my original of no 2 was a little faint in places. Peter

The Piercer

A PIPUNCULIDAE NEWSHEET, NO 2

February 1992

It is with relief that the newsheet continues beyond the first issue. This is a consequence of the interest generated in Britain and beyond, including the fact that others have joined in by contributing text. It had been hoped to produce no 2 last winter but this was not to be during a chaotic period leading up to retirement from NCC. Thankfully, following the split of NCC, English Nature has taken in hand the reproduction and circulation of the Piercer.

Though no further revised keys are offered at this stage, it has been a very significant phase towards a new reference to the British fauna. Michael Ackland has been exceedingly industrious in producing detailed high quality illustrations of the genitalia of both sexes for the majority of our fauna. He has sorted out a confused group of species in Cephalops and also found an extra Eudorylas during this phase. By the time this newsheet is circulated he will have retired so as to give more time for entomology. The plan now is to write up a genus at a time, in joint collaboration, probably starting with Cephalops.

We shall be pleased to receive distribution and ecological data towards our revisionary study, though we are not intending to run a formal recording scheme. The next issue of the Piercer would benefit from some ecological notes on the fauna of various habitats (any writers welcome).

FURTHER NEW BRITISH SPECIES

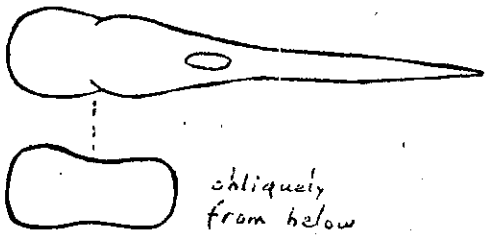
Additions to the British list were given a major boost by the discovery of three species new to Britain during the dipterists' main residential field meeting at Winchester, Hampshire in July 1990. Other additions have come from submitted material and re-examination of museum material, especially the Collin collection at the Hope Department, Oxford.

Microcephalops vestitus (Becker, 1900). A female was taken at Bentley Woods, Wilts (AES) and it has subsequently been found at Wychwood Forest NNR, Oxon (M Ackland) and in the Breck (Ivan Perry). It is minute (Tomosvaryella size), with an unusual ovipositor (not unlike the much larger Eudorylas jenkinsoni) and the male has a matt black abdomen.

Eudorylas: E. fusculus (Zetterstedt, 1844) was taken at Matley Bog (M Ackland). It is a small species, like fuscipes. The male runs to Group D, couplet 2 (no membranous area), the wing length only 2.6 mm (much less than in the other species).

An as yet unidentified species was found midst a malaise trap sample taken at Glen Tanar NNR, Scotland (received from Ian MacGowan). A further species is now known from Oxwich, S Wales (ex Collin Colln.) and Sydlings Copse, Oxon (coll. John Ismay).

Pipunculus oldenbergi Collin, 1956. A female was taken near Winchester (by John Dobson). The ovipositor base is waisted (as seen from below) and there is a strong angle between the ovipositor base and the piercer (as seen in side view).



Cephalops. There are now some changes about the end of the test keys, from couplet 12 onwards. C. chlorionae Frey, 1945 is the name for Cephalops species A in the 1988 test key for females. It was taken at Blackgang Chine, IoW in 1980 (AES) and at Boscombe, Dorset 1989 at Phragmites on coastal cliffs (AES). It has also been found at Whale Chine, IoW 1990 (John Ismay) and Wicken Fen 1990 (Ivan Perry).

A confusion of names has been resolved by Michael Ackland. The types for titania and oberon prove to be the same species, though not all paratypes, whilst the synonymy of titania and continental signatus (by de Meyer) was not justified. Hence, in a nut shell:-

signatus (Becker, 1900)
    oberon Coe, 1966
    titania Coe, 1966 (holotype)
sp. n. (let's call it Cephalops species B for the moment)
    titania Coe, 1966 (some paratypes)

It seems best to await the production of fully illustrated keys rather than put forward a premature revised key to this awkward complex, though it is actually not as bad as it seems.

REVISED CHECK LIST FOR Dorylomorpha

Dr Andres Albrecht (1990) has published his Holarctic revision of Dorylomorpha. This is an excellent well illustrated monograph and gives a very firm basis for study of this genus. A further 15 species occur in Europe and it is possible that some may yet be found in Britain.

The revised test key to Dorylomorpha (circulated by AES in 1989, with Piercer no 1) was able to anticipate the erection of sub-genera, thanks to a pre-view of changes affecting the British list. Thus Group B constitutes sub-genus Dorylomorpha, Group C Dorylomyza and Group A includes Dorylomyia, Pipunculina and one Dorylomyza.

