of its broad, angled jowls, protuberant mouth margin and long geniculate proboscis. It has a distinct, though narrow, keel separating the antennae so in the handbook by K.A. Spencer (1972. Diptera, Agromyzidae. *Handbooks for the Identification of British*

Insects. X,5(g), Royal Entomological Society: fig. 69) it runs to couplet 6. The key seems to fail here as it fits the first character in the second alternative, orbital setulae all reclinate, but not the second, vibrissal fasciculus and upper orbitals present. The Sutton Bingham specimen possesses upper orbitals but in common with the closely related species *O. rostrata* (Hendel, 1920), lacks the vibrissal fasciculus. Ignoring this character, it runs easily to couplet 21 and *O. rostrata,* although the jowls are much more strongly angled than in the illustration of the head of *O. rostrata* provided by Spencer (1972). In K.A. Spencer (1976. The Agromyzidae (Diptera) of Fennoscandia and Denmark. *Fauna entomologica Scandinavica* **5**(1), 1-304, Fig. 82) the same problem occurs at couplet 6, but after this the Sutton Bingham specimen runs easily to couplet 15. The key characters given in couplet 15 do not seem adequate to distinguish *O. longilingua* from *O. rostrata*, at least not without comparative material, which was not available to me. The Sutton Bingham specimen has a jowl depth of less than half the height of the eye, so best fits the description of *O. longilingua*.

In the key by M. Černý (1994. Eight new species of *Ophiomyia* from the Czech Republic and Slovak Republic (Diptera: Agromyzidae) *European Journal of Entomology* **91,** 455-476) the specimen runs readily to couplet 11. Here *O. ranunculicaulis* (Hering, 1949), which also has an elongated proboscis (M. von Tschirnhaus *pers. comm.*), can be eliminated because this species has a distinct vibrissal fasciculus (also the aedeagus is quite different). The Sutton Bingham specimen fits *O. longilingua* of Černý (1994) in most characters: it has two dorsocentral bristles (three in *O. rostrata*), the second at same level as supra-alar (third dorsocentral at level of supra-alar in *O. rostrata*), last section of M_{3+4} shorter than penultimate section (equal in *O. rostrata*). Only the rows of acrostichals do not conform well to this key. In the Sutton Bingham specimen they are in numerous rather irregular rows, so it is not possible to decide how many rows there might be but it looks closer to 10 than 6 (Černý 1994 gave 6 for O. *longilingua* and 10 for *O. rostrata*). Another potentially useful character is the presence of an intra-alar bristle half way between the posterior dorsocentral and the outer postalar, anterior to posterior dorsocentral by about one third distance to the second dorsocentral. Also there are no discernible prescutellar bristles different from the acrostichals and no posterolateral bristles on the mid tibia. The male genitalia are quite distinct and allowed confirmation of identification (Spencer 1976).

The larvae are known to form a shallow reddish stem-mine, with a mass of black frass at one end, in field scabious *Knautia arvensis*. Pupation takes place externally (Spencer 1976). The Sutton Bingham specimen was swept from a small field dominated by coarse grasses, being encroached upon by bramble scrub. This field contained a few scattered patches of field scabious, but a much larger population of this plant was present in the adjacent hay meadow.

Ophiomyia longilingua would appear to be a scarce species across Europe so I take this opportunity to report the following records that have been reported to me (M. von Tschirnhaus *pers. comm.*):

Greece: Isle of Kos, mountains 1.3 km SSW of Pili, 36°50'13''N, 27°08'47''E, 1 male, 16.iv.1983, leg. M. von Tschirnhaus.

Germany: Thuringia, Artern at river Unstrut, salt marsh, 51°22'14''N, 11°17'02''E, 1 male, 14.vi.1998, leg. M. von Tschirnhaus.

I would like to thank Ellen McDouall and Susan Jones of Wessex Water for commissioning the survey work at Sutton Bingham Reservoir, also the ranger at the Reservoir Ivan Tinsley. I am very grateful to Michael von Tschirnhaus for comments and for allowing me to publish his records from Germany and Greece - **DAVID GIBBS,** 6 Stephen Street, Redfield, Bristol BS5 9DY, david.usia@blueyonder.co.uk

Dipterists Digest 2013 **20,** 87-90

Additions and corrections to the checklist of the biting midges (Diptera, Ceratopogonidae) of Ireland

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Summary

Some new records of Irish Ceratopogonidae are presented in this paper. The following three species are recorded from Ireland for the first time: *Palpomyia nigripes* (Meigen, 1830), *Atrichopogon* (*Lophomyidium*) *fusculus* (Coquillett, 1901) and *Forcipomyia* (*Euprojoannisia*) *alacris* (Winnertz, 1852). *Atrichopogon* (*Lophomyidium*) *rostratus* (Winnertz, 1852) was a misidentification and is removed from the Irish list. The above changes increase the Irish checklist from 78 to 80 species. A lectotype is designated for *Ceratopogon calceatus* Haliday in Walker, 1856 [= *Bezzia* (*Pygobezzia*) *calceata*].

Introduction

The Irish Ceratopogonidae was fully reviewed by Ashe *et al.* (2012), including detailed records. In this paper we include some additions and corrections. The Irish national grid reference (six, four or two figure reference) is included where possible followed by the Universal Transverse Mercator [UTM] 50km grid reference in parentheses. The following abbreviations are used for collectors' names: P.H. Grimshaw = PHG; J.N. Halbert = JNH; A.H. Haliday = AHH; J.P. O'Connor = JPOC.

Culicoides (*Culicoides*) *punctatus* (Meigen, 1804)

The following two additional records of this common Irish species are based on pinned adult female specimens.

KILKENNY: 8.viii.2010, Woodstock Park, Inistioge (S6436) [PU.2], swept in mixed woodland, JPOC; **WEXFORD**: 14-15.viii.2010, Curracloe (T1127) [PU.4], swept from vegetation on the sand dunes, JPOC.

Bezzia (*Pygobezzia*) *calceata* (Haliday in Walker, 1856)

The statement by Ashe *et al.* (2012) that there are no surviving Irish Haliday type specimens in the National Museum of Ireland collections is incorrect. Several specimens of this species, which were on loan while the paper by Ashe *et al.* (*op. cit.*) was being prepared, have now been returned to the museum collections. The returned material contains two Irish Haliday pinned male specimens, which are regarded as syntypes.

Both Irish specimens have: (i) a white label printed in black ink with the wording "Haliday 20.2.'82" which is the museum accession date of the 20 February 1882; (ii) a green label with Ireland printed in black ink and (iii) a white label with "*Bezzia* (*Pygobezzia*) *calceata* ♂" handwritten in black ink followed by "det. P.J. Chandler" printed in black ink.

