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Photographs: Front cover female *Sarcophaga sp*. imbibing fluids from a dead *Tachina fera* that had been killed by a crab spider (probably), **Nigel Jones,** above *Sarcophaga variegata*, **Malcolm Storey**
Other photographs as supplied by the authors or the editorial panel who would be pleased to receive illustrations for general purposes - many thanks for those already sent. If you want to catch the next front cover, please think about the proportions and orientation, it must be upright (portrait.)

BULLETIN OF THE
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Contents

Download the above Newsletters from http://www.micropezids.myspecies.info/node/344 or contact the organizers (see back page)

Copies of this Bulletin are mailed to Dipterists Forum members. Back issues may be obtained at www.micropezids.myspecies.info/node/301 where notes to 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.

Desktop Publishing, Darwyn Sumner; Editorial, Darwyn Sumner & Judy Webb; Printing & distribution, Barbara & John Ismay; Mail costs, Biological Records Centre

Editorial

Feedback

Many thanks to those who responded to the last Bulletin with various kinds of feedback. Thanks to Callum Rankine for his kind remarks on Twitter and to John Pitts who picked up on the idea that sap runs are going to be worth investigating this year (anyone else? - photograph anything on a sap run).

Comments on anything in the Bulletin are very welcome, it helps a great deal to know what you think of the ideas that have been put forward by various folk.

Erica McAlister has been looking at Diptera social media figures and we managed to get an article in the NBN Newsletter in December, a nice history of Dipterists Forum by Howard Bentley. Oddly though, there has been more interest abroad to the UK Deadwood feature than here, I uploaded it to ResearchGate which registered "reads" - from only Germany and France (that will be Phil Withers.)

VERNACULAR DRACULA cryptically writes …

My anointing of Diptera with English names splits mankind apart. **Flesh Flies** like a body, welcome to the **Sarcophag~~us~~** idae (*see page 7*)

Vern's frequent-flying emotional support animal is a bat (ed)

Fly Times

Adrian Plant featured in the last one, now Zoe Simmons and Martin Ebejer are to be found in the latest edition of ***Fly Times*** (issue 63) with an article subtitled "**Awesome flies and where to find them**". This is an account of unidentified (undescribed) diptera from a whole host of Central and Southern America countries, all arising from various expeditions there. There's also a warning about clearing in lactic acid and even a picture of Erica McAlister in there somewhere on one of her overseas jollies, you'll just have to go read it all at www.nadsdiptera.org

In issue 62 Dankowicz & Cohen made a comparison of **identification enquiries** posted on iNaturalist to those on Diptera.info; for their area of interest (Asiloidea) these were 10,729:292, a factor of 36:1. To compare like with like one would have to take into account geographical scope (World vs Europe) and the fact that iNaturalist results in the upload of species occurrences to GBIF whilst Diptera.info does not. For 2019 the figures were Dipterists Forum: 54 & Dipterists Forum Forum: 156 (UK), Diptera.info: 3,915 (Europe) and by extrapolation iNaturalist 143,849 (World).

In **recording** terms though, the UK adopt different systems both for identification enquiries (e.g. our Recording Schemes systems such as the Hoverflies' Facebook, iSpot etc.) and for uploading species occurrences to NBN Atlas (iRecord, Recorder 6, MapMate) so we're in pretty good shape. Europe however is rather variable in this regard and is a topic discussed later in this issue.

Haphazard recording

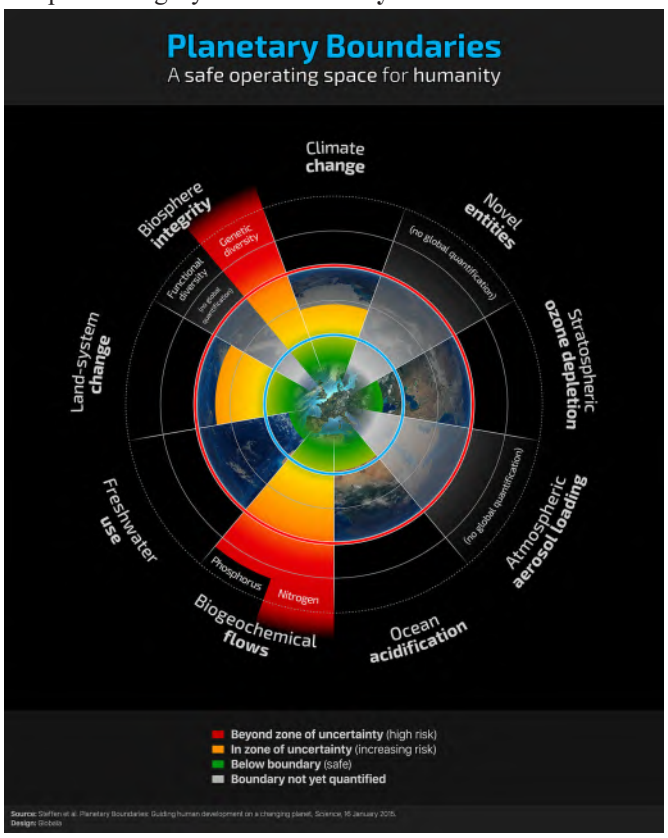
In a recent ***Nature*** article about the documentation of widespread insect losses (*Robust evidence of declines in insect abundance and biodiversity*) by William Kunin, volunteer recorder's data is described as "gathered in a haphazard fashion". Many have used the lack of standardised data as a club to cast doubt on analyses based on naturalist's efforts (see **Insectageddon?** in this issue.) However, standardised sampling projects as Kunin advocates are scarce. "Once-in-a-lifetime" discoveries don't lend themselves to such techniques. Monitoring population changes in Diptera species where we lack even the most fundamental biology and life history facts is simply unfeasible. We do what we can as unfunded volunteers, just see what the Recording Schemes are getting up to.

