EMPID AND DOLICHOPODID STUDY GROUP NEWSHEET NO 6

EDITORIAL

Following a summer in which no copy was received it is now most gratifying to be able to record our appreciation to those dipterists who have recently responded so generously to our appeal for material.

This Newsheet has an international flavour; we look forward with interest to seeing some of Adrian Plant's exotic Antipodean empids at future Dipterists' meetings, and Marc Pollet's note is a tangible expression of the close links that are now developing with our colleagues on the Continent.

Our thanks go to all our contributors and we look forward to receiving further support from a growing number in future issues.

Roy Crossley, 1 The Cloisters, Birker Lane, Wilberfoss, York, YO4 5RF

CORRECTION

It is regretted that a number of errors occurred in Newsheet 5 and we apologise to those contributors whose notes were affected. Most of the mistakes were of a minor nature, but an omission in Peter Dyte's note, 'Some remarks on Ortochile nigrocoerulea' resulted in an incomplete statement which needs correction.

The second sentence of the first paragraph should read, "In the second edition (1976) of the Kloet and Hincks checklist, I followed Becker and Parent not only in misspelling the name, but also in treating Ortochile as a sub-genus of Hercostomus, and, understandably this practice was followed in Fonseca's handbook".

RECORDING SCHEME

During the general discussion at the Annual Dipterists' Meeting in November, there was agreement that the time is now right to test support for a limited co-operative recording effort during 1989 and I have undertaken to act as co-ordinator.

The intention is to complete 'single species' cards (GEN 13) for selected genera only, and to include on the cards habitat details in addition to locality, and also the sex of the specimens. Thus, in addition to producing final 'dot maps' showing national distribution, it should also be possible to compile a review of habitat preferences and the appearance times for both sexes, if precises dates are given for most records.

The genera selected for this pilot study are:- Campsicnemus (s.l.), Hydrophorus, and Empis (s.l.), the nomenclature to follow that on the recently produced BRC Site-Visit cards. When examining material please bear in mind the notes by Peter Chandler on Campsicnemus dasycnemus and another possible Campsicnemus species (Newsheet 5), and by Jon Cole on Hydrophorus rufibarbis/bipunctatus (Newsheet 3).

Please send completed cards to me at the address below as soon as possible. If sufficient support is forthcoming it should be possible to produce preliminary distribution maps for display at the Annual Dipterists' Meeting next November.

Supplies of 'single species' cards (GEN 13), together with instructions for their completion, may be obtained from the Biological Records Centre, Monks Wood.

We are aware that some workers maintain their records according to site only, and in these cases it may be simpler for Site-Visit cards to be used instead of 'single species' cards. This will be quite acceptable, and in such instances please feel free, if you wish, to complete the cards for all species and not just those under review this year.

Roy Crossley, 1 The Cloisters, Birker Lane, Wilberfoss, York, YO4 5RF.

GAY COURTSHIP IN Medetera

There seems to be virtually nothing on the courtship of Medetera species in the literature so the following fragmentary notes may be of interest. The wings appear to be used in at least two distinct ways by courting males. In 'V-quivering' they are maintained flat in the same plane as when at rest, but the wing apices are separated a little so that the wings form a V shape when viewed from above the insect. The wings are then rapidly quivered and returned to the resting position. The other method in which the wings are used in courtship may be called 'wing waving'. In this the wings are rapidly fluttered and moved up and down when fully extended at right angles to the body with the lamina more or less vertical to the substrate.

Courtship occurs on tree trunks. The male usually starts from a position about 5-15cm behind and to one side of the female. (Since the insects normally face upwards, this means he is below but not directly behind her on the trunk). He first turns to face the female, and so is standing at an angle to the vertical. He then does one to three V-quivers. Then he hops a little nearer to the female but to the other side of her (and still behind her). He lands facing her and again does a few V-quivers. This may be repeated three or four times before the male lands immediately behind the female and pushes his hypopygium forwards below his body. This basic pattern of behaviour may be modified or abbreviated. Sometimes the male jumps behind the female after a single V-quiver. Sometimes he V-quivers when in front or beside her. Often she moves away before, or at the moment, he lands immediately behind her.

