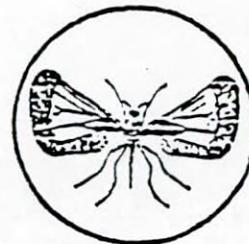


# DIPTERA



## RECORDING SCHEMES BULLETIN NO.30, SEPTEMBER 1990

The programme for the Annual Meeting is given and details are provided for the autumn field meeting in Yorkshire. Various other news items are included.

### ANNUAL MEETING OF THE DIPTERA RECORDING SCHEMES - 10 NOVEMBER 1990

The Natural History Museum at South Kensington, London, is our venue as usual.

During the day we shall receive 10% discount covering all sales at the museum bookshop including Royal Ent. Soc. Handbooks (RES Fellows get the normal quarter discount) and the complete range of entomological and other natural history books in stock.

We are grateful to the Trustees of the BM(NH) for use of facilities and the above discount.

#### ACCESS ARRANGEMENTS

- Those attending the meetings are asked to pay the standard admission charge into the Museum (currently £3.00; half price for full time students, the unemployed and O.A.P.s; proof of status required). There is no need for advance tickets.

#### Morning Session - main lecture theatre

- |               |   |  |
|---------------|---|--|
| Chairman      | - | Derek Whiteley (Dipterists Digest Editor)                            |
| 11.00 - 11.25 | - | The Diptera of Dungeness. Roger Morris                               |
| 11.25 - 11.50 | - | Oxfordshire Fens - Malaise traps on trial.<br>Dr Keith Porter.       |
| 11.50 - 12.15 |   | Swarming behaviour in <u>Hilara</u> . Dr Patrick Grootaert.          |
| 12.15 - 13.00 |   | The ecology of non-predatory hoverfly larvae. Dr<br>Graham Rotheray. |
| LUNCH         | - | Choice of pubs, cafeterias etc in area, or bring<br>sandwiches.      |

#### Afternoon Session - demonstration laboratory, Palaeontology Department

- |             |   |  |
|-------------|---|--|
| 2.00 - 2.30 | - | Informal and setting up exhibits   |
| 2.30 - 3.00 | - | Informal, viewing exhibits   |
| 3.00 - 4.00 | - | Discussion session<br>- Hoverfly recording scheme, the way ahead<br>- Other schemes and study groups update<br>- The challenge of the 1990's |
| 4.00 - 5.30 | - | Informal, viewing exhibits, help with<br>identifications.  |
| 5.30 - 5.45 | - | Removal of any remaining exhibits.   |

The lecture programme covers some very interesting topics. Dungeness, in Kent, is the largest shingle foreland in Europe, with a very unusual ecology, so Roger Morris will tell us about the results of a recent major survey. Our second talk concerns the Oxfordshire fens, which Keith Porter started to look at only a few years ago with limited background knowledge of flies. He has been arousing a great deal of interest in his success in finding interesting species and re-awakening attention about the importance of the fens. Having heard that Dr Patrick Grootaert, from Belgium, was coming and offered a talk, we have welcomed the chance to hear his account for the swarming and mating behaviour of Hilara. The males of these empids have silk glands on the front tarsi. Graham Rotheray takes the stage for the fourth topic. It is difficult to keep up with the rapid new perspectives on hoverfly ecology resulting from his continuing success in locating and rearing larvae. Here's your chance to learn some of his techniques and he's bound to give you new insight as to where some of our rare and elusive species breed in such situations as sap runs, rotting trees and ants' nests.

As regards lunch, some people prefer to head for pubs and cafes. Those without the patience and stamina for long queues may prefer to bring sandwiches to eat in the Museum.

Following good (too good!) summer weather, it is to be hoped that there will be plenty of exhibits for the afternoon session. Thus please exhibit if you can so that we can all enjoy seeing your finds. This year let's also give space to alternative pooter designs, so bring along your latest (or old trusted) design. There will be people at hand to advise on identifications of specimens of flies, including problem species in most of the recording scheme families. The discussion session will be a chance for the new organisers of the hoverfly recording scheme, Roger Morris and Stuart Ball, to consider with you the way ahead for the scheme.

We hope to see as many of you as possible at this major gathering in the year's calendar. Don't be shy of coming, all are welcome.

#### **DIPTERISTS' SUPPER**

It is with regret that it will not be possible to arrange a Dipterists' supper this year through force of circumstances. Brian Pitkin sends his apologies.

#### **FORTHCOMING FIELD MEETING**

##### **North Yorks Moors National Park 10-14 October 1990**

Our chosen location is a large block of hill country to the west of Scarborough. It is very unexplored for Diptera but recent reconnaissance of the coastal cliffs and inland springs has revealed a wealth of species of considerable note.

