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Now organised by several different contributors, contact the Secretary.

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BULLETIN OF THE
Dipterists
Forum

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RECORDING SCHEME BROCHURE

Download the back pages for a brochure

Copies of this Bulletin are mailed to Dipterists Forum members. A PDF version is available on our website (members only.)

Back issues may be obtained at www.micropezids.myspecies.info/node/301 where guide notes for potential Bulletin contributors may also be found.

Online membership is now available on our website www.dipterists.org.uk/, alternatively a membership form may be downloaded from there.

Other items such as full details of training courses, workshops and meetings may also be obtained from our website.

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Editorial

Flying High

Dr Judith Ann Webb BEM

Congratulations to Judy, this Bulletin's Assistant Editor. She's had two awards in recent weeks:

Judy in classic pose at our 2007 Spring Field Meeting to the Norfolk Pingoes. Here at East Walton Common, out standing in her field.

British Empire Medal 2021

Announced in the New Years Honours List: Dr Judith Ann Webb. For services to Conservation of Wildlife and Habitats in Oxfordshire. (Kidlington, Oxfordshire)

Best reviews elsewhere: https://tinyurl.com/y8cpvsxs

Woman's Hour Power List 2020: Our Planet

I am sure we all echo Rob Wolton's congratulations to Judy Webb for achieving recognition of her tireless voluntary and campaigning work for the Oxford Fens.

Find that Power List at https://tinyurl.com/y2smfcx9 where Judy is up there with Green Party leader Caroline Lucas, RSPB's CEO, NFU's President, Esmée Fairburn charity's CEO, presenter Kate Humble and an Extinction Rebellion co-founder.

Judy works as a freelance environmental consultant but mostly campaigns against the many environmentally destructive "plans" and "developments" in Oxfordshire.

Judy (front left) with the rest of the squad on our Cairngorms Field Week in July 2008

It has often been said that Dipterists Forum punches above its weight in the "Network", clearly this is a lot to do with friends and colleagues in the naturalist sector making sure that good work is appreciated. I swear I could imagine the NBN team (Sophie and Mandy etc.) applauding this excellent news which they ensured was also conveyed to naturalists across the country in the NBN News item at https://nbn.org.uk/news/british-empire-medal/

Support clubs & societies

Amongst the various organisations that have been suffering as a result of isolation during the past year are a number of smaller or more specialised groups. So whilst you are considering what you can do to help out major organisations, spare a thought to those with less of a voice. Local Natural History Societies most certainly - they've suffered as they rely on field meetings and indoor presentations. These are the bedrock of Natural History in the UK, seek them out and contribute what you can, invariably they've a newsletter and a short story from you might be just what they need to help keep them thriving. Of particular interest to us dipterists are the Microscopical Societies. They've been tinkering with their websites, **Manchester Microscopical Society** produced their free Micro Miscellanea newsletter in June (www.manchestermicroscopical.org.uk/) and James Battersby is looking for articles for the next one. **Northamptonshire Natural History Society** (www.nnhs.info/) has a Microscopy Section. They are renowned for their own palatial rooms in central Northampton and for hosting some wonderful microscopy exhibitions in the past - I've had some nice bits of gear from those shows. Those and their plans for field work were considerably disrupted last year. The **Quekett Microscopical Club** (www.quekett.org/) is UK-based and has a nice article on *Starting digital photomicrography* on their website.

If that gets you hooked on photographing small things then you can follow it up with Johan J Ingles-Le Nobel's *Extreme Macro* site at http://extreme-macro.co.uk/ and a truly wonderful book: Cyrill Harnischmacher's *The Complete Guide to Macro and Close-Up Photography* (see Reviews)

Feedback

It's very useful to get feedback from members about items in the Bulletin. Many thanks to all who did so to the last one, it helps to know we are on the right track with the topics we try to cover. Such a range of topics too. Though my item on a photographic technique in the last Bulletin was specific to one camera brand it intrigued one reader sufficiently to take the plunge and buy himself Nikon's macro flash kit. Similarly in this issue one member asked us for advice on microphotography gear and as a result got himself a nice birthday present. Acquiring any gear you might want in order to pursue your interests needn't be expensive, there's a thriving second-hand DSLR camera market now that their users are buying mirrorless and selling on their older stuff. Microscopy gear can be harder to track down, the microscopical societies can assist there, try the Queckett's list of dealers. For example I've seen a Brunel MX5T Stereomicroscope for £95, they're selling like hot cakes.

Machine Learning

The idea that identifications can be made by computer seemed ridiculous a few years ago but there's now a tool which can come close. If you've photographs of diptera and can't tell your Calliphorids from your Muscids or Tachinids (embarassingly that includes me) then the iNaturalist AI will have a go for you. It drops many a clanger but with luck someone will correct that for you. I'd guess it had the skills of a 5 year old - with a better memory than you and constantly learning. I've been trying it out on all sorts of invertebrates: now I know a little more about lacewings and harvestmen. All you have to do is upload your photo to iNaturalist and wait for it to analyse the picture and make suggestions based on its huge library of similar images. Do have a go, many of our Recording Schemes keep an eye open for records appearing on this site and will help you pinpoint the identification.

Collecting

Do you take British Wildlife? If not you should certainly try to get a peek at Roger Morris' article:

Morris RKA, 2020. Take nothing but photographs ... time for a reality check? British Wildlife 32, 118–124.

Mark Welch reviews this in detail in this Bulletin

National Biodiversity Network news

If you want to keep up with the goings-on in our Network then visit their site at https://nbn.org.uk/ where you can subscribe to receive their monthly newsletters.

A little bird tells me that NBN are about to sign up to a collaboration with iNaturalist. This means that the UK will have its own iNaturalist node. Linked closely with NBN Atlas it is hoped that UK naturalists and more of our experts will participate, boosting our verification opportunities. More about our iNaturalist projects below and on page 7.

Picture this

Putting a name to photographs of diptera with patterned wings can prove tricky. We've keys that are covered by three recording schemes, Laurence Clemons' Tephritidae (I'm using Derek Whiteley's old key + White's "Tephritid Flies" RES handbook), Dave Clement's Otitidae & Platystomatidae (Dipterists Digest 6) and Sciomyzidae (just *Trypetoptera* which might be mistaken for the above).

Anomoia purmunda [Malcolm Storey]

A good gallery would help a lot, there's no easy one around except for the one in Diptera.info so I created one. Basically just a filter on the iNaturalist records that have already been posted:

https://www.inaturalist.org/projects/european-picture-winged-flies

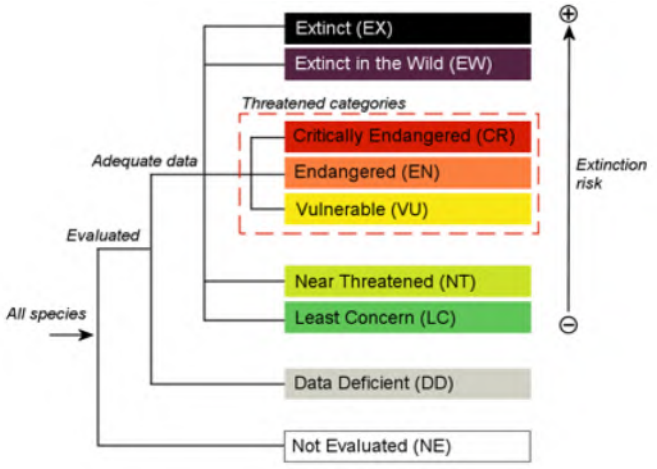
Go to that link and click on the "View all" button at the foot of the "Most observed species" column, et voila! a gallery. Amazing stuff, my favourite from the list is the Peacock Fly, you can read an account of this one at

Pintilioaie A, Alexandru U, Cuza I, Manci C, 2020. First record of the peacock fly Callopistromyia annulipes (Diptera: Ulidiidae) in Romania. Travaux du Muséum National d'Histoire Naturelle 63, 87–91.

https://tinyurl.com/y8jmhqnh

IUCN Red List - next generation

This is one of many Conservation Designations, all used in the Planning processes to help conserve wildlife. The IUCN Red List is the most useful and informative one for us. A whole bunch of people have spent a lot of time putting together the lists for Diptera over the past years. They didn't use actual recorded data much though, just published papers, which meant that all the categories had to be prefixed with "provisional". In Bulletin 83 (p8) I gave a thumbnail method for using actual records to reassess their IUCN status. They are scheduled for reassessment in 2022, the plan being to redo them every 10 years.



The actual detail of how the categories are assigned are in a book:

IUCN, 2012. IUCN Red List Categories and Criteria. Gland, Switzerland. (DOI 10.9782-8317-0633-5)

which I guess was pored over when Steve Falk and others compiled our own Diptera Red Lists. You'll find all of them listed under **Conservation Designations for UK taxa** on the JNCC website at https://tinyurl.com/y2shz72q where they are listed in chronological order, just scroll down and download each one, they are packed with useful information about all our scarce species.

Before I get lynched by all those authors at the suggestion that they've got to start thinking about doing them all over again, let me point out that at the time the original Red Lists were drawn up, there was little in the way of published species occurrences on GBGs (NBN Atlas as it is now) but ten or more years has seen an enormous increase in the quantity and quality of this data. It seems likely therefore that any amendments and updates may be achieved by using this data.

Individual species summaries are handy to have. Unfortunately they aren't downloadable separately from the printed lists, you've to obtain the pdf and trim out the species sheet you want. Maybe next time they might be produced in a more convenient format. Don't forget that vernacular names on those sheets are important aids to conservation bodies. Recording Schemes may wish to devise their own for this purpose (like Hoverflies and Soldierflies did) and out of courtesy they get first dibs. I published mine in 2018 (on a street-entertainer theme.)

As yet the mechanism for producing such updates is unclear. What is clear however is that Recording Schemes have a strong role and that by ensuring that their datasets are brought up to date (2020) and, ideally, uploaded to the NBN Atlas, their contribution to conservation will be assured.

Darwyn Sumner

Chairman's roundup

I know that 2020 has been a horrible year for some of our members, and difficult for us all. My thoughts are with everyone who has been badly affected. As I write, around Christmas time, the outlook for 2021 looks much brighter, with a number of vaccines approved for use and starting to be administered. I am looking forward hugely to once more being able to meet up with fellow fly enthusiasts without having to think about social distancing, masks, bubbles and so forth, and even to being able to peer into someone else's net! I think that for most of us it's the curtailment of our freedom to chat, socialise and share discoveries that has been most frustrating, even damaging.

As John Showers details in his membership report there has been a dramatic rise in membership over the last year, which is hugely pleasing and reflects the great amount of effort put into running and promoting the society by committee officers and others. Perhaps we have the pandemic in part to thank for it, people having had more time to observe and explore the wonders of flies? If so, a thin silver lining to the long cloud cast by COVID-19.

Thinking about publicity, there's been a considerable upsurge in use of our Twitter account: many thanks to all involved. A new development is the launch of our DF YouTube channel – do please have a look at the new page on our website set up for this. As I write in December there are already some videos well worthwhile watching there. Erica McAlister, our Publicity Officer, tells me that sales of her latest book **The inside out of flies** (as reviewed in the last Bulletin) are going well – I thoroughly enjoyed reading it, learning a huge amount in the process. Flies just get more and more fascinating the more you find out about them. By the time you read this Erica will have been on the Infinite Monkey Show, a BBC Radio 4 comedy and popular science series, no doubt talking as enthusiastically as ever about flies. Also scheduled for January, Erica tells me there's a new recording of the 'Nature Table' featuring her, as well as a bit on the 'Curious Case of Rutherford and Fly' , both on Radio 4.

Many congratulations indeed to Judy Webb, Assistant Editor, for making it onto The Woman's Hour **Power List 2020: Our Planet**. The list celebrates 30 inspiring women whose work is making a significant positive contribution to the environment and the sustainability of our planet. Judy's inclusion is richly deserved recognition of her tireless voluntary and campaigning work for the Oxford fens. Readers of this Bulletin will be aware of some of her work in this respect from her regular accounts of soldier and other fly conservation at Cothill Fen and nearby places.

The pandemic meant we had to hold our annual Dipterists Day meeting remotely. However, this did mean that two or three times more people attended than normal! Zoe Adams met the challenge of arranging the meeting magnificently, especially given that it was her first one since being appointed as Indoors Meeting Secretary. Many thanks Zoe. Of course, remote meetings are no substitute for the networking, banter and renewal of friendships that goes on when we can physically meet, but nevertheless the online event was clearly a success, with high quality presentations and a high number of participants (nearly all of whom stayed throughout). Should we hold the occasional remote meeting instead of, or in addition, to physical ones? Please do let Zoe and committee have your thoughts on this. We are anxious to try and meet the wishes of all our members, many of whom find travelling to meetings difficult for one reason or another.

The last six months have brought yet more Diptera recording schemes which is tremendous! Donald Smith is establishing one on the Coelopidae, Heterocheilidae and Helcomyzidae, while a new Hippoboscidae and Nycteribiidae scheme is being set up, with Denise Wawman, a PhD student working on bird diseases leading on the Hippoboscidae and Erica McAlister on the Nycteribiidae. Announcements of both appear elsewhere in this Bulletin. Meanwhile Phil Brighton has decided to step back from Anthomyiidae, with Michael Ackland reforming the scheme under the title of "Anthomyiidae Study Notes". Michael welcomes requests for identification help with difficult specimens and news of interesting records – from my own experience I know he is always keen to help. A big thank you to Phil for all the work he has done. As a measure of this, the number of Anthomyiidae records on NBN Atlas has increased from 4,000 since he became involved to the current 20,000 (https://doi.org/10.15468/c5xmi2)

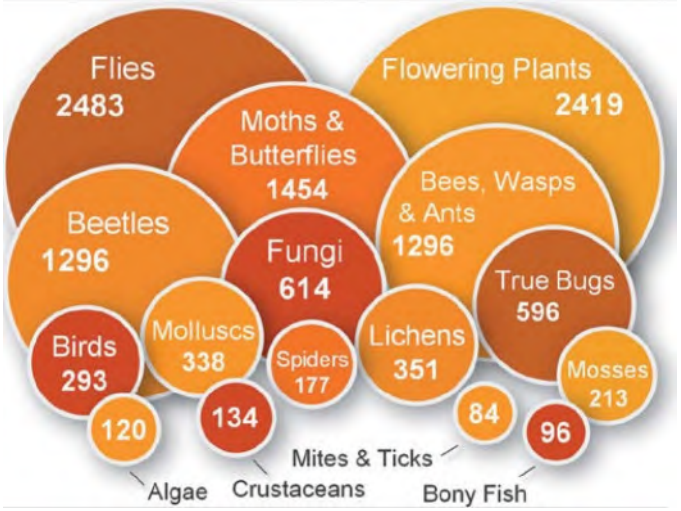
Over the last year a lot of effort, led by Phil Brighton, Martin Harvey and Darwyn Sumner, and with help from Derek Whiteley and Martin Drake among others, has been made to ensure that full sets of past Bulletins, Digest issues and Recording Scheme newsletters are available on-line. As I write this, we are well on the way to achieving this goal, a much more difficult task than it sounds. I am sure you will agree with me that this will be an invaluable resource. Much of the new scanning needed has been contracted out – many thanks to the Tanyptera Project for assisting with this – building on all the work done by Colin le Boutillier. All Bulletin issues **are** and Digest issues **will be** available as PDFs to non-members as well as to members, except the last two years' worth, in the interests of ensuring that the information contained in these quality publications is available to as wide an audience as possible.

Rob Wolton

Lord of the flies

In 2014 BRC were celebrating their 50th anniversary.

iRecord was in its early days back then but the BRC leaflet gave the following summary of records held on their servers:



Gradually many of these records have ticked over into NBN Atlas so that they can be used (see Recording.) Analogy: iRecord = supermarket warehouse, NBN Atlas = shopping area (of a different supermarket.) The figures don't relate too well to society membership, we'd around 300 at that time whilst two years ago the British Arachnological Society (spiders) had 700. We were the big guys back then - top of the heap, lord of the flies.

The BRC leaflet is still a good read, download it at https://tinyurl.com/y5ykoxnr An update would make interesting reading now, they do have a publicity team.

Darwyn Sumner

Fly papers

Where do you look for news these days? It seems to be scattered ever more widely and has become much more difficult to track down, or believe. I mean the specialist news which relates to Diptera but that's got a fairly wide scope as there are strong links to conservation, taxonomy, ecology, photography, recording and so on.

From the 500 posts of mine on one site (NBN Forum) you'll gather that I consider discussion forums to be a fairly useful system. That one has gone quiet (though it's still used to message the NBN & Recorder 6 teams) as did the ALERC one and our old Diptera one. They are not entirely moribund as a means of discussion, you'll find them used a lot to support issues arising from commercial software (photools.com, Affinity products.) The **Field Studies Council** use them well for their educational pursuits (see https://forum.fscbiodiversity.uk/) which includes support fir iRecord (which also has its own forum.) Oddly the organisation with "forum" in its name, **National Forum for Biological Recording** (http://nfbr.org.uk/) has never has one. **iNaturalist** supports one but it's rather oddly constructed; raise a topic and it's seen for a few days then gets lost amongst the higgle-piggle because it has no structure. The truly thriving one is **Diptera.info**, with fly messages flooding in at the rate of dozens per day.

Newsletters, mostly electronic, are a good source of information. Fly Times do one (North America https://dipterists.org/) as do we (www.micropezids.myspecies.info/node/301). You'll find one of interest at NFBR, our friends in Scotland, BRISC and some Local Environmental Records Centres (e.g. GIGL in London.) The chief one for us is the **National Biodiversity Network** (https://tinyurl.com/y34jx9v2) the network being all of us of course, Dipterists Forum is a member. They mail out news items monthly. Disappointingly, for me at least, it doesn't ever come up with a summary of what all the other non-Diptera recording schemes are getting up to, so you'll have to go hunting around for individual websites if you want botany (BSBI), lichens (BLS), dragonflies (BDS), spiders (BAS), bees (BWARS), Riverflies (www.riverflies.org/) or beetles (www.coleoptera.org.uk/) The Biological Records Centre do a nice list of them all at www.brc.ac.uk/recording-schemes and BRC provide the web hosting for many of them. Make a collection of them all on a tab of your internet explorer application (I use Firefox), making sure that Dipterists Forum is top of the list (https://www.dipterists.org.uk/)

Conservation topics can prove harder to find. You've perhaps the websites such as FoE, Friends of the Earth, Greenpeace and the like but the magazine **British Wildlife** always has a good summary of current issues though they don't deal with biological recording as a general topic.

Fly times

This is the newsletter of the North American Dipterists Society. They've been rejigging their website at https://dipterists.org/ where you can find their latest newsletter #65. We all get a mention in that because Martin Drake has been helping their editor Stephen Gaimari to add UK stuff to this list: **A preliminary list of serial publications on Diptera (past and present)** which covers all our UK newsletters, Bulletins & Dipterists Digest

Dipterists Forum objectives:

a. To foster the study of Diptera, including linking with other disciplines where there is a relationship with other animals and plants.

b. To promote the recording of all aspects of the natural history of Diptera, including the advancement of distribution mapping.

c. To promote the conservation of Diptera.

d. To encourage and support amateurs in harmony with professionals in museums, institutes and universities.

e. To organise indoor meetings, workshops, field meetings and other relevant events.

f. To disseminate information through newsletters and publications.

g. To focus on the Diptera of the British Isles whilst maintaining an interest in those of continental Europe and elsewhere.

How are we doing?

The above is our formal list of objectives. It's worth popping this into each Bulletin as a reminder and to help us keep an eye on our progress in each of our aspirations.

Overall we do pretty well, Rob Wolton's summary covers many aspects of the above.

The emphasis on our objectives varies periodically. For example **objective c.**. In the past a huge amount of effort was devoted by many authors into developing our IUCN conservation designations. If you're new to Dipterists Forum then you really should download all those **Conservation Designations for UK taxa.** This one is raising its head again as it's on a 10 year cycle, which is why I raise it again in the IUCN item above.

Objective e. has suffered a severe blow in 2020, let's hope we can resume this year.

As for **objective f.**, we're strong in many aspects (this Bulletin Dipterists Digest and Scheme's newsletters for example) but not so good in others - though we're working on it. Had the above set of objectives been written at a time when Open Data publication sites been up and running then I suspect that publishing to NBN Atlas would have been specifically included. Datasets on NBN Atlas are publications designed to disseminate information though, so that means of publication is squarely one of our objectives. We return to this aspect of our objectives quite frequently as it's a constant attempt to catch up. We looked closely at this in 2014 (Bulletin 81) and again in this Bulletin (*Where to find online flies*.) It's seen by some as tricky or over-techy but it's really not, just somewhat laborious and requiring a bit of an organised approach. I'll be publishing around 10,000 in the coming months, aided by NBN's ever-helpful Sophie Ratcliffe, both of us will be glad to help out others. This all ties into "recording" in **objective b**. of course; such recording needs to have a purpose and conservation is a big one - provided they get published.

In **objective g**. we've a mention of continental Europe. For some busy Recording Schemes this is too much to take on, for others it's an interesting aspect to explore. Look for the Europe symbol on the back pages brochure, those schemes will happily discuss taxa beyond these shores.

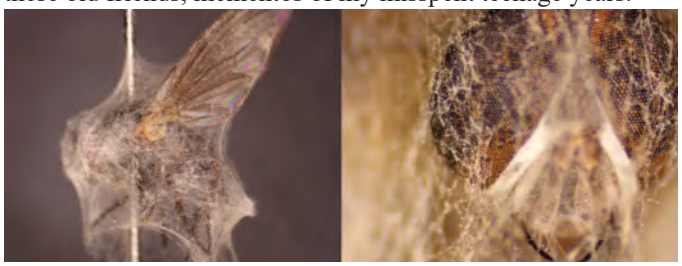
Darwyn Sumner

Mouldering away

Forty years is probably too long to leave between catching something and recording it; too long to remember the place, the pursuit or the capture. In the enthusiasm of my youth every specimen had a unique number on its label and a corresponding file card with details additional to those on the pin label. “On a dead cat at the side of the road.”, “sunning on laurel”, “In my bedroom”, “part of a swarm that found me in a pine wood.”, or “in fly trap over rotting peas on compost heap”. The file cards were the backs of computer punch cards which my father got me bundles of from his work. The flies were neatly arranged in cork lined wooden storage boxes, neat columns made with black thread, and labels painstakingly typed out for each species.

The family that took my boyhood fancy, probably because of their charming bristles and the availability of the, then recently published, 1968 Assis-Fonseca RES key (including what are now Fanniidae), were muscids. I struggled my way stubbornly through its, for me, horrendous and impermeable difficulties – was that posterodorsal on the hind tibia quite long enough, was that anterior apical on the middle femur well developed or not? How jutting was the chin and was that an acrostitial or just a slightly stouter hair?

Some I did identify to my satisfaction - and they have been sitting in their boxes ever since, and unknown to the wider world while I have been about other things; going to University, working abroad, returning home, marrying, having children, fledging the children and now at last having time to get back to flies. Unfortunately, at some stage during their decades in various attics they became mouldy, wrapped up mysteriously in hyphal shrouds, neatly packaged ghosts from my past. There was little point keeping them, but I couldn’t bear to throw out these old friends, mementos of my misspent teenage years.



But now, many decades later with my collecting energies rekindled, I have run out of storage boxes and can no longer afford nostalgia. Before putting them in the bin I checked my identifications, peeling back the white veils to look for leg bristles, lifting face fluff to gauge the featheriness of the arista, a microsurgeon wielding a pin on a stick to probe long past-it patients. Mostly I concurred, but my previous self had got it blatantly wrong on a male *Phaonia errans*, possibly just having written down the wrong species, and also for two male *Fannia lustrator*, where I had misinterpreted the density of bristles on the front tibia. At least that is my conclusion now and what I have put on iRecord, and since these flies are now all in the bin, that’s that. My future self may be unhappy at being excluded from an opinion.

In the process of discarding these sad specimens I remembered those first fly hunts with my inadequate short-handled butterfly net and laurel tubes where I spotted, stalked and swiped with mixed success. Mostly my expeditions were over the garden fence, or across fields to a nearby wooded park, my surreptitious source of laurel leaves. A few flies were from further afield, associated with vague memories of sleepless nights on cold, hard ground in an inadequate tent. The dates on the labels were often those of summer holidays when a burst of enthusiasm would lead to a burst of collecting.

Thinking back to those days, I couldn’t help wondering what my youthful self might have become if on one of those solitary, slightly embarrassed, fly-hunting expeditions I had happened to meet just one other dipterist, or even an entomologist of any description. They might have helped me get over my identification log jams, shown me the value of a pooter and a deeper net, the importance of habitat and season, and taught me that rather than hunting down individual flies I could broaden my diptera horizons by sweeping. What if there had been a Dipterists Forum to welcome me into a community of similarly inclined individuals? And what if, beyond anyone’s imagination then, I could have looked at identification keys, pictures of every species and distribution maps on a screen in my bedroom? What if I could get an expert opinion a few minutes after taking a photograph? Could I have become an Alan Stubbs or a Peter Chandler, or at least the go-to chap for a minor and not too difficult family? Maybe, maybe not.

Certainly not now, for I too have been mouldering away, my memory for names and faces, even those of flies, a shadow of what it once was, my eyesight weaker, my fence-vaulting limbs less nimble. But I am content enough in my dotage, not quite a beginner, but far from expert, making a stumbling acquaintance with the 100-odd families that are out there, somewhere. It is always a thrill to arrive at an identification confidently enough for it to become a record and, whatever the occasional frustrations of flies that evade the net or escape the couplets of the key, I still enjoy the wilful eccentricity of the process and the bizarre forms that flies can take. I’ve a few decades left in me yet.

Donald Smith

Recording Schemes brochure

In the last year or so we’ve had an enormous 20% increase in the number of Diptera Recording Schemes. Clearly the single page summary as seen on the back page of recent Bulletins is no longer sufficient to cope in conveying all the relevant information about our 28 Recording Schemes.

So I went for 2 pages, which meant that there was the potential for styling it as a bifold brochure. Tear the back page off this Bulletin and fold it in half. Perhaps you don’t want to do that, so download from http://www.micropezids.myspecies.info/node/301 print that pdf back-to-back and fold. Do a few of them and hand them to friends.

The pdf is interactive too. Click on the various symbols against each Recording Scheme and you’ll be taken to their own websites  Scratchpads  iNaturalist projects  and NBN Atlas uploads 

If you see errors or have something to add (an NBN Atlas upload perhaps?, 12/28 have done so) then let me know and I’ll amend and upload a newer version.

Darwyn Sumner

Recording

When Martin Harvey describes biological recording as "complex" he's not kidding. There's enough on the topic to fill several books. Looking back at previous Bulletins, he and I have probably done enough to fill a couple of them.

Just four main aspects in this Bulletin though:

- Some ideas as to how you can record using your photographs
- Latest news regarding a handful of standard recording systems
- The Bulletin's customary run-through of what the Diptera Recording Schemes are getting up to
- How to search for Diptera records online

Recording with a camera

It is possible to carry both collecting equipment and a camera. Just how manageable it is to both collect and photograph rather depends on how bulky the gear for each is. Some manage quite well by concentrating on the collecting and carrying just a lightweight camera. You'll find examples of this in Steve Falk's Flickr collection where he'll catch something then hold it in one hand whilst photographing it using the other. If your emphasis is on the photograph however then by and large the quarry has flown by the time you've got a satisfactory shot. The more sophisticated camera setups are gradually dropping in terms of weight and bulk but they still take some effort to carry around for a day and you can't keep up with a group of people with nets. In fact you're best to avoid them as they hoover up everything of interest.

Organising your records

The face of Biological Recording is changing. At the same time that methods for recorders to submit records to public databases are proliferating, the means by which these recorders can maintain their own personal records either neglect to meet these changing needs or are in decline. This is a disturbing situation. What's a recorder do with the answer they get back from the many identification sites? Mostly they can't do much so they don't do much. Any sites that do allow you to keep some sort of online list of your submissions lack any kind of flexibility, organisation or comprehensiveness.

Organisers

A whole host of organisations want to know what wildlife you've found but most importantly you want to keep a note for yourself. The collecting urge is usually strong amongst naturalists and making personal lists about what you've seen is an important component of that urge.

There are four forms in which those lists can be made, written notes, spreadsheets, databases and some form of biological recording application or similar.

Written lists: there is a long tradition of this, the field notebook. If you see a collection in a museum one thing you might ask to see in order to study the material is the contemporary field notebook. It's how the old naturalists recorded stuff. It needn't be as elaborate as Gilbert White's famous diary but it's surprising how much additional value such a set of notebooks adds to a collection. And for you it may be an aid to recollection. Choose a notebook slim and small enough to slip into your pocket and keep with you in the field, then beside you at the microscope. Use a tabular format that suits recording the four "W"s (who, what, where, when)

Spreadsheets: If you have a computer or similar then chances are you've got a spreadsheet. These can be as simple or complex as you wish. Keeping records this way is a method used by many and there are templates available which may suit you. It's a classic way to communicate with Recording Schemes, they will all accept records in this format. A couple of nice things about them is that it is easy to leave a blank against an observation until you get it identified (via online systems or posting a specimen to an expert) and it supports the making of the tiny labels you need for a collection of specimens. For spreadsheet resources see https://tinyurl.com/yyp5qqfm we hope to add more to the DF website soon and Recording Schemes will always advise regarding format.

Databases: More complex than spreadsheets but great for lookup tables (like species checklists). You need to be fairly confident to use these. I've used them but Microsoft's upgrades wrecked my work, I know of other users, notably Laurence Clemons, organiser of the Tephritid Flies Recording Scheme.

Image Recording: Unfortunately there isn't one of these that can facilitate the exchange of biological records should that be your wish. The nearest you can get to keeping your own organised set of images on your computer is iMatch. Your camera automatically records two of the four "W"s (who and when) and you can add the "where" by geotagging and the "what" via investigation. iMatch can record all these. You might get close to a full record by posting every photo online using Flickr or social media but therein lies madness. From the pattern of image uploading by contributors to iNaturalist it is clear that photographers are working their way through their entire photo collection in order to get identifications, it's not clear how they are recording them on personal systems when they get those answers.

Biological Recording Applications: We are fortunate in the UK in having two classic systems for doing this, MapMate (https://www.mapmate.co.uk/) used by Martin Harvey (who used to lecture on its use) and Recorder 6 (invented by Stuart Ball, the Hoverfly Recording Scheme stores records in this.) The latter is discussed below and the former will be the subject of a future article.

Solutions from the International Community

At this point I was curious to know what method people actually used. I could have asked the UK recorders individually but instead chose to ask the wider iNaturalist community in the hopes that something innovative might turn up. You will find my post at https://tinyurl.com/y6yaws47 titled **How do you keep your personal records?** The answers make a fascinating read, cover a wide range of techniques and did indeed come up with innovative solutions - or at least solutions that I've never heard of.

Notable were the field notebook methodologies using the Grinnell method (summary at https://tinyurl.com/y6avv4lh but the original book is out of print) the Microsoft PowerBI for techies and the whole Dutch approach to recording - so it is worth signing up to the Waarneming.nl newsletter and trying to figure stuff out with Yandex translate.

Read the responses to that iNaturalist post, there are fascinating insights into how approaches to recording vary across the world.

Keeping busy

My choice of organiser has been a spreadsheet. Now that I've got a model that I know can support everything I might need to do such as building lists to send to Recording Schemes and uploading to NBN and GBIF I've been working my way

through my collection of photographs.

It's quite a plod as I've neglected it for some time, having had nowhere to store the data until the Darwin Core spreadsheet model. I have my images organised in iMatch where I've kept up to date with the geotagging using Garmin's Basecamp at the time I downloaded them and iMatch's Map feature for familiar local sites where I don't need to use a GPS. For identification I've used a mixture of iSpot (beetles & fungi), Diptera.info and iNaturalist as well as the various keys. Current favourite being iNaturalist as you can get away with some fairly poor images and if they've been geotagged then you just drag and drop and add a vague name. As I add them to iNaturalist I use iMatch's category system to flag that I've uploaded them there. That way I can filter my iMatch list to check periodically to see if I've got an answer.

After that it's just a matter of putting the name into the Title field in iMatch and going back to my spreadsheet to update that.

The spreadsheet system has been made much more efficient lately by Martin Harvey and Chris Raper helpfully making the spreadsheet versions of the Diptera checklists available. Using Excel's VLOOKUP command you can bung the correct name in your spreadsheet list of records simply by referring to a list of taxa on a separate spreadsheet sheet. Not the entire list of course - that would involve a lot of searching, just the Families I regularly take an interest in.

Darwyn Sumner

Recording Methods

Recorder 6: Newsletter 1

https://tinyurl.com/y2pgxq2h

There are items in here relevant to us even if you don't use this biological recording software. News that the NHM have streamlined the software that allows our Chris Raper to bung taxa onto the UKSI (UK Species Index) more easily. He's on top of the flies.

The conceptual path along which Recorder 6 continues to be developed is becoming ever narrower. In the newsletter, on the topic of dictionary upgrades is the phrase "can be run from Recorder 6 without the need to involve IT departments" - well that's good news for users who have ever had such things (or not in the case of incompetent IT departments). Not many individuals have access to these so you can see the direction that R6 is headed, away from individual users.

The real world for biological recording applications involves more than just businesses, it's got to involve us too.

There's a request in the newsletter for you to share ideas about what you want it to do. Put your ideas on their forum at https://tinyurl.com/y332th9p - my areas of interest would be:

1. Specimen labels
2. Non-UK taxa

   The Natural History Museum says "No".
3. Mapping

   All it has is a rudimentary mapper, just of the UK
4. Export & import formats (e.g. Darwin Core)
5. Document & citation management
6. Handling of Lat Long coordinates in a variety of formats
7. Capacity to deal with records outside the UK

Recording Schemes have an interest in European distribution as it helps put the UK into context. We've at least 5 of these amongst the Diptera (see iNaturalist below.) It's what we do - according to our constitution. Many other schemes do too, for example BWARS with their interest in pollinators.

I've worked on all the above but had to resort to spreadsheets and other tools in all cases.

8. Integration of photographs

Photography is a very popular means of recording, ideally Recorder 6 would have a drag and drop facility that pulled the information out of the image metadata. Like iMatch, iSpot, Flickr and iNaturalist do.

The Recorder 6 team have shown an interest in this idea.

iNaturalist projects

We've now 7 of these related to the UK Recording Schemes.

Added in September were projects for Sciomyzidae & Heleomyzidae making the list as follows:

1. European Diptera (non-DF) 269825 https://tinyurl.com/y2wqsup9
2. Tachinidae (UK) 1785 https://tinyurl.com/yxklprqd
3. Micropezids & Tanypezids (EU) 630 https://tinyurl.com/y7pamp6y
3. Sepsidae (EU) 1207 https://tinyurl.com/ycx73qma
4. Lonchaeidae (World) 640 https://tinyurl.com/yx92o7kq
5. Sciomyzidae (EU) 1237 https://tinyurl.com/yyj7coaf
6. Heleomyzidae (EU) 1048 https://tinyurl.com/y2flzaac
7. Picture-winged flies (EU) 5336 https://tinyurl.com/y22q7cta

[figures from 24th Jan 2021]

To save you having to type out all the above links just download the Recording Schemes pdf (back pages) and click on the red bird links there.

So far only Chris Raper has chosen just the UK though he's 5th in Europe based on the number of identifications he's done on that site (Ian Andrews is 4th and Sam Bushes 6th) **A lot of recorders are using iNaturalist instead of indigenous methods of recording**.

The projects are basically well-presented filters on records which others have uploaded onto the site. One outcome of this is that for each there is a nice **gallery of images** of those species most frequently encountered.

As for Recording Schemes and those with identification skills, please take an interest in iNaturalist. There's a lot of UK material up there and only a handful of Schemes addressing their identification backlogs.

Well done everyone who contributes to the iNaturalist records in Europe, including our overseas friends, they're making a huge educational contribution with their Fly IDs.

Export from iNaturalist to iRecord

Sam Bushes has written a routine enabling records in iNaturalist to be exported to iRecord (or other system)

Read about it at https://tinyurl.com/y35l3qoz

Artificial Intelligence

When you upload an image to iNaturalist it has a stab at identifying the subject using AI.

This can be a real pain when a European species gets classed as a Nearctic one, some uploaders simply leave it as the wrong ID and won't step down. It can be useful to us however. I've tried it on several and it's capable of distinguishing between Calliphoridae and Muscidae. I popped a *Parhelophilus* on there and it got the genus straight away (no hope of species of course.) Give it a try.