The first specimen has two further labels: (a) a white label with "*albicornis* ?" handwritten by Haliday and (b) a white label with "Haliday Ireland ? *albicornis*" in black ink handwritten by PJC and also with a coverslip with mountant containing the male hypopygium. Haliday (1833) listed "*Ceratopogon albicornis*" from Holywood, Co. Down. There is a valid European species named *B. albicornis* (Meigen, 1818), which shows that

Haliday's use of this name (with a question mark) on this specimen and in his manuscript *Catalogue of Irish insects* (see Fig. 2 in Ashe *et al.* 2012) indicates uncertainty concerning its true identity. Haliday evidently discovered that his earlier use of *albicornis* was a misidentification and he described it as a new species, named as *Ceratopogon calceatus*, in Walker (1856). This specimen is designated as lectotype and now bears an additional white label handwritten in black ink with the wording "Lectotype designated by Ashe, O'Connor & Chandler 2013".

The second specimen has one further label: (a) a white label with "Haliday Ireland" in black ink handwritten by PJC and also with a coverslip with mountant containing the entire male specimen but with the hypopygium and remaining abdominal segments separated from the rest of the specimen. This specimen is designated as a paralectotype and now bears an additional white label handwritten in black ink with the wording "Paralectotype designated by Ashe, O'Connor & Chandler 2013".

Since "*Ceratopogon albicornis*" from Holywood, Co. Down (Haliday 1833) refers to *B. calceata*, we include this as an additional record for the species. We also include some corrections to the data on the Co. Antrim and Co. Derry records previously given in Ashe *et al.* (2012).

In addition to the two Irish Haliday type specimens detailed above there are also three pinned female Haliday specimens, two of which are British and the third is likely to be British. These specimens are not regarded as part of the type series since Haliday in Walker (1856) specified only Irish localities.

ANTRIM: 1840s-1850s, found at Toome Bridge (connecting the counties Antrim and Derry) over the Bann river, near its issue from Lough Neagh [PA.3], AHH (Walker 1856, sub *Ceratopogon calceatus*); **DERRY**: 1840s-1850s, found at Toome Bridge (connecting the counties Antrim and Derry) over the Bann river, near its issue from Lough Neagh [PA.3], AHH (Walker 1856, sub *Ceratopogon calceatus*); **DOWN**: 1827-1831, Holywood [UF.1], AHH (Haliday 1833, sub *Ceratopogon albicornis*).

***Palpomyia brachialis* (Haliday, 1833)**

Known previously from three Irish sites (one each in Counties Down, Louth and Tipperary) (Ashe *et al.* 2012). The record below, based on a single pinned adult female, is the first for Co. Wicklow.

WICKLOW: July 1919, Vale of Clara (T1792) [PU.3], JNH.

***Palpomyia nigripes* (Meigen, 1830)**

This species is new to Ireland, based on a single pinned adult female specimen, which was taken during the Lambay Survey. During 1905-1906, twenty-one naturalists visited the island as part of a natural history investigation initiated by the owner Cecil Baring (later Lord Revelstoke). The results were published in the *Irish Naturalist* (1907) (Praeger 1949).

DUBLIN: June 1906, Lambay Island [PV.4], JNH.

***Atrichopogon* (*Lophomyidium*) *fusculus* (Coquillett, 1901)**

In Ashe *et al.* (2012), this species was listed under the name *Atrichopogon rostratus* (Winnertz, 1852), which is a misidentification. Of the two specimens from the Clare Island Survey in the National Museum of Ireland collections, one is a male. The abdomen of this male was cleared of musculature and a temporary mount made on a slide in glycerine jelly. Examination of the hypopygium confirmed that the species is *A. fusculus*, based on the illustrations of both species by Szadziewski *et al.* (1996). It is therefore new to Ireland and *A.*

rostratus is deleted from the Irish list. Based on this new identification it is presumed that all the other records below refer to *A. fusculus*.

MAYO: no date [1909-1910], Belclare [MV.3], PHG (Grimshaw 1912, sub *Helea* (*Ceratopogon*) *rostrata*); no date [1909-1910], Castlebar Lough [MV.3], PHG (Grimshaw 1912, sub *Helea* (*Ceratopogon*) *rostrata*); vii.1910, Clare Island [MV.1], PHG (Grimshaw 1912, sub *Helea* (*Ceratopogon*) *rostrata*); no date [1909-1910], Knappagh [MV.3], PHG (Grimshaw 1912, sub *Helea* (*Ceratopogon*) *rostrata*); no date [1909-1910], lough near Westport [MV.3], PHG (Grimshaw 1912, sub *Helea* (*Ceratopogon*) *rostrata*).

***Forcipomyia* (*Euprojoannisia*) *alacris* (Winnertz, 1852)**

Both the subgenus and the species are new to Ireland based on a single pinned male specimen collected from the locality detailed below.

WEXFORD: 3.viii.2009, Oaklands Wood (S7125) [PU.2], swept from vegetation beside a large artificial lake stocked for angling, JPOC.

***Forcipomyia* (*Forcipomyia*) *bipunctata* (Linnaeus, 1767)**

The species is only known from two other Irish localities detailed in Ashe *et al.* (2012).

WEXFORD: 6.viii.2007, John F. Kennedy Park & Arboretum (S7219) [PT.1]; the species was observed swarming indoors in the interpretive centre from which a single adult female specimen was collected, JPOC.

***Forcipomyia* (*Forcipomyia*) *brevipennis* (Macquart, 1826)**

In Ashe *et al.* (2012) this species was correctly listed as Irish. However, the Co. Waterford record reproduced below was accidentally listed under the species *F.* (*F.*) *bipunctata* (Linnaeus, 1767) due to the heading and several lines of text for *F.* (*F.*) *brevipennis* being missing above this record at the top of page 222 of Ashe *et al.* (*op.cit.*). The missing text is as follows: A male and a probable female of this species, which develops in cow and horse dung, were first recorded from Ireland in Chandler and O'Connor (2010). The species is likely to be widespread in Ireland. A second Irish record, from Co. Wexford, is detailed below.

WATERFORD: 9.viii.2006, from vegetation on marine cliffs, Dunmore East (X6999) [PT.3], JPOC (Chandler and O'Connor 2010); **WEXFORD**: 17.viii.2010, Stoneyford near Broadway (T1009) [PT.3], swept from vegetation beside a stream, JPOC.

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***Desmometopa varipalpis* Malloch (Diptera, Milichiidae) new to Britain** – On 16 April 2010, at my place of work on the top floor of a modern office building in Bracknell, Berks (SU8568), I had placed on a spare VDU a black plastic toy spider, and on this I found a tiny black fly of 2.2mm in length. Following capture a vain attempt was made to identify it. Photographs were taken and posted that day on diptera.info. Irina Brake spotted the listing and identified it as the cosmopolitan synanthropic species *Desmometopa varipalpis* Malloch, 1927, which was new to Britain apart from a record of occurrence at the Liverpool Docks reported by C.W. Sabrosky (1983. A synopsis of the world species of *Desmometopa* Loew (Diptera, Milichiidae). *Contributions of the American Entomological Institute, Ann Arbor* **19,** 1-69). The latter record was based on two females found in March 1968, ex a ship arriving from Canada, by a Ministry of Agriculture inspector, the specimens being in the Natural History Museum collection.