V-quivering, but not necessarily this whole behaviour pattern, has been seen in Medetera ambigua, M. dendrobaena, M. jacula, and M. truncorum. Mating has not been observed, probably because as soon as the male lands immediately behind the female I usually try and capture the pair in a single 3 x 1 inch tube. Frequently one or both escape, but only by capturing the participants can behaviour be linked with identified specimens. With all four of the above named species there have been instances when both members of a pair were captured and both proved to be males. Thus males may court other males of the same species. With M. truncorum (Datchet, Berks, 26 September 1988) two males were seen both simultaneously courting a third male. Both did V-quivers before landing so close behind 'her' that all three were captured in the same 3 x 1 tube. Females were around however, and two courting pairs captured on nearby trees both proved to consist of one male and one female.

I have seen wing waving only in M. truncorum and M. saxatilis. A male of M. truncorum wing waved when about 4cm to the side of another individual which proved to be another male of the same species. He then jumped behind 'her' and moved his hypopygium forwards at which stage they were captured. A male of M. saxatilis wing waved when standing about 4cm in front of another Medetera which I failed to capture.

C E Dyte, Priory Cottage, 14 Priory Way, Datchet, Slough, Berks, SL3 9JQ

A FLUSH OF Hercostomus praetextatus

This coastal species has always been considered very scarce; I have found only a few females over the years, until 27 June 1988 when both sexes were abundant at Dawlish Warren, S Devon, on salt marsh, and particularly the dune edge fringing the marsh, where every sweep netted several for about 200 yards. This was right in the middle of the June-July flight period given in the Handbook. I have visited the Warren in previous years but not before mid August when I have found single females on 17th and 25th in different years, thus extending the flight period by a month. It is not unusual for scarce and local Dolis at times to be present in large numbers where they occur and perhaps this is so for H. praetextatus, but I do not think that it has been reported before.

Both sexes are a rather drab bronze-grey with the abdomen more dorso-ventrally flattened than usual in Hercostomus, but the male has a very characteristic wing, with strongly sinuous and parallel cubital and discal veins (R4+5 and M1+2), a sinuous hind margin and darkened tip, features not noted in the Handbook but figured by Parent in Faune de France 35 (1938). This is the only Palaearctic species of the sub-genus Muscididelcus Becker based on the weak grounds of possessing 7 not 5-6 dorso-central bristles and a flattened abdomen, and named from its not at all convincing resemblance to a muscid fly.

Jonathan Cole, 2 Lenton Close, Brampton, Huntingdon, Cambs PE18 8TR

Dolichopus sabinus

Males of this species in which the wing cloud is very faint and almost imperceptible may cause doubt in the Handbook key. A confirming character is the presence of a slight posterior swelling at the base of the hind tibia bearing a dark oval sensory area. Males with almost clear wings predominated in late June 1987 at Berrow dunes, Somerset.

Jonathan Cole

Lamprochromus strobli Parent RECENTLY DISCOVERED IN BRITAIN - A PRELIMINARY NOTE

Having been apparently erroneously placed on the list of British Diptera it is pleasing to be able to record this species from a site near my home in East Sussex.

Early in 1987 a study of the insect fauna of a derelict site near the centre of Lewes, East Sussex was commenced in order to assess the wildlife value. A wide range of habitats include a chalk stream, a reed-bed, disused sidings, old allotment gardens and a small area of 'fen-woodland'.

Most attention was paid to the woodland (TQ 419099) and an interesting fenland Diptera fauna has been discovered, including several empids and dolochopodids evidently new to the Sussex list.

On 4 June 1987 several males of Rhaphium fasciatum Meig. were taken home and pinned. Upon critical examination that autumn, two of the specimens were found to have a short 'Dolichopus-like' third antennal segment and were clearly not R. fasciatum! Using Fonesca's Handbook the insects were soon keyed to Lamprochromus but matched the description of L. strobli Parent rather than L. elegans Meig. This determination was later confirmed after a specimen of L. elegans had been borrowed for comparison.