The main autumn foray is timed for the autumn peak of craneflies and fungus gnats. Hoverflies will be few (at best the outside chance of Arctophila fulva) but a few acalypterate families such as Diastatidae and Heleomyzidae should be productive. Even if you do not normally study such flies, here is a chance, or simply join in gaining samples in a very attractive piece of country (one is obliged to say that when speaking of Yorkshire!).

Wooded valleys abound, together with streams, springs and seepages. In a land of great contrasts there are extensive tracts of woodland and moorland with associated boggy areas. The coast has some outstanding cliff

habitats. Habitat quality for flies and scenery are excellent. The only reason there has not been a major summer meeting here is that, despite due effort, suitable accommodation has not been found.

In recent years the party size has been about 10, based at a farm or guest house. When numbers are known, a base will be sorted out. Please let Alan Stubbs know as soon as possible if you wish to come (address at end of Bulletin).

#### DIPTERISTS DIGEST - UPDATE

Issues No.3 and No.5 were published in the spring. No.6 is being processed by the printers, and our aim is to make it available on Dipterists Day in November.

No.5 is the special Platycheirus clypeatus group edition, and is essential reference material to anyone working hoverflies. (Available on Dipterists Day or £3 by post).

Just to clear up any confusion. No.4 (Phil Withers' handbook on Moth Flies) is an optional extra in the series, available to subscribers for an extra £6. Dipterists Digest has the flexibility to slot the occasional monograph/handbook/special issue into the running series, when the need arises.

Dipterists Digest No.7 is now just about sewn up, but there may be space for a few late small notes if laser-printed on A4 paper. It is often easy to slip these in at proof stage. No.7 carries a nice glossy colour cover kindly sponsored by Stephenson Blake insect cabinet makers.

Incidentally, the paper on Sphaerophoria bankowskiae was accepted for publication in Dipterists Digest No.3 before the author had written it, or even before he knew identification had been confirmed. Is this a record?

Financially, the Dipterists Digest project is running at slightly below break-even point. This is not bad after only 3 years, and means that things will remain secure for the next 2 years at least, and the next 5 or 6 issues are safe. Your continuing support is vital to the project.

The general philosophy is that market-orientated issues such as Nos. 1, 4 and 5 will help to keep the composite issues and the rest of the series going. Grants and sponsorships are also vital to offset printing costs, but this is a way of life in the 1990's. Any offers, donations, ideas or suggestions are always welcomed by the Production Editor.

There are some interesting editions in the pipeline, including Graham Rotheray's colour guide to hoverfly larvae; a special Hebridean issue, more distribution maps, and goodness knows what from Ireland!

#### Submitting Copy

Larger papers - we are now starting to fill No.8 (1991).

Short notes - can be slotted in fairly quickly (immediately if laser-printed).

Very large papers, monographs, atlases - contact the production editor in advance.

### Laser-Printing

If you have access to a laser-printer, final edited copy can be submitted on A4 single-spaced, bold and italic as relevant. Use issue No.1 as the standard for layout. This saves time and ensures a speedier publication.

### Wanted

Dipterists Digest is looking for someone with access to a word-processor and laser-printer to prepare A4 copy from authors/editors scripts to an accurate scientific standard. Payment is available. If you think you can help please contact Dipterists Digest, Derek Whiteley, 730 Ecclesall Road, Sheffield S11 8TB.

### **FIELD MEETING REPORT**

#### Winchester 7-15 July 1990

Thirty-two entomologists were resident all or part of the time, including a very few aculeate hymenopterists. Additionally five local dipterists and hymenopterists took part on a daily basis. It was especially pleasing that 7 dipterists attended the main summer field meeting for the first time, including our first representatives from Northern Ireland and the Isle of Man. Paul Beuk joined us from the Netherlands for the second time.

We started off very well. The nearby reserve in the Itchen Valley had enormous numbers of the very rare empid Syneches muscarius (estimates varied from 20-50% of all flies in the sweep net in certain fields) and that was before the first full day! The next day there were two sites for Callicera aenea, together with a good number of other rare hoverflies, and the dolichopodids included some real rarities. The middle of the week got stuck in an oppressive anticyclone when flies and dipterists were not so active, though many useful records were building up none-the-less.

Early morning and evening outings were pursued by some of the party which revealed that there was no shortage of flies. We even had one sweep net record of Callicera aenea at 6 am, but evenings were more popular (surprise!). The last full day was a success, with another useful site for Syneches and stratiomyids.