Adult *Desmometopa varipalpis* have been recorded attracted to rotting fruits and vegetables, latrines, near sewage and septic tanks, a Dairy Cheese room and a butcher's shop (Dawah, H.A. and Abdullah, M.A. 2007. New Records of some Filth Flies Species (Diptera: Milichiidae) in Southwest Saudi Arabia. *Saudi Journal of Biological Sciences* **14**(2), 263-270). The larvae feed as bio-filters of sewage, dung, and many kinds of decaying vegetables and fruits (Brake, I. 2011. *Desmometopa varipalpis* Malloch, 1927 – Milichiidae online. http://milichiidae.info/content/desmometopa-varipalpis-malloch-1927, retrieved 9 January 2013).

At first, the fly was dismissed as a likely random import from a supermarket packed lunch. However, on 20 May 2012, a second specimen was found at the same location, attracted to an open can of cola. A third on 9 January 2013 was wandering over a desk. Then when going through old material in my collection, a fourth specimen, that had been collected walking on my desk on 10 February 2010, was found, indicating that this species was established, in Bracknell at least. What attracted the flies to this particular building thus far remains a mystery.

Desmometopa varipalpis was described by J.R. Malloch from material from New South Wales, Australia. Its distribution is now somewhat cosmopolitan, no doubt spread by the activities of man. It is easily separated from other *Desmometopa* species on account of the oversized spinose palpi that bear a mottled pattern (Sabrosky *op. cit.*).

My thanks go to Irina Brake for the identification of the first specimen – **MARK MITCHELL,** 64 Ascot Court, Aldershot, GU11 1HG

Corrections and changes to the Diptera Checklist (29) – 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 asked to inform me of errors or changes and I thank all those who have already brought these to my attention. Recent volumes of *Zoological Record*, including that for 2012, have been consulted in preparation of the changes included here.

Changes are listed under families; names new to the British Isles list are in bold type. The notes below refer to addition of 19 species and reduction to synonymy of 1 species, resulting in a new total of **7079** species (of which 38 are recorded only from Ireland). As in the 1998 checklist, + indicates occurrence in Ireland (as well as Britain) and ++ in Ireland but unrecorded from Britain.

An updated version of the checklist, incorporating all corrections and changes that have been reported in *Dipterists Digest*, is now available for download from the Dipterists Forum website. It is intended to update this regularly.

Mycetophilidae. The following species were added by P.J. CHANDLER (2013. Fungus Gnats Recording Scheme Newsletter 6 Spring 2013. 6 pp. *Bulletin of the Dipterists Forum* No. **75**), together with an unnamed species of *Brevicornu*:
Brevicornu ***parafennicum*** Zaitzev in Zaitzev & Polevoi, 1995
Mycomya ***disa*** Väisänen, 1984
Sceptonia ***longisetosa*** Ševčík, 2004
Zygomyia ***matilei*** Caspers, 1980

A new name was proposed for the preoccupied subgeneric name *Lycomya* by A.O. KOCAK and M. KEMAL (2010. Nomenclatural notes on the genus group names of some families of Diptera. *Priamus* **12,** 156-160):
CESAMYA Kocak & Kemal, 2010 [= LYCOMYA Väisänen, 1984, preocc. Bigot, 1857 (Asilidae)]

Ceratopogonidae. The following species was reinstated to the British Isles list from Ireland only by P. ASHE, J.P. O'CONNOR and P.J. CHANDLER (2012. A revised checklist of the biting midges (Diptera: Ceratopogonidae) of Ireland. *Bulletin of the Irish Biogeographical Society* **34,** 190-231.
Dasyhelea ***notata*** Goetghebuer, 1920 ++

The following correction made by W.W. WIRTH (1994. The subgenus *Atrichopogon* (*Lophomyidium*) with a revision of the Nearctic species (Diptera: Ceratopogonidae). *Insecta Mundi* **8,** 17-36) has previously been overlooked. It was established that *A. fusculus*, described from North America, is Holarctic and occurs in Britain (specimens from Cheshire and two Scottish localities examined by Wirth), while *A. rostratus* is a mainly southern European species, not confirmed as British (Irish records also confirmed as *A. fusculus* in this issue):
Atrichopogon ***fusculus*** (Coquillett, 1901 – *Ceratopogon*) + [= *A. rostratus*: Edwards, 1926, misident.]

Chironomidae. The following changes resulting from P. ASHE and J.P. O'CONNOR (2009. *A World Catalogue of Chironomidae (Diptera). Part 1. Buchonomyiinae. Chilenomyiinae, Podonominae, Aphroteniinae, Tanypodinae, Usambaromyiinae, Diamesinae, Prodiamesinae and Telmatogetoninae.* 445 pp. Irish Biogeographical Society & National Museum of Ireland, Dublin) were omitted from those listed in volume **17,** p.23:
PSEUDODIAMESA: the British Isles species are referred to the typical subgenus
MACROPELOPIA: authorship is corrected to Thienemann in Thienemann & Kieffer, 1916
ABLABESMYIA: the British Isles species are referred to the typical subgenus
CONCHAPELOPIA *melanops*: the ? synonym *arundineti* (Linnaeus, 1760) [date corrected from 1761]
THALASSOMYA; the reference for the incorrect subsequent spelling THALASSOMYIA is Schiner, 1868 [not 1856]

The following further changes affecting the subfamily Tanypodinae result from P. ASHE & J.P. O'CONNOR (2012. Additions and corrections to Part 1 of 'A World Catalogue of Chironomidae (Diptera)' *Fauna norvegica* **31,** 125-136):
Tribe Clinotanypodini [replaces Coelotanypodini]
Ablabesmyia phatta (Egger, 1864) [date corrected from 1863]
Paramerina cingulata: the synonym *pygmaea* (van der Wulp, 1875) [date corrected from 1874]
Procladius (*Psilotanypus*) *rufovittatus* (van der Wulp, 1875) [date corrected from 1874]

The following changes result from P. ASHE and J.P. O'CONNOR (2012. *A World Catalogue of Chironomidae (Diptera). Part 2. Orthocladiinae.* xvi + 968 pp. Irish Biogeographical Society & National Museum of Ireland, Dublin):