Having remembered the exact spot where the Lamprochromus were taken, visits were planned to coincide with the emergence period in spring 1988, feeling quite certain that it would be a simple matter to acquire further examples including, hopefully, some females. However, despite several visits in what were considered to be ideal conditions, no specimens could be found. More aggravating was the abundance of R. fasciatum which cannot be distinguished from Lamprochromus in the field unless the antennae are examined with a hand lens! On 7 July 1988 after all the R. fasciatum had disappeared, a new emergence of fasciatum-like flies appeared; this time they were certainly Lamprochromus and both sexes at that. Only upon examination at home that evening was it realised that my latest catch consisted entirely of L. elegans.

From present knowledge it appears that the habitat requirements for the two Lamprochromus species are identical; ie shaded fen-woodland, perhaps in association with springs or seepage. The adults rest amongst low vegetation, often in a shaft of sunlight or on leaves of Mentha aquatica.

Although the 1987 hurricane altered certain features of the site it is thought that the habitat is still capable of sustaining a population of L. strobli and therefore further searches for the species will be made during 1989.

My thanks are due to Ivan Perry for the loan of a male L. elegans.

Peter J Hodge, 8 Harvard Road, Ringmer, Lewes, East Sussex BN8 5HJ

EMPIDS IN NEW ZEALAND

I recently returned from four years working in New Zealand and Roy Crossley has asked me to put together a few brief notes on the empids of that country.

New Zealand is physically and biogeographically remote, some 80,000,000 years and 2,000km separating it from its last contact with a continental land-mass. Add to this a variety of habitats ranging from the steamy subtropical Kermadec Is. in the north to the subantarctic Campbell Is. in the south, with mangrove swamp, temperate rain forest, tussock lands, high mountains, cold and geothermally heated waters in between and one has a recipe for an interesting and varied Diptera fauna.

Currently about 120 species of empids are known from the region (mostly described by Collin) but many more await description. The European dipterist visiting New Zealand encounters a few familiar genera (eg Hilara, Chelipoda, Phyllodromia), but there are many cases where superficial

similarities between New Zealand and Palearctic genera have led to incorrect generic assignments (eg Leptopeza and Hemerodromia to name but two), and there are also genera endemic to the region (eg Isodrapetis, Sematopoda), or common with the Neotropical region (eg Apalocnemis, Cladodromia). The Empidinae and Hemerodrominae predominate with forms related to Hilara and Chelipoda respectively being common, but Tachydrominae, Ocydrominae, Clinocerinae and Brachystomatinae also occur.

As might be expected, there are affinities between New Zealand empids and those of southern South America and Tasmania. A good example is the sub-family Ceratomerinae. The males of some species of these striking flies have antennae almost as large as the rest of the insect, unusual wing venation, very large bristly palpi and complex arrays of protubent processes and sensory hairs on the legs. In contrast, the females are rather normal, and indeed, extreme sexual dimorphism is relatively common in NZ empids generally. In Monodromia (Hemerodrominae), the female has simple wings with unbranched veins but the male has the wings highly modified, thickened basally and armed with hooks and spines distally. It is probably incapable of flight and uses the wings to aid it running over dry leaf-litter.

Any dipterist who has worked a relatively unknown area knows the ease with which thrilling new finds happen, but I scarcely expected that, for the first couple of years, I would rarely return from a field trip without one or two new species in the bag. New genera were a little harder to come by! This is all very exciting but one does tend to become frustrated by not knowing just what is in so many of the hundreds of tubes awaiting a more critical examination. Back in Britain, with access to the types, and with increasing awareness of the world empid genera, I am at last beginning to make some sense out of the collection and I look forward to many a long session at the microscope in the years ahead.