The British list is as follows:-

DORYLOMORPHA Aczel, 1939

S. DORYLOMORPHA Aczel, 1939
confusa (Verrall, 1901)
extricata (Collin, 1937)
    insignis (Aczel, 1939)
impar̃ta (Collin, 1937)
    intermedia (Aczel, 1939)
rufipes (Meigen, 1824)
    xanthoceroides (Aczel, 1939)

S. DORYLOMYIA Albrecht, 1990
beckeri (Aczel, 1939)

S. DORYLOMYZA Albrecht, 1990
albitarsis (Zetterstedt, 1834)
    ornata Hardy, 1934
anderssoni Albrecht, 1979 [mis. det. as semimaculata on 1976 British list]
clavifemora Coe, 1966
infirmata (Collin, 1937)
haemorrhoidalis (Zetterstedt, 1838)
hungarica (Aczel, 1939) [mis. det. as haemorroidalis on 1976 British list]
xanthopus (Thompson, 1869)
    semimaculata (Becker, 1897)

S. PIPUNCULINA Albrecht, 1990
maculata (Walker, 1834)
fulvipes (Macquart, 1834)
lateralis (Macquart, 1834)
annulipes (Zetterstedt, 1838)

NEWS OF SOME SPECIES

Pipunculus tenuirostris is proving very widespread, indeed on Skye and in Ross-shire in July 1991 it was this species rather than P. campestris which was recorded (the latter also occurs widely, including the Spey Valley).

Beckerias pannonicus has more fenland localities, all in southern England.

Eudorylas kowarzi was previously only known as females. A male has been taken at Wicken Fen, 1979 (Ivan Perry, det M Ackland).

EUROPEAN NEWS

In a letter (June 1990) Dr Milan Kozanek reports having worked on the Pipunulidae of Czechoslovakia for 10 years. Current work on a revision of Eudorylas in that country has revealed 25 species of which 3 are new to science. Mention is made also of work on the fauna of North Korea and the Paekdusan mountains.

Dr Marc de Meyer has written a number of times. One of his projects has been to devise a check list of European species; he has sent a tabulated list with countries of known occurrence (a copy is with Alan Stubbs and can be made available to those who want one). His letter of July 1989 reports that there are only 3 known European Nephrocerus (not 4 as earlier seemed possible). He also reports the following synonyms:-

re - De Meyer & De Bruyn (1985)
Cephalops braueri should be sunk in aeneus
C. seminitidus type destroyed, not sure what is meant by this species

re - Bankowka (1973)
C. pulchripes is C. obtusinervis, an interpretation confirmed by her drawings. Many authors have confused these names; according to Kozanek C. pulchripes is a synonym of Pipunculus calcaratus von Roser (which clearly is not the case).

SOME PIPUNCULIDS ON CHALK GRASSLAND IN SOUTHERN ENGLAND

Whilst there would appear to be no species confined to chalk grassland, certain species are frequently found here. These notes give a brief outline of my experience so far in the field and from material sent to me for identification.

Eudorylas longifrons. This is one of the most consistent species. It also occurs on other grasslands, including other dry soil habitat such as on sandy soils. Longish rather than closely grazed areas are required.

E. horridus. A scarce species but chalk grassland seems to be one of its more regular habitats. Other recent records include a calcareous woodland ride and coastal grazing levels.

E. melanostolus. Found on a few very sheltered chalk grasslands. It also occurs in the limestone gorges of the Mendips on relatively arid grassland. Some affinity with areas containing scrub seems evident.

Tomosvaryella nigritula (geniculata of European lists). It is a relatively consistently occurring species. Sometimes other members of the genus are present. At White Down in Surrey I brought

back 5 specimens which comprised 3 nigritula, one sylvatica and one kuthyi. More widely it is these three species that tend to predominate on dry grasslands, though at least sylvatica can also occur in marshy sites.

COLLECTING TECHNIQUES (Some experience in Belgium)

In the first issue of the 'piercer', Alan Stubbs gave an account of the different collecting methods one can use to obtain pipunculid material. I would like to give here a few additional comments.

From my own experience I can agree with Alan that collecting pipunculids is often a troublesome experience. In general I have found sweeping a disappointing technique. Because of their inconspicuousness, pipunculids are easily overlooked and indeed one day can be more fruitful than the next.