Recording was carried out in 82 sites in 37 10km squares, with our on the spot computer registering sites and many species as we progressed. We achieved some good species totals, which may yet be extended as further records are sent in - 101 craneflies, 97 fungus gnats, 64 larger Brachycera, 72 Dolichopodidae, 100 hoverflies, 31 snail killing flies, 9 Otitidae and 25 Tephritidae. The hoverflies included the newly recognised Platycheirus occultus. The Larger Brachycera were especially successful with soldier flies (24 species), horseflies (11) and Acroceridae (all 3).

So far two species new to Britain have been identified. Both are pipunculids, including a genus new to Britain.

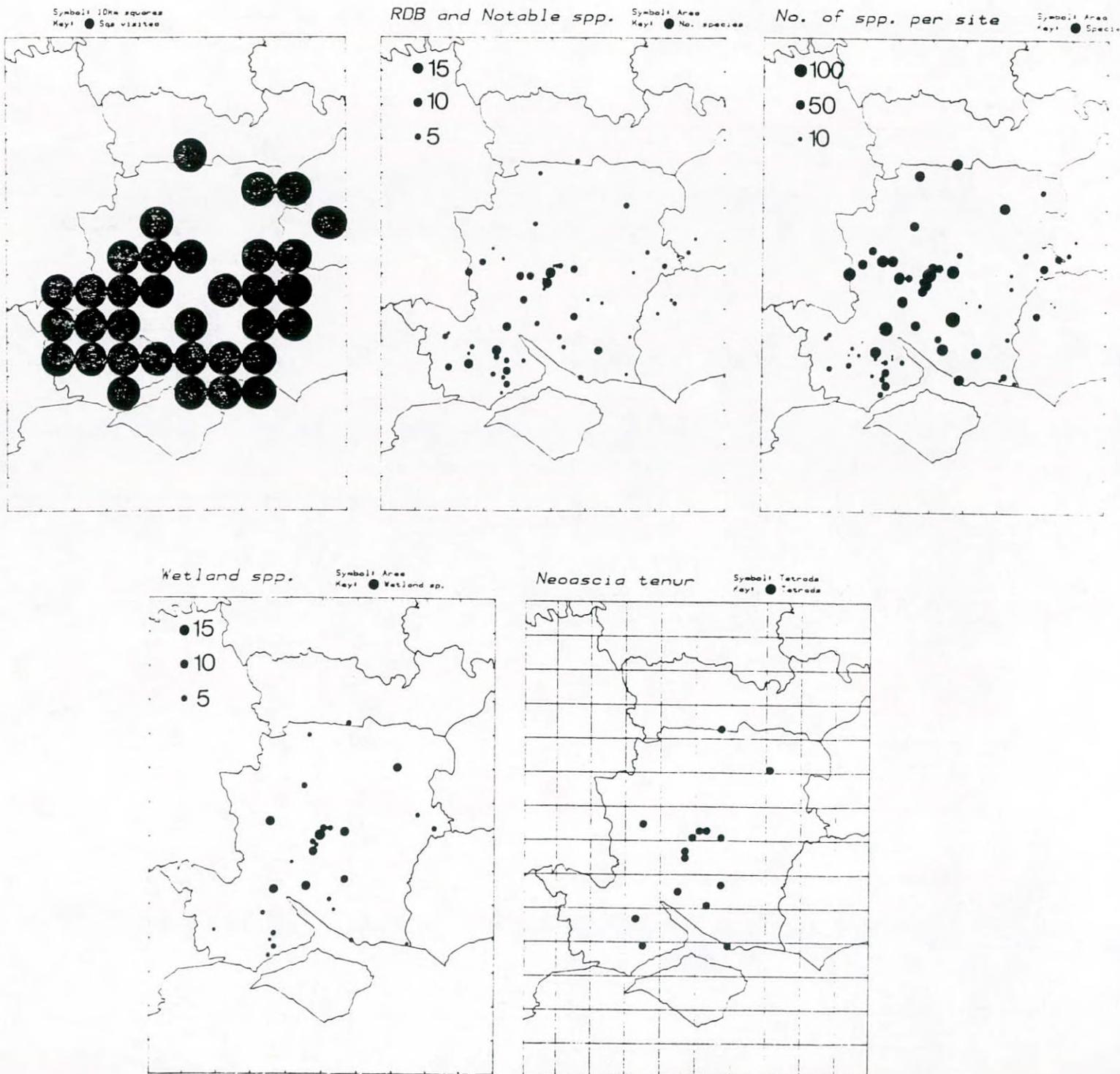
Whilst the drought undoubtedly reduced numbers of some species, many species were present in good numbers (time of day taken into account) and were more or less on cue as regards period of emergence. Rain or cold dull conditions would have been just as awkward. It was a worthwhile event as regards records and, more important, it was a good social event. Our base at King Alfreds College at Winchester proved a very pleasant one.

P.S. Found - one blue sweater with IFAW emblem.