Dr Adrian R Plant, 5 Ferndown Drive, Clayton, Newcastle, Staffs ST5 4BP

A TECHNIQUE FOR COLLECTING QUANTITATIVE DATA ON DOLICHOPODIDAE AND EMPIDIDAE

When collecting flies and in particular dolichopodid and empidid flies, one is confronted with several problems, eg the samples cannot be compared in a reliable way due to the unstandardised character of the sampling method (net sweeping), efficient sampling devices such as Malaise traps are very conspicuous and thus are very likely to be removed or destroyed and some species are hard to catch since they occur near the soil surface only.

In order to obtain quantitative data for the investigation of habitat preference in these flies, I considered the assumptions for the most suitable sampling device and compared the different features of three widely used sampling techniques. The following Table gives a summary of this comparison.

Assumptions	Malaise traps	Pitfall traps	Water traps
(1) effective in collecting large numbers of species and individuals	+	-(*)	+
(2) not very time-consuming	-	+	+
(3) simultaneous application at different sites within a large area	-	+	+
(4) not very conspicuous	-	+	+
(5) possibility of replicates in the same habitat	-	+	+
(6) yield of quantitative data	+	+	+

(*) pitfall traps are very efficient in some habitat types such as water-meadow, forests and reed marshes; however, large amounts of soil material and captured mammals and amphibians can cause decomposition of the collected insects.

From this Table, it is evident that Malaise traps are very useful only in the cases, when (i) one is interested in the phenology and the faunistics of the fauna of a particular habitat and/or (ii) the trap can be installed within a protected area. For large scale investigations on the distribution and habitat preference of dipteran species, however, this does not seem to be the most suitable sampling method. This is mainly due to the fact that in practice it is nearly impossible to sample most habitat types by several trap units. Nevertheless, this seems to be necessary to minimize the variability of the trap catches due to microhabitat heterogeneity. Indeed, many dolichopodid species react very pronouncedly to different abiotic (and biotic) factors (eg Pollet & Grootaert, 1987; Pollet et al., in press). Pitfall traps on the other hand are in general not as effective as Malaise and water traps. Thus water traps appear to be the most appropriate sampling technique for large scale investigations.

In this connection, during 1988, I started sampling with a new type of water trap, consisting of cottage cheese cups (mainly white, diameter: 7-11cm, depth: 6-8cm). A great advantage of these cups is the fact that they are very cheap and the surface is large enough to collect flying insects. Moreover, they are not conspicuous at all and therefore can be installed anywhere. From April till November about a hundred of these cups were in operation in the Flemish region of Belgium. They were placed on the soil surface or slightly dug into the soil and fixed with metal pins. They were filled to 2/3 with a 25% formalin solution in order to preserve the captured organisms even during periods of heavy precipitation. It is necessary to add a detergent (1%) to the fluid in the traps to lower the surface tension. The traps were emptied every two weeks to three months (this latter period can be considered as the absolute maximum and is not recommended). Although not all yields are worked out yet, some general considerations can already be made:

(i) most traps yielded very large numbers of dolichopodid as well as empidid species; so far the maximum number of dolichopodid specimens per trap is 1285. 77 traps have already yielded 109 different dolichopodid species;

(ii) the most abundant species are caught in large numbers which means that this method enables the investigator to compare numbers of species between habitat types on a reliable basis;

(iii) the differences between different habitats are very distinct, eg Campsicnemus alpinus was confined to Erica heathland, whereas C. scambus was considerably more abundant in woodland habitats;

(iv) not only abundant but also rare species were caught with these white water traps, eg Campsicnemus compeditus, C. magius, C. alpinus, Asyndetus latifrons, Dolichopus agilis, Achalcus flavicollis, Rhaphium fascipes;

(v) in general, Medetera species are underestimated with this method. Previously it has been shown that many species of this genus are indeed more attracted by a blue colour as compared to red and white (Pollet & Grootaert, 1987). Contrary to Medetera species, species of Sciapus were caught in large numbers, although, in common with the former, these are distinctly tree-trunk dwelling.

In conclusion, this method is highly recommended for collecting dolichopodid and empidid species everywhere. Its most important advantage is its suitability for collecting quantitative data on the occurrence of these insects and allowing the possibility of comparing these data between habitats as well as regions and countries. It is very useful in particular for large scale zoogeographical research.