However as far as Malaise traps are concerned, I am much in favour. During the last ten years, the 'Koninklijk Belgisch Instituut voor Natuurwetenschappen' (Royal Belgian Institute for Natural Sciences) at Brussels, Belgium has been organizing a survey of the Belgian dipteran fauna under the guidance of Dr P Grootaert, head of the Entomology section of the KBIN. For this survey we have mainly used Malaise traps placed for one or a few successive years at different sites throughout the country. So far, 28 site-year cycles have been studied for pipunculids, and an estimated 3500 specimens have been collected (this in comparison with a few hundred specimens that were collected and deposited in the KBIN collections over the previous decades of this century!). This has given us an enormous amount in Belgium (see De Meyer & De Bruyn, 1985; De Meyer, 1990) and also enabled us to obtain information regarding other aspects, mainly about phenology (De Meyer & De Bruyn, 1989).

Often these Malaise traps were just placed in private gardens or in meadows, thus not necessarily in 'special' or 'rich' biotopes. We have seen, however, that the position of the trap can have an important influence on the number of specimens or species caught during a year cycle. For example, in a study at Turnhout in the north of the country, Malaise traps were used in combination with emergence traps at two different sites (De Meyer, 1983). In one site we found 10 species (119 specimens) in the Malaise trap, compared to 9 species (80 specimens) in three emergence traps. In the second site however we only found 7 species (14 specimens) in the Malaise traps, compared to 10 species (161 specimens) in the three emergence traps. The emergence traps were moved every week to another spot within the same site while the Malaise traps were fixed for the whole cycle. Hence, the place of the trap seems to be very important. It is hard to give any instructions for choosing the best spot. In general it can be said that a spot in open grassland near a hedgerow or a line of trees is usually more favourable than on open sites with short vegetation.

The above mentioned experiment also shows that emergence traps can be used to collect pipunculids. However they are usually more time consuming as far as construction, placement and emptying is concerned. Also they will limit the catch to specimens that emerge at that particular spot.

Another method used in the faunistic survey of the KBIN are water traps (usually white). In general the pipunculid catch is poor. Only a few specimens will be obtained, usually belonging to common species. We recently had one exception where water traps were placed in a dune habitat at the Belgian coast (De Meyer, et al, 1989). Although the number of specimens was low, we obtained a new species for the Belgian fauna (Eudorylas zermattensis (Becker)) and several specimens of the coastal species Tomosvaryella littoralis (Becker).

In general, it can be said that Malaise traps are the most effective method. Apart from the above mentioned results I also had good results with these traps in other countries (a.o. Botswana) and was also able to study extensive collections that were collected in other countries (mainly Scandinavia). Malaise traps can be easily made at a low cost, following Townes instructions (Townes, 1972). They usually give a large amount of material (for example in 1984 we collected a few hundred specimens belonging to 32 species, at one single site in the south of Belgium

(De Meyer, 1984)). In addition they can give interesting information regarding phenology and maybe also biotope preference (the latter has not yet been studied in detail in Belgium, but some preliminary results show a potential application).

References

De Meyer references are placed under literature at the end of this newsletter.

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Marc de Meyer

[Malaise traps may be purchased from Marris House Nets, if you do not wish to make your own.]

COLLECTING TECHNIQUES (Some experience in Britain)

Pipunculids are normally collected by sweeping and in grassland habitats this may be the only practical method. However I never had much success with this technique in woodland, until I changed my approach and started to look for individuals.

Early in May during 1989 my attention was drawn to several Pipunculids flying around nettles at the edge of a wood in the Breckland. I caught these individually with a sweep net and then pooted from there. On examination they proved to be Dorylomorpha extricata and D. imparata. I have since found both species flying together in similar situations at a number of localities. Spurred on by my early success I started to look elsewhere and found Sycamore trees infested with Aphids to be particularly attractive to a number of species. On warm, still days whilst the trees were in sunlight, all one had to do was stand and wait for the Pipunculids to come to the tree to feed on the honey dew. At Chippenham Fen one Sycamore proved to be especially good and attracted numerous species, among them Verrallia beatricis and Beckerias pannonicus and in North Wales Dorylomorpha maculata was found in similar circumstances.

In the Kings Forest, on the edge of the Suffolk Breckland, small Oaks growing under Pines proved particularly attractive. Here I found over 30 different species including Pipunculus tenuirostris, Beckerias pannonicus, Cephalops subultimus and Eudorylas melanostolus. There was no sign of Aphids on the Oaks, but the leaves certainly had some attraction, which diminished considerably after a heavy thunderstorm had washed them clean. I tried to make up for the lack of activity after the rain by spraying the Oak leaves with Lepidopterist's Sugar. However this was not successful in attracting Pipunculids although it did tempt several Syrphids including Didea fasciata.