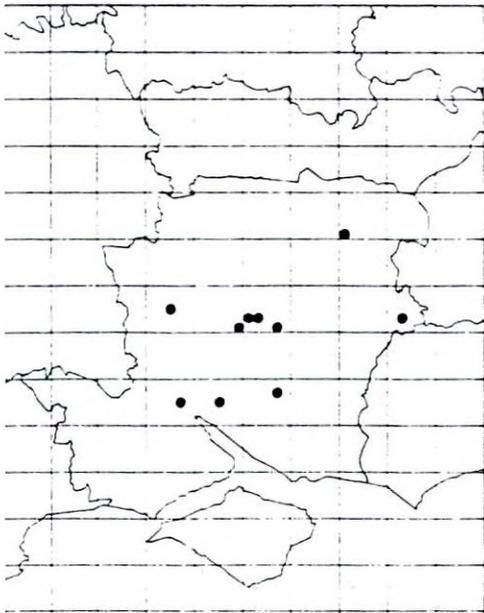
**Winchester Maps.** These computer maps by Stuart Ball illustrate some of the initial results. Data available was from five people who have presented data plus various other records noted during the meeting. Hopefully much more data will be forthcoming.

As a plot of sites (rather than grid squares), the density of Red Data Book and other Notable species is shown, and also the number of species recorded per site. Habitat quality analysis is also demonstrated by means of using Wetland habitat indicators, taking a selected list of 30 species; Neoscia tenur is an example.

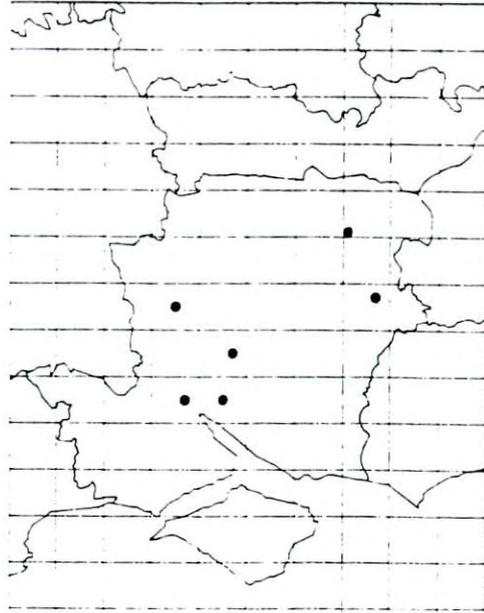
Overleaf there are some species maps at Tetrad scale (2x2 km squares). the Itchen Valley shows up strongly with the strat Oxycera nigrocornis (but not with O. rara), and with the rhagionid Chrysopilus asiliformis. The Otitid Melieria crassicornis is associated with Glyceria maxima, a wetland plant.



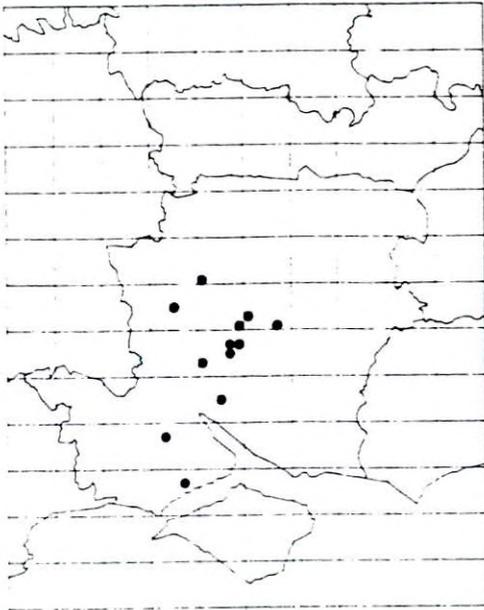
*Oxycera nigricornis*      Symbol: Tetradia  
Key: ● Tetradia



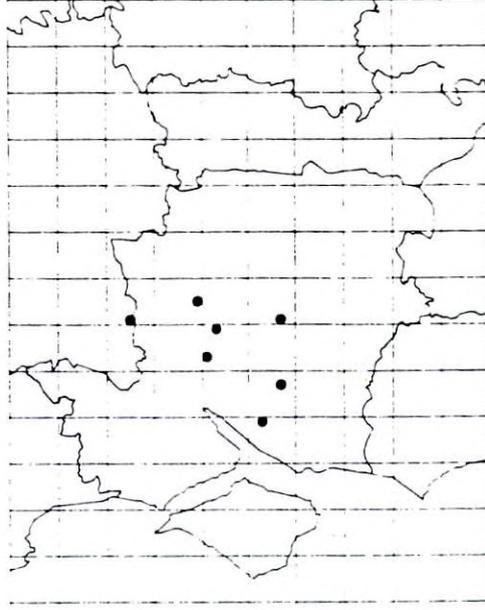
*Oxycera rara*      Symbol: Tetradia  
Key: ● Tetradia