ALLOCLADIUS Kieffer, 1913 [genus newly recorded from Britain]
Allocladius ***arenarius*** (Strenzke, 1960 – *Pseudosmittia*) [transferred from *Pseudosmittia*; queried from Britain by Ashe and O'Connor (2012), but recorded from Britain by P.H. LANGTON and L.C.V. PINDER (2007. *Keys to the adult male Chironomidae of Britain and Ireland.* Volume **1,** 239 pp. Freshwater Biological Association: p. 6) without associated data; supporting data reported by Langton and Ruse in the present issue]

CORYNONEURA: the authorship of the synonyms EUCORYNONEURA and PARACORYNONEURA should be Goetghebuer in Goetghebuer & Lenz, 1939

CRICOTOPUS (*Cricotopus*) *albiforceps*: the queried synonym should be *unifaciatus* (not *unifasciatus*)
C. (*Cricotopus*) *annulator*: synonymy should be *subcoeruleus* Edwards, 1929 and *subcoerulescens*, emend. [this is the incorrect subsequent spelling]
C. (*Isocladius*) *trifasciatus* (Meigen in Panzer, 1810) [date corrected from 1813]

DIPLOCLADIUS: authorship should be Kieffer in Kieffer & Thienemann, 1908

EUKIEFFERIELLA *claripennis*: add the synonym *stylifer* Goetghebuer in Goetghebuer, Humphries & Fitzgerald, 1949 [Irish type locality]
E. *clypeata*: correct authorship to (Thienemann, 1919 – *Dactylocladius*) [this publication made the name available prior to Kieffer 1923]

EURYCNEMUS *crassipes*: authorship should be Meigen in Panzer, 1810

GYMNOMETRIOCNEMUS Edwards, 1932: subgenera are recognised, with *brevitarsis* and *subnudus* assigned to GYMNOMETRIOCNEMUS sensu stricto, and *brumalis* to subgenus **RAPHIDOCLADIUS** Sæther, 1983

HELENIELLA: author's name corrected to Gowin

HYDROBAENUS *distylus*: correct authorship to (Potthast, 1914) [this publication made the name available prior to Kieffer 1915]

HYDROSMITTIA Ferrington & Sæther, 2011 [new genus]
H. *oxoniana* (Edwards, 1922 – *Camptocladius*) [transferred from *Pseudosmittia*]
Hydrosmittia ***ruttneri*** (Strenzke & Thienemann, 1942 – *Pseudosmittia*) [new to Britain; listed as British in original 2004 version of Fauna Europaea, repeated by Ferrington and Sæther (2011: 134) and supporting data reported by Langton and Ruse in the present issue]

LIMNOPHYES *paludis* Armitage, 1986 [date corrected from 1985]

METRIOCNEMUS *albolineatus*: remove *hirticollis* from synonymy; it is considered to be a separate species not recorded from the British Isles.
M. *terrester*: change authorship to Pagast, Thienemann & Krüger, 1941

NANOCLADIUS: the British Isles species are all assigned to subgenus NANOCLADIUS sensu stricto
N. *dichromus*: (1) the synonym *bicolor* (Zetterstedt, 1838) is preocc. (Waltl, 1837), not a nomen nudum [which applied to Zetterstedt, 1837]; (2) remove *perexilis* from synonymy and place it under nomina dubia [description based on female only]

ORTHOCLADIUS (*Eudactylocladius*) *fuscimanus*: add ? to the synonym *obtescens* Brundin, 1956
O. *frigidus*: transfer to an additional subgenus **MESORTHOCLADIUS** Sæther, 2005
O. (sensu stricto) *obumbratus*: delete this name and replace with *O.* ***rhyacobius*** Kieffer, 1911 [raised from synonymy by B. ROSSARO, V. LENCIONI and C. CASALEGNO (2003. Revision of West Palaearctic species of *Orthocladius* s. str. van der Wulp, 1874 (Diptera: Chironomidae: Orthocladiinae), with a new key to species. *Acta biologica / Museo Tridentino di Scienze Naturali* **79**(2002), 213-241; but see Spies and Sæther 2004]
O. (sensu stricto) *rivinus*: authorship corrected to Potthast, 1914 [this publication made the name available prior to Kieffer 1915]
O. *ruffoi*: transfer to subgenus SYMPOSIOCLADIUS
O. (*Symposiocladius*) *lignicola* Kieffer in Potthast, 1914 [date corrected from 1913]

PARACRICOTOPUS: authorship corrected to Brundin, 1956 [name unavailable from Thienemann & Harnisch, 1932]

PARAMETRIOCNEMUS *boreoalpinus*: authorship corrected to Gowin & Thienemann, 1942 [spelling of Gowin also corrected]

PARAPHAENOCLADIUS: authorship corrected to Thienemann in Spärck & Thienemann, 1924
P. *cuneatus* (Edwards, 1929), based only on the female, was incorrectly removed to nomina dubia in the Catalogue (M. Spies *pers. comm.*: female characters are diagnostic)
P. *impensus*, P. *irritus* and P. *pseudirritus*: represented in the British Isles by their typical subspecies

PARATRICHOCLADIUS ***spiesi*** Ashe & O'Connor, 2012 [proposed as new name for *P. nigritus* (Goetghebuer, 1938), preocc. by Malloch, 1915]
P. *skirwithensis*: *nivalis* (Goetghebuer, 1938) is removed from its synonymy and listed as a good species but it is queried whether it occurs in Britain or Ireland; a note indicates that its status is uncertain. It was treated as a valid species in *Fauna Europaea* but requiring confirmation from Britain and Ireland (there are no known Irish records: D. Murray *pers. comm.*)

PSECTROCLADIUS subgenus MESOPSECTROCLADIUS Laville, 1972 [date corrected from 1971]

PSEUDORTHOCLADIUS: all British Isles species are referred to the typical subgenus
P. ***macrovirgatus*** Sæther & Sublette, 1983 (= *cranstoni* Sæther & Sublette, 1983 [new synonymy])

RHEOCRICOTOPUS: *chalybeatus*: represented in the British Isles by the typical subspecies

RHEOSMITTIA: authorship corrected to Brundin in Cranston & Sæther, 1986 [this publication made the name available prior to Ashe & Cranston, 1990]

SMITTIA: the synonym ORTHOSMITTIA Goetghebuer, 1943 is transferred as a synonym of PSEUDOSMITTIA
S. *brevifurcata* (Edwards, 1926) was transferred to *Pseudosmittia* by O.A. SÆTHER (2006. Japanese *Pseudosmittia* Edwards (Diptera: Chironomidae) *Zootaxa* **1198,** 21-51)
S. *foliacea* (Kieffer, 1921 – *Psectrocladius*) is removed from *Smittia* and placed in synonymy with *Camptocladius stercorarius* [see also *Fauna Europaea*]
S. ***foliosa*** (Kieffer in Thienemann, 1921 – *Phaenocladius*) is the valid name for British specimens previously listed as *S. foliacea*