Darwyn Sumner

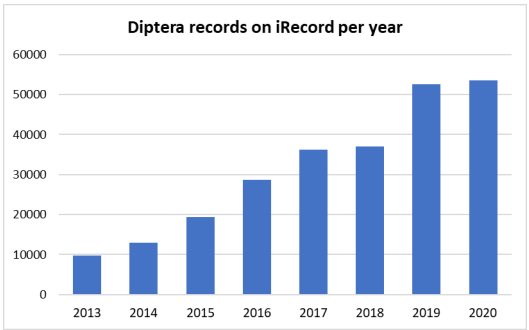
iRecord

iRecord is a website and series of apps that can be used to contribute records of any species group. iRecord is part of the online recording system maintained by the Biological Records Centre, which supports the sharing and checking of species records. Many other websites and apps are linked to the data warehouse that sits behind iRecord, enabling records from multiple sources to be brought together and made available to national recording schemes for verification. Records added to iRecord become immediately available to those national schemes and local records centres that wish to access them, and can also be promptly shared to the NBN Atlas for those national schemes that wish to do so (for more on this see https://www.brc.ac.uk/irecord/nbn-sharing).

iRecord has been in use since 2013, and so far over 330,000 records of Diptera have been contributed. These span across around 4,000 species from most of the Diptera families, and about 120,000 (36%) of the records have associated photos. Unsurprisingly, the family with the greatest number of records is the hoverflies, Syrphidae. Not all Diptera recording schemes use iRecord for verification purposes, but to date over 250,000 (75%) of the records have been verified by representatives of the recording schemes – many thanks to the recording scheme organisers and other verifiers involved for contributing their expertise in this way. The table shows the 'top ten' species with the most records on iRecord.

Bombylius major	Bombyliidae	11580
Episyrphus balteatus	Syrphidae	10592
Eristalis pertinax	Syrphidae	6584
Helophilus pendulus	Syrphidae	6122
Eristalis tenax	Syrphidae	5842
Myathropa florea	Syrphidae	3921
Syritta pipiens	Syrphidae	3485
Phytomyza ilicis agg.	Agromyzidae	3459
Chloromyia formosa	Stratiomyidae	3104
Volucella pellucens	Syrphidae	3099

Many Diptera recording schemes now make use of iRecord, and for a number of them iRecord is the main or preferred route for records. However, all the schemes accept records via spreadsheets and other routes as well (see the information on the Bulletin back page, and check the recording scheme details on the Dipterists Forum website). If you have records on iRecord for a scheme that doesn't access them directly you have the option of downloading your own records into a spreadsheet and sending them direct to the scheme.



Biological recording in the UK continues to be a complex area with many ways to get involved. iRecord has been successful in enabling records to be shared quickly and easily between national schemes, local records centres and the NBN Atlas, and although it is not the only option for recording Diptera you may find that is useful for your own recording.

Martin Harvey

Recording Scheme News

I've had conversations with a few of the Recording Schemes lately. Barry Warrington's Agromyzidae scheme forges ahead, some of his plans were delayed by a house move. John and Pete are very busy dealing with records from the Cranefly scheme through their social media accounts and Alan is talking about the late stages of the book. Phil and Michael continue to work on the Anthomyiidae and Martin Harvey has been busy updating the recording scheme pages on our Dipterists Forum website. Chris Raper has been updating the UKSI database and the Diptera are now an exact match to Peter Chandler's January 2020 list. So the Taxon Toolkit can be used to check your spreadsheets; no more errors.?

Sciomyzidae Recording Scheme

Much as I'd love to extend my library of articles on the subject of Sciomyzidae by collecting articles made freely available online I'm afraid that's not practical using the only tool I know of: Elsevier's Mendeley. That application, whilst pretty good if you're collecting one subject area, is hopelessly unsophisticated if you try extending it to two or more. It needs an hierachical "categories" tree like the one in iMatch so that you could link articles to taxa. It's got a database on your computer somewhere but no option to have different ones that you could open separately (e.g. one each for Sciomyzids, hoverflies, woodwork.)

Collecting and reading articles like that is a great way to learn a lot about a group. From my occasional forays into online searching for articles on Sciomyzidae though, it appears that a far higher proportion of them are not Open Access, they are behind paywalls (income for Elsevier) which means they will always be a closed book for most.

Three books, six newsletters, two keys and a Recording Scheme is what's available at the moment (see our Recording Schemes guide.)

An **NBN Atlas upload** (partial) is also under way and 7,124 records from the Scheme should be on it by February. Matt Harrow, a dedicated iRecord verifier, and I are currently discussing the addition of further records, which will include those sent to me since 2015. If you have any to add then now's the time to submit them.

iNaturalist Sciomyzidae gallery

You now also have a gallery. I set up an **iNaturalist project** for Sciomyzidae (Europe) late in 2020:

https://www.inaturalist.org/projects/european-sciomyzids

Simply select "View All" at the foot of the "Most Observed Species" column and there's the gallery, one per species.

It's just a filter of existing records of course but if you think you can identify one or two then have a go.

Salticella fasciata

Matt Harrow contacted me regarding this species. A few years ago he'd been looking for it in the Welsh dunes, finally succeeding in September this year. Matt also noted an iRecord at Holme Dunes again - in March. That's the place where I once found it - led there following a suggestion by Jon Cole - in October.

On iNaturalist I commented on a Serbian record and Jonas Mortelmanns responded with the following article:

Mortelmans J, 2014. The Snail-Killing fly Salticella fasciata new for the Netherlands, with an update of Belgian records (Diptera: Sciomyzidae). Nederlandse Faunistische Mededelingen 44, 29–36.
(https://repository.naturalis.nl/pub/)

Darwyn Sumner

NEW Kelp Fly Recording Scheme

Not being too ambitious, I propose starting a Kelp fly Recording scheme with a remit of just five species – three sandy coloured flies in different families - *Malacomyia sciomyzina* (Coelopidae), *Heterocheila buccata* (Heterocheilidae) and *Helcomyza ustulata* (Helcomyzidae) - and the two darker flat-backed species *Coelopa frigida* and *C. pilipes* (Coelopidae).

Coelopa frigida Photo Ian Andrews (with an Olympus TG-5)

These medium-sized flies can all be found on rotting piles of seaweed anywhere around the coastline of the British Isles. Give me a month or two to work out what I am doing, and then I would be very happy to receive records in whatever mode is most convenient to you. And if you haven't got any records, the two *Coelopa* species and *H. buccata* can be found all year round and so are the perfect target for a winter walk!

Donald Smith (KelpflyRS@gmail.com)

NEW Ked, Louse & Bat Fly Recording Scheme

A new national recording scheme started in November 2020 for the Hippoboscidae and Nycteribiidae. These are two fascinating, closely related, families of parasitic flies whose vertebrate hosts include birds and mammals.

In the UK, the family Hippoboscidae contains the species commonly known as the flat or louse flies which are parasites in birds and the keds which are parasites on ruminants. The Nycteribiidae are all parasites on bats.

These species are rarely found away from their hosts and so the majority of encounters are restricted to those monitoring bird boxes, bird ringers, bat workers or wildlife rehabilitators. However, some maybe encountered free, with deer keds (*Lipoptena cervi*) being quite common.

Within the Hippoboscidae in the UK, 14 species have been recorded although some of these are not resident. Of these, the Sheep Ked (*Melophagus ovinus*) is possibly extinct in the UK - due to the use of drenches in livestock and recent records have seen the New Forest Fly (*Hippobosca equina*) restricted to feeding on horses in the New Forest.

Only three species of Nycteribiidae have been recorded in the UK and unlike the Hippoboscids all are entirely wingless.

Please enter any records via iRecord, ideally with a record of the host species in the comments, until this additional field is available in iRecord via the link in the recording scheme page, . https://www.dipterists.org.uk/hippoboscidae-scheme/home. Historical records of any age are welcome.

The best reference is Hutson, A. M. (1984) '**Keds, Flat-flies and Bat-Flies: Diptera, Hippoboscidae and Nycteribiidae**', Handbooks for the Identification of British Insects, 10(7), Available at: https://tinyurl.com/y8dvwnpw

Hippoboscidae - Denise Wawman denisewawman@gmail.com

Nycteribiidae - Erica McAlister e.mcalister@nhm.ac.uk

Hoverfly Recording Scheme

Newsletter #69 in this Bulletin

David Iliff davidiliff@talk21.com

Soldierflies & Allies Recording Scheme

Newsletter #8 in this Bulletin

Martin Harvey kitenetter@googlemail.com

Cranefly Recording Scheme

Newsletter #36 (short version) in this Bulletin. The long version with list of contributors, can be downloaded from http://www.micropezids.myspecies.info/node/344#Craneflies

John Kramer john.kramer@btinternet.com

Flat-footed Flies Recording Scheme

Newsletter #4 in this Bulletin

Peter Chandler chandgnats@aol.com

Stilt & Stalk Fly Recording Scheme

Newsletter #3 in this Bulletin

Darwyn Sumner Darwyn.sumner@ntlworld.com

Where to find online flies

With all this discussion about recording one might be curious as to where it all ends up, what use it might be put to and where to find summaries, maps and lists.

The first thing to do is decide on the geographical scope. Are you interested in local, national or international.

Local: Engage with your county's Environmental Records Centre and check on the activities of both the centre (find your LERC via http://www.alerc.org.uk/) and any county recording group, be it a thriving Entomological Society (e.g. Leicestershire) or county recorder (e.g. Laurence Clemons in Kent.) Each individual LERC website should list all the specialist wildlife interest groups.

National: Explore the NBN Atlas. Search for an individual species and you'll get maps and lots more. Search for specific datasets (uploaded either by BRC, Dipterists Forum or independently by several Recording Schemes) then you'll find some useful summary statistics (see below.) The Local ERCs will have put their data on the Atlas too, but not all Recording Schemes do so, so you'll have to ask them separately or watch for their summaries, newsletters and atlases.

International: GBIF is the place to look. Their maps and summaries are nowhere near as pretty as our NBN Atlas but you can find things out from it, for example that *Episyrphus balteatus* is only "almost ubiquitous". iNaturalist records get uploaded to GBIF so you'll see any confirmed record you upload there eventually make its way to this international site (as indeed will all records that get to NBN Atlas.)

> Treat iRecord, iSpot and iNaturalist as temporary holding silos of data. They are not Global Biodiversity Gateways like NBN Atlas and GBIF. Their purpose is to enable recording and allow experts to verify material. They do hang on to occurrences once they've been posted but they don't have the tools or informative summaries that a GBG has, aren't consulted by formal researchers or developers and don't count as "published" (not entitled to a DOI.)

What's a DOI?

A Digital Object Identifier. Similar to an ISBN or ISSN but it also has a link to a permanent storage site on the internet. So a combination of both but better since it's more reliable than a url and is an ISO standard. A sure indicator that something has been published. Usually a document but nowadays increasingly used for published datasets.

Open Data

A little preamble before the next topic; some background reading on the subject of **Open Data**.

Charles Roper (2014) presented an introduction to the concept of Data-sharing on the NBN at https://nbn.org.uk/news/open-data-the-future-of-data-sharing/

The most concise explanation I've come across however is by Costello & Wieczorek (2014): **Best practice for biodiversity data management and publication**. Biological Conservation 173, 68–73. (https://tinyurl.com/yalmb3zf).

As with most international papers it omits us (UK) as examples but the principles are sound and its conclusions are incontrovertible: *The key aspect of data publication is that data should be permanently archived in an online, open-access repository (permitting use without conditions) with sufficient metadata for potential users to understand how and why they were collected.*

A good introduction as to why we record to the NBN Atlas:

Dipterists Forum NBN Atlas datasets

Dipterist Forum has a kind of secondary website on the NBN Atlas. Not somewhere one would visit often, it's like watching paint dry. We put our NBN Atlas datasets there, take a look at

https://registry.nbnatlas.org/public/show/dp172

You'll find 5 of our Recording Schemes listed there and you can look at each one individually. There are some useful graphics there, for example they give a breakdown of when most of the Sarcophagidae records were collected and what taxa are recorded.

Similarly there are 5 datasets of diptera records from our Field Meetings, the latest is the 2018 Stoke dataset which now counts as "published" as it has it's own DOI; we're working on others (see below).

The least visually appealing are the "**Use statistics**" on each page. Arguably these are the most valuable though. They show the value of the work that everyone has done in submitting records through various Dipterists Forum initiatives to collect, collate and upload records.

Stoke dataset statistics

Take those Stoke records for example, since they were uploaded in March 2020 those 7,407 records have been used 24,989 times.

When someone downloads records from the NBN Atlas they are asked to what purpose they are to be put. This means that we now have a breakdown of usage:

Citizen science (you and me I suppose)	7 times
Commercial downloads	3 times
Ecological research	4 times
Education	33 times
Professional research	52 times
Public- personal use	7 times
Scientific research	3 times
Statutory work	once
Volunteers (you and me)	20 times

So these are the figures over the period of less than a year indicating the value of the recording that Dipterists Forum members carried out on just that one Field Trip.

Some of those events will be the landowners who granted us access (one of our obligations fulfilled then), LERCs responding to development applications (helping with conservation then) and our own DF members investigating something or other.

Dipterists Forum views **education** as being one of its key roles. So here's one piece of evidence that we are doing so through our published datasets.

Dipterists Forum datasets statistics

Examine the same figures for our entire collection of Dipterists Forum datasets and the figures for our contribution are truly stunning:

Citizen science (our projects)	102 times
Collection management	9 times
Commercial downloads	134 times
Ecological research	267 times
Education	698 times
Environmental assessment	484 times
LERC work	25 times
Professional research	133 times
Public- personal use	170 times
Restoration/remediation	once
Scientific research	73 times
Statutory work	80 times

Systematic/taxonomy	5 times
Volunteers (you and me)	139 times

Underneath those lists are some interesting graphics, I especially like the "by Family" pie chart which shows that Dolichopodidae are our most commonly uploaded, followed by Sepsidae, Syrphidae, Sarcophagidae then Psilidae (huh! mine are split over several families - otherwise Stilt & Stalk would be top).

These are **our very own Dipterists Forum statistics** of course, other organisations may have their own fly summaries:

Fly aways

Several Diptera Recording Scheme datasets lie under the BRC banner (https://registry.nbnatlas.org/public/show/dp77):

5 Brachycera to 1990	20886
15 Craneflies to 2016	137483
19 Diptera without a Recording Scheme (from iRecord)	26200
20 Dixidae to 1988	1462
30 Mosquito Recording Scheme	3096
40 Sepsidae to 1985	6083
42 Tachinidae Recording Scheme	13249

Some of the above are historic datasets and closed to further additions.

Some live in splendid isolation:

Anthomyiidae Recording Scheme https://registry.nbnatlas.org/public/show/dp163	19830
Soldierflies and Allies Recording Scheme https://registry.nbnatlas.org/public/show/dp37	41939
Tachinid Recording Scheme https://registry.nbnatlas.org/public/show/dp127	22583
UK Cranefly Recording Scheme https://registry.nbnatlas.org/public/show/dp247	18601

Despite badging themselves as Dipterists Forum, all of the above datasets would have to be interrogated separately to contribute to our Dipterists Forum collective statistics.

> Hint: I have made enquiries in the past, datasets can be moved to lie within other "collections" without affecting their url - or anything for that matter.

In addition to all those, there are Diptera Recording Schemes which do not upload to NBN Atlas yet (e.g. Ball et. al, 2017). In 2014 when the Diptera datasets were on the old NBN Gateway we had 1,285,089 records published, equal to 1.4% of the entire NBN Gateway's records (Lightfoot, 2014). Most of these were not transferred to the new NBN Atlas, we've been catching up since then and I now estimate we have 341,353 in the **Open Data** datasets detailed above. Of those only 9% lie in the Dipterists Forum collection so if you want a better estimate of usage statistics, multiply each figure in the **Dipterists Forum datasets statistics** table above by 10.

And of course Diptera records are uploaded to NBN Atlas via other means. Local Environmental Records Centres frequently upload them, some drift in from iNaturalist and iRecord, there are historic datasets such as the Invertebrate Site Register and NGOs such as CCW (now NRW) uploaded one of our Field Week datasets mixed in amongst a whole bunch of other records (Howe, 1998) That was back in the day before we set up the Dipterists Forum collection.

The NBN Atlas total for Diptera is now 1,216,932 so they are at around 95% of the total we had 7 years ago. The Recording Schemes + Field Weeks now supply about 28% of that total; down from 53% in 2014 (Lightfoot, 2014.)

"The Atlas should not be seen as being in competition with iRecord; the aims of the two platforms are different." (NBN.) I'm also told that improved Atlas search facilities are being planned.

Fly data-sharing schedule

Though the figures look good, we've still a bit of catching up to do. There's a summary of our Field Week meetings data in Bulletin 81 p12. Since then I've managed to process just one of those missing datasets, the 2002 Inverness meeting. I didn't get all the records from those attending who usually provide stuff, but bear in mind that I did it many years later. There was enough though to provide a decent baseline dataset thanks to several who rummaged back through their spreadsheets.

1. Additional Recording Schemes

We have an additional one or two datasets in the pipeline for adding to the NBN Atlas, discussions are ongoing with the NBN team. Just check our Dipterists Forum datasets on the NBN Atlas from time to time.

If you have a Recording Scheme dataset in spreadsheet format then contact me, I have the detailed methodology for uploading to the NBN Atlas (http://www.micropezids.myspecies.info/node/357) and would be happy to help. If you've records on iRecord too then there's a method for that likewise - contact Martin Harvey as well about them.

2. Older Field Weeks

I'd be willing to have a crack at compiling, collating and uploading other Field Week datasets if anyone still has the data - check the lists in Bulletin 81 & Bulletin 72 p28.

In the case of more recent recording, where you won't have to rummage too far back in time there's this important one:

3. Snowdonia Field Week 2017

An outstanding field week thanks to all the efforts made by the organisers to arrange accommodation and fix up wonderful places to visit. The records are outstanding too, we've received none. In Bulletin 84 (p11) back in 2017 attendees were asked to send their findings to **both Mike Howe and myself**. That way I could monitor what records were incoming. As I've received nothing, presumably neither has Mike.

Organisers of these field weeks go to a good deal of trouble to obtain permissions from landowners and the like to allow us to visit and catch insects on various sites. Though some don't record, which is fine, it's an understanding that Dipterists Forum will provide some feedback in the form of records.

Attendees did a great job on sending in records for Stoke (2018) and a stirling job for Stirling (2019.) Please now dig back a little further and send **us** your 2017 Snowdonia records.

Mike Howe (Michael.Howe@cyfoethnaturiolcymru.gov.uk)
Darwyn Sumner (Darwyn.Sumner@ntlworl.com)

4. Recording Projects

The BRC project to digitise Steve Falk's records

This project was initiated by myself in 2014. We've a few dipterists who eschew the digitising of their own records and the data represented in them are of considerable importance. Steve notably has written books on both Diptera and Hymenoptera and maintains his records in A4 binders.

The project was outlined in Bulletins 78 (p6) & 79 (p9.) I negotiated with Steve, Warwickshire LRC and BRC to get his folders scanned and then passed to BRC where Val Burton was to turn those notes into digitised records.

Steve visited Warwickshire LRC over a period of days (remember he needed them handy as he was writing a book at the time) where the team there used their scanner to make digital pictures of each page. They then passed the scans to BRC - as detailed in Bulletin 80 p5

BRC's Val Burton then began the task of extracting the records from those scans. I reported again on progress in Bulletin 81 (p14) in 2016 when it transpired that 4 of 13 A4 ring binders had been digitised by Val. Further progress was reported in Bulletin 84 (p6.) At which time it seems that the data extraction was sufficient to supply Chris Raper's Tachinidae recording scheme with some useful information.

Since then the only news I had was that Val Burton retired. I did report again on this project in Bulletin 85 p7.

Dipterists Forum knows of a number of individual recorders who don't do digital and whose records could be extracted in this way; lots of important data. We had hoped that this project might serve as a test run for a methodology for them too. In the ensuing time period the number of Steve's folders will have increased.

Since then the organisers of some of the more recent Recording Schemes have also realised that Steve Falk's records are a valuable resource. This project, detailed in 6 Bulletin items (find them at www.micropezids.myspecies.info/node/301) was missed in their correspondence so we were at risk of starting again. It's a good job I remembered it.

If BRC will let us have those scans then we've got the volunteers, including the Recording Schemes.

David Roy contacted me on 23rd November undertaking to investigate the status of this project at BRC.

5. Regional caches

I discovered recently that one region, Devon, has amassed a collection of over 100,000 diptera records. That's a third of the number (341,353) that the Schemes have uploaded to NBN Atlas and 10% of our overall NBN Atlas numbers. According to Rob Wolton these are in Excel spreadsheet format and have been handed over from Martin Drake to Andrew Cunningham. Concerns regarding management and archival security have been expressed, the Devon LERC (DBRC) currently assist with security and sharing. It is proposed that they be uploaded to NBN Atlas, Devon Fly Group will find guides to that process produced for Dipterists Forum at http://www.micropezids.myspecies.info/node/357 and that NBN staff are eager to assist.

I wonder how many other counties have such caches?

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Darwyn Sumner 3/2/2021

UK Centre for Ecology & Hydrology

The Biological Records Centre (BRC)

BRC (https://www.brc.ac.uk/) is part of the UK Centre for Ecology & Hydrology, an independent, not-for-profit research institute. Since 1964 BRC has worked with national recording schemes to make species records available for research purposes. Over the last 56 years the analysis of recording scheme data has contributed to many research papers, and is now used to inform the government's Biodiversity Indicators (https://jncc.gov.uk/our-work/uk-biodiversity-indicators-2020/) as well as wider monitoring of wildlife such as that reviewed in the State of Nature reports (https://nbn.org.uk/stateofnature2019/).

BRC is grateful to the national recording schemes, and to the recorders themselves, who share so much data and expertise. In turn BRC supports many national schemes through the publication of atlases, the archiving and management of data where needed, and the provision of website development and hosting (including the Dipterists Forum website). BRC also supports the mailing of the Bulletin to DF members.

Photography

What Camera?

A fair deal of interest in photography amongst DF members seems to have been generated by items in the last Bulletin, after all it is something to while away the hours when stuck at home. That's certainly something that the popular photography magazines are telling us.

I was apprehensive about my Feature article and its general relevance but gratifyingly it was picked up on by one member who had similar kit and he finished up acquiring the macro flash kit I detailed in the article. Coincidentally he has the same DSLR model as me so we can compare notes now.

That's just one brand of camera and one technique though. Ian Andrews' method (Bulletin 90) has a higher chance of being of interest to a wider range of readers. The Olympus Tough TG-5 which is in the pockets of many DF members can now be picked up second-hand for around £290.

Olympus Tough TG-5 (12 megapixels) A current favourite released in 2017. Pocketable.

Second-hand DSLR systems are also now widely available as folk sell very useful kit in order to move to the mirrorless cameras, so now is a good time to go looking. The best price I could get when I traded in my trusty Nikon D80 was £35, so someone will get a bargain from MPB (www.mpb.com/en-uk/).

Microphotography

Donald Smith contacted me regarding methods for taking pictures down a microscope. He was torn between the USB-type cameras that fit into the microscope eyepiece (along the lines of the equipment that DF take to workshops) and camera systems. So I asked around a few DF members and here are some responses to Donald's request:

John Kramer:

My first sight of a digital camera was on Bardsey Island when Steve the warden put a Nikon Coolpix (E4500 - ed) up to the eyepiece of his telescope and produced an excellent pic of a bird on the shoreline. This was in the evening and as I had been previously battling to get enough light when using film for photomicroscopy I was very impressed. Shortly after that I saw Graham Finch use the same camera down a microscope with similar impressive results, so I bought one. At first I simply held the camera against the eyepiece, then I made a cardboard tube as adaptor, then I bought a commercial adaptor with screw fittings, and I still use that today. I have used Canon cameras at the NHM, but not the usb ones, direct to screen so I can't say anything as to how they compare. I must say that, from seeing just a few, they seem good to me, but it would depend on resolution and the need for enlargement.

Nikon's Coolpix 4500 (4 megapixels). Very popular with naturalists in its day (2002). Not quite pocketable.

You can see some of John's work in the Cranefly newsletters.

Nigel Jones:

Depends what you want to get images of. If you want nice whole fly images then I'd recommend the Olympus TG5 or 6 or whatever number it's reached now. Have a look at Ian Andrews' images on Flickr (https://www.flickr.com/photos/52163027@N02) to see what he achieves with this camera, which has in-camera focus stacking – tremendously useful. If you want good images of small features like arista, leg bristle positions, scutellum etc then you are better with a usb camera on a trinocular microscope. If you don't have a trinocular and will be using one of the eyepieces to take photos down, then look for something that will work with that. It's worth looking at Steven Falk's images on Flickr, as he has actually managed good images of smaller features by holding the TG5 against an eyepiece, so possibly the TG5 might answer all your needs?

Trinocular microscope adaptor. "AmScope CA-NIK-SLR Nikon SLR/D-SLR Camera Adapter for Microscopes - Microscope Adapter "

It has its own lens but doesn't focus the same as your eyepiece. You therefore have to use a camera with a tiltable screen (or stand on a stool.) Focus-stacking starts here (I'm using Affinity Photo)

Pretty as a picture

Having suffered from picture-envy at some of the fantastic fly portraits and close-ups that others are able to produce, I have been stumbling along towards something better. What I had been doing was to position the camera of my iPad above the eyepiece of my binocular microscope – when everything was in just the right place and the ipad perpendicular to the objective, all of which took a good dose of patience, an image would appear and promptly disappear as I fumbled to take the picture. The images produced were not great, somewhat fuzzy flies at the bottom of a dark halo, meaning that each image had to be cropped down to produce something that I wasn't embarrassed to share.

I sent a flurry of emails to those whose fly pictures I had admired and was rewarded with generous, but conflicting advice. The enthusiasts on the Extreme Macro Facebook page stack hundreds of images together to produce astonishingly detailed images, but their cameras and lenses cost thousands of pounds and the processing time is hours; for identification purposes this was overkill. At the other extreme, some people just use their mobile phone camera to produce the sort of images I would be happy with – but that isn't quite a good enough reason for me to get a phone!

Since my microscope was really a trinocular with a place ready and waiting to mount a camera, the obvious next step was to buy a USB camera that would feed straight into the computer. I baulked at the price (£370 including an adaptor to fit onto the microscope) – pretty much what the microscope (a GXM Ultrazoom 1 from GT Vision) had cost. There are lots of much cheaper USB microscope cameras available online but I worried that these might not fit the microscope, what the quality of the software would be and what the quality of the image would be. I was not brave enough to take the risk and so took advantage of a "significant" birthday to be humoured in the fly-fascination of my dotage. While I was at it, I took the chance to add a ring LED for £25, risking the internet for this.

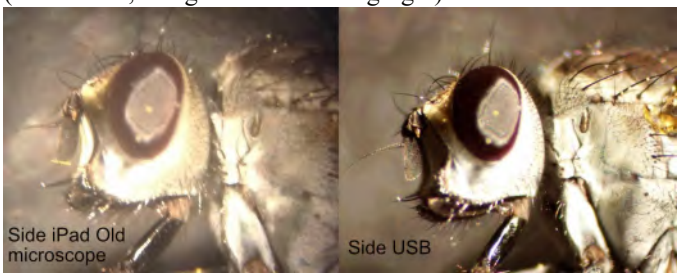
Of course, it wasn't quite so simple – the software would not load onto my computer since I was running on a Linux operating system rather than a Windows or Mac. After several days of frustration trying to work around this, meddling with aspects of the computer that I would rather stayed hidden, I eventually gave up and reverted to an old laptop running Windows. However, this switch-over involved several hurdles too tedious to enumerate, and then transferring over all my fly files to the new computer, not all of which survived the journey. Most distressingly I also had to rearrange my beautifully arranged desk, unscrambling the tangle of cables and lamp leads to swap machines. Eventually, a week of so after the camera had arrived, everything was set up and I was in a position to take some pictures and see what progress I had made.

A fly that I had been excited to come across recently was the muscid *Limnophora riparia* (Fallén) which according to NBN is well distributed over the UK, but with only a few previous Scottish records, only one of which was from this century a record much further north from Murdo Macdonald. This scarcity no doubt reflects recorder effort in Scotland rather than its distribution, but is still the sort of thing to get a beginner excited. In the process of identifying it I had been reassured by comparing my specimen with some beautiful pictures of the species posted on Twitter by Ian Andrews and labelled "An attractive Muscid of spring-fed streams on the Yorkshire Wolds" (https://twitter.com/xylota/status/1093980144828592128).

His method of taking pictures with an Olympus Tough TG-5 using a ring LED and focus stacking was described in the last bulletin.

With my new USB camera and the ring LED installed, all I have to do is slide a lever on the microscope to redirect the light to the camera, and then, after a bit of refocussing and centring to get the image just right, a click of the mouse and the job is done with the file saved straight onto the computer, ready for sharing. However, in comparison to Ian's picture (top left), my USB camera images (top right) are less crisp even for the limited areas that are in focus, similar to the best of what I could get with an iPad (centre left) and frustratingly not as good as what I see looking down the microscope. So overall, I have a slight feeling of disappointment even though I had been warned by wiser heads that this might be the price of taking images directly through the microscope.

Changing the source of illumination did affect the quality of the image, with small steps going from a reading lamp (bottom right, rusty colours, directional, slightly hazy effect), a directional LED (middle right, whiter light, crisp) to the ring LED (top right, bright white from all sides so no shadows). Using a dark background also helped, as did pinning the fly directly into dark foam to avoid dazzle from labels or the plastazote block. Reassuringly, my new microscope produced better images with the iPad than its predecessor, a 70-year old model that I inherited from my entomologist great aunt, the difference particularly noticeable on the visibility of the humeral and occipital bristles (bottom left, using iPad and reading light).



My advice, having gone through this process, is that the hierarchy of things to spend money on would be first lighting (cheap, rewarding), and then the microscope (expensive, but I still haven't got over the pleasure of having a model with continuous zoom rather than having to swop over objectives). Only after that would I start thinking about photographic equipment – and then only if using a phone or tablet camera was proving a nuisance. But the most important discovery I made was how much I resented all the time I spent planning for and then making these small improvements on something rather peripheral to the business at hand – I would rather be outside meeting new and exciting flies and then getting to know them up close! Life is too short for distractions …

Donald Smith

Techniques

Specimen transport

This is a topic which you will find addressed in the Dipterists Handbook but I suggested it as a "Techniques" topic to a number of dipterists and they came up with the following tips:

Laurence Clemons: (pinned specimens)

The main things to consider when posting pinned specimens are that they are firmly secured in the carrier box and that this is contained within the postal box with plenty of shock-absorbent padding. The carrier box should be lined with plastazote as polystyrene does not grip the pins effectively. Provided the plastazote is of sufficient depth it should not be necessary to cross-pin staged material unless there is concern that the stage may rotate. The postal box should be large enough to accommodate the carrier box.

Andrew Cunningham

For posting specimens in alcohol, I use 2ml Sarstedt tubes with rubber o-ring seals in the cap (https://bit.ly/355Rfx4) and haven't had any trouble with the Post Office yet. Being plastic and strong they are safer than glass tubes. I find the Sarstedt tubes to be the best but searching to 2ml o ring tubes on the internet throws up other options.

There are various options one can imagine for posting pinned specimens dependent on the number and size of specimens but one useful option is weekly and daily pill boxes. The attached image shows a four-compartment box from a four-a-day weekly pill box found in bargain stores. Each one has a bit of 6mm plastazote stuck to the base. There is enough room for a pinned specimen and the label. Each specimen is well protected by its own chamber. The whole thing should be taped up as the covers can pop loose in the post.

Some people prefer to receive their specimens dry. Tiny specimens enable a reduction in size and weight for postage. For this, I use Swan Vesta slim filter tips and clear drinking straws (biodegradable of course). The straws are cut up in 5cm lengths then plugged at both ends after inserting the specimen and data label. I prepare several chambers plugged at one end in advance. When these are packed in an A6 jiffy bag, I often only have to pay the standard postage. If you are posting several tubes, it is a good idea to include a stiff sheet of cardboard.

Adrian Plant: (specimens preserved in alcohol)

1. Don't let the fluids leak... NEVER. Leakage is a real fire / explosion / toxicity risk and if detected you will not only lose your specimens, but possibly be detained at HM pleasure. Solvent leakage, even in small quantities is a very serious issue for shippers in this age of terrorism and drug labs (both ethanol and ethyl acetate are used in illicit manufacture of many drugs, especially ecstasy, so incredibly sensitive hand-held mass spectrometers and the like are now used in detection... if you leak, you are very likely to be caught). To avoid leakage, ship your specimens in the smallest volume possible (this will also prevent them sloshing around and becoming a soup of fragments). Most people use plastic screw-cap cryotubes (from almost any laboratory catalogue) of 1-5ml capacity for this. If you have to send large samples (e.g. Malaise trap bottles), then drain away all surplus fluid before you replace and tape down the screw cap plastic bottle. They are safe for several days like this but must be topped up on arrival at destination. Some mass sampling projects have used Eppendorf tubes (1ml capacity) but each one must be firmly taped shut and they need packing very tightly (to limit the chance that the push-on caps will ping off) and wrapped in multiple plastic bags to contain inevitable leakage.

2. There are international rules limiting the amount of ethanol or Isopropyl alcohol that may be shipped. I think the limit is 1L but that needs checking. There is also an International Label standard (I think it is called E17 but far from sure), which if filled in correctly should ensure it gets through.

Sending stuff overseas is becoming even more difficult. So many pitfalls and different regulations and their interpretation. Find out about the regulations but equally important, have your contact in the other country advise you on how the rules are actually applied (this can be important.. I know of one case where type material from a foreign collection incoming here in Thailand was destroyed by Agriculture because they saw the word 'insect' on the parcel.)

Ken Merrifield

In the past I have tried to provide adequate shock absorbent packing around specimen containers when posted, and have been lucky so far when sending specimens. I recently failed to use a sufficiently large box when sending a commemorative mug and it arrived with the handle broken off. I am told that the museum prefers to send specimens by hand when there are major entomological meetings, preferably in hand luggage rather than in an aircraft hold. An unfortunate visitor from

South America had their case stolen at Thiefrow with their laptop holding all the specimen photographs that they had taken during their visit (I would have been more sympathetic if they had made a backup on a USB and it would have been a courtesy to have left copies on the host institution's network). If specimens have to be posted using one of the major courier companies with full time trained staff who understand the importance of careful handling and the impact on the company's reputation if damage occurs. In the case of organisations using self-employed staff or standard postal services the care taken in the delivery depends on the individuals involved. A long time back Alan, as a warning, exhibited at BENHS a plastic 35mm transparencies box that had been used to send him some specimens for identification. Both the box and specimens had been crushed in the post.

I have not needed to send specimens in spirit but if I needed to do so I would experiment with transferring them into glycerol, that should be relatively non-hazardous and being more viscous may reduce the risk of damage. I have seen it stated that data labels that are loose in the container can chop up specimens in transit

Erica McAlister

Spirit and pinned material differ. The former are meant to be double plastic bagged with the middle layer being cotton wool or something similar and these layers are both heat sealed. The vials are glass but no more than 5ml per tube. I am vague on the details but basically they are hermetically sealed in small units. As for pinned, where possible hand carried and cross-pinned to prevent movement. We use both couriers, and the recipient countries postal service (in Brazil you don't use a courier) when this is not possible. And pinned material never goes in hold luggage but spirit material does.

… and this email discussion continued for a couple of weeks.

You can learn more from the Dipterists Handbook or start a topic on the Dipterists Forum's forum.

Traps

Budget emergence traps

On a visit to a camping store two or three years ago, I noticed some simple children's tents and the thought occurred to me that they might serve as cheap emergence traps. Purpose-made emergence traps cost about £80 even for a basic model, so if one needs several, quite an outlay. Last year I was in need of some such traps, to explore the impacts of cattle grazing and trampling on the flies of a wet woodland on the farm. So, I searched the web for a suitable make of tent and selected 'Kombat UK Lightweight Play Kids' Outdoor Dome tent in British Terrain' (i.e. camouflage pattern) as being a likely candidate. After trialling one on the front lawn, I ordered three more. They retailed at £19.95 each, including delivery and VAT.

One of the emergence traps (tents) in place.

Suitably adapted, I found they suited my purposes perfectly. The tents are well made, with a tight weave and close seams, making it difficult for even a small midge to escape, yet the fabric lets plenty of light in. All four remained in good condition after four months in the field. Each covers a square metre of ground (supposedly enough for three kids). Not fully waterproof, they allow some rain to reach the ground during heavy showers and keep it damp.

By adaptation, I mean just cutting out the ground sheet, leaving an internal rim 10 cm wide all the way round. It takes just a few minutes to erect each tent, and to peg the rim securely to the ground, blocking any gaps with sticks, etc. (If one wished, one could cut the rim at the corners, fold each section outwards and then weigh them down with soil, to create a better seal.)

To extract caught insects, I partly unzipped the front flap, wriggled head and shoulders into the tent and used a pooter to hoover up everything. Not admittedly the most comfortable operation, particularly on wet ground – I had to don waterproofs in the wet woodland I was sampling – and care has to be taken not to flatten all the plants inside. I never noticed any escapees as I was doing this, although perhaps a few were lost. Commercial traps usually have a bottle at the top which no doubt makes collecting easier and faster, especially if one is willing to identify wet samples. I doubt, though, that they catch any more – many of the insects I pooted up were not apparently interested in going to the highest point of the trap – some preferred dark shady corners, others spots of sunlight on the tent sides where dappled light fell through the trees. I suppose the comparative effectiveness of traps depends to some extent on the frequency with which they are emptied. I collected the flies, caddisflies, stoneflies, etc, out of mine at three-day intervals. I also moved each trap every 15 days.