The data we have here in the UK though, was enough to compile another **State of Nature report** in 2019. But what about the rest of Europe? And how might we contribute to that?

Biological recording in some countries is fine, those such as France, Germany & Sweden have some very robust volunteer, academic and instutional recording systems in place, and Austria recently added a new Biodiversity Atlas (Biodiversitäts-Atlas Österreich at **https://tinyurl.com/tfrwlyh**). But this by no means extends to all of Europe, see **Recording in Europe** in this issue

Change in biosphere integrity

This is a term that you may increasingly notice as a replacement for "loss of biodiversity". It is coined by Johan Rockström in his work on Planet Earth's safety limits. He proposes 9 categories of these (***New Scientist*** 14 Sep 2019 at https://tinyurl.com/upujtjm). They are Earth's life support systems and without them we couldn't exist. The safe boundaries of four of them have already been crossed, notably biosphere integrity aka **biodiversity loss**.



Read a summary and acquire Rockström's publications on the Stockholm Resilience Centre's "Planetary Boundaries" page at https://tinyurl.com/y6dusrub

The time is now

Once you've browsed through the material on Planetary Boundaries, take a look at another recent piece of research along the same sort of lines. From late 2019 in ***Science***, an article which examines progress towards the "Aichi Targets" which come from the Strategic Plan on Biodiversity 2011-2020. ***New Scientist*** staff writer Graham Lawton points out that since these are targets the paper shows us how well we met them. Find the Open Access article at https://tinyurl.com/u6aqbwr and JNCC's formal report at https://tinyurl.com/yx3xmagq

Missed targets

Insect ignorance

The BBC's ***Science Focus*** magazine occasionally produces a gem. They printed a wonderful double spread chart "Species under threat" which visualises the IUCN Red List species figures as a kite diagram (July 2019). Most striking on this chart are the insects. Only 8131 of the estimated 1M species were studied to gauge their status. Our ignorance in this group is profound, no other group comes close to being as poorly studied. Of the insects that were studied 1994 were classified under the IUCN system as data deficient, 4512 "least concern/near threatened", 1559 threatened and 62 extinct. The chart is very good, you can absorb those figures and make comparisons with other taxonomic groups at a glance. You'll have to download the magazine to see it.

Baseline shift & Cockups

Both are legitimate printers terms referring to almost the same thing, the first to a misaligned line, the second to just one letter. The shifting baseline concept in ecological terms of course you are all now familiar with, having read the book that Martin Drake recommended in the last Bulletin - *Wilding* by Isabella Tree. It can be defined as *the loss of perception of change that occurs when each generation redefines what is natural*. It can be applied across a wide range of topics related to biodiversity loss. Some of us can recall vast numbers and variety of insects in our youth and use that as our normal baseline. Younger persons will recall fewer and less variety and that's their baseline, thus they fail to notice change. Losses will appear more acutely to older persons. Recording Schemes can provide objectivity.

As one component of a baseline shift, cockup could therefore be applied to the subject of biodiversity loss. Individual causes perhaps, such as pollution cockup, habitat destruction cockup, development cockup, educational cockup, legislation cockup?

They know not what they do

The UK's chief scientific advisor, Sir Patrick Vallance says that there is a serious shortage of qualified science staff in Britain's civil service, notably in the departments of Farming & Rural Affairs and Environment.

Not much help from the press either. writing in the Observer (19/1/20) Jonathan Chan tells us "*scientists are tracking the ways animals are adapting in a field know as phenology, the study of the effect of climate variation on animal habitats and variation*". Most confusing, phenology is the study of seasonal changes in plant and animal life cycles.

Missed UK Environmental Targets

According to Annabel Martin writing in the Observer (5th Jan), five key environmental targets have been consistently missed.

- **Air pollution**: Only 3 of 5 EU targets are achievable this year. Particulates (PM2.5) are a major problem, a big contributor being wood stoves.
- **Water pollution**: Legally binding targets failed since 2015. Only 35% of surface water bodies are in "good condition" and the Environment Agency are heavily critical of water companies.
- **Biodiversity loss**: Of the Convention on Global Biodiversity (2010) and our own JNCC targets. 14 of 19 have been missed. Amongst these are "increasing public awareness", "funding on biodiversity" and "protecting threatened species".
- **Tree planting**: UK woodland has to increase from 13% to 17% cover. Planting is currently at 1,420ha/year, the target is 5,000ha. See Woodland Trust campaigns.
- **Waste**: Average household waste recycling is around 45% (EU target 50% by 2020) but some areas are very poor.

See Greenpeace for a more detailed analysis https://tinyurl.com/yduolkej

Urban recording

The next **NFBR** conference (30 Apr to 2 May, Liverpool Museum) is on the topic of urban wildlife, I'm sure the shifting baseline will crop up there as they examine efforts devoted to habitats that many nowadays use to establish their baselines. To discover more about urban wildlife surveying before you go to the conference, take a look at **GIGL**'s newsletter from London (www.gigl.org.uk/gigler/)

Darwyn Sumner

Tick- borne encephalitis virus

The Guardian 20 Nov 2019

Infected ticks have been discovered in Norfolk and on Hampshire-Dorset border. A disease that can harm the brain, and which is spread to humans through tick bites, has been identified in the UK for the first time.

Public Health England (PHE) confirmed the presence of the tick-borne encephalitis virus in Thetford Forest, Norfolk, and on the Hampshire-Dorset border. PHE said it believed a "handful" of infected ticks had been found in both locations, with only one highly probable case of tick-borne encephalitis so far.

The health body said the risk was very low but it was investigating how common ticks with the virus might be.