THALASSOSMITTIA *thalassophila* (Bequaert & Goetghebuer, 1914) [date corrected from 1913

TRISSOCLADIUS: authorship should be Kieffer in Kieffer & Thienemann, 1908

TVETENIA *discoloripes*: authorship corrected to Goetghebuer & Thienemann in Thienemann, 1936

The following changes in Tribe Chironomini are on the advice of Martin Spies and accord with the latest update of *Fauna Europaea* by O.A. SÆTHER and M. SPIES (2013. Fauna Europaea: Chironomidae. **In** P. BEUK and T. PAPE (Eds) Fauna Europaea: Diptera Nematocera. Fauna Europaea version 2.6. Internet database (http://www.faunaeur.org/),

published April 2013):

BENTHALIA Lipina, 1939 [currently valid genus (but possible synonym of *Fleuria*), to include one species transferred from CHIRONOMUS (S. LOBOCHIRONOMUS)]:
Benthalia carbonaria (Meigen, 1804 – *Chironomus*) = *dissidens* (Walker, 1856 – *Chironomus*) (synonymy by A.I. SHILOVA (1980. K sistematike roda *Einfeldia* Kieffer (Diptera, Chironomidae). [On the systematics of the genus *Einfeldia* Kieffer (Diptera, Chironomidae).] *Trudy / Akademiya Nauk SSSR, Institut Biologii Vnutrennikh Vod* **41**, 162-191; followed by Sæther and Spies 2013)

CHIRONOMUS: CAMPTOCHIRONOMUS Kieffer, 1918 is no longer recognised as a subgenus, so the name is listed as a synonym of the genus name and the two previously included species (*pallidivittatus* and *tentans*) are included in CHIRONOMUS sensu stricto

CHIRONOMUS (sensu stricto) ***acidophilus*** Keyl, 1960 [new to British list, added by P. MICHAILOVA, J. ILKOVA, R. KERR and K. WHITE 2008. Effect of trace metals at acid and neutral conditions on the structure and function of polytene chromosomes in *Chironomus* species. *Boletim do Museu Municipal do Funchal, Supp.* **13,** 61-68]
C. (sensu stricto) ***alpestris*** Goetghebuer, 1934 [= *C. dorsalis*: authors, misident. of *C.* (*Lobochironomus*) *dorsalis* Meigen: identity verified after suggestion by W. WÜLKER and M. KLÖTZLI (1973. Revision der Gattung *Chironomus* Meigen. IV. Arten des *lacunarius* Komplexes. *Archiv für Hydrobiologie* **72,** 474-489]
C. (sensu stricto) *pilicornis*: previous listing of synonym *uliginosus* Fabricius, 1805 was in error and should be replaced by *niveipennis* Fabricius, 1805

CHIRONOMUS (S. LOBOCHIRONOMUS) *palaearcticus* (Ashe in Ashe & Cranston, 1990 – *Einfeldia*) [transferred from *Einfeldia* based on examination of type material]

PARACHIRONOMUS ***cinctellus*** (Goetghebuer, 1921 – *Chironomus*) + [restored to list from Excluded species, based on exuviae that had been previously determined as *P. vitiosus*; see Spies and Bolton in present issue]
Parachironomus ***elodeae*** (Townes, 1945 – *Chironomus*) [first recorded from Britain in *Fauna Europaea* version 2.4 (2011); formally by Spies and Bolton in the present issue]

POLYPEDILUM subgenus URESIPEDILUM Oyewo & Sæther, 1998 [authorship corrected; previous publications of the name were nomina nuda]

TRIBELOS *intextum* (Walker, 1856 – *Chironomus*) [correction of gender ending to specific name]

Syrphidae. The following species is added in the present issue:
Eumerus ***sogdianus*** Stackelberg, 1952

The following generic synonymy results from J.H. SKEVINGTON and F.C. THOMPSON (2012. Review of New World *Sericomyia* (Diptera: Syrphidae), including description of a new species. *Canadian Entomologist* **144,** 216-247). *Arctophila superbiens* is not mentioned in the paper, so is presumably a new combination in *Sericomyia* here:
ARCTOPHILA Schiner, 1860 = SERICOMYIA Meigen, 1803

Sericomyia superbiens (Müller, 1776 – *Volucella*), **comb. n.**

The following changes in *Pipiza* result from A. VUJIĆ, G. STÅHLS, J. AČANSKI, H. BARTSCH, R. BYGEBJERG and A. STEFANOVIĆ (2013. Systematics of Pipizini and taxonomy of European *Pipiza* Fallén: molecular and morphological evidence (Diptera, Syrphidae). *Zoologica Scripta* **42,** 288-305):
Pipiza ***fasciata*** Meigen, 1822 [= *Pipiza fenestrata*: authors misident., not Meigen, 1822]
Pipiza ***notata*** Meigen, 1822 [= *Pipiza bimaculata* Meigen, 1822] (this name was selected because specimens in European collections were predominantly identified as *P. notata* while specimens identified as *P. bimaculata* were often *P. noctiluca*)

Tephritidae. The original genus was given in error for the following species (Laurence Clemons *pers. comm.*):
Chaetorellia jaceae (Robineau-Desvoidy, 1830 - *Tephrytis*)

Laurence Clemons has also provided an update of the section in the checklist on Imported Species, with particular reference to the summary by S. REID and C. MALUMPHY (2009. Fruit flies (Diptera: Tephritidae) intercepted on plant produce imported into England and Wales. *Entomologist's monthly Magazine* **145,** 213-226), resulting in the following additions:
TRYPETINAE
Dacini
BACTROCERA Macquart, 1835
Subgenus **BACTROCERA** Macquart, 1835
Bactrocera ***correcta*** (Bezzi, 1916 – *Chaetodacus*). Oriental, imported from Thailand between 1995 and 2008
Bactrocera ***dorsalis*** (Hendel, 1912 – *Dacus*). Oriental, occasional import
Bactrocera ***invadens*** Drew, White & Tsuruta, 2005. Afrotropical, imported from Gambia, Kenya and Senegal in the 1990s
Bactrocera ***kandiensis*** Drew & Hancock, 1994. Oriental, imported from India in 2008
Bactrocera ***latifrons*** (Hendel, 1915 – *Chaetodacus*). Oriental, imported from Thailand in 1994 and 2008
Bactrocera ***philippinensis*** Drew & Hancock, 1994. Oriental, imported from the Philippines in 1995
Bactrocera ***zonata*** (Saunders, 1842 – *Dasyneura*). Oriental, occasional import
Subgenus *TETRADACUS* Miyake, 1919
Bactrocera ***minax*** (Enderlein, 1920 – *Polistomimetes*). Oriental, imported from ?India in 2008
CERATITIS MacLeay, 1829 subgenus CERATITIS sensu stricto
Ceratitis ***punctata*** (Wiedemann, 1824 – *Tephritis*). Afrotropical, imported from Ghana in 1996
Subgenus **PTERANDRUS** Bezzi, 1918
Ceratitis ***anonae*** Graham, 1908. Afrotropical, occasional import
DACUS Fabricius, 1805 subgenus **DACUS** Fabricius, 1805
Dacus ***bivittatus*** (Bigot, 1858 – *Leptoxys*). Afrotropical, occasional import
Subgenus *DIDACUS* Collart, 1935
Dacus ***vertebratus*** Bezzi, 1908. Afrotropical, occasional import
Toxotrypanini