Here I'm extracting the flies inside with a pooter.

Certainly, the traps produced considerable numbers of flies (Diptera). Over four months (May, June, July and September), 9,083 individual flies emerged from the ground beneath the four traps. Extrapolating to a whole season (April to October), the wet woodland habitat may generate 34 million flies per hectare each year. I have no idea how this might compare with other habitats – does anyone know? – but it seems an impressive figure to me. Doing the same analysis for craneflies, each ha probably yields about 2.6 million of them, and, taking into account emergence periods, 225,000 Black Snipeflies *Chrysopilus cristatus*, 520,000 *Dolichopus simplex* and over 1.5 million *Lonchoptera lutea*.

As Roger Morris and I have discussed, would it not be useful to have comparative figures available for a range of different habitats, so we can assess their relative productivity?

My thanks to Ken Merrifield and Andrew Cunningham for designing and gifting me examples of their superb pooters for use with emergence tents in this study and a previous one.

Rob Wolton

Illustration

I had the need to paint a couple of illustrations recently. There's only so much you can achieve fiddling about with graphics applications on the computer and a bit of old-fashioned painting seemed to offer a respite from the computer screen.

My gouache & pencil setup in the shed. I always seem to come away from the Patchings annual show with brushes. Medium flats for mixing, small angled flats for painting, 000 size for detail. They can be expensive so do look after them, several changes of water then a soak - but don't leave them for long or the bristles will bend.

The gouches had survived the years reasonably well sealed in their Lock'n'Lock boxes, only a handful needed replacing and what a price they are these days, expect to pay around £5 apiece. It was gouche that was recommended to me by wildlife illustrator Chris Shields when he gave me a lesson many years ago, the opaqueness lets you obtain the dense representative colours.

What are those colours though? What's the basic set you can get away with for illustrating flies and fly bits?

Gouache: For as little as £7 you can buy a simple set which you might want to augment with:

1. More browns: umbers, ochres, siennas and sepia
2. Something to nudge those towards orange, red and amber.
3. Maroon (Perylene maroon) is very useful, many eyes are just this.
4. Tan flavoured yellows: Naples yellow or Yellow ochre pepped up with a bright yellow will cover most needs.
5. White & black (try 1:1::Burnt Umber: Rowney Blue, not black from a tube)

That should be enough for most flies. If you stray into bright hoverflies such as *Xanthogramma* then you'll need to augment with some brighter yellows and green Soldierflies will cause you to dig a bit deeper into your pocket.

Watercolour pencils: Caran D'Ache Aquarelle range are nice but expensive. I've used these a little to soften edges and get some delicate shading. There are cheaper sets around.

Line drawings: You can use all sorts of tricks to get the outline shapes correct, no need to be skilled at drawing. Try sketching them using a separate layer in a graphics program (Affinity Photo) over a photograph. Print the sketch onto a sheet of watercolour paper. Hot pressed 140gsm (Hahnnemüle Skizze) and 190gsm (Bockingford Inkjet/ Watercolour) go through my printer but 300 gsm does not. Then try a splash of colour. As it's opaque, gouche will obliterate those lines, use watercolours or inks if you want them to show.

Watercolours are perhaps a tad cheaper and more portable, though it's harder to add whites.

The images below show the professional illustrator Dawn Painter's watercolour setups: Dawn achieves her blacks using Paynes Grey or Indigo.

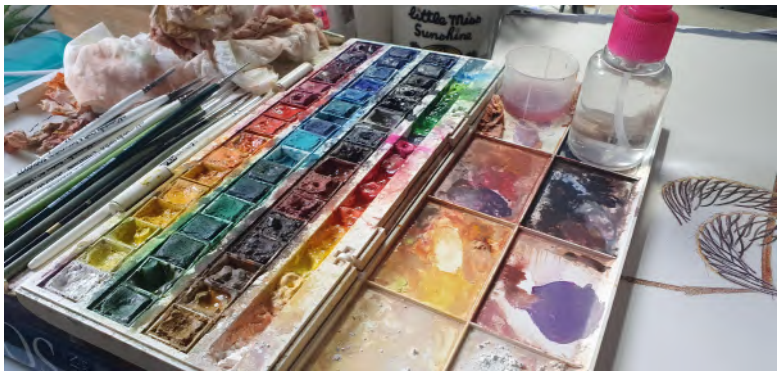
Knowing your onions

There's a section on Illustration in Jeremy Ford's book *The Art of Gouche*. If you can paint a decent red onion, as he describes in detail, then you've cracked the technique. There are substantially more books on painting in watercolour and other media.

Pigmentation in Diptera

Pigmentation in Diptera isn't a subject much written about, I've only been able to find the one article:

Wittkopp PJ, Carroll SB, Kopp A, 2003. Evolution in black and white: Genetic control of pigment patterns in Drosophila. Trends in Genetics 19, 495–504.



The chemistry and genetic basis is what's of interest, these authors speak of black, brown and yellowish tan. There's no mention of reds, ambers and oranges. The Drosophilids are a fairly uncolourful bunch, someone should write a paper or even a book on pigmentation in other Diptera but beyond a few other papers about eyes, that's all there is.

We have had artists (including Dawn) join our Field Weeks, so painting gear instead of microscopes at our next one in Cornwall would be most welcome again, there will be plenty of nice material.

Darwyn Sumner with Dawn Painter

Conservation

Inevitably there are two parts to this section, the Bulletin editors develop topics over a period of time (Conservation topics) and when the report from our new Conservation Officer, Mark Welch, arrives you have the second topic - Conservation News. If you have a topic for us then Mark's the man to tell.

In addition we've usually several accounts of specific diptera species of conservation concern (e.g. UKBAP & Adopt a species in Bulletin 90, p20) but field work has been constrained this year so Mark's had nothing. Hopefully my outline here will be a useful guide to him in the future.

Conservation topics

Global Biodiversity Outlook 5

If you are reading this then you've an interest in Biodiversity. For centuries it has known to be in decline (e.g. von Humboldt, Cosmos, 1843).

Convention on Biological Diversity

This report (https://www.cbd.int/gbo5) is the final multinational summary of the world's efforts to address our continual, accelerating losses.

Though biodiversity loss goes hand in hand with climate change as our greatest existential challenges, it's the latter that gets nearly all the press so downloading and reading this report is how you catch up with what's going on - or should I say what's not going on. It's like the companion book to the David Attenborough documentary "A life on our planet".

It is a summary of all the efforts to achieve the Aichi targets (the Aichi Biodiversity Targets were set as back as far as the Rio Earth Summit in 1992.) We summarised the UK results in Bulletin 89 p3.

Target achievements have been poor overall but some are poorer than others.

> You are helping achieve some aspect of them simply by taking enough interest to read this Bulletin. You are doing far more if you do any recording at any level (iRecord, iSpot, iNaturalist or any of our Recording Schemes or indeed any non-Diptera scheme)

Because the report is the result of countless minds at countless conferences over a long period of time, the topics are superbly well categorised into themes and targets. Consequently many of the wide range of targets can be used to examine the status of our current efforts, one of particular interest is **Target 1: Awareness of Biodiversity Increased (*By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.*)** which the GBO5 report tells us " has not been achieved.

Target 1: Biodiversity awareness

The responsibility for biodiversity awareness falls to the media, some are slacking:

New Scientist

Our subject areas (ecology, conservation, taxonomy etc.) are very low down in their list of priorities for what they consider to be a "science" (Sumner, Aug 31 2012, Letters.NS.) You'll get an idea of how low we are in that magazine if you consider one of the UK's premier science research establishments, the **Natural Environment Research Council (NERC)** which is "*the UK's largest funder of independent environmental science, training and innovation, delivered through universities and research centres*."

Apart from occasional reports on NERC's Antarctic surveys, CEH (the other half of NERC's work) doesn't get a mention*. Biodiversity monitoring just isn't on the New Scientist list. Like taxonomy it's not sexy enough for them.

On 24th September New Scientist set up a kind of "any questions" conference to debate the balance of coverage in their popular magazine in the months to come. I couldn't pose it as a question but I did send them the following for consideration:

Life as we know it (letter to New Scientist, 22 Sep)

> By their very nature many of the sciences which underpin all the disastrously failed (2020 Aichi) targets and perpetually delayed future initiatives do not generate funds. Most of them do the exact opposite as they represent that which is constantly over-exploited - the natural environment. Impoverished sectors such as conservation, biodiversity monitoring, taxonomy etc. as a consequence are under-represented both in their capacity to conduct research and in their publishing in journals as it all costs money.
>
> Stuart Ritchie refers to this kind of rot in his book Science Fictions in his criticisms of most respected journals. "*We focus far too much on rewarding people who have brought in big grants or published papers in prestigious journals, which isn't necessarily getting us what we want." (NS 22 Aug, p36)* In the same issue that the New Scientist editorial agonises over balanced reporting across the sciences, two pages are devoted to "Life on Venus" and half a page to "Life on Earth", the word "catastrophic" is an integral part of the latter but could equally apply to both - for different reasons. Astronomers will be astronomers of course, and ditto other specialists but editors have a responsibility to provide balance across their entire audience; even my small specialist wildlife magazine has received complaints about yours.
>
> There are a host of topics and stories and a multitude of good authors in the natural (life) science sector. Let's see a much wider and balanced range of them in New Scientist. To misquote the philosopher Santayana - "*Those who learn nothing about Natural History are doomed to regret it.*" This is a war we cannot win with business as usual.
>
> Darwyn Sumner
>
> (with thanks to Rob Wolton for pointing this out)
>
> *Shortly afterwards NS published an item on GBO5 and in late January an item on pollinator decline which referred to both CEH and GBIF. Something roused them a little.

Extinction denial

Mongabay report on this at https://tinyurl.com/y6nz53f2 the paper being:

Lees AC, Attwood S, Barlow J, Phalan B, 2020. Biodiversity scientists must fight the creeping rise of extinction denial. Nature Ecology & Evolution.

(Dodo is Portugese for "stupid")

Other reports

For informative reports the following are worth a read:

State of the Environment Report: health, people and the environment Environment Agency

The Environment Agency's report can be found at https://tinyurl.com/yx93wdfw

People and Nature Survey for England

There are also some figures from Natural England at https://tinyurl.com/yxku4eu6

The People and Nature Survey for England: Monthly interim indicators for July 2020 (Experimental Statistics) Natural England

UK Legislation: Planning for Biodiversity's Future

Chloë Smith, writing in GIGL's newsletter at https://www.gigl.org.uk/planning-for-biodiversitys-future/ gives a

summary of the **Environment Bill** which is making its way through parliament. This will affect future legislation with consequences for how the environmental data sector (that's us and the entire National Biodiversity Network) supports planning and nature recovery work in England. Amongst others, LERCs such as GIGL are working on responses to the **Planning for the Future** white paper consultation.

One to keep a close eye on.

WWF: Living Planet Report 2020

Published in September 2020 by World Wildlife Fund

at https://tinyurl.com/yyabetqd

WWF (2020) Living Planet Report 2020 - Bending the curve of biodiversity loss. Almond, R.E.A., Grooten M. and Petersen, T. (Eds). WWF, Gland, Switzerland

This is another major report on Biodiversity loss. It summarises an enormous number of studies into a well-presented document. Definitely one to download and study.

Tree snags

More than 10% of our Diptera fauna depend in some way on trees.

Woodland Trust: England's "Tree of the Year 2020" is The Happy Man Tree, a 150 year old plane in Hackney. It's flagged for felling as part of a redevelopment in the area. Scotland's is a rowan, The Survivor Tree in the Carrifran Valley and Wales' is the Chapter House Tree, a beech, in Margam Park, Port Talbot.

Forestry Commission: Condemned in British Wildlife for planting trees onto threatened habitats (Berrier End Farm in the Lake District). Seemingly the money from Government Grants means more to them than conservation. Miles King's report on this (https://tinyurl.com/y2sg5xrm) points out that the whole process was carried out when lockdown prevented any surveys (though lumberjacks were allowed out.) He also remarks that a contributory factor was problems in accessing the National Soil Database. Odd since this legally should be Open Data yet Cranford University, who administer this dataset, have imposed a "specific licensing agreement" meaning you have to pay.

Comments:

> *an historic culture of perceived ownership of one's data, combined with an environment of competition for funding and access to publication space, serves as a cultural impediment to the adoption of open data sharing practices*

Couture JL, Blake RE, McDonald G, Ward CL, 2018. A funder-imposed data publication requirement seldom inspired data sharing. PLoS ONE 13, 1–13.

> *It is increasingly acknowledged that data created using public funds or for the public good (e.g., environmental monitoring) should be publicly available*

Costello MJ, Michener WK, Gahegan M, Zhang Z-Q, Bourne PE, 2013. Biodiversity data should be published, cited, and peer reviewed. Trends in Ecology & Evolution 28, 454–461.

Darwyn Sumner

UK Pollinator Monitoring Scheme news

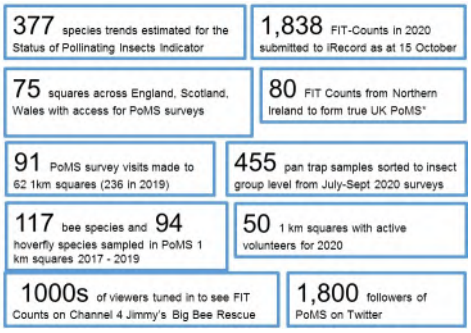
PoMS continued for its fourth year of gathering data on pollinators during 2020. Inevitably survey plans were impacted by the Covid-19 restrictions. However, the Flower-Insect Timed Counts (FIT Counts) can be carried out close to home, and for these we saw an increase in participation, with recorders reporting that they found this a hugely positive means of engaging with nature during the lockdown period.

There were significant gaps in coverage during 2020 for the more intensive pan-trap surveys of 1 km squares. Even so, a total of 91 survey visits were conducted across 62 of our 75 squares between late July and late September. Most surveys were conducted by the PoMS volunteer team, with back-up from PoMS staff. Another strand of PoMS work in 2020 focused on trials with using DNA analysis, carried out at the Natural History Museum, to support identification of the insects sampled (including groups other than bees and hoverflies, which are not routinely identified to species level within PoMS) and also of the pollen that is contained within the samples and within the guts of the insects collected.

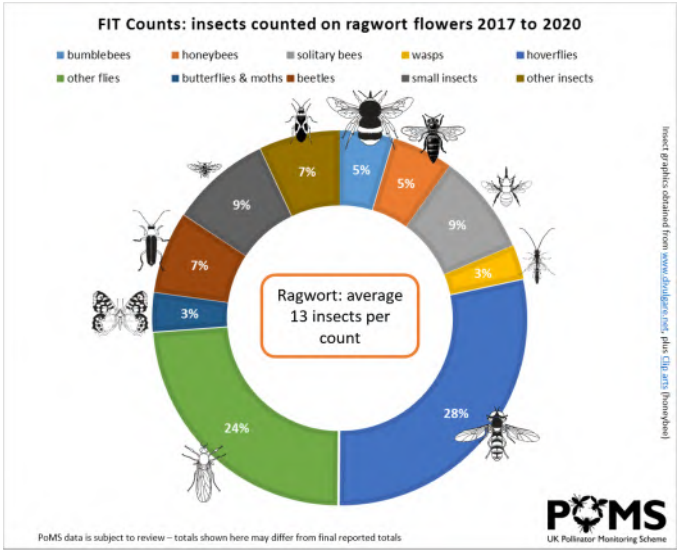
At the time of writing, processing of specimens and analysis of the data collected during 2020 is under way, with a full report due to be published in spring 2021. The data from PoMS is integrated for analysis with data from the Hoverfly Recording Scheme (as well as BWARS and Bumblebee Conservation Trust for the bees) – many thanks to the scheme organisers for making the records available. Plans for 2021 include a new PoMS website and recording app.

We hope to receive even more FIT Counts in 2021, and to bring the 1 km square surveys back up to full coverage across the season. PoMS is hugely grateful to the volunteers that carry out the surveys for us. If you would like to join in either with the ten-minute FIT Counts (at any location with flowers) or with helping us run pan-traps in the 1 km square network, see our website for more information (www.ceh.ac.uk/pollinator-monitoring), or contact PoMS on poms@ceh.ac.uk.

PoMS 2020 in numbers



FIT Count results from Ragwort – popular with flies!



Martin Harvey

Conservation News

"Making Space for Nature – 10 years on" letter to PM

An open letter dated 20th September 2020 was sent to the PM from the Making Space for Nature panel, chaired by Professor Sir John Lawton, and relating to a recent appraisal by the panel of progress over the intervening decade since the 2010 Lawton Report Making Space for Nature. The letter can be downloaded from the Natural England Making Space for Nature blog site. It was concluded that, while some progress had been made, most of the original 24 recommendations of the 2010 review still stand. Furthermore, the letter states that "the last ten years have seen far too little action". For example, the last decade has seen no noticeable improvement in the condition of our SSSIs, and other wildlife sites (Local Wildlife Sites) continue to be lost.

The letter points out that there are three "overarching actions" that need to be taken urgently.

(1) Better protection and management of SSSIs and LWSs. The new Marine Protected Areas need urgent management – they are currently little more than bureaucratic to-do items.

(2) "Deliver ecological restoration at scale". As a central plank of the 25 Year Environment Plan, the 25 Nature Recovery Areas forming the Nature Recovery Network should be established urgently. It is emphasized that the NRAs need to provide large areas (each >5000 ha) of contiguous habitat, and that such a viable connected network is ideally suited to providing "Nature Based Solutions" to climate change and other societal challenges.

(3) "Bring nature to people". The call is for a targeted programme of ecological restoration in and around towns and cities, with all the benefits to mental health, air pollution reduction and water management that it brings.

The panel "see reasons to be optimistic", e.g. the establishment of the Nature Recovery Network on land and sea. The provision of viable and effective incentives to farmers who prioritise public benefits is acknowledged. However, there is "an urgent need for action today", and the panel urged the government to commit a further one-off £1 billion in the latest Comprehensive Spending Review "to make more space for nature". They point out that "the time for leadership is now". After 10 years the drumbeat remains more, bigger, better and joined-up.

Open-canopy ponds in farmland

A paper published in 2020 in the journal Insect Conservation & Diversity (doi: 10.1111/icad.12452) reports the results of a two-year field study of the pollinator usage of small agricultural ponds with variable degrees of management of the tree canopy. The focus of this study was ponds in intensively-farmed arable land at two farms in Norfolk. Such ponds are known to be potentially important as resources for supporting pollinator populations in an intensively-farmed environment. This study provides further quantitative support for this proposition and recommendations for management that optimizes pollinator diversity and abundance.

The project focused on hymenoptera and syrphids. Fieldwork involved setting multi-coloured pan traps and monitoring pollinator activity at flowers by time-lapse photography (two cameras) and by human observation at pond margins. Surveys were carried out one day a month from March to October in 2016 and 2017. Ponds under three different management regimes were studied: (a) unmanaged (UM) for >30 years, overgrown, scrubby with heavily shaded margins; (b) formerly overgrown ponds that were "recently restored" (RR) in 2014 and 2016, involving major removal of scrub and sediment; (c) "long-term-managed" (LM) over several decades by light management of woody vegetation, herbaceous margins, sediment and aquatic plants. Floral surveys were carried out alongside the pollinator study.

A total of 3645 identified specimens was obtained of which 65% were bees/wasps and 35% hoverflies. Twelve species of Apidae and eleven species of *Bombus* constituted 77% of the hymenoptera sampled; the remaining 23% comprised 60 species of solitary bees and wasps. The syrphid component of the pollinator sample (35%) comprised 61 species. The species lists are contained in Supplementary Material which I could not access.

Species richness relative to the management regime was different for hymenopterans and syrphids. For hymenopterans the analysis indicated diverse and abundant assemblages for LM and RR ponds. For hoverflies there was a greater species richness but lower abundance for UM ponds (richness: UM>RR>LM; abundance: RR>LM>UM). Overall, for bees, wasps and hoverflies, species richness was greatest for the RR regime. The results for hoverflies indicate the balance to be struck between managing a habitat for diversity and abundance. The main conclusion of the study was that a hybrid regime with a variable degree of management that preserved structural diversity of the habitat is likely to be the most effective in optimizing pollinator diversity and abundance. Perhaps not altogether surprising, as Peter Kirby in his booklet Habitat Management for Invertebrates (JNCC 1992, 2001) recommended such a management scheme based upon his extensive field experience of surveying invertebrate populations and habitats over many years.

Pollinator monitoring more than pays for itself

A paper by Breeze et al. (2020) "Pollinator monitoring more than pays for itself" in the Journal of Applied Ecology (DOI: 10.1111/1365-2664.13755), and on which Roger Morris and Martin Harvey are co-authors. The motivation for the study was to evaluate the feasibility (cost-effectiveness) of structured monitoring surveys at the national scale (UK) as compared with methods reliant primarily on opportunistic recording by volunteers and amateur specialists. It reports the results of an evaluation of a "meta-analysis" of the effectiveness of four model schemes aimed at monitoring pollinator populations at a national (UK) scale. The model schemes involved structured surveys, rather than relying on opportunistic records. The authors state that models based solely upon opportunistic records, primarily from "volunteers", cannot reliably estimate pollinator abundance, so that there is a need for long-term structured "professionally-led" surveys. It might rankle with some DF members to read in the second paragraph that the authors seem to conflate Citizen Science with volunteer recording. This is an ongoing running sore for dedicated recording communities.

These four model schemes contained variable contributions by professionals and volunteers, including formal verification by "experts" (who could be professionals or amateur specialists). Three components were scored: Records (identification and numbers), Sampling (Methods) and Metrics, e.g. species abundance, species diversity. The only pollinators considered were wild bees and hoverflies. R-S-M combinations were evaluated primarily in terms of their effectiveness in monitoring targeted species and crop-specific species, e.g. *Andrena cineraria* and oilseed rape. Four crops representative of orchards, soft-fruit, protein and arable were chosen (apples, strawberries, field beans and oilseed rape, respectively).

After scoring the inputs (e.g. costs of training of volunteers, costs of professional/specialist supervision of identification) versus outputs (data quality in terms of species identification, species coverage and abundance), equations were used to evaluate the cost-effectiveness of the four schemes. The model outcomes were then compared with three actual long-term studies, primarily of bumblebees and butterflies.

The upshot appears to be that regular, long-term, well-structured "professionally-led" targeted monitoring programs involving both professional and amateur specialists should be very cost-effective.

Endectocide residues and dung invertebrates

In Environmental Toxicology and Chemistry, Vol 39, pp 863-872(doi.org/10.1002/etc.4671) Finch et al. (2020) report a meta-analysis of 22 publications on the effects of endectocide residues on dung beetles. Endectocides are used to control internal and external parasites of livestock, but their effects on non-target invertebrates are a field of very active research worldwide. This study concludes that residues attract adult dung beetles, but few larvae appear due to reduced oviposition and/or high larval mortality. Most significantly, it was found that "pour-on" applications had the strongest effect on reducing larval abundance. The study also demonstrated the deleterious effects of endectocide residues on the wider non-target dung fauna and the consequences of different methods of application. The authors emphasize that it is essential that a standardized investigative method is used for multi-species environmental impact assessments of different endectocide products.

If anybody wants pdfs of these articles, please email me at: m.welch@nhm.ac.uk

Mark Welch

UK BAP **& Adopt a species**

This Bulletin is normally packed with reports regarding the various UK BAP species. Not this year though, no-one's been able to get out to do the surveys.

An opportunity then to summarise this initiative:

Background

The Species Action Plans were discussed in this Bulletin way back in 1999, Bulletin 48 has an introduction to the concept by Martin Drake. Later discussions may be found in Bulletins 58 and 59 by which time Dipterists Forum had their own formal BAP Species Officer, Barbara Schulten who subsequently produced reports, notably in Bulletins 60, 61, 62/3. By 2007 we'd got a list (Bulletin 64) and Barbara began to seek out persons to adopt them; people who were able to monitor these species.

BAP list

1. *Amiota variegata*, The Spotty Sap Fly (Drosophilidae)
2. *Asilus crabroniformis*, Hornet Robberfly (Asilidae)
3. *Asindulum nigrum*, Fen Flower Gnat (Keroplatidae)
4. *Blera fallax*, Pine Hoverfly; this was called 'a Hoverfly' before (Syrphidae)
5. *Bombylius minor*, Heath bee-fly (Bombyliidae)
6. *Botanophila fonsecai*, Fonseca's Dune Fly (Anthomyiidae)
7. *Callicera spinolae*, Golden Hoverfly (Syrphidae)
8. *Campsicnemus magius*, Fancy-legged Fly (Dolichopodidae)
9. *Chrysotoxum octomaculatum*, Broken-banded Wasp-hoverfly (Syrphidae)
10. *Cliorismia rustica*, Southern Silver Stiletto-fly (Therevidae)
11. *Clusiodes geomyzinus*, Pine Heart-Wood Fly (Clusiidae)
12. *Dolichopus laticola*, Broads Dolly-Fly (Dolichopodidae)
13. *Dolichopus nigripes*, Black-footed Dolly-Fly (Dolichopodidae)
14. *Doros profuges*, Phantom Hoverfly (Syrphidae)
15. *Dorycera graminum*, Phoenix Fly (Ulidiidae)
16. *Dorylomorpha clavifemora*, Clubbed Big-headed Fly (Pipunculidae)
17. *Empis limata*, The Borders Dance-Fly (Empididae)
18. *Eristalis cryptarum*, Bog hoverfly (Syrphidae)
19. *Gnophomyia elsneri*, Royal Cranefly (Limoniidae)
20. *Hammerschmidtia ferruginea*, Aspen Hoverfly (Syrphidae)
21. *Idiocera sexguttata*, Six-spotted Cranefly (Limoniidae)
22. *Lipara similis*, Least Cigar-Gall Fly (Chloropidae)
23. *Lipsothrix ecucullata*, Scottish Yellow Splinter (Limoniidae)
24. *Lipsothrix errans*, Northern Yellow Splinter (Limoniidae)
25. *Lipsothrix nervosa*, Southern Yellow Splinter (Limoniidae)
26. *Lipsothrix nigristigma*, Scarce Yellow Splinter (Limoniidae)
27. *Lonchaea ragnari*, The Large Birch Lance Fly (Lonchaeidae)
28. *Myolepta potens*, Western Wood-vase Hoverfly (Syrphidae)
29. *Neoempheria lineola*, Giant Wood-gnat (Mycetophilidae)
30. *Odontomyia hydroleon*, Barred Green Colonel (Stratiomyidae)
31. *Phaonia jaroschewskii,* Hairy Canary Fly (Muscidae)
32. *Rhabdomastix japonica*, A River-shore Cranefly (Limoniidae)
33. *Rhamphomyia hirtula*, Mountain Dance-Fly (Empididae)
34. *Salticella fasciata*, Dune Snail-killing Fly (Sciomyzidae)
35. *Thyridanthrax fenestratus*, Mottled Bee-fly (Bombyliidae)

The list in Bulletin 64 also gave some information regarding locations and conservation concerns. By 2008 Barbara was making appeals in the Bulletin (64) for Adopters and in Bulletin 66 the detailed reports began.

Barbara retired from the post of Conservation/BAP Officer after much valuable work in 2010 and passed the role to Rob Wolton in 2012 (Bulletin 73) which he carried out until 2020 when Mark Welch took up the post.

BAP in the future

Throughout this time the Bulletin editors have managed to accumulate a small collection of images of the above beasts. It's by no means complete and for several species we're obliged to keep using the same ones in Bulletin reports. If you have any pictures then we'd be grateful for the opportunity to add them to our small library.

Salticella fasciata [Photo by jokari on iNaturalist]
The only report from 2020 - see Sciomyzidae Recording Scheme

If you chance across any of the above in 2021 then please let the appropriate Recording Scheme know.

Mark Welch will be compiling the 2021 list, let's hope he receives something this year.

Darwyn Sumner

Review

Open Access

Dipterists Forum publications

Since the publication of an article on this subject in Bulletin #87, Dipterists Forum have made further strides into making our publications Open Access. Indeed that article is one such and can be obtained at https://tinyurl.com/y3xxfvwn

Archives of **Dipterists Digest** and **all Bulletins** (except the latest one or two which are "delayed") are available to download on our website and the latter also at

http://www.micropezids.myspecies.info/node/301

ResearchGate

My attention was drawn to this site way back in 2014 by Paula Lightfoot at our Recorders Conference (Bulletin 81 p11.)

It's a place where you can upload the full text of any article you may have published. That means that it's discoverable (through means such as Google Scholar) by any researcher.

A number of Dipterists Forum authors already do this; according to Peter Chandler "Since we now supply all authors with pdfs of their articles they are free to send them to whoever they wish and to make them publicly available, including uploading them to ResearchGate. An example is Daniel Whitmore's article on *Sarcophaga bulgarica* in the latest issue, which is already available for download from ResearchGate."

It can be quite a treasure trove if you are looking for published articles on a particular topic or for a particular species. It's surprising how much interest there is across the world in items you might have thought to be of interest only in the UK. For example the 2019 "Deadwood & Diptera" feature is popular in Germany.

Technology

Software

I've always been a fan of software from the Corel stable. My old Paint Shop Pro is a relatively simple picture editor which I've used a lot to clean up copied line drawings and so on. After buying their VideoStudio recently (something to play around with editing videos taken on my camera) they notified me of a huge reduction on their latest Paint Shop Pro and for a mere £31 I've got that too now. Better at some tasks than Affinity Photo and I especially like their built-in navigation panel, though it's careless with some metadata when copying.

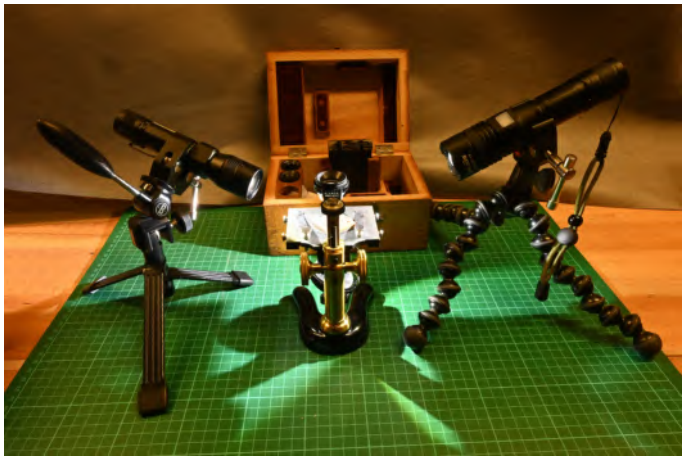
Equipment

Lighting

It's some time since the Bulletin took a look at the potential of white LED torches to augment lighting under the microscope, for studio macro photography setups or for general close-up work.

One thing that's always proved elusive is some means of clamping the torch in position for these tasks.

I finally sourced the ideal gadget for this. Search for "Camera Clamp Mount 2Pack" from ChromLives. Basically a mini ball head for a camera plus a sturdy clamp with a tripod mount which will hold your torch. Bung this on a mini tripod and you've got a compact stable light source. For £17 you get two sets.



Two modern LED torches affixed to mini-tripods using the ChromLives clamps. Centre is the tiny Leitz No. 48 Dissecting Microscope (1955)

There is a huge range of small powerful LED torches available online these days, just beware of the irritating cycle of lighting modes and the magnets near your pins and forceps.

Dissection kit tips

Speaking of which, it's possible to obtain a nice set of inexpensive forceps these days which are very suitable for work under the microscope and manipulating diptera bits and pieces. These come from the "beauty" trade, just search for "eyelash forceps" and you will find sets of 6 to 8 black handled forceps that fit the bill.

Ken Merrifield tells me that a search for "decoupage scissors" will also locate an inexpensive pair of spring-operated micro scissors which usually cost a lot if bought as a surgical instrument.

Hand-held GPS

Several of us carry one of these in the field in order to record Grid-references, some may use their mobile phones.

The most convenient way to transfer geospatial coordinates to a series of photographs is to record Tracks rather than individual waypoints. For track recording you simply turn the GPS on at the start of the day, making sure that tracking is enabled, then turn it off at the end (or when you move from one site to another).

To geotag your photos afterwards you simply use a feature in Garmin's Basecamp to match the track to the times recorded in your image files.

Not all Garmin models have the function to record tracks. The one I've been using for some time has been their Montana 600. Lately I've been trying to reduce the weight I carry around and spotted their recent eTrex range. The eTrex 22x is half the weight and size of the Montana, it's got a smaller screen and is button operated (rather than screen.) It's about the size of a fat granny phone and easily slips into a pocket. No excuse any more for finding a batch of photographs and wondering where on earth they were taken.

Scanners

I suspect a lot of us possess a scanner in some form or other. I've worked my way through at least three. Nowadays it's hard to find a printer which doesn't have a scanner built into the lid. My purpose was to try to address the ever-growing piles of paperwork and to try to put this material close to hand by having them as pdfs on my computer. It turns out to be a tedious task, there's little likelihood that I'll ever work my way through all my old woodworking magazines so they still kick around filling up bookshelves. Published papers are a different matter

though. Instead of having to rummage through filing cabinat drawers every time you want to build up a reference list for anything you are writing or want to look up, an organised set of pdfs is fast and searcheable.

We've a couple of examples of scanner woes in this Bulletin. Steve Falk had to traipse to Warwickshire LERC a few times to get his notebooks done. Phil Brighton took DF material to Liverpool's Tanyptera team. (Secretly both had a good time socialising.)

I've got my own scanner, maybe you would be interested in doing the same. Sure it's a tedious and long-winded job but it's a very useful gadget once you've got on top of a particular project. Mine in the main are photocopied papers relevant to my Recording Scheme + odd pages from books where the morphology diagrams are useful to have on-screen.

Cheapest option would be a scanner incorporated into a printer, it's worth thinking about a replacement printer these days as some are designed to use much cheaper inks. Expensive option is a proper book scanner (British Library use these kind of things) such as the Plustek Opticbook which can be had second hand for as little as £50, new models up to £350. This range scans right to the edge so that you can fold a book over the corner rather than trying to force it flat.

And of course if you're any kind of artist, a scanner is a must-have, it's way cheaper than a camera copying stand and it's utterly free of any kind of distortion. Flat bed scanners can do your old transparencies too but in this case it is best to use a camera, stand and good macro lens.

Treat youself to a spring clean of those groaning shelves and filing cabinets.

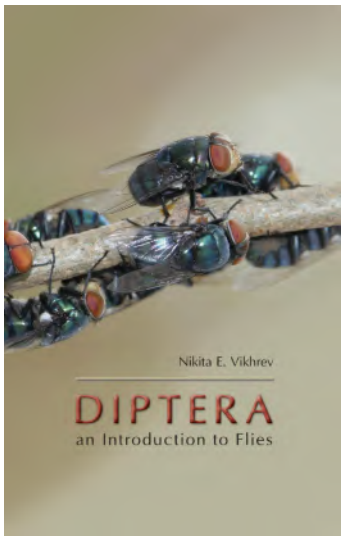
Books

Diptera

Diptera: An introduction to Flies

Nikita Vikhrev

NHBS. £14.99



If you are a regular visitor to Diptera.info then you'll be familiar with Nikita Vikhrev. He's one of the ever-so-helpful chaps who will identify pictures posted on there. He's a professional dipterologist who curates Diptera collections at the Zoological Museum at Moscow University. With the help of Tony Irwin this book has been translated from the original Russian. Well illustrated, it's full of humorous and curious anecdotes and is arguably the best little introduction to flies you could find.

Darwyn Sumner

Habitats

Britain's Habitats. A field guide to the wildlife habitats of Great Britain and Ireland. Second edition.

Sophie Lake, Durwyn Liley, Robert Still and Andy Swash

WILDGuides. Published by Princeton University Press. 2020 416pp RRP £24.99

If, like me, you find it difficult to decide whether the habitat where you caught that interesting fly was a bog, a mire or a fen, this is a book for you. The first edition of this WILDGuide was published in 2014 and reviewed by Rob Wolton in Bulletin 79. I came across his review a couple of years ago but by then the book was already out of print, so I was pleased to see a second edition was due in 2020. The structured format with plenty of illustrations will be familiar to users of other books in the WILDGuide series. A main introduction covers general aspects of habitat formation, classification and succession. The rest of the book is then divided into nine main categories (such as woodland, wetlands and grassland). Following a brief overview these habitats are divided into sub-types, each with 4-6 pages of specific details (such as typical flora) and a discussion of relevant conservation and management issues. Useful photographs illustrate examples of these sub-types, along with some of their associated flora and fauna. The text is clear and informative. A set of tables at the end of the book explains how the habitats described in the book relate to UK BAP priority habitats and to commonly used classification systems such as the NVC.