Rob Wolton

Illustrations for publications

Dipterists Forum has been offering modest grants towards producing identification guides for our fauna since 2017 (Bulletin No. 85, unnumbered page almost at the far end of the issue). One headache for many authors who don't want to go down the photography route is producing good black-and-white drawings. To overcome this, the committee has agreed that Dipterists Forum can make a contribution towards paying a professional illustrator. We obtained some useful estimates of the likely cost of drawings of various sizes and detail, which include making the initial sketches (or photographs) from which final drawings will be made. If you have a paper or key being held up for want of good figures, do submit a request to the committee for consideration. To help the committee make an estimate of the likely cost, you will need to produce a very rough sketch of each figure (that is, each bit of fly, not a whole composite plate) – for instance, a quick doodle to represent an antenna or part of leg. This has not been tried yet but we hope that it will help to unlock your ideas and our money.

Martin Drake

Hippobosca equina **[Hippoboscidae], on bus, after Roupite, Bulgaria, 21 Jul 2015 coll & det Alan Outen, conf Theo Zeegers**

Recording

Resources

Dipterist Forum have now made available many more resources that I wish to draw your attention to:

Dipterists Forum Bulletins

I've now been preparing these for over 20 years. In the early years they were produced in *Pagemaker* (the predecessor to Adobe's *InDesign*) and all the Bulletin printer ever wanted was the *Pagemaker* file. They were produced digitally but a pdf was never required. As years went by I acquired *InDesign* and printers wanted pdfs instead. Later attempts to turn the older *Pagemaker* files into pdfs (via *InDesign*) met with mixed success, I've had to retype some sections and of course redact membership lists (due to DPA.) *InDesign* got older and less capable of dealing with modern needs and so last year, rather than deal with Adobe's unpopular online-only expensive subscription version I turned to *QuarkXpress*, their main competitor. Following flood damage the old Adobe products could not be reinstalled so I was left with just one DTP. However in July last year a third DTP option was made available by the release of *Affinity Publisher* - so I bought that too and am currently using both.

In February last year I archived **all the Bulletin pdfs** to a convenient website. That being my European Micropezids & Tanypezids Scratchpad site where you can find them at

www.micropezids.myspecies.info/node/301

Martin Drake kindly provided me with back copies of the Bulletin and I am scanning, and digitising those as time permits. Reading those old Bulletins was how I discovered we were 25 years old.

The actual digital files are stored on the servers of the Natural History Museum that are used to support the Scratchpad site's website

In January 2020 Martin Harvey made a copy of my page to the Dipterists Forum website (making it technically a "mirror site" for the page.) That page is to be found under **Resources** on the Dipterists Forum website, Open Access to one of what Phil Brighton called Dipterists Forum's **Twin Pillars** (the other being Dipterists Digest of course)

Recording Schemes Newsletters

As Bulletin Editor, I've also been receiving original digital copies of **Newsletters for the various Recording Schemes** for some years. I might not have the most complete sets of these as many were produced before my time or in non-digital form.

During the course of last year I therefore collected them together, digitised some for which I have paper copies and uploaded them to the same site where you can find them at

www.micropezids.myspecies.info/node/344

The actual digital files are similarly stored on the servers of the Natural History Museum.

In January 2020 Martin Harvey made a copy of this page too to the Dipterists Forum website, that page is also to be found under **Resources** on the Dipterists Forum website.

Checklist of Diptera of the British Isles

Revised and updated by Peter Chandler in 2020. Download as a pdf from our website (https://tinyurl.com/u92rkou).

Use a good pdf reader to navigate it (see Review in this Bulletin)

There has been a recent flurry of activity by Martin Harvey and others on improving the available resources on the Dipterists Forum website, do check it periodically.

Darwyn Sumner

Recording in Europe

If you are curious about the distribution of a species in the UK then you've only got to look it up on the NBN Atlas. The data has been put there by us UK naturalists. If your curiosity extends to that same species across Europe then similarly you can use GBIF (www.gbif.org/species/search). Try it for a common species such as *Episyrphus balteatus* - the world map tells you more and suggests it's not so happy living in warmer countries.

Who puts that information there? There are other countries with good recording communities but it is by no means all of them.

GBIF is the big international database where all records should finish up, for example there over a billion animal records on there (10 million of which are Diptera.)

One of the routes by which records find their way onto the GBIF database is via "participating organisations", our NBN is one, and a few other countries have similar systems. Too few, as the map opposite shows:

Not every European country participates. So how come there are records of *E balteatus* in, for example, Italy?

One answer is that there is another participating organisation - iNaturalist. It is possible to submit records to iNaturalist and later find them on a GBIF map. If you check the source of records on GBIF you will find iNaturalist listed.

iNaturalist

Even Dankowicz and Chris Cohen gave an interesting account of the value of iNaturalist in Fly Times 62. They were studying Asiloidea and their figures for this platform which is used for observation sharing and crowdsourced identifications make interesting reading.

Its value to us in the UK is somewhat less than elsewhere since we have a well structured Global Biodiversity Gateway in the form of the NBN Atlas and all the mechanisms we have for identification and uploading (iRecord, iSpot, Recorder 6 etc..) However our UK platforms leave us without any kind of mechanism to upload foreign species occurrences to the international GBG - GBIF. Perform a Europe search on GBIF for even the most common UK species and you'll be disappointed. Just the NBN Atlas records which are regularly uploaded there.