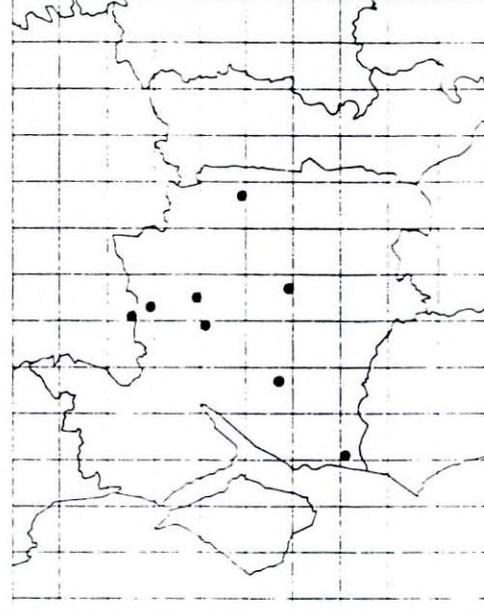
*Chrysopilus asiliformis*



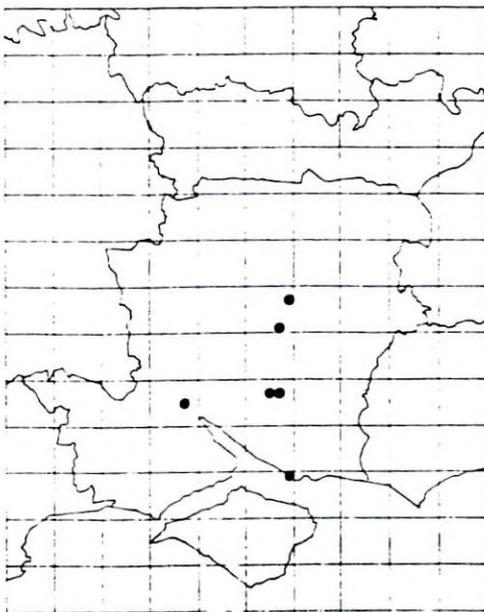
*Epistrophe grossulariae*



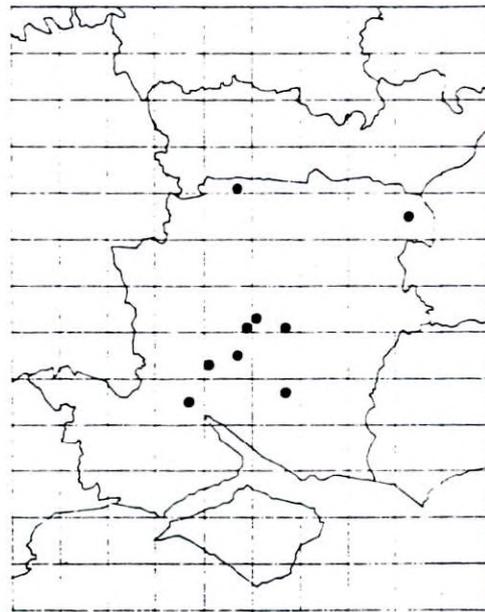
*Chrysotoxum bicinctum*



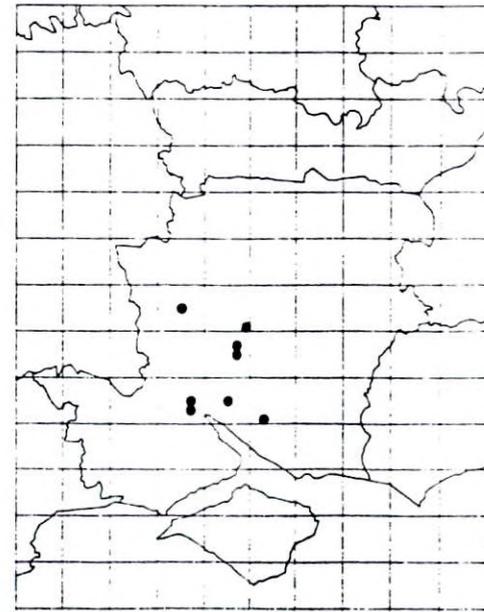
*Physocephala rufipes*      Symbol: Tetradia  
Key: ● Tetradia



*Anomia purmundus*      Symbol: Tetradia  
Key: ● Tetradia



*Melieria crassipennis*      Symbol: Tetradia  
Key: ● Tetradia



### Other 1990 field meetings

Please may we have reports from field meeting leaders by Christmas for the next Bulletin.