I look forward to using this book to improve my habitat descriptions in my records. Hopefully, restrictions will be reduced in 2021 allowing me to venture further afield than my garden and nearby footpaths. Although intended as a field guide, at 400+ pages (almost twice the length of the first edition) this book weighs a hefty 950g. As I like to travel light, I'm not sure it will find a regular place amongst my field kit. I'm more likely to use it as a reference book at home, but this should encourage me to take better notes and habitat photos. It will definitely accompany me to the DF 2021 field meeting in Cornwall.

Jane Hewitt

Springs & Flushes

Averis A, 2003. Springs and Flushes. Scottish Natural Heritage.

Worth having in your collection, free download at https://tinyurl.com/y3rh8wyw

The Book of Fly Paper

Kenneth Horne, 1963

Marvellous! Once you pick it up you can't put it down.

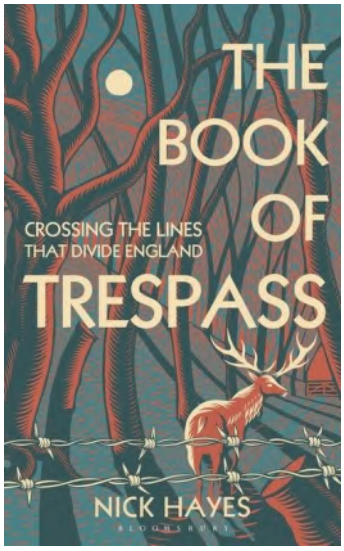
Darwyn Sumner

Countryside Access

The Book of Trespass

Nick Hayes

Bloomsbury, guardianbookshop.com £17.40.



In this book Hayes turns the concepts of poacher & gamekeeper on their heads, portraying the poacher as one dispossessed from their land and the gamekeeper as a hired thug. So be warned that this book is very politically charged. Hayes presents his material via the tales of a mild-mannered artist wandering around with his drawing equipment and intersperses this with background information on a variety of topics, providing us with some excellent linocut illustrations as he proceeds. He's a chum of "Who owns England" author Guy Shrubsole so as you would expect there's a lot about land-ownership and how it became "owned" in here. Interesting and relevant reading for us field naturalists in the first couple of chapters but trespass is interpreted in its widest possible sense so later chapters, though of general interest, move into different realms of dispossessed peoples.

Visit righttoroam.org.uk

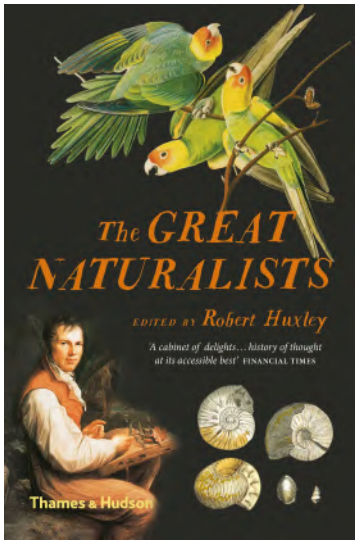
Darwyn Sumner

Historical

The Great Naturalists

Robert Huxley (editor)

Thames & Hudson (Waterstones £10.99)



The writing in this book from the Natural History Museum can be a little hard work in places, in others you almost feel you'd met the person.

There are many impressive stories in this compendium of accounts by a host of different authors. Pick your favourites. As an explorer mine would be von Humboldt and as a taxonomist (because he did so much on sorting out the insects) I'd pick Fabricius who was a pupil of Linnaeus. An impressive list here and an eye-opener regards subjects like the impressive French contribution (e.g. Comte de Buffon, Lamarcke, Cuvier)

Sadly we've none like them today. I say that with confidence as a common thread seems to be a privileged and well-resourced background. If they came back today then the most popular one would be Joseph Banks who was enormously rich (annual income £6000 in 1764 = £614,000 today), we could use some rich obsessive naturalist patrons these days. A sponsoring king or two wouldn't go amiss either (von Humboldt). How much potential did we miss because bright sparks from those eras were just too poor? You've just the one clue of Thomas Edward (*Life of a Scotch Naturalist* by Samuel Smiles.)

A useful reference book to have on your shelves.

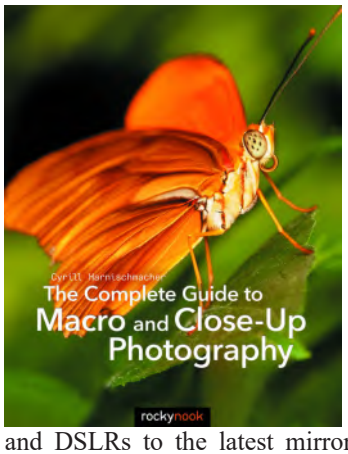
Darwyn Sumner

Photography

The Complete Guide to Macro and Close-Up Photography

Cyril Harnischmacher

Amazon £18.49.



Most books on macro photography trot out the same tired useless tips. So it's rare to find a truly useful book on the subject, this comes top of my list of finds. Harnischmacher delves into a wide range of topics begiining with useful theoretical information regarding things like depth of field and magnification. He reviews a number of camera types, ranging from compacts (which will do close-up but not true macro) through bridge and DSLRs to the latest mirrorless. The section on lenses is comprehensive and he delves into close-up lenses which can be screwed onto the filter thread and into teleconverters, extension tubes, reversing rings and bellows.

The subject of lighting is explored in detail, Harnischmacher considers a range of approaches, from ring lighting and ring flashes through to portable twin flash setups and various kinds of studio lighting and lightboxes. Studio setups are of particular interest as he employs classic theories of studio portrait photography to scale everything down to the needs of the macro photographer. Remote controls are also covered, of interest to those who might wish to try trigger traps.

The issue of field craft is difficult for any writer as techniques differ so greatly across the disciplines. Though the author avoids the usual "heavy 200mm lens + tripod" typical of bookzine writers he does have a stab at some methods. The stability of various stances are discussed though a walkstool and kneeling pad would make more sense than cushions and a bean bag. Few of us are the athletes we once were, so considerations regarding gear weight and portability would have been a valuable inclusion.

Insects feature a lot in this book but he also delves into ideas for indoor studio work such as food and other small objects. If you've an interest in fungi then there's also a section by Stefan Dittman on this particular topic.

Focus stacking, one of our favourite subjects, is covered too, although Affinity Photo doesn't get a mention in his list of suitable applications. There's a whole section on this by Jan Metzler who shows head shots of hoverflies nearly as good as Malcolm Storey's.

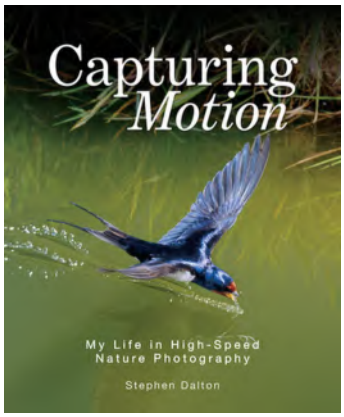
The book is lavishly illustrated throughout. A real temptation to spend on photographic accessories … now where can I find an inexpensive set of bellows?

Darwyn Sumner

Capturing Motion

Stephen Dalton

NHBS £24.99



Dalton is as inspiring now as he was ln 1975 when we all bought his "Borne on the Wind" book in which he captured still images of a range of flying creatures, particularly insects. For those of us with cameras his achievements were always something to aspire to and for 3 decades hadn't a hope of even getting close.

Many were inspired to try macro flash techniques using DSLRs, some achieving impressive results using Heath Robinson arrangements of rails, grips and wires. Interest in that kind of setup reached a peak in around 2005 when Nikon produced their wireless macro flash kit and Canon their wired one. Both allowed macro photographers to take gear out into the field.

In his interview in Amateur Photographer Dalton opines that recently, developments in camera design have brought us to a point where this kind of work might be achievable by keen insect photographers.

For us, crisp images of insects in flight are still achievable only rarely. Mostly, modern macro flash gear will net you a nice shot of some non-sessile invertebrate. Sap runs are a favourite place to try. Harnischmacher (above) is full of ideas about how to set about this.

How Dalton did so back then is detailed meticulously in this book. From his early attempts in which he had to develop high output flash systems to freeze wings of flies (1/25,000 second) through innovative shutter designs and escape boxes to force insects to fly across detectors which fired the shutter this is a fascinating story with numerous amazing pictures.

A keen naturalist, Dalton worked with famous entomologist L. Hugh Newman. Scattered throughout the book are a handful of significant quotes: "*helping to preserve what is left of it.*", "*unaware at the time of the enormous damage that humans were insidiously wreaking on Earth and the life on it.*" and "*...an increasingly important driving force behind my work is the need to convey to others some of the excitement and exquisite perfection of natural life in this vanishing paradise of ours.*"

This is in a classic coffee table book style, page after page of big amazing pictures, each with details of how they were achieved. You wouldn't want to attempt the older methods unless you went back to using film cameras but the modern stuff with digital DSLRs and mirrorless cameras look just about possible - maybe.

Inspiring again, 45 years later.

Darwyn Sumner

A rare flash of luck: *Baccha elongata* Darwyn Sumner

Collecting

Review of "Comment: Take nothing but photographs ... time for a reality check ?"

British Wildlife Volume 32(2), pp 118-124 (2020)

by Roger Morris

In this "Comment" article Roger addresses a key issue relating to taxonomy and the recording of biodiversity - the taking of voucher specimens using lethal methods. It is set within the context of rising concern in the public and amateur communities about collecting specimens per se, and the rapidly growing interest in photographic recording. Contrasting with this perception is the bleak picture of the parlous state of support for taxonomic research in our academic institutions, which is also an indication of the devaluing of such science by official bodies. As Roger is a professional entomologist, he evaluates the pros and cons through the lens of invertebrates, specifically Diptera in this article.

While many DF members will be familiar with the background and arguments surrounding the lethal/non-lethal issue (it would be interesting to know the proportion of members who use lethal methods), publishing such a thought-provoking paper in a popular, well-regarded natural history journal aimed at field naturalists as well as "professionals" is very worthwhile. The article is well-balanced, while making a strong and urgent case for the need to safeguard and, in many cases, to advocate voucher collection for certain groups of invertebrates. The perceived dilemma (killing versus conserving) is recognized and concerns about killing specimens are acknowledged. However, in regard to the need for specialists (i.e. lethal methods), the point is well-made in section on "**Taxonomic rigour**" that conservation bodies, by restricting or banning specimen collection are, in effect, sawing off the branches they are sitting on.

The limitations of photographic evidence for identification are illustrated by reference to the UK Hoverfly Recording Scheme (HRS), which Roger manages with a dedicated team of specialists who verify records, now predominantly from photographs. However, only two-thirds of the UK syrphid fauna can be reliably identified from photographs. Views of subtle or cryptic features are seldom available from photographs, e.g. the tufted tubercle on the hind femur of male *Parhelophilus frutetorum* (which can, nonetheless, be seen with a x10 hand lens for a specimen in the hand). The example of *Eumerus* spp is given to indicate the need for close inspection of sternites and exposure of male genitalia for correct identification. Several informative graphs show the coverage of records from the HRS, from which it is clear that difficult tribes (Bacchini, Chrysogastrini, Cheilosiini) are significantly under-represented by photographic records.

In the section "**Don't forget the positives**", Roger highlights the significant successes of the non-lethal (primarily photographic) approach vis-à-vis the HRS – high numerical, spatial and temporal coverage of relatively common and easily identified species, nonetheless amounting to a significant proportion of the UK syrphid fauna (two-thirds). As Roger and Stuart Ball have shown in numerous high-profile published papers using the HRS

database, such coverage allows potentially significant inferences to be made relating changing phenologies and distributions to, for example, climate change. The examples Roger gives are enlightening and well-deployed. It was interesting to learn that almost all records of *Cheilosia caerulescens* are photographic – perhaps a consequence of its recent appearance in the UK and its concentration in urban habitats (lots of photo opportunities).

A subtle point that Roger alludes to about accruing large databases, such as the HRS, is that statistical methods can be used to assess recorder bias, although this would still seem to be in its infancy for Diptera. He mentions the use of "occupancy models", but I am still unclear about what these are and how they are used in relation to recorder bias.

The sections "**Imperfect detection**" and "**Detectability is more than presence/absence**", concern the importance of voucher-based recording of difficult fly families by specialists in the context of the seemingly inexorable decline of taxonomy and its effects upon gaining a comprehensive register of biodiversity. With regard to the use of lethal methods, Roger makes the important point that building a personal reference collection of verified specimens by those wishing to develop their skills further has considerable didactic value. He argues that it is by accruing such skills and reliable knowledge that future specialists arise – a key theme of the paper, given the decline in professional taxonomy. All specialists on the HRS use lethal methods.

There is no discussion of Malaise-trapping, vacuum-sampling or other "indiscriminate" mass-sampling techniques, which might be perceived as troubling by some, although primarily used by professionals, often under license. How, for example, should we deal with by-catch which can span several insect orders ? There is also the issue of sampling "biomass" with identification only to family or, occasionally, genus level. For example, the important 27-year German study (Hallmann et al. 2017: PLOS ONE doi.org/10.1371/journal.pone.0185809), which provided critical, and shocking, quantitative insight into biomass loss among aerial insects.

The section "**Application and implications**" is hard-hitting and Roger does not pull any punches. He recognizes that while significant progress has been made with recording "photogenic" fly families and those for which there are good identification keys, with little need for genitalia preparation, there are many families (some quite species-rich ones) for which recourse to taking vouchers for microscopic examination is necessary.

It is pointed out that a ban on voucher collection (i.e. effectively a ban on specialists) for NGO-funded studies or sites administered by NGOs such as the Wildlife Trusts, will likely result in a serious loss of reliable information about biodiversity, with the consequence that the decision-making by NGOs and government will be based upon fundamentally less-reliable, if not flawed, data, e.g. the **State of Nature** reports. It would also send out a strong signal to the public that use of lethal methods is frowned upon by conservation bodies - a regrettable state-of-affairs that would lead to further stigmatization of those using such methods.

In the final paragraph, Roger issues a challenge to the effect that if we use lethal methods, then we should ensure, whenever possible, that vouchers convert into records. That challenge is sobering to contemplate for those of us who use such methods.

Mark Welch

Radio

Comedy

Rob Newman's Half-full Philosophy Hour Episode 1 (of 4) : 3000 years of bad ideas

Rob Newman

https://www.bbc.co.uk/programmes/m000n5yy

Comedy can be the most truthful route to an understanding of a situation (Steven Fry.) One good way to change dumb ideas then. I've incorporated some irony and humour in the pages of this Bulletin but this fellow Nestle boycotter takes it to a whole new level with his ridiculing of the anti-nature culture currently plaguing society.

Good timing too, only a couple of weeks after I attempted to put New Scientist to task over their obsession with Planet B (i.e. life on other planets being more worthy of their attention than life on this one) he dives in with numerous incisive exposures on the topic. Newman is the writer of the "No Planet B" show (script at https://tinyurl.com/y4zq9vyf) and he's done a handful of books on other topics. Hopefully he'll consider one on nature-denial.

Episode 4: What is a City for?

This one was good too. It began with the issue of the "Abolition of Children's Rights", not the the same comprehensive range of causes of nature-deficit-disorder as detailed in Richard Louv's "Last Child in the Woods" (see last Bulletin) but more a diatribe about the way that the motor car has excluded children from pretty well everywhere whilst at the same time polluted their lungs with diesel particulates. The next generation of naturalists have some extraordinary hurdles to surmount to even get out and observe wildlife.

Brainless of Britain

In the semi-final of Brain of Britain on Radio 4 the four contestants were asked to identify which group of insects *Volucella* and *Syrphus* (and one or two others which I've forgot) belonged to.

All four got it wrong, we had beetles and bees as answers.

That's maybe forgiveable but not the response from the host Russell Davies:

"Not many people record hoverflies"

Be aware that as BBC broadcasts are contemporary they may be factually incorrect.

Techniques

Fantail Phenology - rules

Nice to see one of Dipterists Forum's pioneering techniques in use in a Dipterists Digest article:

Ball SG, Morris RKA, 2021. Recent range expansion in British hoverflies (Diptera, Syrphidae). Dipterists Digest 28, 59–87.

If you want to know how to interpret them and how to construct your own in Excel they are described in Bulletin 86 p6 and detailed in

Sumner DP, 2018. Phenology and Polar Area Charts (Fantail Phenology). Dipterists Forum Report C (5), 8.

www.micropezids.myspecies.info/node/294

and also on FSC at tinyurl.com/26t9pakn

NBN are considering it for use on the NBN Atlas too.

Darwyn Sumner

Members

Membership Matters

By mid-December 2020 we had 484 paid-up members and 417 subscribing to the Dipterists Digest. We have received new subscriptions from 96 people this year, an unprecedented number. It is not clear whether this is as a result of improved publicity or the Covid lock-downs, probably a combination of both. This is a very welcome increase as it it not only spreads the word about Diptera but also spreads the cost of running the society. The downside has been that we have run out of hard copies of some of our journals as our normal buffer stock did not prove to be sufficient. It does help us greatly with planning print runs if members can pay their subscriptions in the first three months of the year. Subscriptions fall due on 1st January each year. Late payments after March do cause extra work for us in distributing back numbers. I am happy to answer any email queries about subscriptions if you are not sure you have paid.

All subscriptions, changes of address and membership queries should be directed to John Showers at:

103, Desborough Road,
Rothwell,
KETTERING,
Northants,
NN14 6JQ
Tel.: 01536 710831
E-mail: showersjohn@gmail.com

Membership and Subscription Rates for 2021 are unchanged:

Members and Subscribers are reminded that subscriptions are due on 1st January each year. The rates are as follows:

UK

Dipterists Forum: £8 per annum. This includes the Bulletin of the Dipterists Forum.

Dipterists Digest: £12 per annum.

Both of above: £20 per annum

Overseas

Dipterists Forum and Dipterist Digest: £25 pa.

There is only this one class of overseas membership. Payment must be made in Pounds Sterling.

BANKERS ORDER PAYMENTS

You can set up a banker's order or bank transfer to pay the subscription via online banking using the following details:

Dipterists Forum
NatWest Bank
Sort code 60-60-08
Account no. 48054615

Please add your name to the payment reference or we will not know from whom the payment was made.

International payments should use:

IBAN: GB56NWBK60600848054615
SWIFT: NWBKGB2L

Alternatively you can send your bank the banker's order mandate form, which can be found on the DF website. This form explicitly states that it cancels previous payments to Dipterists Forum.

OTHER PAYMENT METHODS

Cheques should be made payable to:
"Dipterists Forum" and sent to the address above.
PayPal payments can be made to:
dipteristsforum@outlook.com
or through our website:
www.dipterists.org.uk

Please e-mail me to let me know when you pay by PayPal unless you do it via our website, which automatically emails me.

John Showers

Meetings

Regional Groups

Devon Fly Group

We met up in the first week of March for our annual indoor meeting at the Devon Wildlife Trust's **Woodah Farm** blissfully unaware of how the country was about to be turned upside down by Covid-19. Ten people turned up for the meeting which was kicked off with a presentation by Rob Wolton on rearing flies from rot hole material from various tree species. Richard Lane also discussed methods of rearing from fungi. Martin Drake provided a well structured argument on the masculine/neuter status of *Syntormon* (Dolichopodidae). Andrew Cunningham gave an overview of species from baited bottle trapping in a suburban garden throughout 2019. Richard added another discussion of his study of *Atrichopogon* & other tiny flies on Iris flowers at **Slapton Ley**. Several impressive photographs were also shared for identifications or confirmations. The top three prizes of this year's highly anticipated DFG Fly Bingo were shared by Dave Boyce, John Walters and Rob Wolton which involved a bottle of Blandford Fly ale each and chocolates.

We had to forgo our April and May field meetings because of the essential Covid-19 lockdown but were able to go ahead with the rest in accordance with government Covid rules as well as common sense. The only major adjustment was changing some venues to minimise travelling for all. These meetings were a rare chance during the pandemic for friends to get together and chat about flies and exploits. They were also appreciated opportunities to generate valuable records and perhaps see new places and species. We missed having Andrew Cunningham and Geoff Foale with us at many of the meetings due to sheltering limitations.

Our first meeting, in June, was in **Ashclyst Forest,** a large National Trust woodland complex not far from Exeter. Although mostly long-established broadleaved plantation, the wood has a stream or two cutting through it, some generous rides, and best of all an area of wood pasture with occasional veterans. Interesting finds include the muscid *Phaonia gobertii* ovipositing on an oak sap run, the Nationally Scarce lesser house fly *Fannia pauli* and the biting midge *Atrichopogon winnertzi*, a species that feeds on Meloe oil beetles. Nicola Bacciu found leaf mines of the uncommon agromyzid, *Phytomyza brunnipes*, possibly new to Devon, on Sanicle, while James McGill made probably the second county record for the money-spider *Meioneta mollis*, a curious species, occurring as it does either in calcareous grassland or acid wetlands. Four 10km squares meet in Ashclyst Forest. This means that theoretically it is possible with one big circular sweep to put loads of dots on a distribution map. Some of us had a happy few minutes indulging in this fantasy. We might have succeeded if only our GPS devices had agreed on the epicentre….

Two meetings were held in July and the first was a midweeker at **Knightshayes** (National Trust) near Tiverton in Mid Devon. It was a chance for local boy, Andrew Cunningham to catch up with a few members. Knightshayes is quite a large park and the group took in a woodland recently cleared of conifers, a series of seepages with associated flora, two ponds linked by a runnel, parkland (with sheep) containing a broad range of veteran trees and associated deadwood. A few sap runs are present but they were dry on the day. A hundred and eighty-four species have been recorded at the time of writing. Highlights include *Camilla flavicauda* (Camillidae), *Clusia tigrina* (Clusiidae), *Pseudolyciella pallidiventris* (Lauxaniidae), *Odinia boletina* (Odiniidae), *Eudorylas fuscipes, E. zonellus* and *Verrallia aucta* (Pipunculidae). Andrew has recorded several sphaeroceridae at Knightshayes but today only *Copromyza stercoraria, Ischiolepta pusilla* and *Lotophila atra* were found since he left his trusty hand vacuum at home. Eleven species of soldier flies were recorded collectively with the notables being *Beris fuscipes* and *Oxycera rara*. Dolichopodidae were well recorded thanks to Martin's admirable competence in finding them and a few were *Chrysotus laesus, Diaphorus occulatus, Lamprochromus bifasciatus, Medetera dendrobaena, M. impigra, M. jugalis, Syntormon fuscipes, S. monilis, S. silvianus, S. sulcipes* and *Systenus leucurus*.

For our second meeting in July, we went to a new Devon Wildlife Trust reserve, **Horsey Island**. Here, following an unplanned breach in the sea wall a few years back, a large area of former grazing marsh now floods with each high tide. This had resulted in large expanses of mud with fringing pioneer saltmarsh. It was a chance for us to discover which flies have already colonised the reserve and to establish a baseline for the future surveys. Flies were rather hard to come by, but our finds still included two Nationally Scarce saltmarsh specialists, the hoverfly *Platycheirus immarginatus* and the dolichopodid *Poecilobothrus principalis*, the latter being known from only one other site in the county. Another Nationally Scarce doli *Aphrosylus mitis* was swept on the mudflats, this is a maritime species whose larvae probably feed on barnacles! The canacid *Tethina grisea* was recorded for the first time in Devon and the distinctive *Fannia lucidula* (Fanniidae) for the second time.

In the afternoon the group split, one half to the adjacent and superb sand dune system of **Braunton Burrows** and the other to new hunting grounds, Chivenor grazing marshes. These marshes lie on the other side of the Caen estuary from Horsey Island which itself abuts Braunton Marshes. Here too, at Chivenor, we found *Platycheirus immarginatus* and *Poecilobothrus principalis*. Rob Wolton was pleased to find no less than three species of the muscid genus *Lispe* on the muddy fringes of ditches and creeks, one of which, *L. litorea*, was a new county record. A week or two later, the spectacular and large soldierfly *Stratiomys singularior* was encountered by Philip Sansum and John and Mary Breeds at Horsey Island and at Braunton Burrows respectively. This was last recorded in the county at Braunton Marshes in 1990. It is typically associated with brackish ditches and seems to be spreading in southern England. Had it hung-on in the Braunton area, or recolonised?

Thereva nobilitata on Braunton Burrows, July 2020. (Mike Ashworth)

Arlington Court is a National Trust property just a twenty-minute drive north of Barnstaple in North Devon. The grounds consist of grazed cattle fields with a few scattered old trees and some fallen trunks in a good state of decay. Beyond this was an attractive valley with damp woodland which appeared to be full

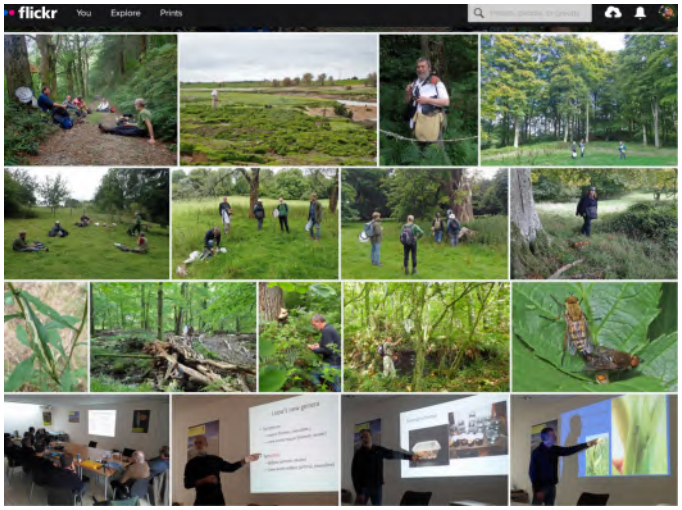
of promise. Sadly, the weather was against us and the day was dominated with rain throughout. Despite this we persevered and recorded a small list of species including *Drosophila confusa* on Bracket fungi, *Rhamphomyia sciarina, Phytoliriomyza melmpyga* leaf mines on Himalayan Balsam, *Exechiopsis fimbriata* and *Tipula irrorata*. We hope to revisit this site another day under more clement weather conditions.

In 2019, the Woodland Trust and National Trust completed the joint purchase of **Ausewell Woods** which is a substantial block of ancient woods lying in the valley of the river Dart on Dartmoor. It is not yet open to the public, but we were kindly given permission to visit in September. Much of the site was planted up in the last century with conifers, but oak woodland remains alongside the river and around high rocky knolls. The steep descent and ascent between car park and river challenged our fitness (except Martin Drake's). The maze of trails also challenged our navigational skills and diplomacy. The star find was a poorly known species of psychodid, *Saraiella consigliana*, caught and identified by Richard Lane. The genus is typically found on calcareous rocks in alpine locations, although in Britain *S. consigliana* is known from limestone woodlands in Gloucestershire and Hampshire. There are no calcareous outcrops as far as we know in Ausewell Woods, but it is likely there are patches of base-rich rock present. John Day, searching as always for leaf mines, found the agromyzid *Phytomyza solidaginis* on goldenrod, probably a new county record. An adult *Coenosia pudorosa* was swept which is a Near Threatened muscid and a Devon Special Species.

Knightshayes, 15th July

The final meeting of the year was held at another National Trust property, **Killerton Park** in October which is very close to Ashclyst Forest. This is a fine parkland with magnificent ancient oaks and sweet chestnuts and with a volcanic knoll in the middle. Martin Drake's sweeping up and down the trunks of old trees was rewarded with the capture of *Periscelis fugax*, a pretty sap-run species, with just five previous British records. A swarm of *Sepsis fulgens* in a bramble patch smelt of old rags (at least to Rob and Martin). The spectacular insect seen was a large ichneumon of the genus *Dolichomitus*, identified from photos taken by Mike Ashworth. It remains to be seen whether any of the fungus gnats collected or emerging from fungi identified by our mycological expert Nicola Bacciu, will be of interest.

Altogether a successful and enjoyable season of field meetings, frustrated only a little by the pandemic. Ironically perhaps, for those of us fortunate enough to be able to attend, all the more enjoyable for the opportunity to meet up with fellow human beings with a shared interest. We are grateful to the managers/rangers of various National Trust sites for accommodating us this year. The Devon Fly Group is open to anyone who wishes to join. You simply need to join our newsgroup to receive notices of meetings by email as well as other topics of interest. We have just transferred from the now defunct Yahoo Groups to Groups.io which works on a near identical basis albeit with more control over settings. We have seen a few new members join our meetings this year and we hope that trend continues.



Devon Fly Group Flickr album 2020 at https://tinyurl.com/yyxu63za

Andrew Cunningham

Reports

for the record

Dipterists Day 2015

Just for the record. This event didn't catch the Bulletin at the time, the notice was sent out by email and there were no write-ups afterwards.

Birmingham Museum and Art Gallery

Chamberlain Square, B3 3DH

21st November 2015

The talks were fascinating though, here's the itinerary:

10:40 The weird world of Chloropidae (Barbara Ismay)

11:00 Hoverwatch (John Showers)

11:40 *Stomorhina lunata* in Britain - current state of knowledge (Olga Retka)

12:00 Annual General Meeting

13:00 Lunch (in the Christmas Market)

14:00 Judging of exhibits prize giving

14:10 The Great Fen Project (Stuart Ball)

14:40 The anatomy of a distribution atlas (Pete Boardman)

15:10 Tea & coffee

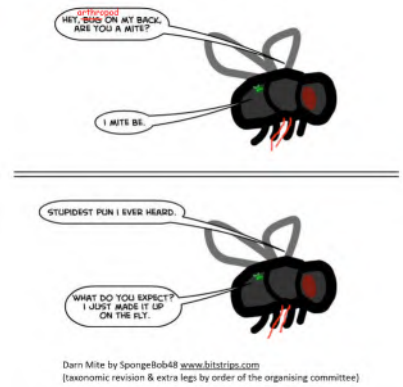
15:30 Outsmarting *Psila rosae* - an applied entomologist's story (Rosemary Collier)

A belated thank you to all who made the presentations and Duncan Sivell who organised it all.

Annual Meeting 2020

21st November 2020

On-line Diperists Day



DipteristsForum

2020 Dipterists Day webinar

As with so many other aspects of 2020 the Covid-19 pandemic took its toll on the Forum's annual meeting, which had been planned for the weekend of the 21st & 22nd of November at the Natural History Museum in London. In the end the talks planned for Dipterists Day were delivered on the morning of the 21st as an on-line webinar. Videos of all the presentations are now available on the Forum's new YouTube channel (for details see the news tab on the DF website).

Several of this year's talks were around the Darwin Tree of Life project (DToL) so there is a fair amount of DNA-speak in the following write-ups. Below are a few handy definitions to get you into the zone!

Genome: A genome is an organism's complete set of DNA, including all its genes.

Genomics: Genomics is the study of all an organism's genes (the genome), including interactions of those genes with each other and with the organism's environment.

DNA barcoding: DNA barcoding is a method of species identification using a short section of DNA from a specific gene or genes.

DNA metabarcoding: DNA metabarcoding is defined as the barcoding of DNA or eDNA (environmental DNA) that allows for simultaneous identification of many taxa within the same (environmental) sample.

eDNA: Environmental DNA (eDNA) is DNA that is collected from a variety of environmental samples such as soil, seawater, snow or even air, rather than directly sampled from an individual organism. Naked extracellular DNA (exDNA) is nearly ubiquitous in the environment. It was thought this DNA was released mainly through cell death, but we now know many organisms actively secrete DNA into their surroundings.

Genome assembly: Genome assembly refers to the process of putting nucleotide sequence into the correct order. Assembly is required, because sequence read lengths – at least for now – are much shorter than most genomes or even most genes.

Genome annotation: DNA annotation or genome annotation is the process of identifying the locations of genes and all of the coding regions in a genome and determining what those genes do.

Lyndall Pereira: How to squash as many flies into the DToL project as we can!

Lyndall's current role at the NHM in London, is as one of the sampling co-ordinators for the DToL project. The principal aim of the project is an attempt to generate high quality reference genomes for all 60,000 plus eukaryotes species found in the British Isles. The 10 principal organisations taking part in the project are, the Sanger Institute, Kew & Edinburgh Botanic Gardens, the NHM, the Marine Biological Association, the Earlham Institute, EMBL-EBI, and the universities of Cambridge, Edinburgh & Oxford. There are good reasons why the UK biota has been selected for this first attempt at mass genome generation, namely that it is one of the best known in the world, and because the UK has such a thriving community of naturalists, such as ourselves. Out of the global diversity of described families, the UK biota contains a surprising 43%.

Lyndall emphasised that in tandem with collecting samples for the DToL genome project the NHM is also DNA barcoding the specimens collected and curating a reference collection of verifiable voucher samples which will form part of the national collections at the NHM. As well as pinned adults there will be vouchered collections of photographs, DNA, tissue, and diagnostic body parts (e.g., dissected genitalia).

An outline of the current specimen processing pipeline was given; live specimens are dissected over dry ice, diagnostic vouchers taken (these could be photos, frozen tissue, diagnostic body-parts), legs are removed for DNA barcoding, and the remainder of the specimen snap-frozen in liquid nitrogen so that it can be submitted for genome sequencing. A key role of Lyndall's sampling co-ordination team will be ensuring accurate sample tracking, as 1 specimen could end up in as many as 3 different places at one time. This is being done with the use of special sample tubes that have unique barcodes printed onto them.

The DToL team are already aware that the UK Diptera will present several challenges for the project. Firstly, the current genome sequencing pipeline needs specimens to be at least 5mm in length, for a reference genome to be reliably produced. Secondly, at present specimens for genome sequencing need to be identified to species live in the field as they must be flash frozen as fresh specimens. This means many UK Diptera are excluded as it is not possible to identify them to species in the hand. Happily, the Sanger Institute has a Research & Development team who are working on making the genome sequencing pipeline more flexible and able to accept DNA from specimens that are smaller than the current 5mm limit and remove the need to snap-freeze fresh specimens, which would give us the ability to examining them under a microscope and/or make dissections for identification before sending them for DNA extraction.

Lyndall's team are hoping to produce live, searchable taxon lists for the UK Diptera that we can use to see which species have already been covered and which remain to be targeted. An example is FreshBase produced by Ben Price at the NHM, which covers the UK freshwater macroinvertebrate fauna, https://tinyurl.com/FreshBase.

To date the DToL project has submitted, for genome sequencing, 45 families, 154 genera, and 239 species of UK Diptera, plus 56 families, 200 genera, and 342 species submitted for DNA barcoding.

For 2021 the team will be holding BioBlitz event across the UK, along with smaller more targeted field trips. Contact them if you would like to take part in field events or donate specimens (L.Pereira@nhm.ac.uk). Lyndall has also set up an expertise survey https://tinyurl.com/InvertExpert and survey to capture peoples research interests in Diptera Genomics https://tinyurl.com/ArthropodSurvey.

A collecting event in Wythan Woods is already planned; to participate contact Liam Crowley (Liam.Crowley@zoo.ox.ac.uk). We have also invited DToL team members to join us for the 2021 DF field meetings.

Zoe Adams

Mara Lawniczak: Darwin Tree of Life Project: Molecular techniques.

Mara's talk described how whole-genome DNA is currently extracted, and sequenced, and the work she is doing to find less demanding ways of obtaining DNA to enable expansion of the DToL project to include simple protocols for volunteer specimen-collectors, very small specimens, and specimens that are less than perfectly preserved. DNA for DNA barcoding is easily extracted from old and poorly preserved specimens, the technique can be used on very small amounts of DNA, and DNA that has degraded and become sheared into quite short fragments. Whole genomes sequencing, however, currently requires large amounts of very well-preserved DNA. So called high molecular weight DNA preserved as a few very long fragments. Currently, specimens for genome sequencing are killed and immediately stored at -80°C using dry ice or liquid nitrogen. If an ordinary kitchen freezer can be used instead, this opens the field to many more contributors to DToL.

Mara showed the procedure for extracting DNA from a specimen of Sicus ferrugineus (the 'ferruginous bee-grabber'!). After killing and storing in dry ice, it was put into a machine that provides information on the DNA quality, data on the amount of DNA and a plot of the fragment lengths. These long DNA molecules are then entered the next machine and are sheared into shorter but still quite large sections of similar length of about 20,000 bases, the fragments are then assembled into libraries and pass on to a PacBio sequencer for single-molecule real-time (SMRT) sequencing. In addition to the sequence read, a few other data types are also added that help with the assembly & annotation of the genome. For this Sicus the results are available at https://tinyurl.com/beegrabber. Its genome was about 300M bases long, made up of about 100 pieces mostly about 9M bases long. This methodology represents a big step forward in processing genomes. So far, 59 flies have been sequenced, including many syrphids to provide replicates for a single family.