However there is a case for signing up and experimenting with iNaturalist:

Verification by iNaturalist

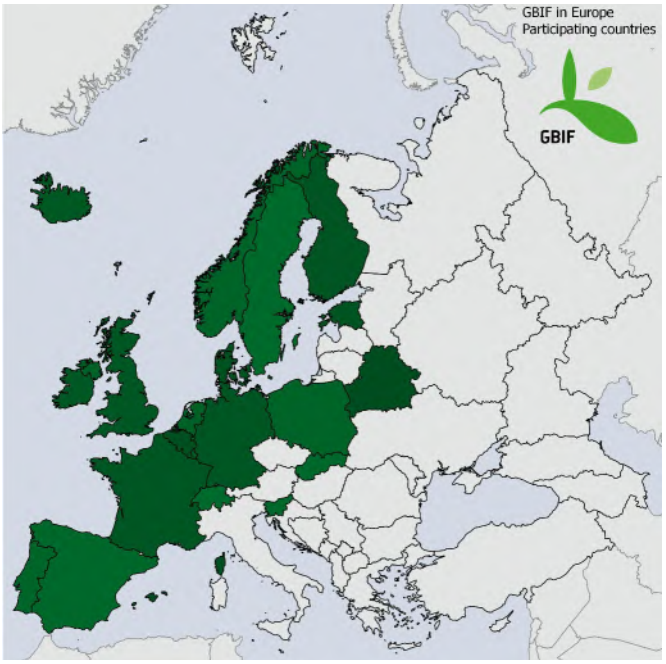
When a given observation has been verified by at least two iNaturalist users, it is considered sufficiently complete for sharing with biodiversity data repositories notably the Global Biodiversity Information Facility (GBIF)

Verified observations on iNaturalist upload to GBIF weekly and whilst it clearly is not a good idea to duplicate many records you've already sent to our UK systems, it is a good idea to upload observations from other European countries. A large proportion of identifications on Diptera.info, for example, are not thus published, the majority lack geospatial coordinates.

If you've expertise in a particular area then you can become part of the system that verifies postings. You can configure your home page so that it notifies you of all new postings in a group, just click the "confirm ID" button to someone's observation and you've made them happy. You might want to avoid large and popular Families though.

Focus on images

"**What's shot is history, what's missed is mystery**" is the old maxim coined by ornithologists in the pre-binocular and pre-field guide days. Before then you had to be able to hold it in your hand to identify it. Today it's a camera rather than a gun, images are the currency of many recording applications. Exceptions are via various systems set up in the UK and a handful of other European GBIF participants, if you happen to speak their language:



GBIF's participating countries

iNaturalist postings of species occurrences depend heavily on there being an image available to upload. Other users take a peek and make or agree with the identification. Once you've got a couple of those agreements on your posting the record becomes what they call "Research Grade" and are automatically uploaded to GBIF. Without a picture though, you're in trouble. I've had a record on there without an image for 4 years and because there is no pictorial evidence it won't get bumped up to Research Grade. Although one can add single records or spreadsheet lists, there is no system of uploading lists from collections or published papers and make them eligible for GBIF. For a serious attempt at that one would need to recruit a couple of collaborators to agree one's IDs. Tall order for a one-person Recording Scheme and with so few dipterists signed up to iNaturalist, only 28 are signed up to the Diptera of Europe project (see page 6.)

Dispersal & habitat models

Species disperse widely and single-country distribution maps don't tell us enough. According to Janet Franklin a mere 50 species occurrences across a wide enough area and you can develop a habitat suitability model. For example if you did one for the UK on *Salticella fasciata* you'd conclude that its habitat was coastal sand dunes but in Europe it can be found on other inland sites.

Adding records from Flickr

I had identified someone's observation of *Micropeza lateralis* as such on iNaturalist but discovered that they had no default image of that species. I had a nice studio shot from our Nottingham Field Week so I thought it useful to add this, it was a specimen confirmed by just about all the eminent dipterists in the UK after all.

iNaturalist will only let you add a *default image* if it's already present on their site as an observation and there was an option to link up one's Flickr images to iNaturalist so I made an attempt.

A word or two of caution before you attempt this. iNaturalist transfers data from your Flickr posting so it's best if you geotag them first on Flickr (see Bulletin 88), it transfers your "Description" too, so check that that is comprehensive enough.

The full methodology is detailed in Stilt & Stalk Fly Newsletter #2.

Overseas collections

iNaturalist might be just the thing you need to get identifications on those small collections you've acquired from foreign lands. First job would be to make sure their geospatial coordinates are good enough. Then make some decent enough snaps of them (see Heberling 2018 for discussion) and upload them, even if you already know what they are.

Please sign up to iNaturalist and start posting diptera occurrences - especially if you are a European dipterist. The more users there are, the higher the chance that records will achieve research grade, be published and play their part in monitoring biodiversity changes.

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Darwyn Sumner

Larval appeal

If hunting for larvae appeals to you then I would be grateful if you could keep an eye open for Stilter larvae this year.

Habitat would be decaying vegetation somehow trapped in moist clumps kept wet by slow moving streams or regular inundation, usually in or near dappled tree shade. **Scoop goop** using a veg bag (see Review) in late April/May perhaps and see what emerges. Images of larvae or puparia would be most welcome.

Download Barnes 2015 paper on Calobatinae biology at https://tinyurl.com/t7n6m3k to see what they look like, and Keiper et al. https://tinyurl.com/sv2rdre for a terrific account of the Biology and Ecology of Higher Diptera from Freshwater Wetlands

Darwyn Sumner (Stilt & Stalk Fly Recording Scheme)

Diptera of Europe

I discovered this on the iNaturalist site, a project entitled "Diptera of Europe". It is an **iNaturalist project** set up by Valter Jacinto of Portugal.

With 96,785 observations and 2,685 identifiers the project is most interesting. A real inducement to sign up to iNaturalist and another little treasure-trove of fly pictures. As I joined, my humble two records were linked to the set. Some well-known dipterists are amongst those identifiers, I recognised Ian Andrews and Chris Raper amongst the top 5, I'm at position 353 with a mere 15 IDs whilst Ian and Chris have identified more than 5,000 each on iNaturalist.

Now I know who to ask if any observations of mine languish unconfirmed for any length of time.

Searching

The structured search tools on this project are the standard ones in iNaturalist. Clicking on the project's Observations takes you to their panel with filters for Diptera and Europe already enabled. From there you can enter Species and/or Location as search terms.

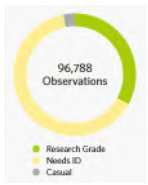
Entering "UK" as a location gets you 19,782 records, enter the term "Syrphidae" in the Species box and you have 8,780. A bigger task to track these down than the mere 6 Micropezidae and 8 Psilidae which I'll be examining.