Earlier this year (1990) on a very hot day in May, again in the Kings Forest my attention was drawn to several male Bibio frantically running about over a woodland path. We were already into quite a dry spell and they were obviously attracted to the moisture just below the surface. Closer inspection revealled various other Diptera attracted to the damp path, including many Pipunculids. There were no unusual species involved but this method may have possibilities, especially during drought conditions.

Although searching for and netting individual Pipunculids may seem rather laborious, in certain situations when the conditions are right, it can be very rewarding and far more successful than general sweeping.

A word of caution with Chalarus which can often occur in numbers at Honey dew. There are many more species in Britain than were recognised by Coe in the RES Handbook, especially amongst those with the mid femora fringe black. By examining the female genitalia I have separated out at least five distinct species here with a further three possibles.

Ivan Perry

PREPARATION OF DRY MOUNTED PIPUNCULIDAE TO FACILITATE IDENTIFICATION

Stubbs (Piercer 1) has recommended the 'hinging' open of genitalia of Pipunculidae while pinning relaxed or fresh material. After attempting to name a large amount of material, both 'hinged' and with genitalia in a natural position, some refinements to this general principle can be proposed.

Male genitalia

Accurate identification of the genus Cephalops depends to a large extent on seeing the structure of the ejaculatory ducts, and apical part of the aedeagus. If the 8th sternum, epandrium and surstyli are hinged downwards to something approaching a right angle, the ducts and aedeagus will probably be clearly seen jutting out in the angle between these and the ventral surface of the abdomen. But the shape, length and extent of the membranous area on the 8th sternum will be distorted, and these characters are also useful. In addition, the very delicate structures of the ejaculatory ducts may be broken off in using a pin to hold back the surstyli. I have found it useful to insert a very fine micro pin behind the surstyli, under a microscope, and pull the surstyli and epandrium downwards just sufficiently to see in the space created by the ducts and aedeagus. In this way very little of the shape of the 8th sternum will be distorted. It is necessary to insert the pin between the surstyli and aedeagus, so that this structure (which contains the ejaculatory ducts) is revealed, and not pulled down within the base of the surstyli, where they will be difficult to see.

In all the other genera of Pipunculidae there are either other specific characters available, or the ducts and aedeagi cannot be seen sufficiently well in dried material (due to the membranous character of the former especially) and it is better not to attempt to 'hinge' down the genitalia. Perhaps in Eudorylas there is a case for just revealing the surstyli a little, but in general the characters of the 8th sternum and associated membranous area are of more use for general identification than the inner genitalic structures. If these have to be examined (in critical species) the external structures can be noted before dissection, and the fine inner details are then available in an undamaged state.

♀ genitalia

The piercer should be pulled back in most genera to reveal the shape of the ventral basal part which is often valuable in identification.

I should like to put in a plea here for the correct morphological use of the terms 'dorsal' and 'ventral'. What is often called the upper part of the piercer (aculeus) is in fact the ventral. The surface with the anal opening is the dorsal. It is true that the dorsal surface of the aculeus is in a ventral position when the ovipositor is in its 'at rest' position.

But the ventral surface of a tibia is often more dorsal when the tibia is bent acutely in relation to the femur.

Examination of Pipunculidae in liquid

When attempting to name large numbers of specimens collected in phenoxytol, from Malaise traps, I experienced some difficulty in holding the specimen in a suitable position to examine, say, the caudal view of the 8th sternum. I found it was a considerable help to use a plastic tray (about 1.5 x 1 in) lined at the bottom with a tightly wedged in piece of plastozote. This should be about ⅛ in thick, just sufficient to hold a micro pin. Another piece of plastozote about half as big is wedged in on one side, leaving a step in the middle. The fly can be pinned, either through the pleura or dorsally, and this pin can be stuck in a number of different ways into the base or side of step of the plastozote. The tray is of course filled with phenoxytol. The white base reflects light satisfactorily, and the specimen can be orientated to any position in the liquid, much as it would be done in air on a cork. It is also possible to exsert the genitalia (♂♀) with micro pins mounted in matchsticks against the plastozote. After examination, and hopefully, identification, the specimen can be slid off the pin and returned to the tube of phenoxytol with only a small hole remaining in its pleurae.

Michael Ackland
(23.3.91)

LITERATURE

New and other items additional to those in Piercer 1.

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