Using examples from her work on Anopheles mosquitoes, Mara discussed some of the uses of reference genomes. One aim is to find better DNA barcoding methods for groups such as Anopheles mosquitos for which single-gene DNA barcoding does not work well. Most of the DNA-barcoding in animals is currently done using a 600 base-pair long region of the mitochondrial Cytochrome oxidase 1 (CO1) gene. Frequent inter-specific breeding events in these mosquitos has seen transfer of the mitochondrial genome between species, with the result that CO1 does not give good species identification in this group. By comparing her reference genomes Mara has been able to select a small set of regions from a number genes that can distinguish all species of Anopheles. Another advantage of reference genomes is that once you have one, it becomes a far easier task to assemble additional genomes for that species. Your first genome acts as a reference scaffold and the process of assembling subsequent genomes is a far simpler task because you have a guide telling you the order in which to assemble your fragments of DNA. In this way Mara has even assembled a genome for very old museum specimens, with poorly preserved DNA. Enabling her to go back in time, creating mosquito genomes from a time before insecticide resistance had evolved! Mara has also used markers to insecticide resistance to look at movement of genes through populations and between species of Anopheles.

DToL is part of the Earth BioGenone Project, a world-wide project working to establish reference genomes for all described eukaryotes. Mara is also involved in the BIOSCAN project which aims to revolutionise the way we use DNA-barcoding. She hopes we will soon be barcoding not just the organism we have sampled but also all those it has interacted with, its food, its symbionts, its parasites. Mara is investigating preserving methods – combinations of ethanol and lysis buffers to extract the DNA, followed by storage in a home freezer – that are easy to use and allow specimens to be stored whole for morphological identification and still yield good quality DNA for barcoding or genome sequencing. Early results are promising, yielding fragments of DNA long enough for genome sequencing. Mara boldly predicted that in 2 years the 5mm size limit will be a thing of the past.

Specimens for the BIOSCAN project will be collected using 100 Malaise traps run for 5 years and serviced by supported volunteers. It will provide future-proof DNA and high-quality gene sequences for the reference specimens in the biobank. Mara encouraged more people to become involved and to get in touch if interested. Mara closed by indicating that she is keen to work on some of the hyper-diverse families of smaller UK flies such as the Cecids, Chironomids & Phorids.

Martin Drake

Zoe Adams: Implications of the Darwin Tree of Life (DToL) project for UK Diptera.

In her presentation Zoe, who works for the Natural History Museum as well as being our Indoors Meeting Secretary, talked us through the particular challenges we face in the UK before the DToL goal to sequence the whole genome of every fly species can be met.

A literature search for papers with the key words "diptera" and "whole genome" yielded just over 1,800 papers published since 2000. While half these papers have come from the USA, the UK is a major player too, generating 19% of them. However, it is worth noting that most genomes published to date are scaffolds containing some gaps where the sequence remains unknown. To date, whole genomes (including those from organelles) have been published for just 170 diptera taxa globally. Not surprisingly given the key role D. melanogaster plays in genetic research, there have been far more (176) papers published on the genomes of Drosophilidae than on any other family, the mosquitoes (Culicidae) came in second (30 papers) for obvious, disease-vector, reasons. Third comes the agriculturally important picture-winged flies, Tephritidae, with 11 papers.

On the other hand, far more species have been DNA barcoded, using the standard 648 base pair region of the Cytochrome c oxidase I (CO1) gene encoded by the mitochondrial genome. In the UK alone, the BOLD database (https://www.boldsystems.org/) contains CO1 sequence for some 282 species. These include most if not all British mosquitos and simuliids, and a good proportion of calliphorids and hoverflies. CO1 does have its limitations though, not working particularly well with mosquitoes for example. The BIOSCAN (International Barcode of Life) project should identify other sequences that can be used here, to give better results.

Zoe explained that one major challenge to whole genome sequencing is that current technology requires a lentil-sized (c. 5mm) piece of tissue – many Diptera are just too small. The members of 19 of the 109 families of flies in the UK are mainly tiny, with a body length of less than 2mm. These families include 3,860 species, which is 58% of the British list. Only a small proportion, some 4%, of our flies belong to families where most of the members are more than 5mm in length. However,

technology in this field is moving very fast – consider, for example, the Human Genome Project, starting twenty years ago it took 10 years to produce a single genome, at a final cost of around £613,000 per mega-base (Mb) of published sequence. Compare that with the Sanger Institutes current UK Biobank project that aims to produce 500,000 human genomes is just a few years at an estimated cost of just 7p/Mb.

Another major challenge is that it is, in Zoe's well-chosen words, fiendishly difficult to identify a high proportion of UK flies without examining dead specimens under the microscope, often following dissection – by which time, at present, their DNA would be too degraded to go for whole genome sequencing. Indeed, members of only 3% of British families are considered easy to identify by Stuart Ball in his 2008 introduction to the families of British Diptera. However, despair not, it should be possible to sequence the genome of many flies that are difficult to identify. We can freeze them unidentified, send them for sequencing, and identifying them later through reference to barcode libraries.

A third major challenge is that as with most other orders, a high proportion of Diptera species found in the UK are scarce, if not rare, so seldom encountered.

Despite these considerable challenges, Zoe concluded that technology is advancing so rapidly that it should be possible given time to achieve the DToL goal of whole genomic sequencing of our entire Diptera fauna

Once we know the genomes, or at least bar codes, of most of our species then sampling environmental DNA may well become an effective site survey method – but that's a whole other story to explore and discuss.

Rob Wolton

Charles Griffiths & Daniel Whitmore: First insights from the Sarcophagidae Recording Scheme.

An introduction to this new recording scheme was provided in a presentation by Charles Griffiths, Daniel Whitmore, and Nigel Jones. The scheme was launched in February 2020, and covers family Sarcophagidae, usually referred to as flesh flies, and including satellite flies. Life-histories within the family are quite varied, and they are important for ecosystem services (as decomposers and pollinators, and for biological control), and some species are used as forensic indicators.

There are around 3,100 species worldwide, in three subfamilies. The UK has 65 species (20% of the European fauna), but new species are being found in this country.

Sarcophagids can be collected using pan traps, malaise traps and bait traps, or by sweep netting. Good habitats include sandy dunes, calcareous grasslands, forest edges and hilltops, and they are mainly found in April to September in sunny weather. Specimens can be preserved in ethanol, or dry. The male genitalia often provide good identification characters, and specimens should be set with the genitalia hinged out. A detailed guide to specimen preparation was published in Bulletin 89 (pages 7-11) and can also be downloaded from the recording scheme page within the Dipterists Forum website.

The scheme is active on Facebook (https://www.facebook.com/groups/459564384954251) and Twitter (https://twitter.com/uksarcs) and can provide help with identifications. Records can be added to iRecord or sent direct to the scheme. There has been a great response from recorders and many new records are coming in: over 2,500 records have been verified on iRecord so far and are shared via NBN Atlas. Another 2,000 or so records are being checked from spreadsheets before upload to iRecord. Not all sarcophagids can be identified from photos alone, and of the accepted records on iRecord, 38% are at genus level, with 62% at species level.

Several new species have been added to the British list in recent years. *Macronychia striginervis* was recently split from a similar species in the UK and has been found in Cambridgeshire and near the south coast so far. It is likely to be a recent arrival. *Sarcophaga bulgarica* was discovered by the recording scheme via a record on iRecord, where a clear photo of genitalia allowed it to be recognised as something different. Now found from several south-east counties, the earliest record currently known is from 2009, so this is also likely to be a recently established species.

Metopia tshernovae was published by Peter Chandler, from specimens from north-east Scotland and Oxfordshire. This species is tricky to identify and records are based on male genitalia. Sarcophaga crassipalpis was discovered in London (details not yet published), found in association with a dead pig as part of forensic studies at the Natural History Museum. It is not known if it has become established.

A well-illustrated key to sarcophagids is available from the recording scheme's page on the Dipterists Forum website (https://www.dipterists.org.uk/sarcophagidae-scheme/home).

Martin Harvey

Ryan Mitchell: Rhinophoridae Recording Scheme

Ryan introduced the new Rhinophoridae Recording Scheme. He decided to start the scheme after asking Matt Smith of the Tachinidae Recording Scheme if a Rhiniphorid scheme existed and Matt replied "no, but if you ask about one three times, you have to start one"! By this time Ryan has already used up his three lives and a new scheme was born.

Ryan became particularly interested in Rhinophorids after finding 5 species at Hartslock NR, a chalk downland in South Oxfordshire. They are commonly known as Woodlouse Flies as their larvae are parasitoids of woodlice, in the UK. There are 8 species in the UK and 177 worldwide. Ryan provided a table of UK Rhinophorid species and their hosts.

Rhinophorids are generally similar to Tachinids in jizz but all but one of the UK species have a petiole where vein M bends up to join R4+5. The exception is *Trichogena rubicosa* where vein M joins the wing edge just below R4+5. Ryan pointed out that some Tachinids have petioles too and he listed the most likely confusion species. The subscutellum of a Rhinophorid is smaller than that of a Tachinid and the membrane above the subscutellum is more visible in the Rhinophorids. Ryan pointed out some other Calypterate flies that might be confused with Rhinophorids.

Ryan then introduced us to the UK species, giving useful overviews, including identification tips, of each. He continued with discussing ways of finding the flies. Raising from woodlice was possible but the parasitism rate is less than 2%. Habitats were also discussed.

The aims of the recording scheme were presented. It was hoped that a provisional atlas could be produced in 5 years and that more information on the ecology and behaviour of members of the family would be produced. At present there are 1136 records in the database, 56% of these are for *Rhinophora lepida*. Ryan finished with a summary of available resources for the study of the family and encouraged DF members to go out and record them.

This was a well-balanced and interesting presentation and I hope it did encourage the participants to find and record these species.

John Showers

Andie Hall: Brickopore workshop: eDNA sequencing explained through the medium of Lego!

After a morning outlining some very exciting DNA based initiatives involving Diptera, with talks on Diptera recording sandwiched between, we returned to DNA in the final talk of the day. Andie Hall, from the molecular biology labs at the Natural History Museum, showed her tenacity by converting a planned hands-on session to a remote demonstration over the ether. Andie and her colleagues have much experience of getting the general public to extract DNA samples in real time which they can take home. A delightful and unique memento of a visit to the NHM. However, trying to explain DNA sequencing to the general public, especially children, is a challenge – unless you resort to Lego™ that is. Lego™, already known to parents for painful knees or feet, has been used increasingly in laboratories but now an innovative application of their advanced robotics packs mimics the typical nanopore DNA sequencers. The Earlham Institute have a spin-out company, Brickopore, producing Lego™ based sequencers coupled to their purpose written software. Different coloured Lego™ bricks, representing the four basic nucleotides, are put together by visitors at one of the Museum's many hands-on sessions to make a 22-brick 'DNA strand'. The multicoloured strand of bricks is put on a Lego™ conveyor belt and is gradually drawn through a gate where the colour sequence is read by an optical sensor. The data is fed directly into a program on a laptop to give a "squiggle diagram" representing the sequence and looking like the typical 'read' from a sequencer. Using the well-known "BLAST" program (used for aligning and finding similar 'reads'), the sequence is uploaded to one of the major international DNA databases, such as GenBank, to find a match. In the example Andie showed, it turned out to be part of a sequence from the malaria vector *Anopheles stephensi*. A quick search with Google produced an image of the said mosquito for immediate gratification of the onlookers, including our audience. Of course, there are limitations with only a 22-base sequence, it often gives too many possible alignments with organisms in GenBank, but it is a great way of visualising the technology of one of the leading types of sequencers. Subsequent discussion centred on how different scientific questions determine the type of sequencers used, and the reliability of the data obtained.

It was great to have real field data on the Lego™ sequencer's use and acceptance by Andie's family (always fun to see a researcher's children used as experimental subjects!!).

Family sequencing

The small Lego™ scientists representing Andie's team overseeing the Lego™ sequencing gave a homely touch to a potentially sterile activity.

Richard Lane

On reflection it seems the on-line event was a success, with 150 people attending, and over 100 questions posted by the audience. Typically, we would see between 50 and 60 attendees at our annual meeting, so attendance was boosted, even though it lacked the social contact we all now crave. It's also worth noting the accessibility boost of an on-line meeting doesn't come solely from its no-travel nature, DF member Andrew Cunningham pointed out that he was able to generate subtitles for all the talks by running google transcribe during the webinar. Indeed, it seems google boosted the entertainment value of the morning no end, transcribing "Dipterists Forum" into "Diaper Reform" and "Sarcophagids" into the rather splendid "Sock faggots"!

Special thanks go to all the speakers as well as to Jane Hewitt & Erica McAlister for acting as moderators during the webinar, and to Callum Cleary from the NHM for providing technical support.

Like many of you I suspect, I have high hopes for 2021 (after all 2020 is a low bar) so I'm pleased to announce that I already have preliminary arrangements in place for us to visit Cambridge in 2021 for our annual meeting, and I hope very much to be seeing members in person at that event, as well as broadcasting the proceedings for the benefit of those unable to travel, and yes there will be subtitles!

Zoe Adams

Forthcoming

With the arrival of vaccines we look forward to resuming business as usual before too many months pass. As this is written, most if not all of the UK has gone into lockdown once more, but we remain optimistic that by the summer it will be possible for us to hold our summer meeting in Falmouth. Touch wood! We may even be able to go ahead with the May spring meeting in the Norfolk Broads, also postponed from last year. Who knows? If we do have to cancel both field meetings again, then committee will discuss other options available to members. Supporting and encouraging local groups which can be much more fleet of foot in arranging meetings may be one way forward. Holding further online meetings is another. Do let us have your ideas – but for now, let's remain positive that (near) normal activity can resume soon.

Rob Wolton (Chairman)

Pay close attention to the nature of the national and regional restrictions (www.gov.uk/coronavirus). During lockdown in 2020 it was possible, for example, for the Devon group to organise field meetings and for my wife and I to book a May week in Norfolk. **However this year is substantially different so far**. Please stay safe and watch for announcements on our website.

www.dipterists.org.uk/

Darwyn Sumner

Summer Field Meeting - provisional

Falmouth

26th June to 3rd July 2021 (Saturday to Saturday)

Eighteen people are currently booked into this meeting (we have reserved 25 rooms). The meeting has been advertised on the BWARS website and autumn newsletter, although there have been no bookings or interest from BWARS members thus far.'

Subject to the lifting of any travel etc. restrictions

We are now holding the planned 2020 meeting in Cornwall in 2021, having postponed the event due to the Covid-19 epidemic. We will be based at Exeter University's Penryn Campus near Falmouth. The DF last visited Cornwall in 2001 and we are looking forward to revisiting the area. It will be a chance for those of us living in land-locked counties to visit some coastal sites, but there will be plenty more of interest (see Alan's article in the Autumn 2019 Bulletin).

The cost of attending the meeting is unchanged from 2020 and will be £420 for a single room. If you wish to share a double room, the price for the full week is £280 per person. We have a small number of twin rooms available to share, again £280 per person. Be aware that these are student rooms, so might be rather cramped for two people. If you do wish to share a room, please arrange a roommate before booking and inform us who they are when you book.

What's provided?

A room in Glasney Parc, Penryn Campus. All rooms are en-suite (with shower). Desk space is available (except in shared twin rooms).

Use of a kitchen. These are shared between seven rooms and contain a fridge-freezer, kettle, toaster, etc. for lunch preparation.

Full breakfast and two course evening meal (vegetarian option available, self-service cafeteria).

Access to a workroom for specimen pinning, meetings etc. This will be located in a secure building adjacent to the Cafeteria.

We have a small number of half-cost bursaries for this meeting (applicants need to be Dipterists Forum members). For details, see elsewhere in this Bulletin and on our website.

We have block-booked 25 rooms. If we are holding your deposit from last year, your booking has been carried over to 2021. Therefore, if you are no longer able to attend please inform both the Treasurer and myself. We still have rooms available; to book a place on the meeting a deposit of £100 (per person) is required, with the remaining amount payable by 1st May 2021.

The preferred method for payment of your deposit is by bank transfer using the following details:

Dipterists Forum
Natwest Bank
Sort code 60-60-08
Account no. 48054615

Please add your name to the payment reference AND send an email (including any special requirements) to both the Treasurer (Phil Brighton) and the Secretary, who will be coordinating the administrative arrangements.

For those who would to prefer to pay by cheque, this should be sent to the Treasurer. Again, please email the Secretary to let her know you are planning to attend.

Jane Hewitt, Secretary

Logging on to the DF website

To log onto our website for the first time you need to use your e-mail address as the login username. The site will then send you a temporary password that you can use to log in. Once logged in you should change your password.

If you do not have an email address or if the one we hold is now out of date you will need to email me or Martin Harvey to set it up for you.

John Showers

And now … Greek Philosophy

Who was the first dipterist? Certainly not Linnaeus, he simply succeeded in stabilising use of a binomial system, based on Greek and Latin (at a time when few people could understand and most were illiterate).

Yet what of a cave man, digesting his fill of mammoth steak, and idly studying the plague of mosquitos or midges around him (or her). Surely he had names, perhaps binomial words for them, disqualified because they were not in Greek or Latin. Regrettably he did not write the names on a cave wall, nor depict them. But has anyone been looking for the swot marks – that may be why there are hand prints, demarcating a score by outlining the successful hand.

And how about a pre-Greek shepherd, bored by counting sheep, and thus sitting down on a stool to observe the flies around him – 'oo-look, there's a fascinating stilt-fly'! - 'a pity I shall have to wait another 4,000 years before the Dipterist Bulletin provides an official name'.

So what about the Romans and Greeks? Surprisingly, not even one Roman temple to the Goddess of Musca (as far as I am aware). And the Greeks, also neglectful to thank or appease Musca. Yet, the renoun Greek philosopher Aristotle was very busy inventing things, but to take time out it seems he was something of a dipterist. He is attributed to having come up with the name Diptera (in Greek meaning two wings), with a perceptive observation that such insects do not have a sting in the tail. Admittedly it may have been Greek shepherds who worked that out, rather than invent flying gadetry.

So what does Greek philosophy teach us about speaking of flies in today's world. Certainly that observation and study is key to understanding. Also that names matter (and it is unfortunate that locally used names for flies have been lost without record). Above all to convey the good about flies rather than the bad. That is why I like Aristotle's logic, flies do not sting [hoo-ray!]. Expressed that simply, two wings good, implies four wings bad (some sting), but in reality most large orders, as well as some small ones, contain species harmful to man under certain conditions, as with two-winged birds. And if you care to study flies, they are far more fascinating than the great mind of Aristotle could have imagined.

Alan Stubbs

Corresponding with Dipterists Forum

The inside front cover of this Bulletin has all the contact details you should need.

For Bulletin related matters, information or articles for the next issue perhaps, then email **both** Darwyn Sumner & Judy Webb. We're happy to add a "correspondence" topic in the Bulletin if you have a letter to send commenting on issues we've raised. We'd much appreciate your feedback.

Don't forget we've also a Forum on our website where you can raise topics.

Mark Welch wants to know about anything conservation related and Jane Hewitt needs to be kept informed about Diptera related issues in order to do her Secretary stuff.

As for flies in particular, bring those to the attention of the Recording Schemes. Contact details for all 28 of them are on the back pages.

County Recorders

Dipterists Forum

Maps themed by standard UK regions subdivided into Local Environmental Records Centre counties (see boxes)

Scotland
- Dumfries & Galloway ERC
- Fife Nature Records Centre
- Lothian Wildlife Information Centre
- Glasgow
- Highlands & Islands
- North East Scotland
- unassigned
- Outer Hebrides
- Shetlands BRC
- Orkney BRC

Ireland
- CEDAR (Ulster Museum)

North West England
- Cumbria Biodiversity Data Centre
- Greater Manchester LRC
- Lancashire Envi. Record Network
- Merseyside BioBank
- rECOrd (Cheshire)
- Isle of Man

Wales
- North Wales (Cofnod)
- Powys & Brecon Beacons
- South-East Wales
- West Wales BIC

West Midlands
- Staffordshire Ecological Record
- EcoRecord (Birmingham & Black Country)
- Herefordshire BRC
- Warwickshire BRC
- Worcestershire BRC
- Shropshire EDN

South West England
- Bristol ERC (BRERC)
- Cornwall & Isles of Scilly - ERCCIS
- Devon BRC
- Dorset ERC
- Gloucestershire Centre for ER
- Somerset ERC
- Wiltshire & Swindon (WSBRC)

North East England
- North & East Yorkshire EDC
- West Yorkshire
- North East
- Rotherham, Doncaster
- Sheffield
- Barnsley

East Midlands
- Leicestershire & Rutland ERC
- Lincolnshire ERC
- Northamptonshire BRC
- Nottinghamshire
- Derbyshire (closed)

East of England
- Norfolk Biodiversity Info. Service
- Bedfordshire and Luton
- Cambridgeshire & Peterborough
- Hertfordshire ERC
- Essex (closed)
- Suffolk

Greater London
- Greenspace Information for G. L.

South East England
- Hampshire BIC (HBIC)
- Thames Valley ERC
- Kent & Medway BRC (KMBRC)
- Surrey BIC (SBIC)
- Sussex BRC (SBRC)
- Buckinghamshire & Milton Keynes
- Isle of Wight

Murdo McDonald
MALLOCH SOCIETY
Geoff Hancock
Graham Rotheray
Ken Watt
Steven Hewitt
Andrew Grayson
Roy Crossley
Phil Brighton
Glen Rostron
Derek Whiteley
Andy Godfrey
John Flynn
Phil Porter
Nigel Jones
Peter Boardman
Darwyn Sumner
John Kramer
Ray Morris
Tony Irwin
Stuart Paston
Jon Cole
John Showers
Peter Vincent
Ivan Perry
John O'Sullivan
Colin Plant
Mark Pavett
David Iliff
Dave Gibbs
Anthony Bainbridge
Laurence Clemons
Patrick Roper
Phil Budd
Martin Drake
Andrew Cunningham

The dipterists indicated have a good local knowledge and work closely with their LERC. Blue background = organised Regional Groups. Yellow text = hoverflies only

ALERC
Association of Local Environmental Records Centres

A joint ALERC & Dipterists Forum project by Darwyn Sumner

Micropezids & Tanypezids

Stilt & Stalk Fly Recording Scheme

Newsletter 3 Spring 2021

Pale Stilter (*Micropeza angustipennis*) Krasnodar, Caucasus by Vitaly Lugachev

Recording Scheme - News

Identification

About half the records reported or made available to the scheme arise from specimens netted or trapped in the field. Without this practise we would find little because photography is confined to only the larger, more striking members of the group or produces results which are unsatisfactory for identification. That is of course unless you sit and watch (or even film) their behaviour, in which case you'll learn far more than if you just find one in a net after sweeping mixed vegetation for half an hour.

The most observed species is *Neria cibaria* belonging to the Calobatinae.

The Calobatinae are not too difficult to resolve. The brown humeri immediately pick out *Calobata petronella* and the amber top to the thorax narrows your choice to *Neria ephippium* (or *N. octoannulata* in the Mediterranean.)

Under the microscope the wing venation also helps separate *Calobata* from the rest of the group; Sc-R_1 distance being long, thus creating a large sc, whilst in others the Sc-R_1 distance is short and sc thus tiny.

Records in photographs

Photographs posted onto identification sites contain three of the four "W"s that make up a scientifically useful biological record. At least the "Who" and "When" are automatic because they are recorded in your camera and when the identification arrives you've got the "What". The crucial fourth, "Where", the geospatial coordinates, may be absent though. For many sites that's mandatory when posting (iSpot, iRecord, iNaturalist, Le Monde des Insectes, Biodiversitäts-Atlas Österreich and other European recording sites) and others give you the option (Flickr, Biodiversidad Virtual, MacroID.) Please consider adding Lat/Long to postings on sites such as Diptera.info or photo blogs. Obtain them using Google Earth if you didn't record it at the time.

Calobatinae wings

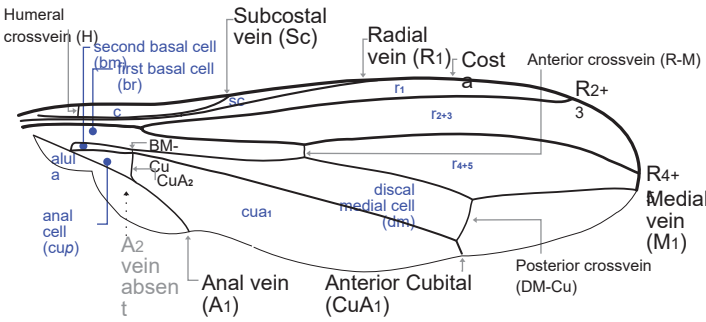


Fig. 1 Wing, *Calobata petronella*, omitting the complex of sclerites which connect the wing to the thorax.

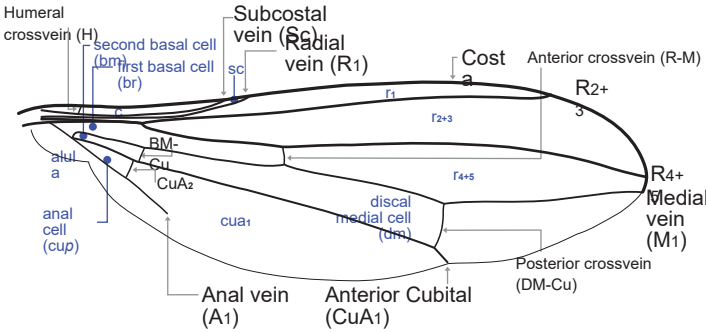


Fig. 2 Wing, *Neria cibaria*, omitting the complex of sclerites which connect the wing to the thorax.

Orchid Tailcoat (*Chyliza vittata*) by Carnifex

Bearded Fool (*Megamerina dolium*) by Renko

Caterina's Columbina (*Chamaepsila longipennis*) by Simon Oliver

Common Stilter (*Micropeza corrigiolata*) by Benjamin Fabian

Spreadsheets

Recording: UK

Spreadsheets submissions have been tailing off a little since I last uploaded to NBN Atlas. The reasons could be that annual lists of just a handful may not seem worth the bother or that for recorders who collect over a wide range of taxa it is simpler to upload an entire mixed batch to iRecord rather than engage separately with all the different Recording Schemes.

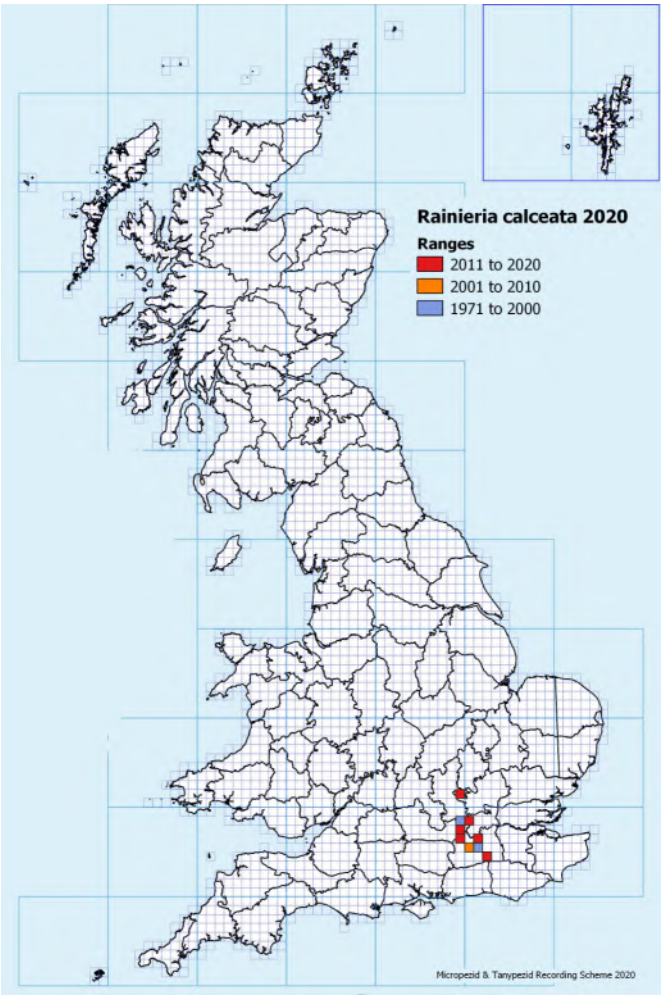
iRecord

iRecord submissions are a mixed bag, both from those who manage their own personal collections (Excel or biological recording applications) and casual observers.

The verification process can be tricky, one has either to trust the recorder to know their stuff or try to identify from a picture. Despite uploading keys to my website there's no indication as to what was used for identification, indeed there's evidence to suggest some are still using the 1940s Collins key.

Rainieria calceata distribution

I keep revising the UK distribution of this species, one or two records crop up each year and I had a revised set of records from Jonty Denton. Peter Chandler has an interest in this as it's a feature of his work on Windsor Great Park - a flagship species for him as well as for this scheme.



Recording: Europe

One of my objectives has been to get records of species occurrences onto ***GBIF*** (a Global Biodiversity Gateway.) With the assistance of ***NBNt*** who are my "endorsers" to ***GBIF***, I have now made some progress.

As a first test run I analysed the following paper,

- Roháček, J., & Barták, M. (1990). Micropezidae (Diptera) of Czechoslovakia. Casopis Slezskeho Zemskeho Muzea Opava (A), 39, 97–111.

extracting the records into a format (Darwin Core) recognisable by GBIF and uploading them there.

The dataset is detailed under the NBN summary and the GBIF summary and records are now available for research.

The project featured in an NBN News item **Sharing non-UK datasets with GBIF** in November, where you will find links to all the documentation.

Czech Republic and Slovakia were reasonably safe bets for this work as those countries don't yet have arrangements with GBIF. There is now however, a baseline country recordset (439 records) on GBIF:

Any GBIF links against taxa (examples can be found on the Scratchpad site) now show more information, for example at the moment the only records for *Micropeza brevipennis* on GBIF are from the above dataset, though it is known from elsewhere.

Now that the system has been demonstrated to work (a first also for NBN via the ever-helpful Sophie Ratcliffe) the plan is to upload further batches from another 50 published papers across Europe. The list of planned work can be found on the Datasets uploaded page of this scheme's research Scratchpad. Notable amongst these are substantial datasets for Norway, Estonia, Ireland, Portugal and Germany.

France

In September last year Phil Withers sent me the following: "*A quick update on progress with the French Psilidae. The text is completed, the records are all compiled from the sources we have at our disposal (we think over 1200 specimens have been examined in all). All that is left now are the keys: these too are nearly complete, although for 4 species we are forced to rely on literature criteria as we have yet to see any specimens (although all have been recorded for France)*" Sadly Phil passed away (see Bulletin 90) before this project could be completed. His collaborator on that project was Jocelyn Claude who contacted me with a view to continuing with the project. We have now expanded it to cover all Micropezids & Tanypezids. It may take a couple of years.

iNaturalist project

The above is the header of the opening page of an iNaturalist project set up in May https://www.inaturalist.org/projects/european-micropezids-tanypezids

To begin it I had to have a minimum number of observations or identifications.

Basically it is just a filter on a taxonomic group(s) plus a defined region (Pan-Europe). To that was added a header image and a logo together with some descriptive text.

Once set up it searches the entire iNaturalist database for records conforming to that filter and presents some statistics. At the time it was set up there were only around 275 observations, rising as follows by the end of 2020:

- Observations 607
- Species 32
- Identifiers 85
- Observers 300
- Members 10

In addition to showing the latest submitted images it also lists the people with the **most observations** and the **most species** plus the **most observed species**, which were:

- *Neria cibaria*
- *Micropeza corrigiolata*
- *Rainieria calceata*
- *Psila fimetaria*

Managing the project is not much trouble given the relatively low number of observations. I checked each one, rejecting those misidentified (coleoptera, psyllids, empids and even plants) and those wrongly assigned to non-European taxa. When confirming an identification it was helpful, under the request to "give a reason", to provide a link to that particular taxon on the Scratchpad site.

The majority of records arise from Russia, Austria and UK.

Did the project encourage more recording? Possibly it did for a small handful of recorders encouraged by having their identifications confirmed or by there being a **gallery of images** of the group on the project's page.

The figures include many unverified records, though I'm able to raise some to Research grade, many are first time identifications so unless the original contributor confirms my ID then many remain unconfirmed. This would be easily resolved by some form of collaboration, easily implemented by joining the project as a member and looking for unconfirmed ("needs ID") records:

Scratchpad site

I wasn't expecting collaborators on any projects when I set this up 2 years ago. Scratchpads have a "forum" feature and I am in the process of setting this up. Though I've received around 50 auto-applications from USA scammers able to bypass the weak security system, I can manage these time-wasting requests in the same way that old style forums used to. **If you want to join the forum then send me an email first**.

Expeditions

La Planète Revisitée. Marc Pollett organised an expedition to Corsica in June 2019. Large numbers of Diptera were collected by various methods and the samples were distributed to various experts across Europe. Paul Beuk got some, finding a handful of Psilidae amongst the mixed vials of Acalyptrates. The Micropezidae & Tanypezidae were sent to Jindrich Roháček, we've no news of those yet.

Publications

Libor Dvořák sent me his paper arising from an expedition to the Caucasus where he found *Neria caucasica* for the first time since 1990.

Dvořák L, Obona J, Dvořáková K, Mikalsen G, Manko P, 2020. Additional data of several Diptera families from Georgia and Azerbaijan. Boletín de la Sociedad Entomológica Aragonesa 67, 147–153.

Only two species from the Micropezidae, *Rainieria calceata* and *Micropeza brevipennis,* are mentioned in Nikita Vikhrev's book:

Vikhrev NE, 2020. Diptera: An Introduction to Flies. Moscow: Phyton.

Intriguingly he talks of meadow steppes as a habitat for the latter and of its being common in the Black Earth Reserve near Kursk. Evidently the Zoological Museum at Moscow University would be a good place to look for records of species in this scheme.

Preprints & test keys

1. **European Psilidae**. Paul Beuk took on the task of working through all the Acalypterate material collected during the Corsica expedition. To facilitate this he built a provisional key to the Psilidae (https://tinyurl.com/y3wfs4xz) which he would like testing.
2. **Preprints** available at https://tinyurl.com/y2ybp5f9

Biogeography, population dynamics and status of *Micropeza lateralis* (Diptera, Micropezidae) in Europe

Observations on *Phytomyza orobanchia* (Diptera, Agromyzidae) and *Chyliza extenuata* (Diptera, Psilidae), both new to Wales, on Ivy Broomrape (*Orobanche hederae*)

Visual Key to European species of *Micropeza*

D.Sumner 2020

Based upon images, descriptions and known biogeography. It can be tested on images uploaded to iNaturalist, Diptera.info and other European sites.

Identification

Ten species of *Micropeza* are recorded in Europe. One of these, *M. nigra*, is confined to Turkey (Kemal & Kocak 2015) and the eastern mediterranean, one to Romania, Lithuania, Hungary & Caucasus (*M. angustipennis*), two (*M. atripes, M. cingulata*) to East European Russia, one to Spain (*M. hispanica*) and one, *M. kawalli*, which is only recorded in Lithuania (Pakalniškis, 2006). Of the remaining four, two are currently known from the UK (*M. corrigiolata & M. lateralis*) and of the two others, *M. brevipennis* may be overlooked here or may find its way to the UK, occuring in warm lowland meadows associated with Lucerne (*Medicago sativa*, = alfalfa), whilst *M. grallatrix* is strictly southern Mediterranean.

1—Body mostly black. Pleura without stripes.

——————————————————————————————**2**

——Body mostly brown and/or yellow. Pleura with yellow longitudinal stripes

——————————————————————————————**7**

2—Legs more than half black

——————————————————————————————**3**

——Legs predominantly yellow or yellowish brown

——————————————————————————————**6**

3—Legs entirely black

——————————————————————————————melanic forms, *nomina dubia* & non-European species

Micropeza hispanica Bigot, 1886 is probably a melanic form of something (perhaps *M. corrigiolata*), one Spanish record. ***Micropeza atripes*** Bezzi, 1895. The author considered it to be a melanic form of *M. corrigiolata*, one Italian record. ***Micropeza kettaniae*** Ebejer, 2019 is recorded from Morocco, approximately 70km south of Spain.

——Legs mostly black. Black species.

——————————————————————————————**4**

4—Mid and hind femora mainly yellow with two black rings.

——————————————————————————————**Micropeza nigra [Black Stilter]**

Turkey and southwards

——Only the hind femora are yellow, these have black rings.

——————————————————————————————**5**

5—All segments of the antenna dark yellow.

Propleuron with a row of long setae on the ventral margin. Coxae & legs all black except hind femora. Thorax black with some yellowing on the humeri and the sides of the scutellum. Yellow colouration on the head starts in the anterior part of the frons alongside the eyes, then down past the antennae and around the mouth opening in a thin band.

——————————————————————————————**Micropeza cingulata [Black-legged Stilter]**

A mainly black species, only known from East European Russia

——Only the bases of the antennae yellow, the third is black/brown

Genae rusty yellow, frons & vertex black/brown. Thorax & abdomen glossy black. Legs yellow, mid & hind femora light brown.

——————————————————————————————Micropeza kawalli [Scarce Stilter]

Recorded just once in Latvia (Courland) by Gimmerthal in 1847, listed for Lithuania in Pakalniškis, 2006. *species inquirenda*

6—Haltere yellow; fore coxa clear yellow and simple; wing long, extending beyond the end of tergite 6.