### Field meeting records please

Much of the basic information for the last four summer meetings is on computer thanks largely to the efforts of Stuart Ball (Bangor, Bideford, Galashiels and Winchester). Joan Morgan trawled in much of the Bangor data but the data for the other meetings has been partial. It is hoped to make a big push at Peterborough to get reports out on these meetings (and perhaps the autumn ones as well) this winter. The data also slots straight into recording schemes data bases. Some of those attending meetings have been good at sending in results and, whilst not wishing to put an undue burden on anyone, if there is more data for any of these meetings which can be made available it would be welcome. Apart from seeing a tangible result from these meetings, there is a need for feed back to those who have given us access to reserves and other land. Please send records to Stuart Ball or Alan Stubbs at NCC Peterborough.

### NEWS FROM THE SCHEMES AND STUDY GROUPS

#### Cranefly Recording Scheme

Protogonomyia limbata has been found in large numbers at a site in the North York Moors (A. Stubbs). The only previous record was in Breconshire. In Scotland there are important new records for Limonia aperta, L. omissinervis, L. nigristigma and Tipula limbata.

A new British check list is being compiled.

#### Empididae and Dolichopodidae Study Group

Newsletter 9 has just been circulated, with a good deal of new information. (Issue edited by Anthony Bainbridge).

#### Larger Brachycera Recording Scheme

It has been a good year for strats. Odontomyia angulata Oxycera anilis, O. terminalis and Stratiomys chamaeleon have been recorded this year in Oxfordshire (K. Porter) and a third Anglesey site for the latter is now known (M. Howe). Oxycera pardalina and O. morrisii were found near Folkestone (A. Stubbs). The North Yorks Moors has proved rich in strats.

The Winchester meeting was good for acrocerids, including all three British species at one site.

#### Hoverfly Recording Scheme

Graham Rotheray has been causing something of a sensation by finding the larvae of Pocota and Mallota near Cambridge, in addition to major successes in finding larvae of Calliprobola, Callicera aenea and Microdon devius in Hampshire. Those who onlooked and assisted have had a new world opened up.

The new Platycheirus have been sorted out in the Natural History Museum collection by Nigel Wyatt. P. occultus was fairly well represented, plus a few P. ramsarensis but no P. europaeus. The latter proves to be present in rides in several clay woodlands near Peterborough (Northants, Cambs and Rutland). P. occultus has been found widely in Wales, Norfolk, East Midlands and the South and South East.

Platycheirus perpallidus has been found at Thursley Common NNR (A. Stubbs), the nearest record for this northern and western species being near Birmingham.

Newsletter 10 has been issued (editor Graham Rotheray). Varied items include news that Stuart Ball and Roger Morris are now the joint national organisers; further details will be available by November. Another newsletter should be available by November - please keep text flowing in for future editions.

#### **Pipunculidae Study Group**

Michael Ackland has now illustrated the male and female genitalia of most British species (except Chalalus and Verrallia). The Verrall/Collin collection has been studied, revealing some new species.

Cephalops chlorionae and a number of other rare species now have further site records. C. perspicuus, previously only known from East Anglia, has been found in survey samples from near Swansea, South Wales.

The Winchester meeting produced a small Eudorylas new in Britain taken in boggy ground in the New Forest (M Ackland); also the genus Microcephalops new to Britain in a woodland in Wiltshire (A Stubbs).

#### **NEWS ITEMS AND REQUESTS**

##### **Threat to Insh Marshes and River Spey, Scotland**

There were severe floods in the Spey valley during the last two winters. As a result there are forthcoming proposals for flood control which could have a major impact on entomological and other conservation interests.

Anticipated proposals include partial draining of Insh Marshes and lowering Loch Insh in the autumn to accommodate flood water. Canalisation of the gravel fan of the River Feshie at its confluence with the Spey and broadening the Spey at this point. Direct and indirect effects would go down to Spey, affecting river edge habitats and flood plain mire, to Aviemore and beyond. Once there is tampering with one section of river, there may well be a domino effect down the Spey with measures to counter floods and river erosion. The canalisation of the Spey including removal of all shingle and sand banks, is an increasing vision for the future, with flood plain mire drained.

Those who have records for the River Spey banks and the flood plain, plus the lower reaches of the River Feshie, are invited to send in their data. We had a weeks field meeting based at Nethy Bridge and there have been individual visits to the area as well.

We are also faced with a separate set of threats to the lower reaches of the River Spey, again with regard to flood control about Spey Bay and Kingston. Modification of backwaters of the flood plain for fish ponds is among the other problems threatening the site.