References

POLLET, M. & GROOTAERT, P. (1987). Ecological data on Dolichopodidae (Diptera) from a woodland ecosystem. I. Colour preference, detailed distribution and comparison of different sampling techniques. Bull. Inst. R. Sci. Nat. Belg., Ent. 57, 173-186.

POLLET, M., MERCKEN, L. & DESENDER, K. (in press). A note on the detailed distribution and diel activity of riparian dolichopodid flies (Dolichopodidae, Diptera). Bull. Annls Soc. e. belge Ent.

Marc Pollet, Lab. voor Ecologie der Dieren Zoogeografie en Natuurbehoud, Rijksuniversiteit, K.L.Ledeganckstraat 35, B-9000 Gent (Belgium).

(There appear to be translation problems with the two sentences we have underlined, and correspondence with Dr Pollet has not totally resolved them. However, we understand the argument to be that when using Malaise traps the quantity of material obtained is so considerable that if several traps are used it becomes impossible to identify all the specimens in the time available for the project. However, if the use of Malaise traps is restricted to, say, one only in a site, then the results will be biased with regard to habitat affinities since micro rather than macro habitats will have been sampled.

If we have misunderstood Marc's arguments we apologise, but we believe that his paper is of sufficient interest for us to publish it in this issue of the Newsheet rather than delay further. RC).

HOW RARE IS Leptopeza borealis Zett.?

Collin (British Flies VI. p274) infers that the only British specimen of Leptopeza borealis he had seen was a female captured by J J F X King at Balmaha (Stirlingshire) on 28 May 1910. I took a single male on the bank of the River Wharfe at Otley (West Yorks), on 24 June 1983 and Peter Hodge collected a single female in July 1988 in the Goyt Valley, Cheshire, which was one of the haunts of the late Harry Britten.

In view of the apparent rarity of this species, Peter and I will be interested to learn if there are known to be any other records.

Roy Crossley

AND FINALLY.....

The 1988 season has not been conspicuous for its highlights, having been devoted, or so it seems in retrospect, to my vain attempts to keep dry as I pottered with pooter along the rainswept boundaries of human knowledge.

However it is good to be able to follow Roy Crossley's note on Platypalpus kirtlingensis Grootaert in the last Newsheet. At Bartley Heath, Hants, I turned up, on 5 June 1988, a Platypalus which keyed out as far as P. pictitarsis but clearly wasn't. I also turned to Dr Grootaert's paper (Bull. Annls r. belge Ent. 122 (1986): 187-193), and finally sent the specimen to Dr Grootaert for his view. He confirmed that I had indeed found P. kirtlingensis. This supports other recent evidence that P. kirtlingensis must now be accepted as a British species and suggests that it will certainly be found with increasing frequency from now on. When I spoke to Dr Grootaert at the Dipterists' supper he mentioned that a specimen identified as P. pictitarsis in the BM collection was in fact kirtlingensis, and that on the Continent the two species were often to be found in large numbers in cornfields, together, no doubt, with other related and, in some cases, undescribed species. Cornfields give us the clue: clearly P. kirtlingensis has hitherto been hiding its light under a bushel!

I also gather from Dr Grootaert that a species closely related to P. minutus Meigen has been sent to him, separable only by close examination of the genitalia. Clearly this genus still has surprises in store for us, and the British list may be expected to grow over the next few years.

On a final point, I found the Dipterists' meeting useful and particularly enjoyable this year. The decision to test doli and empid recording activity in selected genera is clearly right, and reflects a sensible balance between enthusiasm and workload. I look forward to learning a lot more of these interesting groups. Please keep your material flowing in either to Roy Crossley (he being now retired and having therefore unlimited spare time)*, or, failing that, to me.

*(You don't know my wife! - RC).

Anthony Bainbridge, 166 Farnborough Road, Farnborough, Hants GU14 7TJ

Newsheet Editors

Anthony Bainbridge
Roy Crossley