——Micropeza corrigiolata **[Common Stilter]**

compared with *M. lateralis*: Smaller, mainly black species. Vertex and occiput black. Thorax practically entirely black. usually 2-4 pairs of longer setae on the metasternum; ♂ cercus usually yellowish, hypopygium mainly black; ♀ pleurae with a distinctive pattern, dark patches extending down the sternites, ovipositor sheath completely black ventrally. 5-6.5mm

—Haltere brown; fore coxa long and bulging, yellow with a proximal blackening and a distal cream patch; wing short, not quite reaching the end of tergite 6

Face black with white dusting by the eyes (which continues on to the genae). Metasternum with at most 1 pair of longer setae; ♂ cercus brown; ♀ pleural membrane with a distinctive colour pattern consisting of a continuous brown (burnt umber) stripe above a cream-coloured belly; ovipositor sheath yellowish brown ventrally

——Micropeza brevipennis **[Lucerne Stilter]**

7—Yellow/sienna + pale brown. Arista brown. Pleura with a long thin white diagonal stripe. ♂ S5 with a ventral tuft of long black bristles

Propleuron without ventral setae; scutellum at most medially with a brownish spot, otherwise yellow; abdominal tergites largely yellow/pale brown

——Micropeza angustipennis **[Pale Stilter]**

Countries surrounding the Black Sea (Steppic lowlands and hills)

—Mid-brown with some yellow. Arista white; propleuron with well developed ventral setae; scutellum almost completely brown; tergites dark brown with raw sienna hind margins

——**8**

8—Upper half of occiput black with a central yellow patch extending horizontally from the eye. Antennal flagellum black.

Mesonotum brown (burnt sienna), 2 anterior thin black stripes & 2 posterior thin yellow stripes. Pleura with an upper golden yellow stripe, below this a burnt umber stripe and finally more golden yellow on the lower pleura and all coxae.

——Micropeza lateralis **[Broom Stilter]**

compared with *M. corrigiolata*: Larger, brown and sienna species. Vertex and occiput streaked and spotted with sienna. Side margins of thoracic disc, and lower part of pleurae sienna. ♂ hypopygium mainly sienna. 6 - 8.5mm

—Upper ⅔ of occiput black with variably sized streaks of colour extending up into the black from the pale genae. Antennal flagellum orange to dark.

Mesonotum black with no stripes. On the pleura the black fades through maroon to an upper golden yellow stripe, again fading through maroon to golden yellow on the lower pleura.

Coxae cream-coloured.

——Micropeza grallatrix **[Mediterranean Stilter]**

Southern parts of Mediterranean countries such as Portugal, Spain and Italy

The above key is devised primarily to aid identification from photographs. The hind femorae (where available for study) are illustrated at each couplet, for further illustrations consult micropezids.myspecies.info

Scarce material is scattered widely across various European museums and collections. Many thanks to Jens-Hermann Stuke for taking the trouble to photograph his specimen of *M. nigra*. The illustrations overleaf are based upon a range of photographic material, the paintings by the author are gouche & ink, retouched and refined in graphics applications.

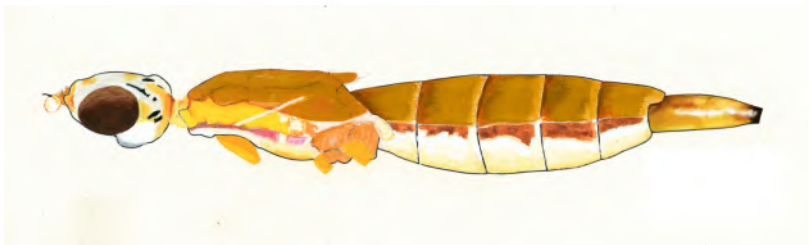
Lateral aspects of European *Micropeza* species (females)

Broom Stilter
Micropeza lateralis

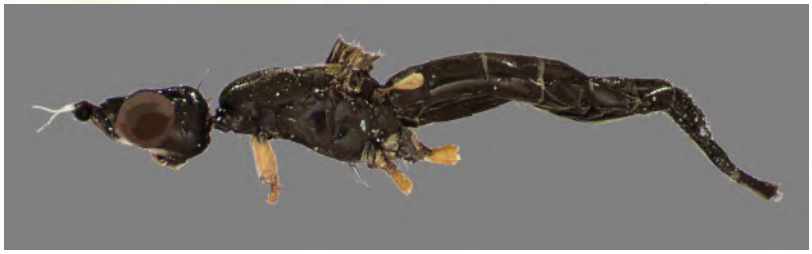
Lucerne Stilter
Micropeza brevipennis

Common Stilter
Micropeza corrigiolata

Mediterranean Stilter
Micropeza grallatrix



Pale Stilter
Micropeza angustipennis



Black Stilter
Micropeza nigra

Hoverfly Newsletter

Number 69 (abridged)
Spring 2021
ISSN 1358-5029

This is an abridged version of the newsletter shortened to fit within the permissible bounds of the DF Bulletin. The full issue, with additional articles, is available as a pdf. on the UK Hoverfly Facebook page or can be obtained upon request from Roger Morris (syrphid58@gmail.com). This change will apply in the future whenever the newsletter exceeds eight pages.

Copy for **Hoverfly Newsletter No. 70** (which is expected to be issued with the Autumn 2021 Dipterists Forum Bulletin) should be sent to me: David Iliff, **Green Willows, Station Road, Woodmancote, Cheltenham, Glos, GL52 9HN, (telephone 01242 674398), email:davidiliff@talk21.com**, to reach me by 20th June 2021.

The hoverfly illustrated at the top right of this page is a female *Cheilosia vulpina*.

The 11th International Symposium on Syrphidae

Dear Fellow Entomologists,

The 11th International Symposium on Syrphidae will take place in Barcelonette (Alpes de Haute Provence, France) from Monday 6th to Saturday 11th September 2021.

The provisional schedule is as follows :

Arrival : Monday 6th September 2021
Symposium : Tuesday 7th to Thursday 9th September 2021
Excursion : Friday 10th September 2021
Departure : Saturday 11th September

Access :
A bus will be be available from and to Marseilles (railway and bus station Saint-Charles) on Monday 6th, departure around 15:00, and on Saturday 11th September, departure around 09:00. The Marseille Saint-Charles railway station is easily accessible by high speed train from neighbouring countries, including London (via Paris), or by bus from Marseille Marignanne International airport.

Accommodation will be available on the congress venue : Seolane center (https://seolane.org/) or at local hotels in Barcelonette, ca. 10 minutes walk from the venue. During the Symposium a room with binocular microscopes will be available to delegates. The excursion will be in the nearby Mercantour National Park (http://www.mercantour-parcnational.fr/fr).

At this time, we would like interested entomologists to complete the registration of interest online at https://syrphidae11.sciencesconf.org/ to receive further information about the ISS11. Please be assured that the email you will indicate on your account on the sciencesconf.org web site will be used only to keep you informed about the Syrphidae congress !

Further details about accommodation, prices and booking will be announced with the second circular and online. If you have any question or suggestion regarding the Symposium, feel free to contact us at syrphidae11@imbe.fr

We are looking forward to welcoming you in beautiful Provence !

The 11ISS local Organizing Committee
Gabriel Neve, Benoit Geslin, Arne Saatkamp, Jean-Yves Meunier. Camille Ruel, Marine Berro, Alrick Dias, Vanina Beauchamps-Assali

Appeal for Irish hoverfly records

The National Parks and Wildlife Service, in collaboration with the Northern Ireland Environment Agency, have published a series of All-Ireland Red Lists, including lists covering a range of invertebrate groups (www.npws.ie/publications/red-lists). Hoverflies have been identified as the next major invertebrate group to be assessed for an All-Ireland Red List. As part of preparatory work for the development of this red list, I am compiling a database of Irish hoverfly records.

The core of the database will be the hoverfly records held by the two Irish Biological Records Centres: the National Biodiversity Data Centre's Syrphids of Ireland dataset (maps.biodiversityireland.ie/Dataset/159); and the records held by the Centre For Environmental Data and Recording (CEDaR; www.nmni.com/CEDaR). In addition, the UK Hoverfly Recording Scheme has kindly agreed to supply the Irish records that they hold. However, I am also appealing for additional records that are not included in the above datasets. If you have any such records, and are prepared to make them available for this database, please send them to me at tgittings@gmail.com. I am happy to receive records in any format, providing they include the following minimum basic information: species, location, grid ref, sampling date(s), sampling method, recorder and determiner.

Updates about the progress of this project, and the development of the All-Ireland Red List, will be posted on the UK Hoverflies and Insects/Invertebrates of Ireland Facebook pages.

Tom Gittings, Cork, Ireland, tgittings@gmail.com

Hoverfly Recording Scheme Update: Spring 2021

Stuart Ball, Roger Morris, Joan Childs, Ellie Rotheray and Geoff Wilkinson

What a strange year 2020 was! Not only did we have an amazingly warm and sunny spring, but we also found ourselves 'locked down' and unable to visit many of our favourite sites. Travel was severely restricted during the peak for spring hoverflies and only became viable again from the middle of June; by which time many species had already disappeared. One can only reflect on what might have been, as we saw plenty of sunshine and warm days that were ideal for recording hoverflies. We will find out in due course how this state of affairs has affected data for specialist species.

Despite the travel ban, lockdown was not quite the disaster it might have been. Lots of people took the opportunity to explore their local areas (subject to rules of social distancing) and the numbers of records generated will as likely as not prove to be higher than normal. We also saw a flood of new members on the UK Hoverflies Facebook group and at times it was challenging to keep up with the volume of activity. In the week commencing 19 April the data extraction team logged 1,634 records; numbers that were surpassed on just two occasions (weeks commencing 21 June and 5 July) (Figure 1).

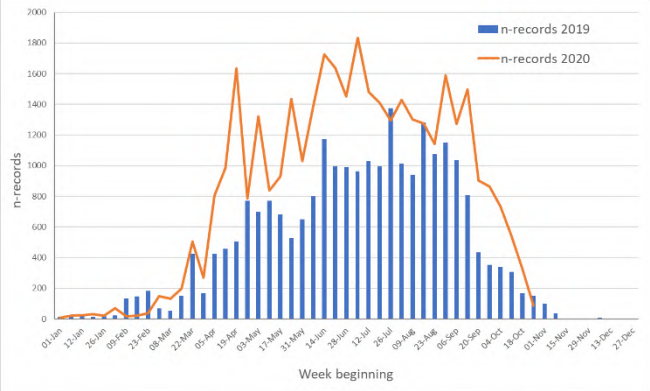


Figure 1. Weekly records from the UK Hoverflies Facebook group in 2020 (orange) and 2019 (blue).

At this time, we logged 202 active recorders; a level only repeated twice in June and once in July when one might expect activity to have normally reached its peak. As can be seen in Figure 2, levels of recorder activity we constantly high until early July

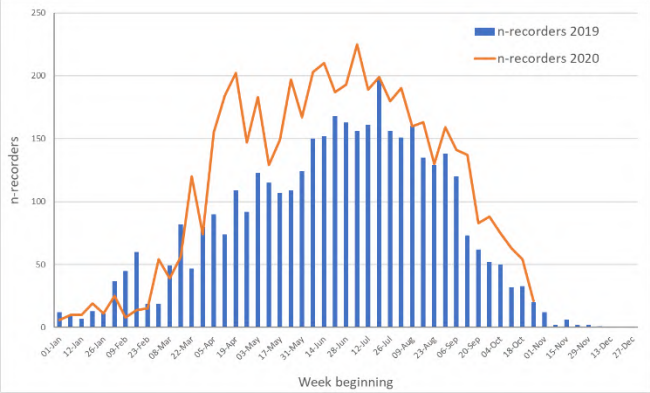


Figure 2. Weekly numbers of recorders contributing to Facebook data in 2020 (orange) and 2019 (blue).

It seems highly likely that this volume of activity was directly related to lockdown but, as always, it is difficult to be sure because the confounding effects of good weather may also have played their part. What is clear, however, is that although the greatest diversity of hoverfly species occurred between April and June (Figure 3), the numbers of records per recorder were considerably higher in late summer. This difference suggests that spring records were dominated by a higher proportion of 'casual' records as opposed to the autumn, when the data are largely generated by a much smaller cohort of very committed recorders (Figure 4). Bearing in mind that the overall shape of 2019 and 2020 for the records per recorder are very similar (ignore the large figures at the beginning and end of the years), it would appear that there was very little difference in overall recorder behaviour between the two years. A possible explanation for this consistent trend is that as spring enthusiasm wanes, only the most committed recorders carry on.

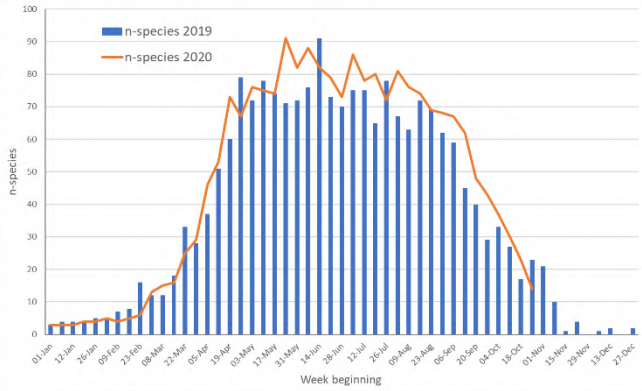


Figure 3. Numbers of species recorded each week in 2020 (orange) and 2019 (blue).

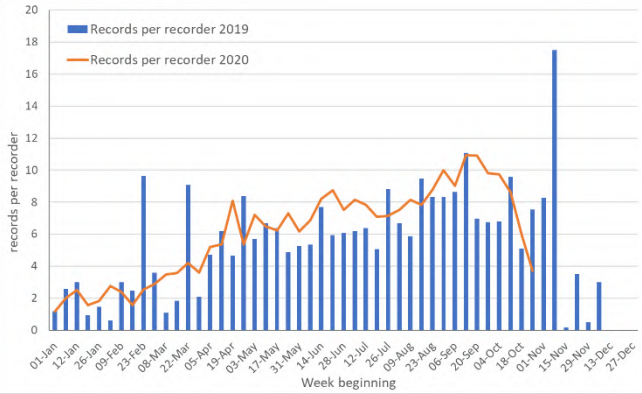


Figure 4. Numbers of records per recorder each week in 2020 (orange) and 2019 (blue).

The question that follows is 'how did 2020 compare with previous years?' We won't know until we have compiled all the datasets from recorders who keep spreadsheets. That is a big job and won't be complete for some time hence. In the meantime, we get an indication of the levels of activity from the overall numbers of records including data extracted directly from Facebook and other platforms. The evidence suggests that 2020 was more active than any preceding year (Figure 5) with the numbers of records surpassing any preceding year by a sizeable margin (a total of more than 44,500 full and partial records at the time of writing, which is almost 7,500 records more than the previous best (37,082) in 2016. We also saw a substantial increase in the numbers of contributors in 2020, that partially reversed what has been an apparent decline in numbers in recent years (Figure 6). It should be stressed, however that the apparent downward trend in recorder numbers based on data extracted directly from Facebook is misleading because a big effort was made in 2016 and 2017 to encourage participants to maintain spreadsheets. A similar effort will be needed in 2021!

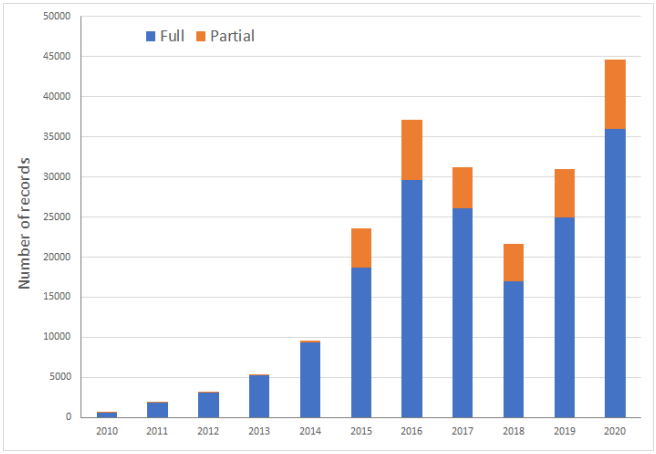


Figure 5. Numbers of full records (blue) and partial records (orange) between 2010 and 2020 extracted from social networking platforms. 2018 seems to have been particularly badly affected by the extreme temperatures that year.

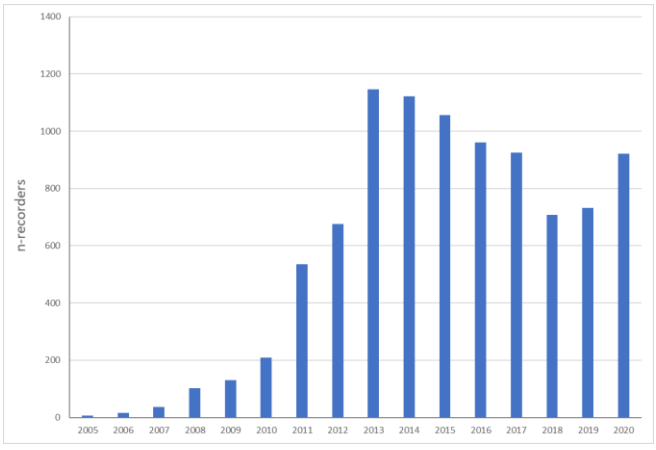


Figure 6. Number of recorders each contributing to the dataset of records extracted directly from social media platforms between 2010 and 2020. It should be noted that until 2016 efforts were made to monitor a wide range of platforms and that many of the recorders had posted just a single record. No effort is

made to monitor other platforms now, as the level of work needed is beyond our capacity.

Did the sunny and warm spring affect the numbers of records of commoner species?

It is always hard to compare different years and to make firm links between particular phenomena and the abundance of individual species. Each year is different but, moreover, the abundance of a given species is more likely to be related to the productivity of the last generation of the previous year. So, we cannot be sure whether the data for 2020 represent a real or perceived correlation between the weather and the abundance of a given species.

We can say, however, that for Facebook recorders it was the spring of *Eristalis pertinax* (Figure 7). It certainly looks as though the proportion of records of this species within the dataset was unusually high when compared with the average for the preceding ten years (Figure 5). A similar story seems to emerge for *Epistrophe eligans* although it is nowhere near as pronounced (Figure 8).

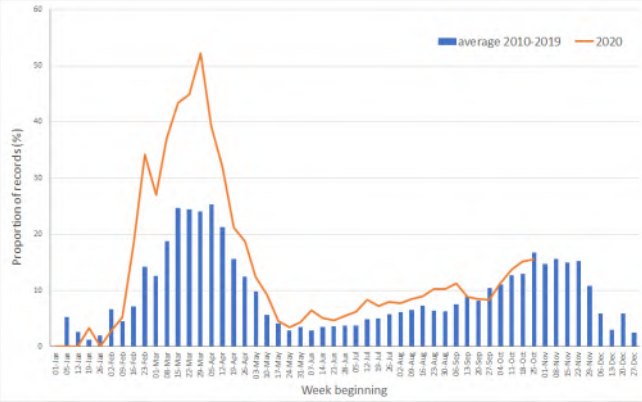


Figure 7. The proportion of weekly records of *Eristalis pertinax* in 2020 (orange) compared with the preceding 10-year average (blue).

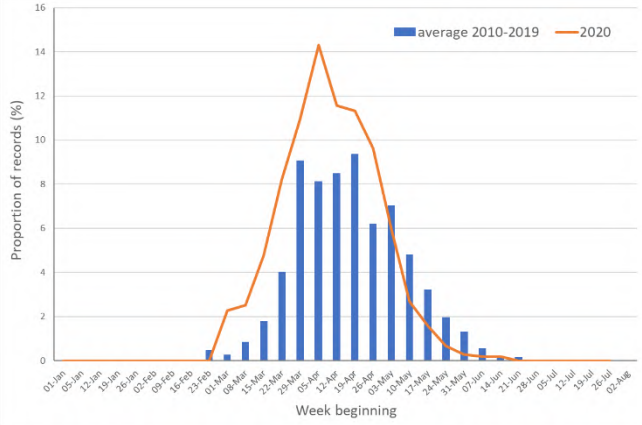


Figure 8. The proportion of weekly records of *Epistrophe eligans* in 2020 (orange) compared with the preceding 10-year average (blue).

Effects of the summer heatwave

In late July and early August southern Britain was hit by a profound heatwave that saw record temperatures for six consecutive days from 7-12 August. In south-east England the heat was so extreme that RM was effectively confined to the house for much of the day. When he did venture out, there was nothing to be seen! The impact of this event was immediately felt on social media with numerous active recorders saying 'where have all the hoverflies gone?' Had they died off, found shelter, or perhaps not come out of diapause? We will never know for sure, but we do have some data to show what happened in terms of records received.

In south-east England, the numbers of records dropped dramatically (see Fig. 9 below), but this drop continued a trend that had started some ten days earlier. There is pretty good, but less pronounced replication of the trend in the south-west. It is notable that we also saw a recovery in numbers in September. The graphs for northern England and Scotland (Figure 10) are somewhat different as the decline in records is far less precipitous and longer-lasting.

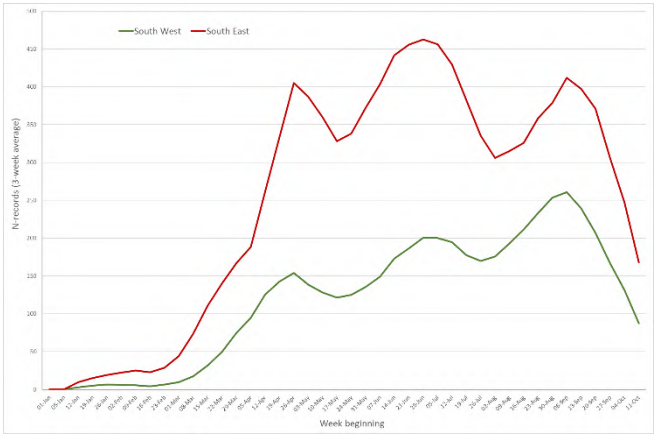


Figure 9. Three weekly average numbers of records extracted from Facebook for south-west England (green) and south-east England (red).

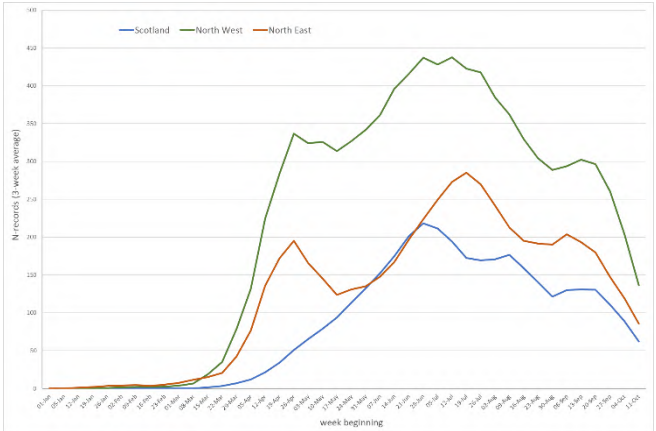


Figure 10. Three weekly average numbers of records extracted from Facebook for north-west England

(green) and north-east England (orange) and Scotland (blue).

These graphs are a simple 'snap-shot' and do not represent all the data for 2020; we won't get a full picture for months or even years, but data extracted directly from Facebook are now so substantial that they form a useful dataset in their own right.

Cheilosia caerulescens in Gloucestershire

David Iliff, Green Willows, Station Road, Woodmancote, Cheltenham, GL52 9HN

During July 2020 I was invited to take part in a survey of wildlife in the churchyard of St. Michael and All Angels, Bishops Cleeve SO9627. On 20th July I found 8 hoverfly species at the site, including a *Cheilosia* on ragwort flowers which I caught and took home for identification. It was a bare eyed female, but my attempts to determine the species via the keys that I had available led nowhere. I therefore examined the insect looking for characters that might assist in its identification. It proved to be very distinctive, with a very protruding face, white hairs at the tip of the scutellum and on the thorax and abdomen, and, most strikingly, the outer cross veins on the wings were darkened. This combination of features indicated that what I had was *Cheilosia caerulescens*, and my failure to key it out was explained by the fact that the species had only been added to the British list in 2008, after the keys I used had been published. After identification I photographed it, on 22nd July, and released it in my garden. Later on the 22nd I returned to the churchyard to check whether there were any houseleeks (*Sempervivum* – the larval food plant) growing there. I found none, though a colleague (John Widgery) found some later on two graves, however I did capture another *Cheilosia*, this time on Hebe flowers, which to my surprise turned out to be another female *C. caerulescens*. I passed this second example to Martin Matthews for his collection. These were the first records for Gloucestershire.

The Hoverfly Recording Scheme website showed that the species had so far been recorded in 44 hectads, only 3 of which were away from East Anglia and the Home Counties; the three outliers were in the Swindon area, west of Salisbury and in the peak District.

It appears that *Cheilosia caerulescens* is now well-established in the south-east and is gradually expanding its range northwards and westwards.

Cheilosia caerulescens female. Photo: David Iliff)

Chalcosyrphus nemorum larvae in a beech stump hoverfly lagoon

Rob Foster and John Leach
2 Yorkshire Bridge Villas, Bamford, Hope Valley S33 0AZ robdfoster@yahoo.co.uk

Hoverfly stump lagoons are hollows cut or drilled into the tops of tree stumps which fill naturally with rainwater to simulate the rot-holes in which certain hoverflies lay their eggs and raise their larvae. They are especially useful in revealing the presence of hoverflies that have elusive adults that would otherwise pass unnoticed. They have notably been used in discovering the presence of the Furry Pine Hoverfly *Callicera rufa*. In the Summer 2020 edition of the Hoverfly Newsletter, we gave an account of just such an exercise and its ultimate success on (NT) Longshaw Estate, in the Derbyshire Peak District. Hoverfly lagoon creation was carried out in early April 2019: a chainsaw was used to cut lagoons into about 20 pine (Pinus) stumps. Whilst doing so, we came across a similarly suitable beech (Fagus) stump. Out of curiosity, we cut a lagoon into that also: just to see what would happen. A similar procedure was used. This was based on that described in an on-line leaflet issued by the Buzz Club of the University of Sussex as modified by Ken Gartside. A pyramid-shaped wedge of wood was removed and the resulting hollow filled with sawdust and chainsaw chippings. Lacking the wood off-cuts with bark on them that would have been used for pine stump lagoons, we overpacked the surface of the lagoon with thick strips of dead bark, peeled from the outside of the beech stump. The lagoons were then filled with water from a nearby stream and kept topped-up from time to time during prolonged periods of dry weather.

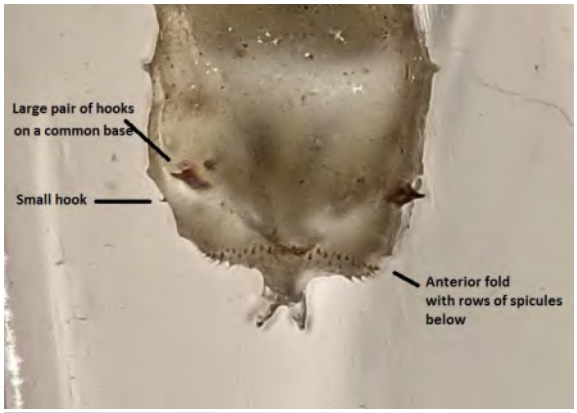
Beech stump lagoon packed with bark strip (photo: Rob Foster)

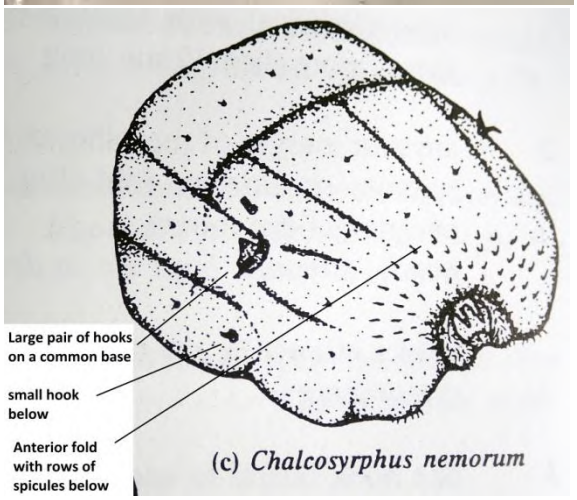
Short tailed hoverfly larva on mossy bark strip (photo: Rob Foster)

By early July, after only a few months, the pine stump lagoons had developed a population of long-tailed larvae (larvae with long posterior respiratory processes (PRPs)) that proved later to be mostly larvae of the hoverfly *Myathropa florea*. At the same time, in the beech stump lagoon, it was noticed that larvae with shorter PRPs were developing, embedded in moss on the surface of the bark (see above, lower photo). It took us some time to work out exactly what they were. The larvae had three lappets on their anal segments a characteristic of larvae of the *Xylotini* group of hoverflies. Reference was made to the "Bible" of hoverfly larvae identification - Rotheray's *Colour Guide to Hoverfly Larvae in Britain and Europe* (1993). They most resembled the photo of a larva of *X. sylvarum* : a hoverfly which was reasonably common in the area. So, initially, this is what we assumed they would prove to be.

Mature larva [Photo Rob Foster]

By early August, the larvae had grown sufficiently to allow identification, they were collected and photographed. This revealed that they had a pair of small hooks at each side of the front of the thorax (see photo) They could not therefore be *Xylota* larvae: so, back again to Rotheray's Guide and specifically to Figure 14 Thoraces of hook-bearing larvae. The hooks were vaguely triangular in outline - rather like curled rose thorns. The pair of hooks curled in opposite directions although they shared the same linear base. No other hooks or spines were obvious. There were, however, lines of very short bristles below the front of the thorax (in the anterior fold) which gave the appearance of a set of fine teeth when they were briefly glimpsed as the larva progressed. The illustration that most closely corresponded to the larvae appeared to be that of *Brachypalpoides lentus*, so that was our tentative new identification when we posted the photographs onto the Facebook UK Hoverflies Larval Group site. However, when hoverfly larva expert Ellie Rotheray looked at them, she noticed a tiny additional hook on the side of the thorax (see photo); this was significant; it indicated that they were in fact the larvae of a *Chalcosyrphus* species.





Distribution of hooks and spicules :Above: Stacked photo from above of thorax of live larva [Rob Foster]

Below:- *Chalcosyrphus nemorum* Thoraces of hook bearing larvae [modified figure from Rotheray, G.E. 1993]

Larvae of *Chalcosyrphus* species are not well documented. Two *Chalcosyrphus* species occur in the UK, *C. nemorum* and *C. eunotus*. *Chalcosyrphus nemorum* was the more likely possibility; we had recorded it only half a mile away in Padley Gorge (also on the Longshaw Estate) - on a fallen beech tree. The larva of this hoverfly is usually found under the bark of logs and branches lying in wet conditions, feeding on decaying sap. It was probably important that we packed the beech stump lagoon with strips of dead beech bark. However, we could not eliminate the possibility that it might be *Chalcosyrphus eunotus*, the Logjammer Hoverfly, since its larva, although not well known, appears to be similar. Photographs in a Staffordshire Wildlife Trust study of the species (Jukes et al. 2009) confirm this; however, when grown to full size it is significantly larger (22mm cf. 13mm). Also, based on a description of the integument of a puparium in a paper by Maibach & Goeldlin de Tiefenau (1992), the larva may lack a small hook on the side of the prothorax, but this is not clear. *Chalcosyrphus eunotus* is also a species breeding under the bark of waterlogged trees, but apparently with a preference for the rotten sap wood. Although thought previously to be confined to Wales and the West Midlands, it had, according the *State of Nature in the Peak District* (Anderson, P. 2016), recently been found, not that far away, in Staffordshire

So we felt obliged to breed out the larvae to the adult hoverflies: not that easy, as it turned out. One of us (Rob Foster) tried to breed a larva in a specimen tube, immersed in water with bark and wood chippings from the lagoon. He managed to grow to full size (13 mm) and to over-winter the larva, but it failed in pupation. John Leach on the other hand overwintered larvae on wet mossy bark strips in a terrarium and succeeded in raising an adult fly which emerged in May. The hoverfly is clearly identifiable as *Chalcosyrphus nemorum* (see his photographs). He also searched the terrarium and found a pupa (see photo). This eventually perished, possibly because it had not managed to extrude its pupal respiratory horns. Otherwise, it closely resembles illustrations of the puparia of *Xylota [Chalcosyrphus] nemorum* in a monograph on the *Larvae and Puparia of the Syrphidae of Illinois* (Heiss, E.M. 1938).

[Photos John Leach]

Chalcosyphus nemorum bred from larvae collected from beech stump lagoon. This male hoverfly has reddish-grey spots on the abdomen identical to illustrations in *British Hoverflies* (Stubbs and Falk, 2002). It is similar to males of *Xylota jakutorum*, *X. abiens* and *X. florum*, from which it is distinguished by its robust hind femora and entirely black tibiae

Pupa (top photo) recovered from mossy bark strips kept in terrarium (lower photo)
[Photos John Leach]

The larva of *Chalcosyrphus nemorum* was described by Hartley in 1961 under the name *Xylota nemorum*. It was necessarily covered fairly briefly in a paper covering the larvae of many British Syrphidae. For brevity, the taxonomies of the larvae of *Xylotini* were mostly described as variations on that of the larva of *Syritta pipiens*, with much emphasis on the distribution of sensilla (small sensory papillae with fine bristles): not something which is easily observed in live specimens. *Chalcosyrphus nemorum* larvae were not illustrated except for a figure showing the distinctive angular tip of the rear breathing tube (posterior respiratory process (PRP)). The species is also covered in Rotheray's *Colour Guide to Hoverfly Larvae in Britain and Europe*. There is no photograph of the larva, however the hook positions and general chaetology of the thorax of *Chalcosyrphus nemorum* is illustrated, together with those of other larvae with hooks on their thoraces for comparison purposes. The illustrations are based on larvae which have been preserved using a par-boiling process. This causes their prolegs to protrude and their anterior folds to open, exposing the surfaces and spicules below, which makes examination and identification much easier. In live specimens, these features are for the most part concealed on their undersides and only briefly exposed during movement. This occurs when the larvae are crawling forwards over wet surface, which is their normal method of movement. However, they are at home just below the surface of the water and can, at need, move through it, albeit in a slow jerky haphazard manner, with rolling wriggling action. This causes their prolegs to extend and, at times, exposes their underside allowing their features to be glimpsed. So we include a series of photographs of a larva moving in a shallow layer of water. Because the water was quite murky, the photos are not ideal, but show most of the larva's features. We hope they will be useful in increasing familiarity with this little photographed or illustrated species. Surprisingly, the only other photograph of the larva we could find on the internet was from the USA: one taken in 2010 by O.Keller, posted on the website – www// Bugguide.net.

[Photo John Leach]

Distinctive features as noted by Hartley and Rotheray -

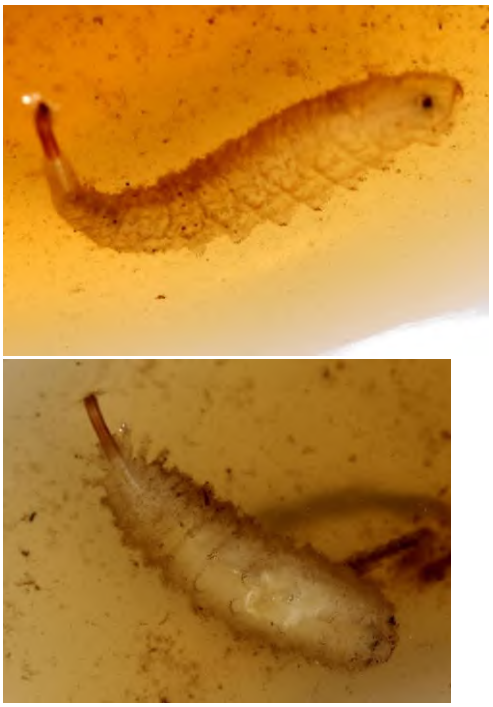
:a relatively flat-bodied larva with a short tail (anal segment);
: anal segment with 3 equally sized triangular fleshy lappets on the sides;
: two black hooks with a common base: the outer one curved: the inner one relatively stubby and straight and a single small hook below. [This hook may however be missing or not be present on one side (Maibach et al (1992)]

Other features -

: anterior fold with a row of 3-4 rows of spicules.
: posterior respiratory process about 4 times as long as broad, tubular with a shallow groove down the middle of its upper and lower sides; in end view, it is vaguely angular. From its tip, extend branched, hair-like setae that are hydrophobic and spread out on the surface of the water exposing the slit-like spiracles at the tip of the breathing tube for respiration whilst the larva is submerged, typically gripping wood or bark surfaces with its hooks and crotchets.