Alan Stubbs

### **Groundwater Abstraction**

There must now be strong fears that many high grade invertebrate sites dependant on high underground water tables are at risk of becoming permanently impoverished of their fauna. Sites that survived the 1975-76 drought are in a much more serious condition with the 1989-90 drought. Apart from the Broads and some coastal marshes, many inland wetlands in East Anglia, and over much of the south eastern half of Britain are in serious trouble or under potential threat as a result of ground water abstraction.

The privatisation of the water authorities at this time has made matters worse since there is a rush towards the easy solution of tapping yet more underground resources rather than looking towards long term (and often more expensive) solutions. Hose pipe bans have not been applied soon enough in many instances and agricultural abstraction has grown immensely in recent years.

If you are in an area where springs and groundwater seepages maintain water levels on conservation sites, please make a habit of recording water levels/degree of flow (or when drying up occurs). We need to know what is happening to sites and which elements of the fauna survive or die out.

### **To our friends in other countries**

The recent Dipterological congress in Czechoslovakia has drawn attention to our activities, thanks to David Henshaw and Roy Crossley.

There is no copyright over the Bulletin or Newsletters. You are welcome to photocopy these papers and pass them on to increase circulation.

It is not possible to substantially increase circulation from Britain. Roy Crossley has offered to copy and post at cost the doli and empid newsletter but for the most part the initiative for making extra copies in a country will rest with those receiving the primary circulation.

Our meetings are open to visitors from other countries and we look forward to the chance of making new friendships.

### **Identification of Ephydriids**

The compilation of a new set of keys is being undertaken by David Denman. He is in liason with Tony Irwin (who has not the time to complete his earlier studies). David will be pleased to hear from anyone with a strong interest in ephydriids, especially if they have useful hints on the more difficult identifications. David's current address is NCC, Peterborough.

### **Diptera of Staffordshire**

A county list is being prepared for publication. David Emley would be glad to hear from anyone with records (3 Meadowside, Loggerheads, Market Drayton, Shropshire TF9 4RB).

### **The Natural History Museum**

It has been widely reported in the media that a further round of severe staff cuts are being imposed. The decline of government funding has precipitated the situation, though some of the changes result from a controversial Corporate Plan that would have been brought in anyway by the Director.

maintenance of collections will continue, there must remain concern at the depletion of expertise and a reduced capacity to curate and research on collections. Those who have known the Museum and its staff over recent years will realise only too well the effect on morale and working atmosphere.

The Museum will variously be seen as Britain's premier museum for its internationally renowned collections (and associated staff expertise) or for its public galleries. In a country where much field entomology has been advanced by amateurs, for many of us it is the quiet, friendly and largely unseen role of the Museum and its staff that has underpinned the taxonomic, biological and ecological strength of knowledge about our fauna. This is true of other natural science subjects covered by the Museum. It is thus daunting that the capacity of the Museum to incorporate new collections and to keep the collections up to date should be further limited and that the range and depth of staff knowledge must be further confined. At a time when concern and knowledge about the environment is becoming a growing public issue, and when much of the remaining wildlife on our planet is in growing danger of substantial loss and extinction, it is ironic that the Natural History Museum is undergoing cuts in the very areas that ought to be maintained or strengthened. It is not clear that restructuring with topics such as human health or biodiversity compensate for the taxonomic reductions, but what is clear is that reduced government funding (relative to inflation) is causing severe problems.

For further reading, see for instance New Scientist 23 June 1990 no 1722 pp 32-33 which includes the Directors views (it should be in local libraries) or Biology Curators Group Newsletter Vol 5 (no.5), pp49-52 (in your local museum). The latter, has voiced the widespread reaction that writing to MPs is a means of making parliament aware of public concern about the future of the Museum. There are moves from outside the Museum to form a 'Friends of the Natural History Museum, London' as an avenue through which views might be constructively aired (Johnathon Porritt among the instigators). For draft details write to Mrs J Murphy, 323 Hanworth Road, Hampton, Middx TW12 3EJ.

#### **Nature Conservancy Council**

At the time of writing all indications are that the government is determined to proceed with the split up of NCC, with Royal Assent expected in November. This will mean that England, Scotland and Wales (the latter two absorbing Countryside Commission remits) will have separate agencies, under the respective country Ministers in Wales and Scotland, together with a co-ordinating agency (joint committee) whose exact function and powers is still vague. A host of conservation bodies have lobbied against dismemberment and the majority of NCC staff share the view that nature conservation will be weakened - widely interpreted as a political divide and rule objective. Time will tell.

At last, the government has conceded that the restructuring will need larger funds and resources just to stand still (because of administration triplication, or X3 + a joint committee). There is likely to be a staff increase from 820 to about 1400, implying a budget increase from £44.1 to £65-£70m. (economically less efficient). The proposed new structures have been made somewhat more satisfactory over recent months.