Top flies

It is interesting to note the most observed diptera, *Episyrphus balteatus* is top of course but work your way down the list and some oddities soon crop up. Like the Bathroom Moth Midge (*Clogmia albipunctata*) with 465 observations; now who on earth has visited all those bathrooms with a camera? As you can imagine, hoverflies and soldierflies dominate the list but scroll down to below 20 observations and other groups emerge (*Micropeza corrigiolata* at 13)

Sign up to iNaturalist

The statistics are of interest, this chart shows just how much your identification expertise could be of value to others in Europe.



Recording Scheme organisers in particular need to be keeping track of UK occurrences posted on iNaturalist because some of them will be ending up on GBIF, perhaps bypassing any verification systems you've set up.

Darwyn Sumner

Recording Schemes

Copyright issues

For Recording scheme organisers this can be an agonising subject. My experience has been that persons uploading images to identification sites or Flickr are perfectly willing to allow their images to be used on our websites and newsletters. There's usually some sort of copyright notice on the site, frequently CC-BY-NC (non-commercial use OK.) It can be nice to ask as uploaders like to know that their images are of value for education purposes. I've not had a single problem with any image I've used on my website; on the contrary, the photographers have been delighted. Even professional photographers.

Disturbing therefore to hear of a museum in the UK which one of our recording scheme organisers has been using in order to photograph specimens. They are demanding that the copyright of the photographs, which the organiser took of specimens which they curate, belongs to the museum. Perhaps someone from the UK based membership organisation NATSCA (Natural Sciences Collections Association www.natsca.org/) would care to comment.

Take the trouble this year to ensure that you've set the Copyright information in **your** camera. That way no-one else can claim it's theirs and users of your images know who to credit - as in this Bulletin.

Stilt & Stalk Fly Recording Scheme

If you have any Micropezidae material still to identify then please have a try at the FSC **online identification keys** on the website now (Identification tab) Charles Roper kindly uploaded them to FSC servers shortly after the last Bulletin.

I developed them to work from images to a great extent so they should be a good start. The intention is to produce figures and develop a complete key eventually.

The first **Newsletter** (#2) has now been produced, the emphasis is on recognition and recording.

Darwyn Sumner

Cranefly Recording Scheme

John Kramer's been busy collecting older Newsletters and notes from old Bulletins. He and Peter are looking to build up the resources available through the DF website.

Newsletter # 35 in this Bulletin — John Kramer

Anthomyiidae Recording Scheme

Newsletter # 12 in this Bulletin — Phil Brighton

Flat- footed Fly Recording Scheme

Newsletter # 3 in this Bulletin — Peter Chandler

Fungus Gnat Recording Scheme

Newsletter # 11 in this Bulletin — Peter Chandler

Hoverfly Recording Scheme

Newsletter # 67 in this Bulletin — David Iliff

Soldierflies & Allies Recording Scheme

Newsletter # 7 in this Bulletin — Martin Harvey

Oestridae Recording Scheme

"I'd certainly consider putting another Oestridae newsletter together" — Andrew Grayson

NEW Sarcophagidae Recording Scheme

We are excited to announce the launch of a new Dipterists Forum Recording Scheme for British Sarcophagidae (flesh flies).

Fig 1. *Miltogramma punctata* (photo Steven Falk)

Sarcophagidae is a family of true flies belonging to the superfamily Oestroidea (Brachycera: Calyptratae), with a known diversity of just under 3000 species worldwide. The family is currently divided into three subfamilies: Miltogramminae, Paramacronychiinae and Sarcophaginae. Miltogramminae (also known as satellite flies) are mostly kleptoparasitic in solitary bee and wasp nests, whereas Paramacronychiinae and Sarcophaginae include parasitoids, vertebrate parasites, predators of snails, earthworms, moth pupae and other invertebrates, coprophages, and scavengers of invertebrate and vertebrate carrion, including a few species of forensic importance. Both male and female flesh flies are regular flower visitors, therefore contributing to pollination networks.

Fig 2. Charles in action on a hilltop in Shropshire (Stapeley Hill)

There are 64 species of Sarcophagidae so far known from Britain, three of which are unpublished recent discoveries based on new or historic material. Of these 64 species, 18 belong to Miltogramminae (genera *Amobia*, *Macronychia*, *Metopia*, *Miltogramma* (Fig.1), *Oebalia*, *Pterella*, *Senotainia* and *Taxigramma*), 6 to Paramacronychiinae (genera *Agria*, *Angiometopa*, *Brachicoma*, *Nyctia* and *Sarcophila*) and the remaining 40 to Sarcophaginae (genera *Blaesoxipha*, *Ravinia*

If you find something rare or unusual, please tell the Recording Scheme organiser, don't keep it secret.

and *Sarcophaga*). Among the latter, 36 are in the large and widespread genus *Sarcophaga*, the typical black and grey flesh flies with a striped thorax and chequered abdomen.

Flesh flies like warm, sunny weather. Several species, particularly of *Sarcophaga*, are among the most common flies in natural and semi natural habitats as well as in gardens and urban parks, which means they are often collected or photographed by dipterists. However, because of the problematic identification of both males (requiring detailed examination of genitalia) and females (due to poorly documented diagnostic characters), they are often left unidentified to species. This has resulted in them being generally under recorded.

The aim of the Sarcophagidae Recording Scheme is to verify previous and incoming records in iRecord and NBN and provide support for the dipterological community to identify their flesh fly specimens and photographs. This and the extraction of data from the main museum collections will lead to a steadier flow of reliable records from across the country. Besides the routine verification of records, we will provide access to sarcophagid collecting and preparation tips as well as identification resources and terminology via our new webpage on the Dipterists Forum website and our Facebook (Sarcophagidae Recording Scheme) and Twitter (UK Flesh Flies) outlets. We will also provide regular training opportunities, starting with two identification workshops in September and October 2020, respectively in Preston Montford and Liverpool (details below).