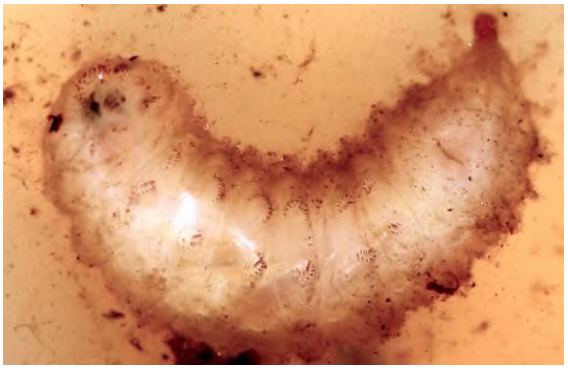
Underside view seen whilst swimming

When moving underwater, a pair of prolegs extends forwards like parallel keels at the front of the larva, below the prothorax. The entrance to the digestive system is enclosed in the hollow created by the folding down of anterior fold and between the front prolegs. The head skeleton and mouthparts are internal. The larva ingests water, removing debris with modified mandibles that have evolved into filters, and feeds on suspended bacteria etc..



[photos John Leach]

The prolegs are relatively short; there is a pair on the thorax and 6 pairs on the abdomen. Claw-like bristles –crotchets - on the edges of their generally oval soles, give the prolegs grip. These are arranged in primary, secondary and tertiary rows, each of 6-8 crotchets. Descriptions indicate that the secondary crotchets are larger, but primary and secondary crotchets seem to be of a similar size. Tertiary bristles, interstitial between and behind the secondary crotchets, are much smaller and inconspicuous. At the front of the abdomen, the rows of crotchets, on balance, face forwards, on the sides they generally arc outwards, and at the back they are arranged in a ring - allowing forwards of backwards motion. Behind these, on segment 7 of the abdomen, there is a pair of small, inward-facing hooks.



[Photo John Leach]

Maybe this technique - using lagoons cut in hardwood tree stumps packed with bark strips - will prove to be a way of finding *Chalcosyrphus* species and other hoverflies with larvae which develop under bark, feeding on the rotting sap of logs lying in boggy conditions. Worth a try?

Acknowledgements

We are grateful to Graham Rotheray for comments on a previous draft of this article.

A key to female *Sphaerophoria* – call for specimens

Roger Morris

I have a test key to *Sphaerophoria* based on the two Scandinavian keys but I really need a large number of specimens to test that it works and also to populate the necessary illustrations.

Recognising *Sphaerophoria scripta* is relatively straightforward as the microtrichia on the second basal cell cover at most 40% of the cell. Specimens with a complete yellow stripe along the side of the top of the thorax with more microtrichial coverage are what I need to see. Separating *S. rueppellii* and *S. loewi* is far more straightforward as only these two species have a broken yellow stripe.

I would welcome a supply of specimens, especially from northern and western areas – please contact me as syrphid58@gmail.com

An observation of *Volucella zonaria* entering a wasp's nest

Roger Morris

A post by Ann Miles on the UK Hoverflies Facebook page raises an interesting question about the ways in which *Volucella* enter the nests of social wasps. (https://www.facebook.com/groups/609272232450940/permalink/3458087590902709/)

Ann watched a female *V. zonaria* attempting to enter a *Vespula* nest (I think *V. vulgaris*). In the process, the fly was definitely investigated by the 'guard wasp' (photographed), which clearly determined that the fly was not a threat (and also not a meal for its grubs).

This observation raises an interesting question: was the fly protected by a specific chemical cue? Work on *Volucella inanis* and *V. pellucens* (Rupp, 1989 – unpublished PhD) reports that two separate strategies seem to be employed. In *V. inanis* intruders are readily challenged and the flies have to wait for an opportunity to enter the wasp's nest. Conversely, observations suggest that *V. pellucens* enters unhindered. What is the cause of these differences? We might surmise that the wasps are alert to the ill-intent of *V. inanis*, whose larvae actively feed on wasp

grubs in their cells, whereas *V. pellucens* and *V. zonaria* feed on detritus in the base of the nest.

Top: guard wasp investigates female *Volucella zonaria*; **bottom**, guard wasp detects no threat and flies off.

Although we understand *V. zonaria* to be a scavenger in wasp nests, it seems likely that they will consume moribund wasp larvae. Do they, by this means, acquire some level of pheromone protection in a manner similar to *Microdon* or does *V. inanis* gain the wrong pheromones by consuming healthy wasp grubs? Might this be a practical student project combining chemical analysis with behavioural observations?

Poetic Inspiration

Who would have thought that hoverflies would be the inspiration for poetry? We saw a great example of this during a recent conversation on the UK Hoverflies Facebook page. For some odd reason, discussion of the eutrophic ooze emanating from a silage clamp triggered poetic thoughts that led to this wonderful verse:

Syrphidomania

By Pat Merchant

Eristalines will gaily choose
To bathe in our eutrophic ooze
But when I pile the silage high
I scarcely see a hoverfly

I find that knapweed's always good
And horsemint grows well in the mud
Silentis flies around the marsh
Its colour-scheme a trifle harsh

Blue scabious by the river grows
The Syrphids like it, and it shows
Helophilus all gather where
The scent of these flowers fills the air

Ignore the wasps, but if you see
A creature like a bumble bee
Before you turn away your lens
Do check it's not superbiens.

A word about Geraniums
Look, something tiny this way comes!
Segnis scuttle round Hortensia

Giving photographers dementia!

Just the sight of blooming Aster
Makes a Scaeva's heart beat faster
But the marmalades can get quite stroppy
When ten of them land on one poppy

There's hybridus and trivittatus
Thinking they can both outsmart us
"I'm just a pendulus," they say
"You need not look again my way"

But down to earth – we have the team
To tell us what we haven't seen
Ha! Just you wait, you'll all go greener
When at last I spot a metallina!

Soldierflies and Allies Recording Scheme

Newsletter 8, spring 2021

Edited by Martin C. Harvey
ISSN 2053-471X (print)
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Round-spotted Major soldierfly Oxycera dives *from North-east Yorkshire, 11 July 2020 – a scarce species with a northern distribution. Recorded and photographed by Ian Andrews.*

Welcome to the spring 2021 newsletter. We have something of an 'early stages' theme in this issue: Jane Thomas describes how she has been successfully rearing soldierflies from larvae to adult (pages 2–3); Liam Olds provides a great field observation of a Pygmy Soldierfly laying eggs in tufa habitat (page 4); and some of our notable record highlights on page 6 relate to egg-laying observations as well. We have a new section on the website devoted to early stages and I would love to hear from anyone who has experience of finding and rearing pre-adult soldierflies and allies.

In addition there are some species to look out for that have been found on the continent not too far from the UK (page 5), a summary of the 2020 Bee-fly Watch results (page 7) and updates from the recording scheme, including our new series of photographic identification guides (page 8).

As always I am very grateful to all who have contributed records, photos and articles. After the challenges of last year I wish everyone well for 2021 and hope to see lots of exciting records and observations.

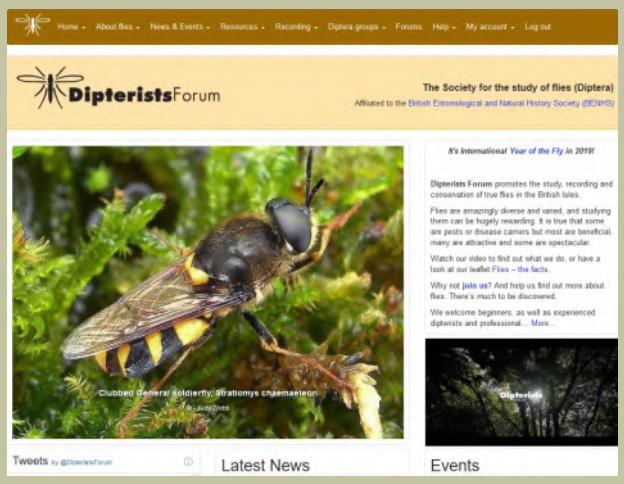
Martin Harvey

Dipterists Forum links and reminders

The Soldierflies and Allies Recording Scheme is part of the Dipterists Forum (DF). Keep an eye on the DF website www.dipterists.org.uk for lots of information and news about flies in general, and look out for:

- Latest news
- Forthcoming events including field meetings and training workshops
- Diptera links and equipment suppliers
- The full list of Diptera recording schemes
- Local Diptera groups
- The UK Diptera Checklist
- Discussion forums (join DF to take part)

If you are not already a member of DF please do consider joining – you'll get a brilliant Bulletin, full access to the website and the chance to join in with events and help promote the study of flies.



Adventures in soldierfly raising

by Jane Thomas

I started volunteering at a local urban nature reserve, as part of a group doing regular informal wildlife surveys. We'd meet each Wednesday morning and amble round the reserve seeing what we could find in our random walks. One of the things I kept finding were these odd little larvae under stones and logs – very distinctive, but like nothing I'd seen before.

The first larva, which turned out to be *Chorisops tibialis*.

Eventually I discovered these were soldierfly larvae, so asked on the Facebook Soldierfly group if anyone knew what they'd grow up to be. Martin Harvey told me no, we don't, if you want to know you'll have to raise them and find out – we have some idea of what they are likely to be, but we don't know exactly. Intrigued I decided to give it a go – of course I then couldn't find any for several weeks.

On the 29th of January 2020 I found one and collected it. I nicknamed it Licky as it seemed to have 2 tongues which it constantly tasted the world with. I wasn't sure what it ate, or what it needed, but having found them mainly under stones and logs I thought damp, and maybe something from the soil surface. I collected a few dead leaves from the same area and installed my new larva in a small glass pot, with some damp vermiculite at the bottom, and the dead leaves on top, with a fine piece of netting and a loose lid to give some ventilation, but not too much.

The insect larva zoo! A selection of the pots used to rear soldierfly larvae and other creatures.

I kept it on the bench in the garage covered with a cloth to keep out the light as it seemed distressed when I left it uncovered, burrowing into the darkest part of the pot. It seemed very happy with its leaves, and I think it ate whatever grew on the surface of the leaves, maybe algae – it certainly seemed to lick at the surface, and I could see small blobs of soft greenish droppings deposited on the leaf surface. I did try collecting one to look at under the microscope, but couldn't see anything obvious inside. It certainly didn't consume the leaf, so it must have been eating something on the surface.

I checked it each week and photographed it as well as I could, but as soon as I revealed it to the light, it started moving, which made this very difficult. I thought at first the bulges on the side of it's head were eyes, but the photographs showed that these bumps were not, each bearing a stout bristle. I'm not sure how it was sensing the light, but it certainly did respond to it.

On the 23rd of March it moulted, which gave me hope that I was doing something right. It also took to burrowing into the vermiculite, which made it very difficult to find for its weekly health checks – I'd end up chucking the whole lot into a bowl of water to find it. I wasn't sure if it had pupated or not – it was less mobile, but certainly not immobile. I didn't want to damage it with repeated dips to find it, so I moved it from the vermiculite onto a damp piece of kitchen roll, with it's leaves on top.

Success! The freshly emerged adult *Chorisops tibialis*.

By mid May it seemed rather stiffer and less responsive to light, and I'm sure it'd stopped feeding, although I left the leaves in the pot in case it was just in a resting phase. I continued to check it each week, and sprayed it with a little water to keep everything nice and damp. It hatched out as a fly on 18 June 2020 – the head part of the larval case had popped right off and the sides split. The fly was *Chorisops tibialis*, or the Dull Four-spined Legionnaire (it's really not dull!) – Martin had predicted *Chorisops*.

A larva of *Chloromyia formosa*.

I have since taken in and successfully raised *Pachygaster leachii* from my compost bin (I gave it some of the compost I found it in), and two *Chloromyia formosa* (Broad Centurion) from under the Campanula on my patio edges, both of which moulted almost as soon as I collected them. I kept them on damp kitchen roll with a few dead leaves on top, but I don't think either fed. I have four more larvae in pots in my garage waiting to see what they become, two of which I've had since April/May 2020 – both are certainly still alive as they move, but I'm guessing they won't turn into flies until next spring now.

I've learnt that I must keep better records, and label my pots with more information! It was fine when I just had one or two, but this is becoming quite an interest. At the moment, I've also got two slugs, a sawfly larva and a batch of caddisfly larvae in a small fish tank. So thank you Martin, for encouraging me to embark on this very interesting journey.

More of Jane's larvae photos can be seen on Flickr at bit.ly/JTsoldierfly

Early stages of soldierflies and allies

It has been very pleasing to see a number of people on the soldierflies Facebook group posting photos and accounts of finding and rearing larvae. We have started to build up a collection of identification and rearing resources on the website at www.brc.ac.uk/soldierflies-and-allies/early-stages (under the "Resources" menu). If you have any photos or information to share please let us know.

Studies of the larvae and other early stages are really important for understanding species ecology and conservation. The studies that Judy Webb has carried out on some of our rarer soldierflies and horseflies are a great example of this (see Judy's articles in the Dipterists Forum *Bulletin*). I hope that's Jane's article above will encourage more of us to take an interest in the early stages and add to our knowledge.

Pygmy Soldierfly (*Oxycera pygmaea*) egg-laying in tufa

by Liam Olds

LEFT: One of a series of large tufa springs at Darren Fawr Tip, Blaengarw;
RIGHT: Female egg-laying into dead plant stems overhanging tufa deposits at Darren Fawr Tip
© Liam Olds

Tufa springs (also known as petrifying springs) are amongst the most unusual and unique habitats found on colliery spoil tips in South Wales. The processes acting to create these lime-rich springs on supposedly acidic colliery spoil is poorly understood but fascinating none-the-less. These lime-rich springs deposit calcium carbonate as tufa when they reach the surface, creating a specialised environment supporting highly localised invertebrate species. Included amongst those is *Oxycera pygmaea* (Pygmy Soldierfly), whose larvae develop in the wet mosses and tufa deposits in and around these springs. Though I have encountered this species on many occasions – since it is typically the most frequent soldierfly on colliery spoil sites – its small size has presented problems when attempting to make behavioural observations.

On 7th June 2020, however, I had a fascinating encounter with an *O. pygmaea* female while conducting an invertebrate survey at Darren Fawr Tip, Blaengarw, Bridgend (Glamorgan, VC41). Over the course of 20 minutes, I sat and watched the female (pictured) as she laid eggs directly into an area of dry, white tufa. Moving across the surface of the hard tufa deposits, she would spend several minutes egg-laying at one location, before then walking to another spot to lay further eggs. Having laid several eggs during the time I watched her, she then proceeded to climb up an overhanging dead plant stem and egg-lay directly into

Female egg-laying directly into the tufa deposits at Darren Fawr Tip
© Liam Olds

the broken stem of this unidentified plant. Having not previously encountered this behaviour, this proved to be an absorbing wildlife encounter and certainly one of my most memorable of 2020.

Liam Olds leads the Colliery Spoil Biodiversity Initiative, and there is lots of information on these fascinating sites and habitats available from his website at www.collieryspoil.com/biodiversity.

Potential new species to look out for

I've recently been alerted to two species that we ought to look out for in the UK.

***Archicera avarorum* (Rhagionidae – snipeflies)**
This is a very small snipefly that appears to be extremely rare on the continent, with a handful of records from Croatia, Austria, Romania and most recently in Belgium, reported by Patrick Grootaert, Hugo Raemdonck and Alain Drumont:

- The Rhagionidae or Snipeflies of the Botanical Garden Jean Massart (Brussels-Capital Region, Belgium) with notes on the identity of the rare European species *Archicera avarorum* Szilády, 1934 and *Ptiolina obscura* (Fallén, 1814) (Diptera: Rhagionidae). 2020, *Belgian Journal of Entomology*, available from bit.ly/2WOs2SO

This paper points out that *Archicera avarorum* could be confused with another tiny snipefly, *Spania nigra*. There are differences in the shape of the antennae, which are illustrated in the paper. Although there is no suggestion that this species is in the UK, the smaller snipeflies are generally very under-recorded and it is worth bearing in mind the possibility of this species being found. There are also accounts of the other snipeflies recorded, and an illustration of the male genitalia for *Ptiolina obscura*.

***Beris hauseri* (Stratiomyidae – soldierflies)**
Theo Zeegers has been in touch to enquire about *Beris* species in the UK, in preparation for a new book that he and André Schulten are working on. Six species of *Beris* are known from the UK, but Stubbs and Drake also included *B. strobli* in the keys to this genus as a potential addition, and in the text (under *B. fuscipes*) another species is mentioned: *B. hauseri*.

Theo believes that *B. hauseri* could occur in the UK, and asks us to be on the look-out for it. Theo says: "The male of *hauseri* is like *fuscipes*, but the third antennal segment is slightly more elongated and less thickened, making it more like *chalybata*. The female is clearly different from *fuscipes* due to the broad vertex. The femora and tibiae are partially darkened, but can be quite yellow in females.

"In all cases all metatarsi [= basitarsi, the first segment of the tarsi] of *hauseri* are predominantly yellow, differing from both *chalybata* and male *fuscipes* [female *fuscipes* can have yellowish metatarsi]. My guess is, if you start searching for *hauseri*, you might find some in between males of *fuscipes* and/or females of *chalybata*."

Theo also comments that the flight period for *hauseri* starts a week later than *chalybata*, and suggests focusing on specimens from mid-June or later, at least in lowland areas. However, there are genuine records of *B. chalybata* in July and August, so the flight periods are likely to overlap substantially.

A specimen will be needed to support any record of *hauseri* in the UK. I'd be pleased to hear from anyone who has a candidate for it! Identification of *Beris* has always required close examination, especially for *fuscipes* and *geniculata*, and the potential for an additional species adds to the challenges. A female *B. hauseri* is shown on Dipterists Info (www.diptera.info/forum/viewthread.php?thread_id=70724).

Thanks to Patrick Grootaert, Theo Zeegers and Alan Stubbs for passing on the above information.

Highlights from records sent in during 2020

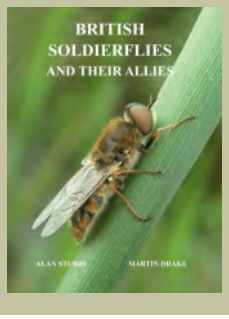
Over 7,700 records for the scheme were added to iRecord (and its linked websites and apps) during 2020, and there will be more records to add once additional spreadsheet records have been collated. This is a brilliant response – thanks to everyone who has taken part. Here are a very few highlights, with apologies to all those I have missed out.

- *Dysmachus trigonus* (Fan-bristled Robberfly): in the soldierflies book (Stubbs and Drake 2014) it says that the "ovipositor is of the type designed for sliding between plant tissues but observations on egg-laying behaviour would seem to be lacking".

  Females investigating and apparently laying eggs into grass stems were observed in 2020 by Vanna Bartlett at Cranwich Heath, Norfolk, on 15 June 2020 (see image on right – more photos can be seen on iRecord at www.brc.ac.uk/irecord/record-details?occurrence_id=18281678).
- *Odontomyia angulata* (Orange-horned Green Colonel soldierfly) at Thompson Common, West Norfolk , 3 July 2020; Andy Brown
- *Odontomyia ornata* (Ornate Brigadier soldierfly):
  - ◊ new to Northants at Whiston, 19 May 2020; Robin Gossage
  - ◊ second record for Worcestershire, Croome Park, 20 May 2020; Mike Averill, with excellent photos of egg-laying (see image on right and at www.brc.ac.uk/irecord/record-details?occurrence_id=13640850)
- *Rhagio notatus* (Large Fleck-winged Snipefly) new to East Anglia at Swanton Novers Great Wood, Norfolk , 3 June 2020; Steve Lane and Andy Brown
- *Stratiomys longicornis* (Long-horned General soldierfly):
  - ◊ new to Buckinghamshire at Willen Lake North, 30 May 2020; Ian Williams – a second county record came a few days later at Finemere Wood, 2 June 2020; Ryan Clark
  - ◊ a very early emergence on at Seasalter, Kent, on 27 April 2020; Mike Gould

We also have our first record of the non-native *Hermetia illucens* (Black Soldierfly) 'in the wild'. This was found by Peter Duran in his Wiltshire garden on 16 August 2020, believed to be the result of larvae being fed to hedgehogs and escaping. Black Soldierflies are now reared very widely in the UK, and escapes are inevitable. They are not thought to be able to establish outdoors, but that theory is likely to be fully tested in coming years.

British soldierflies and their allies by Alan Stubbs and Martin Drake



British Soldierflies and their Allies by Alan Stubbs and Martin Drake is the definitive guide to the species covered by the recording scheme, with well-illustrated identification keys and comprehensive species accounts.

The price to members of Dipterists Forum or BENHS is £20 (£36 for non-members). Orders can be placed via the BENHS website: www.benhs.org.uk/publications/british-soldierflies-and-their-allies-second-edition

Bee-fly Watch 2020

by Martin Harvey

The fifth year of Bee-fly Watch produced more records than ever before, no doubt partly due to the combination of a warm, sunny April and the unusual circumstances during covid lockdown, which seems to have led to more people engaging with the wildlife near their homes.

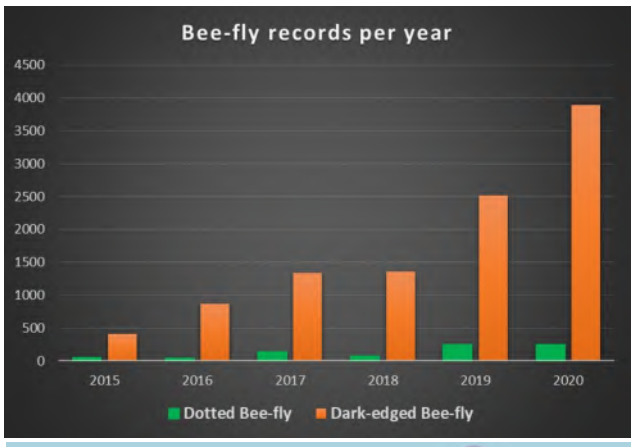
Dark-edged Bee-fly *Bombylius major* was recorded very widely. In contrast there was no big jump in the number of records for Dotted Bee-fly, but there was an astonishing extension in northwards range when Claire Miles found one in her garden in Hathersage on 19 April – the first record for Derbyshire and about 100km north of the previously known range!

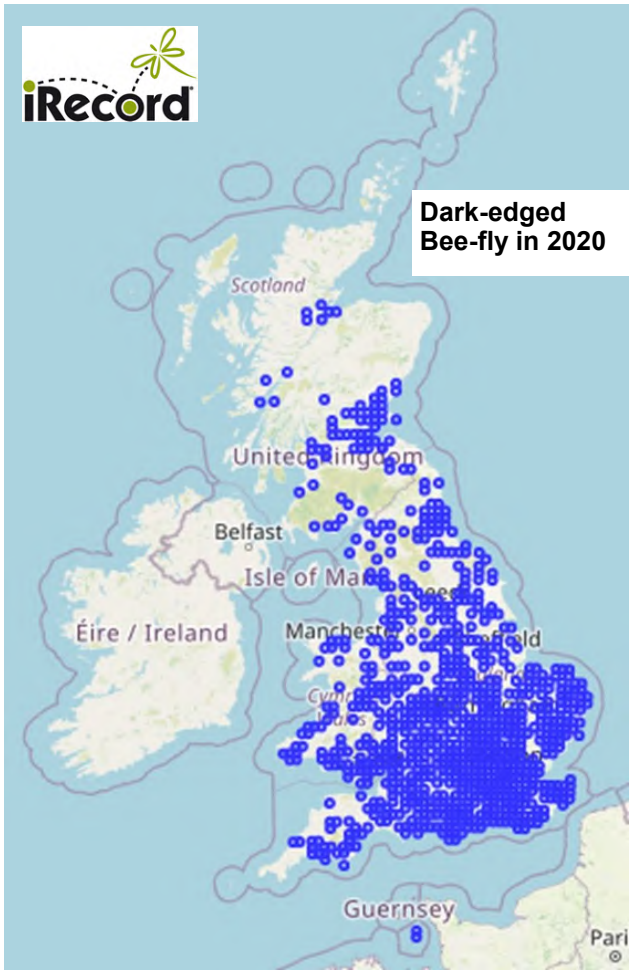
After the very early emergence of bee-flies in February 2019, it was back to a more normal March date for the first records in 2020. Unsurprisingly there is a strong correlation between high temperatures in February and March and early bee-fly emergence.

Checking and verifying such a large influx of records can be a challenge, and in 2020 I was grateful for help from a small team of bee-fly verifiers – many thanks to David Basham, Will George, Tony Madgwick, Garret Maguire, Lloyd Davies and Victoria Burton for their assistance.

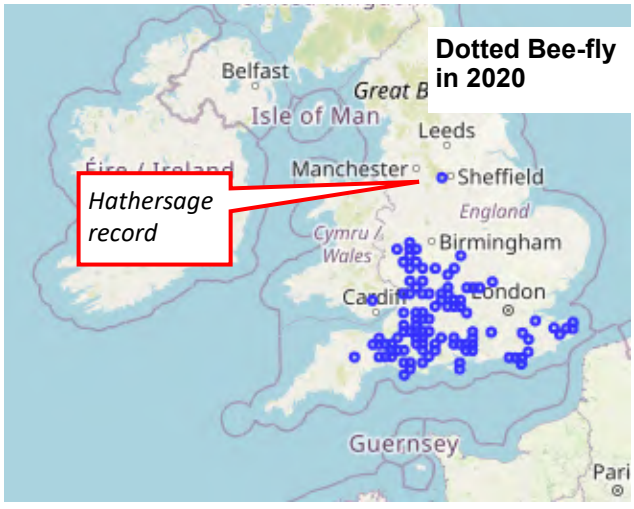
What will happen in 2021? Take part in Bee-fly Watch to find out!

- www.brc.ac.uk/soldierflies-and-allies/bee-fly-watch



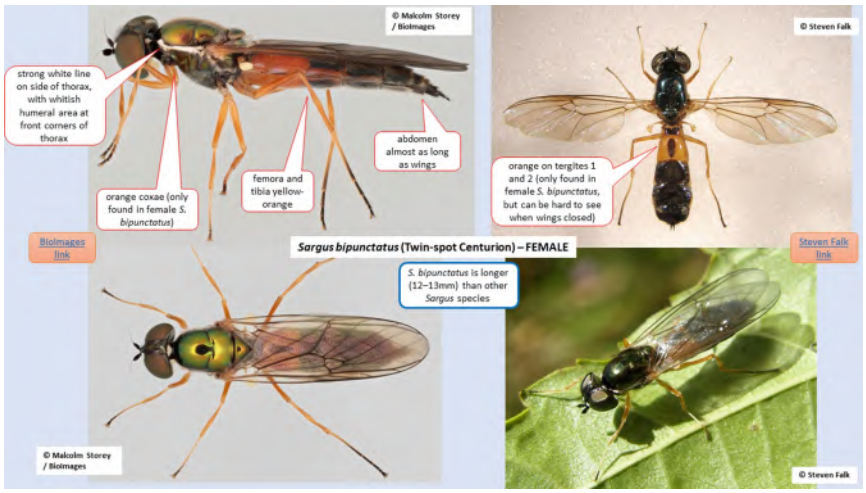


The Hathersage Dotted Bee-fly (photo by Claire Miles).



Recording scheme updates

New identification guides
During 2020 I produced the first of what I hope will be an ongoing series of identification guides to various groups of soldierflies and allies. So far these cover particular genera within the robberflies, bee-flies, snipeflies, soldierflies and horseflies. The guides are intended to help with identification from photos or in the field, and are free to download from www.brc.ac.uk/soldierflies-and-allies/id-guides



The guides draw heavily on the photos of Steven Falk and Malcolm Storey, along with photos and advice provided by a wide range of others to illustrate particular species or features. I am enormously grateful to all these people for making this photographic approach possible.

Recording scheme webinar
Thanks to the Tanyptera Trust for hosting a webinar on soldierflies and allies in December 2020. This was recorded and can be seen via YouTube at youtu.be/_kc7U9XJqr8

Soldierflies and allies in Dipterists Digest
The following articles and notes have appeared in the two most recent issues of *Dipterists Digest*.

- MURDO MACDONALD and STEPHEN MORAN. 2020. The horseflies (Diptera, Tabanidae) of north Scotland. *Dipterists Digest* **27**: 83–88
- MICHAEL J. WOODS. 2020. First records of breeding of the bee-fly *Anthrax anthrax* (Schrank) (Diptera, Bombyliidae) in Britain in 2018/2019, demonstrated by observations near Canterbury, Kent in 2019. *Dipterists Digest* **27**: 53–59
- MARTIN C. HARVEY and JENNI GODBER. 2020. A probable, and unusual, larval record of *Odontomyia ornata* (Meigen) (Diptera, Stratiomyidae) in Warwickshire. *Dipterists Digest* **27**: 50

See also updates in the Dipterists Forum *Bulletin*, including reports on rare soldierflies, stiletto-flies and bee-flies in the "Conservation news" sections of Bulletin 89 (pages 18-20) and 90 (pages 20-23).

Social media
Don't forget that you can join in with discussion and identification assistance on Twitter and Facebook: Twitter: @SoldierfliesRS – Facebook: British Soldierflies and Allies

Records welcome

The recording scheme can only function if people send in their records – please continue if you are a regular recorder, and if you haven't yet sent any in now is a good time to do so! Even if you are just starting off with your first Dark-edged Bee-fly record it all helps build up our knowledge of the species.

- Information on recording: www.brc.ac.uk/soldierflies-and-allies/records
- Records on iRecord: www.brc.ac.uk/irecord/activities/summary?group_id=350&implicit=
- Identification information: www.brc.ac.uk/soldierflies-and-allies/resources

Thanks to the Biological Records Centre for supporting the recording scheme website.

Flat-footed Fly Recording Scheme

Newsletter 4 Spring 2021

Introduction

Previous newsletters have reported low numbers of platypezid records in all years from 2016 to 2019, while at the same time including substantial extensions to the ranges of several species and adding new data on a number of rare species. Flat-footed flies have also been noted as sparsely recorded on Forum field meetings in these years.

In 2020, due to covid, there were no Forum field meetings, and field activity by many recorders was constrained and often limited to their own immediate areas. It was not therefore anticipated that many records of flat-footed flies would be achieved in the year. However, a steady stream of records has been forwarded to me by a stalwart band of active fieldworkers, providing some unexpectedly interesting results. While more records no doubt remain to be reported, it is considered worthwhile to produce this interim report of the situation as known at the end of 2020.

Newsletter 3 (Chandler 2020) reported the first records of this family from the Isle of Man, *Lindneromyia dorsalis* and *Paraplatypeza atra*. Steve Crellin (2020) then reported that, in September 2019, he had found two more species there, *Platypeza hirticeps* and *Callomyia dives*. This was also the first record of *C. dives* in the British Isles since 2014.

Results of recording in 2020

Platypezid data for 2020 have been provided by Peter Andrews, Phil Brighton, John Coldwell, Steve Crellin, Andrew Cunningham, Martin Drake, Neil Halligan, Andrew Halstead, Jane Hewitt, Tony Irwin, Nigel Jones, Gary Lowe, Ryan Mitchell, Ivan Perry, Sam Rees, Alistair Shuttleworth, Donald Smith, Steve Tomlinson, Genevieve Tompkins, Judy Webb, Jo Weightman and Rob Wolton. I thank everyone for the interest they have shown.

Altogether, I have so far received 260 records of Platypezidae, recorded on separate dates in 2020 at 50 sites in 35 hectads, and 23 of *Opetia* in five hectads. There are records of 24 species of Platypezidae from 2020, including *Microsania vrydaghi* and *Platypezina connexa* not recorded in other recent years. More recorders are still needed to gain a clearer picture of the status and distribution of flat-footed flies, and much is still to be learned about their biology, as shown by the following observation.

Dead insects as a food source

Important new information obtained in 2020 has already been reported in a note by Peter Andrews (2021). This concerns observations on the activity of females of *Agathomyia cinerea*, photographed while feeding on dead insects. Members of this family are well-known to feed, while running about on leaf surfaces in their characteristic rapid jerky fashion, but it had been thought that their food was restricted to surface deposits such as honeydew, pollen grains and microbes.

Then Jane Hewitt made a similar observation on 6 November, when a female of *Agathomyia falleni* was seen to be feeding on a shrivelled up very small insect that was not identifiable. She noticed that it was very keen on feeding from this insect and that it kept returning to it. It is possible that feeding on dead insects is a regular occurrence in this family although, since it has not apparently been observed before, it could perhaps be considered opportunistic.

***Agathomyia falleni* female with dead insect (photo Jane Hewitt)**

Another species new to the Isle of Man

Steve Crellin swept a female of *Protoclythia modesta* from a patch of unidentified toadstools growing on the woodland floor close to the main duck pond in Bishopscourt Glen (SC332923) on 14 October 2020. This brings the species list of Platypezidae for the island to five.

New records of *Platypezina connexa*

This species is presumably a recent arrival in this country, having before 2020 been found only once, on 17 October 2015, when Andrew Halstead swept two females in Burley New Inclosure in the New Forest, Hampshire, a mixed deciduous and conifer woodland with open rides. Since then it was unknown whether it had become established here. Halstead (2016) noted that it may have extended its range in Europe recently, with the first record from the Netherlands only in 1994, and it had also been first found in Denmark in 2015. Reemer & de Jong (2016) included a map showing that it is now widespread across central regions of the Netherlands. Its larval biology is unrecorded, but four males had been found in an emergence trap over a moss-covered soft rotten trunk of Norway spruce, *Picea abies*, in Finland (Ståhls and Kahanpää 2006).

On 17 October 2020, Ryan Mitchell swept a female of *P. connexa* in Besselsleigh Wood (SP450014), south-west of Oxford. This is an ancient woodland, but including a conifer plantation, and close to where the specimen was found are conifers amongst oak, beech and sycamore. Ground vegetation is limited, with some ferns and bracken growing sporadically throughout the woodland.

***Platypezina connexa* female from Besselsleigh Wood (photo Ryan Mitchell)**

Remarkably, on the same day, Ivan Perry caught a female of *P. connexa* in mixed woodland, at Brandon Country Park (TL788850), Suffolk, in mixed beech and conifer woodland, with the conifers predominantly spruce, and without much ground vegetation. He returned to the site on 16 October and caught another female. On both occasions they were swept close to the ground and were not recognised as platypezids in the field. Ivan has carried out extensive fieldwork at this site since 2004 and, although it is a few years since he had made an autumn visit, he considers that it must be a recent arrival there.

This species is evidently now widespread across south and east England, so should be looked out for among autumnal catches. The male, illustrated in Halstead (2016), but yet to be recorded in Britain, is mainly deep black in colour with brownish wings, strongly contrasting with the holoptic red eyes.

A first for Melksham

My only Diptera record for 2020 was a male of *Lindneromyia dorsalis*, which was observed on 13 September, running about with great footwork on the relatively small leaves of a *Cotoneaster* bush in my garden (ST8958462394), about a metre from the ground. Having tubed it, it was necessary to refrigerate it for a few minutes before it was calm enough to be examined under the microscope, enabling its identity to be confirmed. This was the most likely species in the absence of woodland, although its usual hosts *Agaricus* species have not been noticed in the vicinity. Having returned it to room temperature, it was released where it was found, and it flew off rapidly to an uncertain future. This was not only the first platypezid seen in my garden, but only the fourth species of the family to be recorded in the hectad ST86. None have been seen since.

A better garden for flat-footed flies

From late August through to October, Jane Hewitt was recording almost daily sightings of platypezids in her garden (SK027870) at Birch Vale, Derbyshire. Altogether she found eleven species: *Agathomyia antennata*, *A. cinerea*, *A. falleni*, *Callomyia amoena*, *Paraplatypeza atra*, *P. bicincta*, *Platypeza consobrina*, *P. fasciata*, *Polyporivora ornata* (the species serving as the logo of this newsletter), *P. picta* and *Protoclythia modesta.*

Her garden backs onto a disused railway, lined with trees (sycamore, ash and birch, with some oak), where the local council makes an effort to leave felled and fallen trees as dead wood. Within the garden, one particular spot favoured by the flies is a shady corner under two very large sycamore trees, where they are found feeding on dogwood or damson leaves, sometimes hazel or apple leaves, only occasionally the sycamore leaves. A male of *Paraplatypeza bicincta* was found here on a damson leaf on 6 October. The profile of the genitalia, visible in her photograph, confirms its identity.

***Paraplatypeza bicincta* male from Birch Vale (photo Jane Hewitt)**

Jane also regularly visited a nearby wet woodland site at Hayfield (SK032870) on most days. There *Agathomyia falleni* was easy to find, nearly always on the same hazel bush. On 7 October a male of *Platypeza hirticeps* was found on sycamore at the edge of the disused railway. Eight species were recorded there, including two others not seen in her garden, *Agathomyia unicolor* and *Lindneromyia dorsalis*. She observed that feeding females, in particular, are less easily disturbed than other flies; it was possible to gently pull down hazel branches from above head height and find them "still happily feeding away".