Anastrepha ***fraterculus*** (Wiedemann, 1830 – *Dacus*). Neotropical, imported from Columbia in 1998
Anastrepha ?***suspensa*** (Loew, 1862 – *Trypeta*). Neotropical, imported from Jamaica in 1996
Trypetini
Rhagoletis ***pomonella*** (Walsh, 1867 – *Trypeta*). Nearctic, imported from the USA in the 1920s

Odiniidae. The following new synonymy was proposed by S.D. GAIMARI and W.N. MATHIS (2011. World Catalog and Conspectus on the Family Odiniidae (Diptera: Schizophora). *Myia* **12,** 291-339):
Odinia ***trinotata*** Robineau-Desvoidy, 1830 [= *O. maculata* (Meigen, 1830 – *Milichia*) = *O. femorata* (Schiner, 1863 – *Milichia*) = *O. maculata* var. *loewi* Collin, 1952]

Agromyzidae. The following species is added in the present issue:
Ophiomyia ***longilingua*** (Hendel, 1920 – *Melanagromyza*)

In Volume 17 No. 2 (2010, published 18 February 2011), generic changes proposed by I.S. WINKLER, S.J. SCHEFFER and L. MITTER (2009. Molecular phylogeny and systematics of leaf mining flies (Diptera: Agromyzidae): delimitation of *Phytomyza* Fallén sensu lato and included species groups with new insights on morphological and host-use evolution. *Systematic Entomology* **34**(2), 260-292) were accepted. This involved the treatment of *Chromatomyia* and *Napomyza* as synonyms of *Phytomyza*, within which *Chromatomyia* was a synonym of *Phytomyza* sensu stricto and *Napomyza* had subgeneric rank. The new name *Phytomyza asteroides* was proposed for *Napomyza tripolii* Spencer, 1966 [not *Phytomyza tripolii* de Meijere, 1924]. It is now understood that these changes have not met with general acceptance (Michael von Tschirnhaus *pers. comm.*), and the usage and composition of **NAPOMYZA** Haliday in Westwood, 1840 and **CHROMATOMYIA** Hardy, 1849 is restored to that of the 1998 checklist.

Stenomicridae. It should be noted that W.N. MATHIS and A. RUNG (2011. World Catalog and Conspectus on the Family Periscelididae (Diptera: Schizophora). *Myia* **12,** 341-377) include this family as a subfamily of Periscelididae, while also suggesting it might belong to Aulacigastridae, and questioning its monophyly with respect to the included genera worldwide.

The subgenus PODOCERA was raised to generic rank by J. ROHÁČEK (2009. New biological and biogeographical data about two European species of Stenomicridae (Diptera). *Casopis Slezského Musea v Opave, Opava* (A) **58,** 1-8) [this paper had not been seen by Mathis and Rung (*op. cit.*)]:
PODOCERA Czerny, 1929, not preocc. Latreille, 1807
Podocera delicata (Collin, 1944 – *Diadelops*)

Milichiidae. The following species is added in the present issue, as an introduced species apparently established indoors:
Desmometopa ***varipalpis*** Malloch, 1927

Heleomyzidae. The checklist used the name *halterata* (Meigen, 1830) for the British species of *Tephrochlaena* following Gorodkov (1984). This was in error (Andrzej Woźnica *pers.*

comm.) and the name *oraria* proposed by Collin is therefore restored
Tephrochlaena ***oraria*** Collin, 1943 [= *T. halterata*: misident. (not Meigen, 1830)]

Sphaeroceridae. *Thoracochaeta erectiseta* Carles-Tolrá, 1994 was listed in 1998 as to be added by Valentine *et al.* That wasn't published and it was formally added in J. ROHÁČEK and S.A. MARSHALL (2000), cited for addition of other species of this genus.

Drosophilidae. The subgenus PARACACOXENUS has been raised to generic rank by G. BÄCHLI and C.R. VILELA (2011. On the identities of *Paracacoxenus exiguus* (Duda) and *P. inquilinus* (Hendel), with the description of a new *Paracacoxenus* species from Italy (Diptera, Drosophilidae). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* **84,** 113-139):
Paracacoxenus exiguus (Duda, 1924 - *Cacoxenus*)

L. CLEMONS (2013. Kent Diptera 2012. *Bulletin of the Kent Field Club* **58,** 117-135) reported that the following exotic pest of soft fruit cultivation had been found at East Malling, Kent in September 2012 (as had been widely reported in the press):
Drosophila (subgenus *Sophophora*) ***suzukii*** (Matsumura, 1931 – *Leucophenga*)

Anthomyiidae. The following species is added in the present issue:
Egle ***concomitans*** (Pandellé, 1900 – *Anthomyia*)

The following species was published as new to Yorkshire by J. COLDWELL (2011. Diptera new to Yorkshire from the Barnsley area in 2010. *The Naturalist* **136,** 159-160) and is added formally in the present issue.
Egle ***suwai*** Michelsen, 2009

Muscidae. The following species is added in the present issue:
Polietes ***meridionalis*** Peris & Llorente, 1963 +

Sarcophagidae. The following species is added in the present issue:
Macronychia ***agrestis*** (Fallén, 1810 – *Tachina*)

Tachinidae. The following genus and species are added in the present issue:
BOTRIA Rondani, 1856 = BOTHRIA, emend. [subfamily Exoristinae, tribe Goniini]
Botria ***subalpina*** Villeneuve, 1910 (*Bothria*)

Changes to the Irish Diptera List (19) – Editor

This section appears as necessary to keep up to date the initial update of the Irish list in Vol. **10,** 135-146 and the latest checklist of Irish Diptera (Chandler *et al.* 2008). Species are listed under families, but with references listed separately (unless within the present issue). The 24 additions and 3 deletions cited below bring the total Irish list to **3380** species.