Submission of records

Records can be submitted directly in iRecord or via a standard Excel template to ukfleshflies[at]gmail.com. We recommend accompanying records with photographs or vouchers to allow expert verification, especially for rare and/or localised species.

Identification resources

Not much has been published on British Sarcophagidae since van Emden's 1954 handbook and Day & D'Assis-Fonseca's 1950s works - other than faunistic updates, a few behavioural and biological studies and an unpublished online key to most British Sarcophaga by Mike Hackston (2015). The most comprehensive key to males and females of British Sarcophagidae was developed by D. Whitmore for the Dipterists Forum Spring Workshop in February 2016. The latest version of the key (dated 21 February 2017) and its accompanying images are freely available for Dipterists Forum members from the website. We will be working on an updated key before September's identification workshop in Preston Montford. The key makes use of characters from both external morphology and genitalia to reach species-level identification.

Other useful resources for the identification of adult British Sarcophagidae are Pape's "The Sarcophagidae (Diptera) of Fennoscandia and Denmark" (1987; *Fauna Entomologica Scandinavica 19*), which covers a majority of the species occurring in Britain, Povolný & Verves's "The Flesh-Flies of Central Europe" (1997; *Spixiana*) and Richet et al.'s "*Sarcophaga* of France (Diptera: Sarcophagidae)" (2011; *Pensoft Publishers*). The Scratchpad page sarcophagidae.myspecies.info contains useful images and information, but T. Pape's "Family: SARCOPHAGIDAE - A taxonomic database to all flesh flies" (diptera.dk/sarco/index.php) is more regularly updated and provides general distributions besides useful diagnostic photos for several species.

Sarcophagid larval stages are still poorly known compared to adults, but a comprehensive treatment of European Miltogramminae first instar larvae was published by K. Szpila in 2010 (*Nicolaus Copernicus University Press*) and a key to European *Sarcophaga* third instars of forensic importance was published by Szpila et al. in 2015 (*Parasitology Research 114*).

Collecting and preservation tips

Time of year and time of day. Sarcophagidae, particularly males, are most active during the warmest months of the year (from April to September) and during full on sunny weather. Productive collecting can be quickly halted by a passing cloud. Some studies and personal experience suggest that morning hours might be more productive for flesh flies, particularly in very hot weather.

Habitats. Flesh flies can be abundant in most habitats, including urban ones, but their diversity is greater in well-preserved woodland, grassland and coastal habitats. Species with a more specialised biology (e.g., as snail predators or scavengers) may be restricted to calcareous or chalk grasslands. Several Miltogramminae species are most easily collected in the sandy habitats used by their hosts.

Good collecting spots. Within the right habitat, good collecting spots for flesh flies include paths, woodland edges, small sunlit patches of forest floor, flowers (particularly umbellifers and composites), sunlit leaves of trees and shrubs, stones, small boulders, pebbly and sandy riverbeds and banks, dunes, and hilltops—provided these are surrounded by good natural habitat (Fig. 2). Females will usually be much less abundant than males in most spots, except maybe on flowers.

Bait. Both males and females of several species, particularly of the subfamily Sarcophaginae, are attracted by rotting meat or faeces. Vertebrate carcasses (both small and large) and dead invertebrates are worth checking for flesh flies, but you may also bring your own bait in the field. Chicken liver and fish, for example, are known to work well—just make sure they are nice and ripe, and carry them around in some good tupperware to avoid annoying fellow collectors!

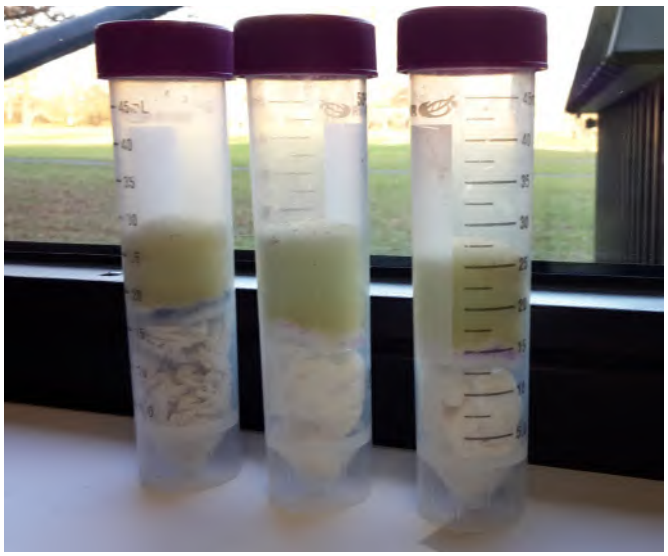


Fig 3. Collecting tubes modified for collecting Sarcophagidae

Collecting methods. Sarcophagidae can be collected with hand nets, sweep nets, Malaise traps, yellow pan traps and baited traps. With the right conditions and in the right habitats, individual collecting with a hand net can be very productive but will yield a majority of males. General sweeping of vegetation can yield additional species (particularly smaller ones) and a greater proportion of females; this method can also be resorted to when weather conditions (e.g., clouds or cool temperatures) reduce evident flesh fly activity. When a thorough inventory of an area is required, it is recommended to supplement direct collecting methods with indirect ones such as Malaise traps (with ethanol) and yellow pan traps (with a soap and water solution). These will almost certainly yield additional species and will provide a much more balanced sample in terms of sex ratio.