It is still too soon to say how entomology will come out of this, the greatest worry being the current absence of identifiable provision for specialist entomological staff in the new Scottish agency. There are currently 5 entomologists fully employed as such on permanent staff in the Chief Scientist Directorate and England HQ (it was 6 last year) and the new structures seemingly allow for 5 but senior provision only goes with substantial dilution from other management responsibilities. Meanwhile geology goes from 14 posts to 22 and botany from 1½ in CSD to zero. The increase of nearly 600 posts goes mainly to regions and to administration and policy, and some to deal with regional site work, with science treated very unevenly and for the most part no stronger or even weaker at a specialist advisory level.

#### **Dipterists Address List**

A revised version was timed for circulation with the last Bulletin. Regretably it would seem that not everyone received the list. Spares will be available at the November meeting but alternatively you are welcome to write to Alan Stubbs for a copy.

You are reminded to advise over changes of address. Every year some Bulletins come back 'address unknown'. Also please give your name legibly - we have one change of address for someone currently 'Anon'.

#### **Translations of Continental Keys**

A frequent source of difficulty and frustration is the appearance of new keys and revisions on the Continent, of obvious relevance to British Dipterists but inaccessible because they are not written in English. Of course, translations can be commissioned but the services of a professional translator are expensive - £50 per 1000 words sounds horrendous but is actually at the low end of the market - and few translators will know the subject well enough in English to produce a fully satisfactory version. You will still have to edit the text you receive, and probably puzzle over ambiguities that may have been in the original or, equally likely, have been introduced into the translation.

Adrian Pont, who has a university degree in modern languages as well as 30 years experience as a Dipterist, is willing to translate from German, French, and, if pushed, from Swedish and Russian too. He can be contacted at 38 Gatehampton Road, Goring-on-Thames, Reading RG8 OEP (phone: 0491 873749; fax: 0491 874233).

To get round the problem of expense, the obvious solution is for a group of interested people to club together to commission a translation and share the cost among themselves. Clearly, £10 per person for 1000 words is a much more acceptable proposition. Study-group or recording-scheme organisers would be ideally placed to co-ordinate their members' requirements. Through Newsletters, the existence of important new literature can be publicised, and those who want to have keys or other material translated can let the group co-ordinator know of their requirements. Or they can contact Adrian directly, get an estimate for the work, and then set about finding others with whom they can share the cost.

Incidentally, did you know that the two volumes of "Keys to the Insects of European part of the USSR", Volume 5 (Diptera) (1969), are now available in English translation? The translation is an act of characteristic generosity to the Dipterological community by the Smithsonian Institution, and comes at a time when our Natural History Museum is re-assessing its

policy on the "Handbook" series. These volumes consist of keys down to species for all the Diptera, and cover the entire west Palaearctic fauna. Of course, some chapters are compilations from the literature, like some parts of "Die Fliegen der palaarktischen Region", but others are original work and deal with groups for which no other up-to-date keys are available. Adrian Pont has copies of these two volumes, and they are also available at the Natural History Museum, London.

#### **Autumn Exhibitions**

The following events are open to all (11 am - 5 pm).

Amateur Entomologists Society, Saturday 6 October, Kempton Park, Sunbury (outer SW London, near end of M3). Ample car parking, small entrance charge. Equipment, second hand and new books on sale etc.

British Entomological & Natural History Society, Saturday 27 October, Imperial College, South Kensington. (N of Science Museum, college car park charges). Extensive members exhibits, usually some Diptera.

#### **AND NOW .....SWEEPING FIT**

Whatever happened to that British spirit of taking everything in ones stride, or for that matter sweep? Do you realise that some of our number are actually practising before field meetings, and moreover by devious methods.

John from Leicester has taken that blister episode so seriously that he has been in training. However, there can be no sympathy for getting the formula wrong. It seems the combination of swimming and squash cannot avoid remarks slipping to the effect that "I had forgotten that being in the field was such hard work". Mind, that does entail the exhausting end of handle net grip.

But be further warned by Mike of Solihull. Even the semi-sedate pastime of badminton led to achilles tendon problems last year and a broken wrist just before the Winchester meeting this year. You should know, Mike, that great athletes eventually suffer from too much training.

Let's take comfort in the observation that more sedentary dipterists often endure just as well. And if you must practise, then there is no substitute for sweeping to keep sweeping fit. Perhaps though an evening class in net aerobics would be permissible.

Central Panel  
of Diptera Recording Scheme Organisers

Co-ordinator  
Alan Stubbs  
Nature Conservancy Council  
Northminster House  
Peterborough  
Cambs  
PE1 4DS