Other hot spots

Ryan Mitchell concentrated on recording at Besselsleigh Wood near Oxford and, in addition to *Platypezina connexa* discussed above, he recorded a further 12 species, notably *Agathomyia woodella* (♂ 7 October, ♀ 11 October) and *Paraplatypeza bicincta* (♀ 11 October). Also found were *Agathomyia antennata*, *A. falleni*, *A. unicolor*, *Callomyia amoena*, *Paraplatypeza atra*, *Platypeza consobrina*, *Polyporivora ornata*, *P. picta*, *Protoclythia modesta* and *P. rufa*. He obtained most by sweeping sycamore randomly above head height. On 20 September he recorded one more species, a female of *Lindneromyia dorsalis* on ivy in a field adjacent to Cumnor Cricket Club (SP4593603753).

Peter Andrews regularly photographed Platypezidae in the Savernake Forest area of Wiltshire, recording 13 species. The areas visited were Hen's Wood (SU240690) and East Croft Coppice (SU2368). His observations on *Agathomyia cinerea* have already been published (Andrews 2021). Other significant records were *A. boreella* (♀ 29 September), *A. woodella* (both sexes seen, six dates from 26 September to 15 October) and *Paraplatypeza bicincta* (3♀ 15 October). Other species seen were *A. antennata*, *A. falleni*, *A. unicolor*, *Callomyia amoena*, *Paraplatypeza atra*, *Polyporivora ornata*, *P. picta*, *Protoclythia modesta* and *P. rufa*.

Agathomyia boreella **female at East Croft Coppice in Savernake Forest (photo Peter Andrews)**

Ivan Perry mainly restricted his fieldwork away from home to Brandon Country Park, Suffolk, where platypezids were recorded on five visits in October and November. In addition to his finds of *Platypezina connexa* discussed above, he recorded seven other species: *Agathomyia cinerea*, *A. falleni*, *A. unicolor*, *A. woodella*, *Paraplatypeza bicincta*, *Platypeza consobrina* and *Protoclythia modesta*. These findings increased to 15 the platypezid species known from this site, as a result of Ivan's previous recording there.

Smoke flies in 2020

Martin Drake found *Microsania pectipennis* on 20 October at Bewley Down (subsite Hell Bottom) (ST285064), Devon (but in V.C. 9), in the smoky fire of rhododendrons, of which many acres had been felled by a local landowner "in his excellent efforts to restore mire and wet heath" to their parish. He caught seven males, all of this species.

Ivan Perry also recorded a male of *M. pectipennis* at a bonfire in his garden at Lode (TL531626), Cambridgeshire on 28 September. He had previously caught a male of *M. vrydaghi* at Hopton, Suffolk on 30 July, also in bonfire smoke. There are only three previous British records of *M. vrydaghi*, in 2002, 2004 and 2006. On the last occasion, when I found it at Bath University Campus, it was together with a much larger number of *M. pectipennis*. It must always be recognised that two or more species of *Microsania* may be found at the same bonfire.

I can only repeat what has been said in previous newsletters that there are five British species of *Microsania*, all found at smoke but rarely seen otherwise, and the mystery of their larval biology remains to be unravelled.

Other 2020 records

Phil Brighton found *Polyporivora ornata* in his garden at Croft (SJ637932), Warrington on 19 April and *Paraplatypeza atra* at Houghton Green Pool (SJ624925) on 29 August. He recorded *Opetia nigra* regularly at the latter site from March to August.

John Coldwell recorded *Agathomyia antennata* on 8 September and *Paraplatypeza atra* on 26 June, in the Dodworth (SE3105) area of South Yorkshire.

Andrew Cunningham found four species in his garden (SS965135) at Cowleymoor, Tiverton: *Protoclythia rufa, Platypeza consobrina*, *P. fasciata* and *Polyporivora ornata*; the first two were females at honey fungus *Armillaria*. And, in pine woodland at Knightshayes (SS962155), Devon on 16 October he found two females of *Agathomyia cinerea* and a male and two females of *Paraplatypeza bicincta*, its second Devon record; on earlier visits to this site in October he also found *P. rufa*, *P. fasciata* and *Paraplatypeza atra*.

Neil Halligan provided the only Irish record of the year when he photographed a female of *Polyporivora ornata* in Grove Wood (S221336) near Fethard, Co Tipperary on 19 September.

Andrew Halstead recorded at eight sites in Surrey, finding eight species: *Agathomyia falleni*, *A. unicolor*, *Callomyia amoena*, *C. speciosa* (♂ at Barley Mow Wood, SU965593, on 30 July), *Platypeza consobrina*, *Polyporivora ornata*, *Protoclythia modesta* and *P. rufa*.

Nigel Jones found two females of *Bolopus furcatus* under a bracket of *Cerioporus* (formerly *Polyporus*) *squamosus*, at Cheney Longville (SO423853), Shropshire on 9 June, the only 2020 *Bolopus* record so far. He also recorded four other species in Shropshire, including two in his Shrewsbury garden (SJ491113): *Paraplatypeza atra*, a female on ash foliage on 4 June, and *Platypeza consobrina*, a female running about on a tile on a dustbin lid, on 14 October.

Gary Lowe caught a male of *Protoclythia rufa* in a moth trap at Boyton (TM380473), Suffolk on 15 September.

Ivan Perry found two species in his garden at Lode (TL531626), Cambridgeshire: a female of *Polyporivora picta* at its fungus host *Trametes versicolor* on a birch log on 18 September, and two females of *Platypeza consobrina* on *Bergenia* leaves on 18 October.

Sam Rees photographed a male of *Callomyia speciosa* in a garden at Shrewsbury (SJ4849413106) on 11 August, and a male of *Agathomyia wankowiczii* on foliage at Shrewsbury (SJ4892611875). This is apparently only the fourth occasion that an adult has been observed in the field in England, most records being of galls including a few rearings from them.

***Agathomyia wankowiczii* male at Shrewsbury (photo Sam Rees)**

Alistair Shuttleworth found a female of *Polyporivora picta* at Dalgety Bay (NT1484), Fife on 10 October.

Donald Smith found a female of *Agathomyia antennata* in mixed woodland at Newbyth (NT586795), East Lothian on 31 May.

Steve Tomlinson recorded six species in the Liverpool area, all confirmed from photographs. He found a female of *Agathomyia antennata* in a Liverpool garden (SJ408863) on 10 September, and a female of *Lindneromyia dorsalis* on *Agaricus campestris* near Allerton Golf Course (SJ412863) on 19 September. At the Festival gardens (SJ367865), Otterspool on 18 October males of *Protoclythia modesta* and *P. rufa* were seen on hazel leaves. At Otterspool Park (SJ379862) on 22 October two females of *Agathomyia falleni* were on a rotten tree stump with fungi, probably its host *Bjerkandera adusta*, and he swept a female of *Platypeza consobrina* from sycamore.

Genevieve Tompkins provided a photograph of a female of *Callomyia speciosa* from Abernethy Forest (NH993196) in the Scottish Highlands on 9 June. Together with the records mentioned above, there have been only three sightings of this species in 2020.

Will Watson found galls of *Agathomyia wankowiczii* on *Ganoderma applanatum* at Berrington Hall (SO507630), Herefordshire on 29 December (Jo Weightman *pers. comm.*)

Judy Webb reared *Seri obscuripennis* from its regular host *Picipes badius* (= *Polyporus durus*), the bay polypore, collected on 8 October at Dunstan Park (SP541080), Oxford. The fungus was on a rotting fallen trunk in the centre of a small fen restoration area; it was kept indoors in a rearing pot and, although most of the fungus went mouldy, four adults emerged from 28 to 30 October.

Susan Weeks photographed a female of *Polyporivora picta* at Old Catton (TG230123), Norwich on 25 October (Tony Irwin *pers. comm.*).

Rob Wolton recorded *Protoclythia modesta* and *Platypeza consobrina* at Killerton Park (SS972006), Devon on 10 October, and *Polyporivora picta* on a blackcurrant leaf at Locks Park Farm (SS518022) on 18 October. He also recorded *Opetia nigra* at both sites and at Ausewell Wood.

Acknowledgements

All recorders are thanked for the data and information about their finds, and Peter Andrews, Jane Hewitt, Ryan Mitchell and Sam Rees for the use of their photographs.

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Peter Chandler

Cranefly News

Dipterists Forum Cranefly Recording Scheme

For Superfamily Tipuloidea & Families Ptychopteridae & Trichoceridae

Newsletter No 36 **Spring 2021**

Editor: John Kramer

Terminal disc of Prionocera larva. Photo. EGH

Editorial

This issue contains a number of articles on cranefly larvae, finding and rearing them. This is a difficult but important activity if we are to understand the ecology of craneflies and for every species we could write a long list of unknown facts. For example, what is the range of habitats they occupy ? what foods do they ingest and digest ? How tolerant are they of dessication? soil pH? temperature ?

When, as at the time of writing, travel to investigate new habitats is discouraged, perhaps now is a good time to rear the cranefly larvae ? There are a lot of suggestions here. Many thanks to all of the contributors.

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Rearing *Tipula paludosa* and *Tipula subnodicornis*

Stefanie Carter

Introduction

My PhD project, funded by Aberystwyth University's Doctoral Career Development Scholarship, involved the rearing of tipulid larvae in containers, or microcosms, which allowed the development of the larvae to be followed in their appropriate habitats. Two species were investigated, *Tipula paludosa* and *Tipula subnodicornis*, to determine the impact of these tipulid larvae on greenhouse gas fluxes. The methodology and success of larval rearing is described in the following account.

Fig 1. Microcosms with perennial rye grass (*Lolium perenne*)

T. paludosa

Fig. 2. Larvae of *Tipula paludosa*

I collected larvae of *T. paludosa* in the wild (coastal mid-Wales) in January 2016 from the edge of an arable field where I had seen migrating Stonechats gorging themselves on adult craneflies just a few months earlier. I removed the surface vegetation and a few centimetres of topsoil, which revealed the larvae. I introduced the larvae to microcosms (cylinder with ca. 9.5 cm diameter and height of ca. 18 cm, filled with ca. 580 g of non-sterile sandy silt loam) with *Lolium perenne*, which had been freshly sown 19 days previously. A total of 54 larvae were introduced to 12 microcosms with a mean weight ± SD of 0.184 ± 0.0780 g; the full weight range was 0.075 g to 0.448 g. The microcosms were incubated in a growth room at a day/night regime of 16/8 h at a constant temperature of 14 °C. After 19 days 51 larvae were retrieved; three could not be found and I assumed they had died. Weight gain averaged per larva was -0.015 g to 0.138 g or a loss of 7.39% and a gain of 72.58%.

T. subnodicornis

In order to try and obtain sufficient larvae for study, rearing containers were set up in the field. At the end of May 2016 I set up four rectangular rearing containers (40 cm long, 35 cm wide, 25 cm tall) with five small holes at the bottom in the field at the Migneint, North Wales. Peat turves with mixed vegetation (predominantly *Eriophorum vaginatum* (Hare's tail Cottongrass) and species of *Sphagnum* moss, with some *Calluna vulgaris* (Heather)) of approximately that size were removed from the peat bog and placed into the containers. I then inserted the containers into the holes created so that the peat turf surface level inside the containers would be at the same height as the surrounding peat. All rearing containers were therefore subject to natural temperatures, precipitation and water tables whilst drainage through the holes prevented complete inundation.

Fig. 3. Larva of *Tipula subnodicornis*

The four containers were covered with mosquito netting which was held up by five bamboo sticks at approximately 30 cm height. Initially, I intended to collect mating pairs and place these under the netting but I was not able to find any. Instead, I dragged a sturdy aquatic net over vegetation and bare peat and collected five females. I placed these under the netting and added three males per female. In the beginning of November 2016 I searched the upper 20 cm of each container. I found 21 small larvae, two thirds of which were in just one container. Of these I was only able to retrieve eight in the laboratory; their mean weight ± SD was of 0.067 g ± 0.0194.

The growth of these larvae was then studied in a similar way as the larvae of *T. paludosa*.

The containers or microcosms were filled with peat cores; half of the containers received *E. vaginatum* seedlings; to the other half I added *Sphagnum papillosum* mats. These were prepared in October 2016. Larvae were added in November and remained in the containers in a heated glasshouse for 24 days before being removed again. Out of the eight larvae added, I was only able to retrieve three. On average, the surviving larvae had also lost between 6.6% and 25.2% of their original body weight.

Fig 4. Microcosms filled with peat cores

All three larvae were then placed in one of the original rearing containers and kept in the glasshouse under a net. On 7 February 2017, one male adult *T. subnodicornis* was discovered; two additional adults (one a definite female and one probable female) were found in the beginning of April 2017.

Discussion

Collecting and keeping *T. paludosa* was straightforward and the 5.5% mortality rate was probably not higher than in natural conditions; not surprisingly, most thrived on the fresh *L. perenne* grass.

Rearing *T. subnodicornis*, however, was very challenging. A lack of mating pairs and females meant that the numbers at the start were already low. Larvae did not cope well with being handled in the field and in the lab.

Nonetheless, I would recommend my approach to anyone attempting to rear *T. subnodicornis*. In-situ containers allowed near natural conditions, which could be difficult to recreate in an artificial environment. The key to success would be to obtain a large number of mating pairs rather than individual females, which may have already laid most of their eggs.

Probable larvae of the Yellow-rostrum Sawhorn cranefly *Prionocera turcica* (Fabricius, 1787) (Diptera, Tipulidae) - E Geoffrey Hancock

Fig.1 P. turcica pupa showing pair of long resiratory processes.

Some *Prionocera* cranefly larvae were seen on 4 October 2020 amongst iris roots in a 'recycled' cattle drinking trough in the garden, near Strathaven (NGR: NS714425). When disturbed they disappeared rapidly head first into the dense root tangle, leaving behind the two small red curved chironomid blood worms, the only other dipterous larvae visible. Interestingly, I had not seen adults in the garden before although *Prionocera turcica* occurs locally. I have never found larvae of the genus anywhere but that is probably because generally I do not target juvenile stages when recording. It should be said that the species identification is based on an assumption pending adult emergence in the next season. *P. turcica* is the only one of the three British species with records from this part of the UK so its naming is provisional. Two were taken indoors to look at more closely. Four were seen, three of which seemed fully grown (fourth instar) and one a third instar judging from its size.

Fig 2. Spiraclar disc with 6 lobes. Posterior view of living 3rd instar *Prionocera larva*

Fig 3. *Prionocera larva.* 4th instar submerged Lateral view to show the papillae

A remarkable feature of *Prionocera* larvae, in comparison to other tipulines, is the terminal spiracular field with six long thin lobes with equally long hair fringes. These lobes on breaking through the meniscus spread out and with the hydrofuge properties of the long fringe of hairs prevent drowning. It is easily observable with living examples in a small dish of water (Figs 2 & 3).

I did think the species could be named from features within the spiracular field as with the majority of British tipulines but this appears not to be the case. In fact, of the western European species only *P. turcica* has been adequately figured as larvae.

Initial consultation of the literature seemed to show a spiracular field identical with a Nearctic species. However, recent research has shown that this north American cranefly actually belongs in *Angarotipula* Savchenko, 1960, originally described as a subgenus of *Tipula*, although true *Prionocera* do occur in the Nearctic. Its spiracular field is indistinguishable from *Prionocera* but other larval features such as in the vestiture, where the density and distribution of spicules dorsally over the integument varies, and there are detectable differences in the pupae. Adult *Angarotipula* lack verticils, and bare antennae are also a noticeable feature of *Prionocera* but genitalia characters separate them. Analysis by Fenja Brodo (2017, Taxonomic review of *Angarotipula* Savchenko, 1961 (Diptera: Tipulidae) in North America. *Canadian Entomologist* **150**: 12–34) formally elevated *Angarotipula* to generic level, and placed it in a sister group with *Prionocera*. A live *Angarotipula* larva is illustrated from Brodo (2017) showing their similarity (Fig. 4).

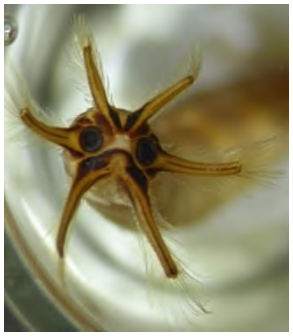

Fig. 4 . *Angarotipula* from Brodo (2017)

So far, so good, but where does this leave the British fauna in terms of larval identification? Coronavirus lockdown and restrictions in travel have induced more local scrutiny of wildlife, and resulted in this particular challenge. Larvae of other species of *Prionocera* are required to find specific characters to separate them.

E. Geoffrey Hancock

It may be worthwhile measuring the lobe-to-disc ratio ? Ed.

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Some brief notes on rearing records for craneflies - Martin C. Harvey

These notes are nearly all from the 1990s, and give brief details of cranefly species that have been found as larvae or pupae and reared through to the adult stage. Most of the larvae were found in late instars, close to pupation, and my 'technique' for rearing them has simply been to keep them in a suitable tube or container with some of the substrate in which they were found.

Tipulidae

Dictenidia bimaculata (Tipulidae)
Pupa found in the wood of a beech tree (*Fagus sylvatica*) c. 2 metres above ground, at High Standing Hill, Windsor Forest (Berkshire, SU936744) on 30 May 1998.

Prionocera turcica (Tipulidae)
Not a rearing record, but an observation of females apparently ovipositing into shallow water over peat, at Emer Bog Wildlife Trust reserve (South Hampshire, SU397215) on 17 April 1999.

Tipula flavolineata (Tipulidae)
L1. Larva found in very rotten wood at the end of a branch of a fallen ancient Beech (*Fagus sylvatica*) at Windsor Forest (Berkshire, SU945715) on 25 January 1998. An adult female emerged on 19 April 1998 (the larva having been kept indoors).

L2. Larva found in a small piece of well-rotted wood (possibly from a conifer but identification not certain) at Windsor Forest (Berkshire, SU976734) on 27 March 1999. An adult female emerged on 19 April 1999 (the larva having been kept indoors).

Tipula irrorata (Tipulidae)
L1 .Two larvae were found under the bark of a mossy fallen tree trunk (likely to be Ash, *Fraxinus excelsior*, or Oak, *Quercus*) at Moor Copse Wildlife Trust reserve (Berkshire, SU641738). One of the larvae was subsequently lost, the other produced an adult female on 1 June 1997 after several weeks as a pupa (the larva having been kept indoors).

L2. Larva found under bark of fallen tree trunk at Micheldever Spoil Heaps Wildlife Trust reserve (North Hampshire, SU520444) on 31 March 1999. An adult male emerged on 24 April 1999 (the larva having been kept indoors).

Tipula paludosa (Tipulidae)
Larva found under stones in moorland (at about 360 metres elevation) near Brown Hill, Yorkshire Dales (Mid-west Yorkshire, SD929625) on 9 May 1999. An adult female emerged on 7 August 1999 (the larva having been kept indoors).

Tipula peliostigma (Tipulidae)
Larva found in soil/leaf-litter at Windsor Forest (Berkshire, SU976734) on 27 March 1999. An adult female emerged on 20 April 1999 (the larva having been kept indoors). Identification confirmed by Alan Stubbs.

Tipula selene (Tipulidae)
L1. Larva found under bark on the top surface of a large fallen Beech trunk (*Fagus sylvatica*) at Ashampstead Common (Berkshire, SU584754) on 21 April 1996. An adult female emerged on 13 May 1999 (the larva having been kept indoors). Identification confirmed by Alan Stubbs.

L2. Larva found under bark of dead Birch (*Betula*) trunk, east of Holly Wood (Berkshire, SU529697) on 29 December 1997. An adult male emerged in May 1999 (the larva having been kept indoors). Identification confirmed by Alan Stubbs.

L3. Larva found under bark of fallen dead wood (possibly Oak, *Quercus*) at Windsor Forest (Berkshire, SU976734) on 27 March 1999. An adult male emerged on 17 April 1999 (the larva having been kept indoors).

L4. Larva found under bark of fallen tree trunk at Micheldever Spoil Heaps Wildlife Trust reserve (North Hampshire, SU520444) on 31 March 1999. An adult female emerged on 23 April 1999 (the larva having been kept indoors).

Pupa found by beating dead wood on the standing main trunk of an ancient Oak (*Quercus*) at Chiltern Woodland Burial Park (Buckinghamshire, SU96398996) on 22 May 2012.

Limoniidae
Austrolimnophila ochracea (Limnophilinae)
Larva found in the decaying wood of an ancient beech tree (*Fagus sylvatica*) at Windsor Forest (Berkshire, SU945715) on 25 January 1998. An adult male emerged on 11 April 1998 (the larva having been kept indoors).

Neolimonia dumetorum (Limoniinae). Larva found in unspecified decaying wood at Windsor Forest (Berkshire, SU945715) on 25 January 1998. An adult female emerged on 23 June 1998 (the larva having been kept indoors). Thanks to John Kramer for identifying the species from a voucher specimen.

Rhipidia ctenophora (Limoniinae) During a visit to Combe Wood, Frilsham (Berkshire, SU545736) on 4 May 1997, a small piece of recently cut oak (*Quercus*) wood was collected. This was approximately 50cm long and 20cm diameter, and contained a small rot hole within in. The wood was placed in a

netting cage, outdoors, and watered occasionally. Two adult craneflies (male and female) had emerged by 01 June 1997.
Martin C. Harvey

***Rhipidia uniseriata* in Northants. John Showers**

During the Spring lock-down I started to work through several pots of flies stored in alcohol. These were part of a by-catch from saproxylic beetle monitoring in 2018 at Yardley Chase, Northants. Much of the material was in poor condition and I could not identify it reliably. Most of the remaining material consisted of common species but I did find a female *Rhipidia uniseriata.* This had been taken in a flight interception trap (Fig. 1) set in a decaying oak or ash tree in a former deer park. Unfortunately all the material that had been collected from several traps in the area was stored in one pot so exactly in which tree the cranefly had been caught could not be determined. This is the first record of this species in Northants. The attached photo of the specimen shows the habitus and wing markings.


Fig. 1.

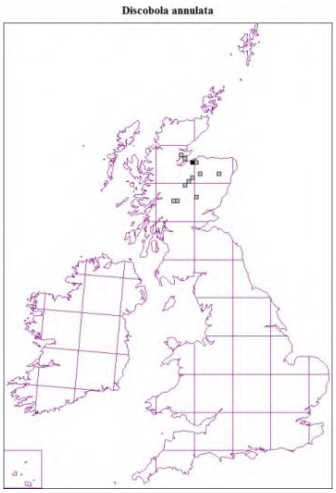
John Showers

Cranefly Recording Scheme Recording Update, 09/12/20 - Pete Boardman

As of the 09/12/20 the Cranefly Recording Scheme received a minimum of 4688 records submitted via iRecord during 2020. These equate to 2575 records made during 2019 but submitted in 2020, and 2113 records made and submitted this year. Obviously there is an in-built lag and a lot of people submit their datasets for the year during the early part of following year, therefore there will be several datasets for 2020 that arrive during the early part of 2021, but I was keen to get some figures out in time for this newsletter. I use the word 'minimum' in the first sentence as I have also received a few datasets via Excel that I am yet to add to iRecord.

A huge thank you to everyone who submitted data in whichever way you submitted it. A large majority of iRecord data that comes in from less experienced recorders has an attached photo (often multiples) and whilst this is incredibly time consuming to verify (imagine 250 individual or multiple photos of *Tipula paludosa* from various angles, each one has to be checked – plus all the late summer *Tipula oleracea* incorrectly identified), it is also incredibly useful for correcting mistakes, sometimes for rare species. For example, each year we receive several records purporting to be the Six-spotted Cranefly *Idiocera sexguttata*, few of which turn out to be that species at all, with most being either *Nephrotoma* species or *Limonia* species submitted by well-meaning but inexperienced recorders. This also works the other way around occasionally too though and this year someone recorded what was identified in their iRecord submission as *Epiphragma ocellare* but was actually on investigation *Discobola annulata* (see Photo 1) from the Highlands of Scotland, and probably the first record of this species received whilst I've been CRS Recorder.


Photo 1.



Map 1 – *Discobola annulata* (black square is the 2020 record)

Incidence of two different species of craneflies (Diptera: Limoniidae) swarming at the same time by an isolated oak tree at a site in the Black Country, West Midlands. – Pete Boardman

On the 3rd August 2020 the author visited Clayhanger SSSI (SK033045) to continue to record the cranefly fauna at this under-examined and hugely interesting site. The location, north of Walsall in the Black Country of the West Midlands, sits on gravelly glacial boulder clays which overlay coal measures, and includes a wide range of wetland habitats from open water through swamp and fen communities to

species-rich marshy grassland which adjoin areas of neutral and acidic grassland. The wetlands seem to have formed largely from the slump caused by old underlying coal mining. As part of the survey work to date, both the nationally scarce flies *Triogma trisulcata* (Schummel, 1829), and *Pilaria scutellata* (Staeger, 1840) were recorded here in 2019.
A slightly raised trackway traverses through lower lying wetter areas and accommodates a relatively out of place oak tree (see Photo 1). Pausing here at 3.30pm on a day of intermittent warm sunny spells with frequent cloudy, cooler moments, and a very light breeze, it became obvious that there were two groups of craneflies swarming* at different heights adjacent to the tree at the same time. A small group of three

Photo 1 – Swarming locations of *Erioconopa trivialis* (1) and *Erioptera fusculenta* (2) at Clayhanger SSSI on 3rd August 2020

male *Erioconopa trivialis* (Meigen, 1818) were seen to swarm approximately 30 cm off the ground below the tree over a patch of sparsely vegetated muddy area (Area 1 in Photo 1). (The swarm was netted, and all determined as males of this species before being released again). At the same time as this swarm was noted a second swarm of five *Erioptera (Erioptera) fusculenta* Edwards, 1938 was seen (one netted and taken for confirmation under the microscope) approximately 1.5 m above ground level and around half a metre from where the lower swarm was seen (Area 2 in Photo 1). The second swarm was close to the outside of an outstretched oak branch.
The Scottish dipterist Alexander Cuthbertson (1901-1942) published a list of species he observed swarming (Cuthbertson, 1926) and a more detailed account of swarming observations of *Erioptera lutea* Meigen, 1804 (as *E. taenionota* Meigen, 1818). *Erioconopa trivialis* is amongst his list of observations though *Erioptera fusculenta* is not. He suggests swarming takes place close to larval habitat and occurs mostly in calm conditions following a period of wet weather, which echoes the conditions experienced at Clayhanger.

*swarming – Stubbs defines this activity in craneflies as "*a flight pattern that holds an insect within a fairly fixed air-space, with one or more males hoping to attract a female for the purpose of mating.*"* (Stubbs, in prep)

Acknowledgements. I thank Geoff Hancock and am very grateful to Jeanne Robinson of the Hunterian Museum Glasgow for their help in accessing the Cuthbertson paper.

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STUBBS, A.E., in prep. British Craneflies. BENHS. Dinton.

Pete Boardman

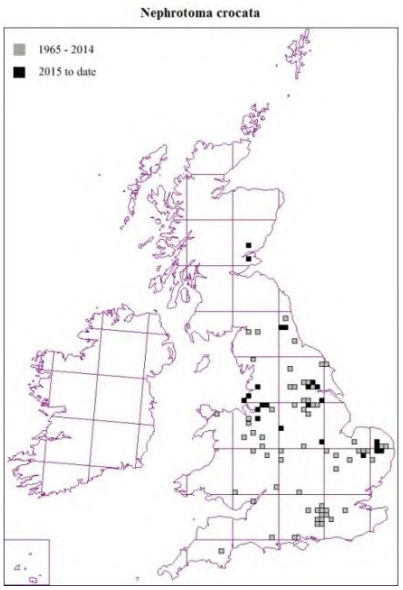
The northern expansion (and potential southern retrenchment) of *Nephrotoma crocata* (Linnaeus, 1758): Tipulidae during 2020

Pete Boardman (Natural England and UK CRS) & Christopher Andrews (UKCEH)

The bright-belted tiger *Nephrotoma crocata* (Linnaeus, 1758) is a stunning cranefly that is instantly recognisable with its black and yellow colouration and the three or four yellow bands

Photo 1. Photo 2 (Photos. C.Andrews)

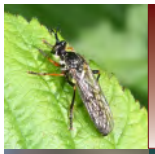
across the abdomen. Stubbs (in prep) states that in the south of its range it is a much scarcer insect than previously, especially in Surrey where it was once widespread, and the New Forest where it was always apparently scarce. Recent northern and eastern records seem to be more frequent (including PB's colleague Alex Prendergast based near the Brecks of East Anglia who recorded this species egg-laying in loose sand in his front drive, and one emerged in his lounge out of the pot which held his Christmas tree early in 2019). Clusters of recent records are known from The Brecks, Lancashire and Cheshire, and Yorkshire, and Northumbria (Map 1). Larval habitats include loose sand, well-drained arable soils, sand and gravel extraction sites, woodland edge on sandy soils, damp crumbly peat, and even on an industrial ash dump in Shropshire (Boardman, 2016).



Map 1 – UK Cranefly Recording Scheme records 1965 – 2020.

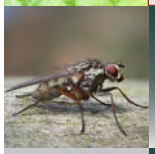
PB received communication from CA on the 30/05/20 that he had found a specimen of *N. crocata* (Photos 1&2) on his garden path in Cupar, NO3613, VC85 Fifeshire the previous day. The specimen was in poor condition, missing all three legs on one side, but was released after identification. Upon consultation of the UK CRS database and the NBN, this was instantly noted as significant. The previous most northerly known record was from close to Morpeth, (VC67 South Northumberland) (between Newcastle-upon-Tyne and Alnwick), some 100 miles south as the crow (or indeed cranefly) flies from Cupar. Contact was made with Geoff Hancock of the Hunterian Museum in Glasgow to discover whether any previous Scottish records for this species were extant, however due to Covid-19 restrictions access was not possible to the collections and therefore this remains a little uncertain and confirmation or not of earlier records can only be made in 2021. With this plague year coming towards an end PB spent some time verifying records submitted via iRecord and was very interested to see a further record of *N. crocata* from even further north recorded near Glamis, NO3846, VC90 Angus (south-west of Forfar) on the 08/06/20.
This location is approximately 40 miles north of Cupar and was recorded by Marriana Cammack.
Given the lack of recent records from the south of England (none from 2015 to current date) and the seemingly burgeoning of records from the northern half of the England and now the expansion into Scotland, might it be assumed that climate change has altered the range of this species? Time will tell.

P. Boardman & C. Andrews.



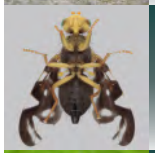
Soldierflies & Allies
Recording Scheme

Martin Harvey kitenetter@googlemail.com



Anthomyiids
Anthomyiidae Study Group

Michael Ackland



Tephritids
Tephritid flies Recording Scheme

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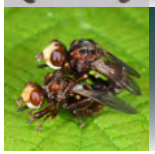
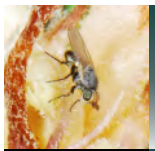


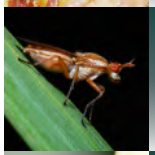
Conopids
Conopid Recording Scheme
with Lonchopteridae, Ulidiidae, Pallopteridae & Platystomatidae

David Clements dave.clements@ntlworld.com



Agromyzidae
Leaf-miner Recording Scheme

Barry Warrington agromyzidaeRS@gmail.com



Sciomyzids
Snail-killing flies Recording Scheme

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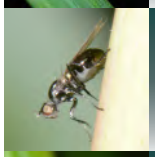
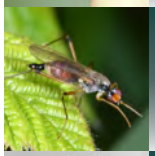


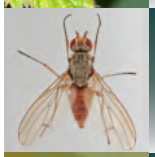
Sepsids
Sepsidae Recording Scheme

Steve Crellin steve_crellin1@hotmail.co.uk



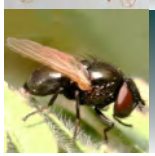
Micropezids & Tanypezids
Stilt & stalk-fly Recording Scheme

Darwyn Sumner darwyn.sumner@ntlworld.com



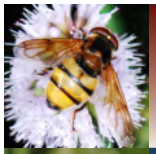
Heleomyzids
Heleomyzid Recording Scheme

Ian Andrews syrphus@hotmail.co.uk



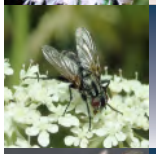
Lance-flies
Lonchaeidae Study Group

Nigel Jones nipajones@talktalk.net



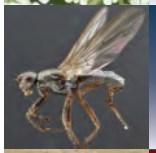
Hoverflies
Hoverfly Recording Scheme

Stuart Ball stuart.ball@dsl.pipex.com
Roger Morris roger.morris@dsl.pipex.com
David Iliff davidiliff@talk21.com



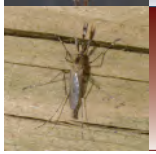
Rhinophorids
Rhinophoridae Recording Scheme

Ryan Mitchell ryanmitchell1994@live.com



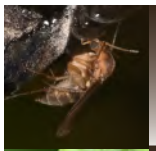
Coelopidae, Heterocheilidae, Helcomyzidae
Kelp-fly Recording Scheme

Donald Smith KelpflyRS@gmail.com



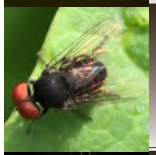
Culicidae
Mosquitoes Recording Scheme

Jolyon Medlock jolyonmedlock@hpa.org.uk



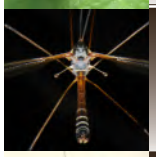
Fungus Gnats
Recording Scheme
Mycetophilidae & allies

Peter Chandler chandgnats@aol.com



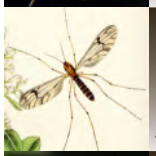
Flat-footed flies
Recording Scheme
Platypezidae

Peter Chandler chandgnats@aol.com



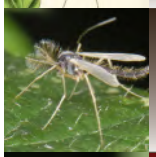
Craneflies
Cranefly Recording Scheme

Pete Boardman pete.ento22@gmail.com
John Kramer john.kramer@btinternet.com



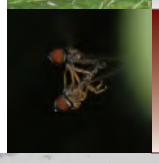
Dixidae & Thaumaleidae
Recording Scheme

Julian Small
julian.small@naturalengland.org.uk



Chironomids
Chironomid Study Group

Patrick Roper patrick@prassociates.co.uk

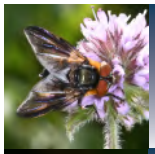


Pipunculidae
Study Group

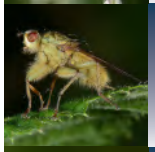
David Gibbs DavidGibbs6@sky.com

Dipterists Forum

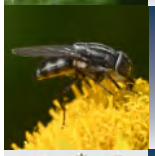
Recording Schemes & Study Groups



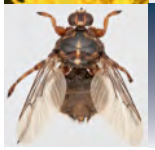
Tachinids
Tachinidae Recording Scheme
Chris Raper chris.raper@gmail.com
Matthew Smith MatSmith1@compuserve.com



Scathophagids
Scathophagid Recording Scheme
Stuart Ball stuart.ball54@gmail.com



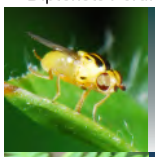
Calliphorids
Calliphoridae Recording Scheme
Olga Sivell aruma@wp.pl



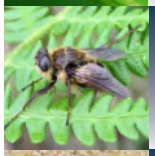
Hippoboscids & Nycteribiids
Ked, Louse & Bat-fly Recording Scheme
H: Denise Wawman denisewawman@gmail.com
N: Erica McAlister e.mcalister@nhm.ac.uk

Collating & Managing

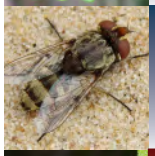
Methods available to the schemes are limited, for example there are presently no suitable image management tools. Current tools are: Recorder 6, MapMate, Excel & Access. Both BRC and Dipterists Forum may help Schemes with this task.



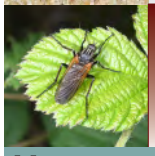
Chloropidae
Chloropidae Study Group
John & Barbara Ismay
schultmay@insectsrus.com



Oestrids
Oestridae Recording Scheme
Andrew Grayson
andrewgrayson1962@live.co.uk



Sarcophagids
Flesh Fly Recording Scheme
Daniel Whitmore daniel.whitmore@smns-bw.de
Nigel Jones nipajones@talktalk.net



Empid & Dolichopodid
Recording Scheme
Martin Drake martindrake2@gmail.com
Steven Hewitt smhewitt@hotmail.co.uk
Nigel Jones nipajones@talktalk.net

Homes and keys

All of the Recording Schemes have a home on the Dipterists Forum website
Some of these are quite substantial and may be where you will find **identification keys**.
Others have additional homes (red home symbols) which they might prefer (check both)

Collecting

iRecord
Spreadsheet
iNaturalist
Social media

Disseminating

Own website
iNaturalist project
Scratchpad
Overseas interest

Look for Newsletters on these sites and in the Dipterists Forum Bulletin (https://tinyurl.com/y3pqcajh)

Dipterists Forum www.dipterists.org.uk

Publishing

Open Data publishing to publicly accessible sites is our contribution to conservation & education. Many schemes achieve this through NBN Atlas and GBIF. In 2020 our UK total was 341,353 with an additional four times that figure planned.

Design
D. Sumner (ADS)

Download as interactive pdf from https://tinyurl.com/y3pqcajh