Rearing. Any rearing records of British Sarcophagidae would be of great interest to the Recording Scheme. Flesh flies can be reared from their larval feeding substrates or on artificial feeding substrates, such as chicken liver or minced meat, in the lab. Various species have been successfully reared from live earthworms, dead and live snails, other dead invertebrates or vertebrates, live acridid grasshoppers (genus *Blaesoxipha*), moth pupae, etc. Adults of several species of Sarcophagidae from across the three subfamilies have been successfully reared in the lab from first instar larvae obtained from wild-collected gravid females (including of some Miltogramminae), which will readily feed on minced meat or chopped up insects (see Richet 1988; *Entomologiste 44: 347–348*). Rearing of larvae to adult stage, whether on their natural substrate or on an artificial food source, is therefore relatively straightforward for several species. Mature third instar larvae will puparite within the feeding substrate or within the rearing container, where some slightly wet blotting paper should be placed for moisture.

Killing methods. Because many flesh flies are relatively large, most can be individually potted without using a pooter or aspirator. If you plan to pin them later, your flesh flies should be killed in ethyl acetate fumes. If no killing agent is available, flies can be placed individually in vials and placed in a freezer at home or in the lab. 50 mL self-standing plastic tubes are the ideal size for easy potting of individual flies from within the net. These can be modified as in Fig. 3, with a piece of sponge and abundant kitchen or toilet roll to avoid direct contact of the specimens with the small ethyl-soaked tissue at the bottom of the tube and ensure gradual release of the fumes. A well-prepared tube can last up to a whole day, but you should keep several charged tubes at a time for maximum productivity. NB: excessive amounts of ethyl acetate can lead to brittleness and damage to diagnostic features such as bristles and dusting. Specimens should not be left in the fumes for longer than 15–20 minutes before being transferred to a fumeless container, such as a tissue-lined tube or tupperware. Do not store too many dead flies per container, to avoid humidity and consequent damage to diagnostic features. In very dry weather conditions (uncommon in Britain), a soft leaf should be placed in each container to ensure that specimens do not dry out before pinning.

Preservation. As a general rule, you should aim to preserve your specimens in the same medium in which they were collected. If the flies were collected dry, they should be pinned shortly afterwards; if they were trapped in a liquid (ethanol or water and soap mixture), they should be preserved in ethanol. Air-drying of specimens from ethanol without use of a specialised laboratory method should be avoided, as it can lead to severe shrivelling and deformation of structures.

Pinning. Specimens should be pinned for long-term dry preservation, and pinning should take place a few hours after collection to avoid drying and consequent damage to specimens. When specimens are pinned too soon after death, *rigor mortis* will not allow the specimen to be prepared for an optimal visibility of diagnostic characters. Flies can be pinned at latest the following morning, but they should be preserved in a refrigerator overnight to avoid drying. There are two main options for pinning: direct pinning and double-mounting on a stage with a micropin. Direct pinning should be used for specimens over 7–8 mm long (pin sizes 0, 1 and 2) or over 1 cm (pin sizes 1 and 2); smaller specimens should be double-mounted on plastazote or poly strips using large micropins (sizes B to E). Double-mounting should be avoided for larger (>1 cm) specimens. Direct pinning should take place behind the thoracic suture and slightly to the right of the midline of the thorax. Micropinning can be done obliquely from an entry point just in front of the wing base (left side of thorax) or vertically, similar to direct pinning (with entry from the ventral or dorsal side according to personal preferences).

Setting fresh specimens. Once pinned, relatively little manipulation of specimens is required to enable a proper visibility of diagnostic characters, the most important being preparation of **male genitalia.** These can be prepared relatively quickly in fresh specimens, provided they are past the *rigor mortis* stage. The first step before setting the genitalia is to roughly unhinge them from their natural retracted position within the abdomen. With direct-pinned specimens, the genitalia can be unhinged with a fine pin or micropin (held with forceps or pushed into the end of a long matchstick or similar) while resting the pin across two fingers and securing its lower end with the thumb; the tip of the pin (or micropin) used to unhinge the genitalia should be inserted between the sides of tergite 5 (the last visible unmodified tergite) and the genital capsule (syntergosternite 7+8 and epandrium—also known as the 1st and 2nd genital segments).

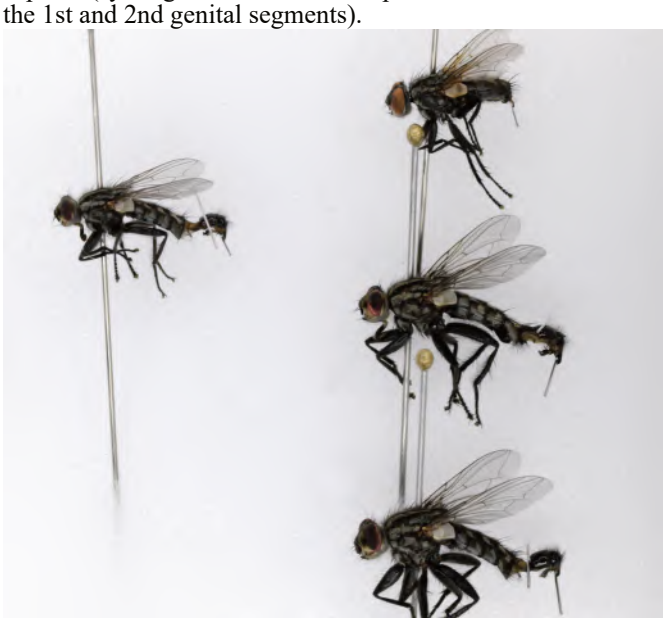


Fig 4. Direct-pinned male flesh flies with set genitalia

This can be a slightly frustrating operation, and you may find that your specimen has slid up or down the pin in the process; it should not be an issue with fresh specimens, as you can push the specimen back to its original position on the pin before it dries. For double-mounted specimens, unhinging of the genital capsule should take place before staging and the much shorter (micro)pin will be more difficult to hold, so you may find it easier to pin it to a plastazote slab. Once the genitalia have been

unhinged, the cerci (claspers) should be easy to hook out for final setting of the genitalia, which should be done with the help of fine micropins against a slab of plastazote. For this, direct-pinned specimens will have to be pinned into the plastazote at a very oblique angle almost parallel to its surface (Fig. 4). A minimum of 2 micropins should be used to set the genitalia: one placed above the genital capsule to secure the latter and avoid pushing the abdomen too far up against the scutellum and wings, the other placed between the cerci (claspers) and the phallus, to ensure proper visibility of both structures (Fig. 5). Set specimens should be left to dry for at least a week before the micropins are removed, as the genitalia can slowly return to their original position in incompletely dried specimens. The complexity of the setting will vary according to species, and species with smaller genitalia will be slightly more difficult to set. **Other characters.** Legs should be pulled away from the thorax, and tibiae and femora should be separated from each other to ensure proper visibility of leg and thoracic bristles. In females, mid legs should be pulled away from the thorax in a position perpendicular to the fly's main axis, to ensure visibility of the mid femoral organ, located on the posterior surface of the mid femur.