Ceratopogonidae
Dasyhelea flavifrons (Guérin-Ménéville, 1833) (added by Ashe *et al.* 2012)
Dasyhelea modesta (Winnertz, 1852) (added by Ashe *et al.* 2012)

Dasyhelea notata Goetghebuer, 1920 ++ (added by Ashe *et al.* 2012)
Atrichopogon fusculus (Coquillett, 1901) (added by Ashe *et al.* in the present issue)
Atrichopogon pavidus (Winnertz, 1852) (added by Ashe *et al.* 2012)
Atrichopogon lucorum (Meigen, 1818) (added by Ashe *et al.* 2012)
Forcipomyia alacris (Winnertz, 1852) (added by Ashe *et al.* in the present issue)
Forcipomyia glauca Macfie, 1934 (added by Ashe *et al.* 2012)
Forcipomyia ciliata (Winnertz, 1852) (added by Ashe *et al.* 2012)
Forcipomyia nigra (Winnertz, 1852) (added by Ashe *et al.* 2012)
Forcipomyia radicicola Edwards, 1924 (added by Ashe *et al.* 2012)
Forcipomyia sphagnophila Kieffer, 1925 (added by Ashe *et al.* 2012)
Palpomyia nigripes (Meigen, 1830) (added by Ashe *et al.* in the present issue)

The following species was deleted from the Irish list by Ashe *et al.* (2012)
Mallochohelea nitida (Macquart, 1826)
The following species was deleted from the Irish list by Ashe *et al.* (in the present issue)
Atrichopogon rostratus (Winnertz, 1852)

Chironomidae The following species were recorded from Ireland in error in the Catalogues by Ashe and O'Connor (2009, 2012): *Limnophyes er*, *Orthocladius excavatus*, *Procladius pectinatus*, *Pseudokiefferiella parva, Sympotthastia zavreli, Syndiamesa edwardsi* (P. Ashe and D. Murray *pers. comm.*). *Tanytarsus smolandicus* was listed from N. Ireland in *Fauna Europaea* (Sæther and Spies 2013), but this was in error (P.H. Langton *pers. comm.* to M. Spies).
Bryophaenocladius muscicola (Kieffer, 1906) (added in the present issue)
Chaetocladius suecicus (Kieffer in Thienemann & Kieffer, 1916) (added in the present issue)
Cricotopus speciosus Goetghebuer, 1921 (added by Murray 2012b)
Cryptotendipes usmaensis (Pagast, 1931) (added by Murray 2012b)
Glyptotendipes glaucus (Meigen, 1818) (added by Langton 2002 and previously by Marks and Henderson 1970; omitted from Chandler *et al.* 2008)
Metriocnemus carmencitabertarum Langton & Cobo, 1997 (added by Murray 2012a)
Parachironomus cinctellus (Goetghebuer, 1921) (see above; *P. biannulatus* should be deleted from the Irish list as it was recorded by Langton 2002 on misidentified exuviae)
Parakiefferiella fennica Taiskunen, 1986 (added by Murray 2012b)
Psectrocladius schlienzi Wülker, 1956 (added by Murray 2012b)

Anthomyiidae
Anthomyia imbrida Rondani, 1866 (added by Chandler and O'Connor in present issue)

Muscidae
Polietes meridionalis Peris & Llorente, 1963 (added by Pont and Falk in present issue)

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The distribution and phenology of *Aulagromyza luteoscutellata* (de Meijere) (Diptera, Agromyzidae) -

Aulagromyza luteoscutellata (de Meijere, 1924) is a leaf-mining species that is oligophagous within the family Caprifoliaceae. The fly was added to the British list in June 2007, following the discovery of leaf mines in *Lonicera etrusca* (Etruscan honeysuckle) at Fleet (North Hampshire, V.C. 12). The identification was confirmed by the dissection of an adult male fly, which emerged from an external pupa (Edmunds, R. and Ellis, W. 2008. *Aulagromyza luteoscutellata* (De Meijere, 1924), (Dip.: Agromyzidae): New to Great Britain. *Entomologists' Record and Journal of Variation* **120,** 21-24; Chandler, P.J. 2007. Corrections and changes to the Diptera Checklist (18). *Dipterists Digest* (*Second Series*) **14,** 90-92). The Fleet record was followed in July 2008 by others from the Tonbridge area (West Kent, V.C. 16). In this case the mines were in *Symphoricarpos albus* (snowberry) (British Leafminers Newsletter **13,** July 2008, http://www.leafmines.co.uk/pdfs/news14/pdf).

Since 2008, little has been heard of the species and in the absence of any National Biodiversity Network (NBN) data, its known distribution as summarised on the "UKflymines" web site consists of just the two locations described above (http://www.leafmines.co.uk/html/Diptera/A.luteoscutellata.htm; accessed 12 May 2013).

Aulagromyza luteoscutellata is one of five European *Aulagromyza* species that mine *Lonicera* and *Symphoricarpos*, the others being *A. atlantidis* (Spencer, 1967), *A. cornigera* (Griffiths, 1973), *A. fallax* (Groschke, 1957) and *A. hendeliana* (Hering, 1926). In Britain, there is a risk that the mines of *A. cornigera* and *A. hendeliana* could be confused one with the other; however, the mines of *A. luteoscutellata* are very distinctive, certainly when fresh. The overall colour of a new mine is green, with little contrast between the mine and the ground colour of the leaf. As the mine ages it becomes initially darker and later, as the frass weathers, it is a noticeably paler straw colour when it might be difficult to differentiate from other agromyzid mines. Close examination of fresh mines shows that the greenish colour is the result of a broad band of green frass. There may also be a scattering of darker frass pellets and these might be organised into a series of chevrons. Collectively, these characteristics make the mines readily identifiable and thus recording the presence of the species from tenanted or recently vacated mines is safe.

Probable records of *A. luteoscutellata* mines in an as then unidentified *Lonicera* species at Hale (Cheshire, V.C. 58) and on *Symphoricarpos* at Toddington (East Gloucestershire, V.C. 33) in September 2011 suggested that the species had a much wider distribution pattern than evidence then available suggested and that both *Lonicera* and *Symphoricarpos* would be worthwhile targets for further investigation. In 2012, I looked for *A. luteoscutellata* mines wherever I encountered either plant group and the results of this search are mapped in Fig 1 and reviewed below.

The distribution of the 2012 records (Fig. 1) shows a clear bias towards locations easily accessible from my home in Cheltenham. Nevertheless, the full spatial extent of the records is considerable and can be envisaged as a rectangle approximately 220 by 100 kilometres with Hale and Bristol marking the north-south limits and Leicester and Hereford the east-west limits. It would seem unlikely that the species has spread out from the two original locations outlined above to occupy such a broad geographical spread in the short time since 2007/8 and the map is much more likely to support the assertion by Edmunds and Ellis that "*A. luteoscutellata* is an overlooked species in Britain" (p. 23). The authors' use of the term "cryptic" to describe the species, and by implication to suggest that the mines are difficult to find, might account for the absence of records before and after 2007. To give some context to the possible rate of spread of the fly, the micro-moth *Ectoedemia sericopeza* (Zeller, 1839), which is a more robust insect with a wing span of 6-8 mm, has a broadly similar northern limit to its range but was added to the British list much earlier, in 1975, on the basis of a record from Essex (Homan, R and Smart, B, 2011. *Ectoedemia sericopeza* (Zell.) (Lep. Nepticulidae) from obscurity to ubiquity? *Entomologist's Record and Journal of Variation* **123,** 286-289). Agassiz calculated the rate of spread of two related Nepticulidae species as 2.20 and 3.05 km/year. (Agassiz, D.J.L. 1996."Invasions of Lepidoptera into the British Isles" in A. Maitland Emmet (Ed.) The Moths and Butterflies of Great Britain and Ireland, Vol. 3). The crude figure for *A. luteoscutellata* based on a distance between Fleet and Hale of 255km and a period of 5 years is an unlikely 51 km/year.

However, there is also a possibility that the species has spread into new areas; it is, for example, absent from Robbins' comprehensive list of the leaf miners of Warwickshire, although one of the 2012 records mapped above is from Bidford-on-Avon in the south of the county (Robbins, J. 1991. The leaf miners of Warwickshire with notes on others occurring in the Midlands. 182 pp. Warwickshire Museum, Warwick). In Gloucestershire, I found the mines to be both numerous and widespread in *Symphoricarpos* hedges, planted as game cover or as ornamental features. On the other hand, a 300 metre hedge of the plant at Staveley, Cumbria (Westmorland with Furness, V.C. 69) provided a notable contrast with *Chromatomyia lonicerae* (Robineau-Desvoidy, 1851) and *Phyllonorycter emberizaepenella* (Bouché, 1834) being the only mining species recorded. The Hale record therefore represents the northernmost limit of the distribution of *A. luteoscutellata*. Of the 11 locations shown in Fig. 1, three relate to mines found in *Lonicera xylosteum* (fly honeysuckle) and eight to *Symphoricarpos*.

Assessing the status of *A. luteoscutellata* in Britain is made even more difficult by its confusing taxonomy. Up to 1969 the species was also known as *Phytagromyza xylostei* (Robineau-Desvoidy, 1851) sensu Hendel, though that species is now known as the valid taxon *Chromatomyia aprilina* (Goureau, 1851). As a result, old records of *A. luteoscutellata* might have been published as "*xylostei* (R.-D.)". As if that was not complication enough, other names that could have been used are *lonicerae* Brischke, 1880, *lonicerarum* Frey, 1946 and *falleni* Rydén, 1952, each with any of the generic names, *Phytomyza*, *Phytagromyza* or *Paraphytomyza* (Michael von Tschirnhaus *pers. comm.*). In Britain this issue dates from at least 1853 when Adam White listed "Phytomyza Xylostei Desv." as one of 23 *Phytomyza* species in his "List of the Specimens of British Animals in the Collection of the British Museum" (Pt. XV. Nomenclature of Diptera. I.). An element of clarity came in 1956 with Spencer's list of British Agromyzidae where the entry for *xylostei* (R.-D.) as a British species is qualified as "doubtful" (Spencer K.A. 1956. The British Agromyzidae (Dipt.). *Proceedings of the South London Entomological and Natural History Society* **1954-1955,** 98-108.). In Spencer's more comprehensive 1972 review the name *Phytagromyza xylostei* (Robineau-

Desvoidy, 1851) is firmly associated with *Phytagromyza luteoscutellata,* although he gives no British records for that species (Spencer K.A. 1972. Diptera, Agromyzidae. - Handbooks for the Identification of British Insects **10**(5g), 1-136).

In terms of phenology, *A. luteoscutellata* is currently seen as a univoltine species with larvae observed in June and July and adults in July. The records reviewed here suggest that larvae do indeed occur up to early July with tenanted mines found in a *Lonicera* species in my garden (Cheltenham, V.C. 33) on 2 July and recently vacated mines found in other locations between 2 and 19 July. Vacated mines, which were still greenish in colour, were also found at a Bristol site on 9 August. However, tenanted mines were evident on 16 August, again in *Symphoricarpos*, at Broadway (Worcestershire, V.C. 37) and Bidford-on-Avon (Warwickshire, V.C. 38). Further examples of August larvae were found at Toddington on 24 August, while in September the contrast between very pale early mines and green later mines was clear to see in *Symphoricarpos* bushes at sites in the North Cotswolds. This suggests that there is either a protracted single generation, although more likely, given the lack of larval records in early August, a second late summer generation.

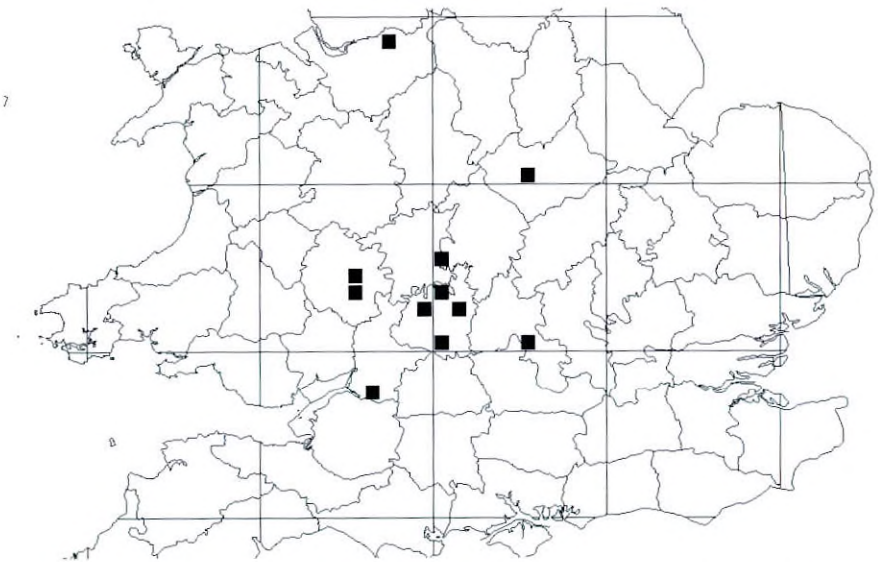

Fig 1. The distribution of 2012 records of *Aulagromyza luteoscutellata* by 10km square.

In summary, *Aulagromyza luteoscutellata* is a species that is likely to be encountered in much of central and southern England, although how it came to occupy such a large area is unclear. There are probably two larval generations in June/July and August. *Symphoricarpos* is a favoured host, although the species also uses *Lonicera xylosteum*. I am grateful to Michael von Tschirnhaus for comments on an earlier draft of this note and for invaluable guidance on the taxonomy of *A. luteoscutellata* and to Dr Anna Tsakanikas for providing a sample of *Lonicera xylosteum* material from Hale – **ROBERT HOMAN,** The Apiary, Swindon Lane, Cheltenham, Glos, GL50 4PD

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