Relaxing dry specimens. Specimens that have been dry for some time (even up to several years) can be relaxed in a humidifying chamber for a few hours (but no longer than a day!) before attempting to perform the male genitalia setting techniques described above. This will be easier in some specimens compared to others, depending on age and other factors such as morphology of the genital capsule. Laurel leaves or menthol should be placed in the humidifying chamber to avoid the formation of mould. If a specimen cannot be relaxed, it is possible to carefully break off the genital capsule with very fine-tipped, hard forceps at the junction between syntergosternite 7+8 and the epandrium; however, if this operation is not carried out very carefully, it can damage the phallus or other structures.

Study of specimens in ethanol. Specimens in 70 or 75% ethanol are usually subtle enough for male genitalia to be unhinged relatively easily. However, specimens in 96 or higher percentage ethanol are usually much more brittle and can easily break in undesired places when attempting to unhinge the genitalia. This can be solved by carefully breaking the musculature within the genital capsule with the tip of a pin and gently ripping the epandrium and other genital structures away from syntergosternite 7+8, while trying not to break them off completely. Females are often easier to identify in ethanol, since key features like the mid femoral organ and last abdominal sclerites are often better visible.

Fig 5. A micropinned male *Sarcophaga nigriventris* with set genitalia

Sarcophagidae identification workshops

Participants bringing newly collected material should read our "Collecting and preservation tips", above and on the Recording Scheme's webpage

www.dipterists.org.uk/sarcophagidae-scheme/home

1. Friday 11 September 2020, Preston Montford Field Centre, Shropshire

We will lead an identification workshop Friday 11 September 2020, courtesy of the Field Studies Council's Biolinks Project. The workshop will be open from 10:00 a.m. to 8:00 p.m., allowing plenty of time for participants to get to grips with Sarcophagidae identification. Anyone intending to stay for the evening session will need to bring their own packed food.

The workshop is being held in September so that Dipterists will have the spring and summer to collect specimens to bring to the workshop, but we will also provide plenty of material to practise on.

You can book your place for the workshop for just £5 at the following link:

www.fscbiodiversity.uk/courses2020

2. Friday 30 October, World Museum, Liverpool

We will lead a second identification workshop Friday 30 October 2020 at the World Museum, Liverpool. The workshop will be open from 10:00 a.m to 4:00 p.m. and will be free of charge.

Booking will be available via the North West Invertebrates website at https://tinyurl.com/yjayctkz

Daniel Whitmore, Charles Griffiths & Nigel Jones

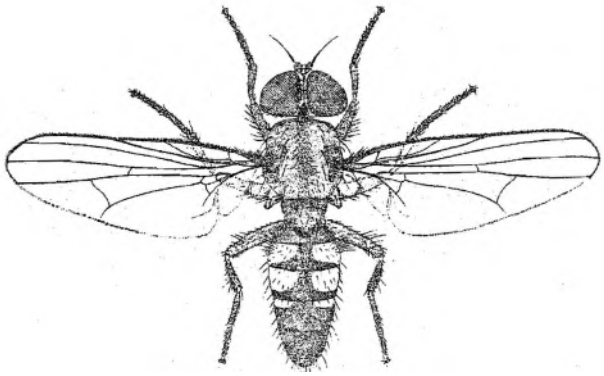
John Pitts kindly responded to the Bulletin editor's request for images. His collections may be viewed on Flickr at https://tinyurl.com/shd8pxj
A *Sarcophaga* sp. to be identified

Recording Research

The Fifth Dimension

In the Spring 2019 Bulletin (No 87, pp5-6) I gave some overall statistics for several years of my collecting a large range of diptera across the varied habitats of Lancashire and Cheshire. I mentioned the curious fact that I had only a single record for nearly a quarter of all the diptera species I had recorded, nearly 300 in number. Single non-repeated observations, possibly indeed not repeatable without a good deal of luck, do not seem very scientific! Another striking thing about the figures was that just 100 species, about 8% of the total, accounted for over 50% of the records. Number 1 on 362 records was the common yellow dung-fly *Scathophaga stercoraria* (Linnaeus, 1758); in second place with 317 records was *Lonchoptera lutea* Panzer, 1809 from the small family of the Lonchopteridae or pointed-wing flies, very widespread in any rough grass; third was the small hoverfly *Melanostoma scalare* (Fabricius, 1794), another species mostly swept from grass and other herbage and less often seen on flowers than many other Syrphidae.

A particularly remarkable member of the class of singletons was *Fannia canicularis* (Linnaeus, 1761), the species chosen by E.C.M. d'Assis Fonseca for illustration as the representative of the whole family of Muscidae in the RES handbook of 1968. (Fanniidae were then regarded as a subfamily.) His species notes state that it was generally distributed and very common, all the year round, and commonly known as the "small house-fly". I found it in a small secondary woodland on 10 October 2018, just a few hundred yards from our house.



My previous article had to be submitted by a deadline of 31 December 2018. In the early New Year, I had time to revisit the book which had initially inspired me to think about the relative numbers of records - *Measuring Biological Diversity* by Anne E. Magurran (2004) which my daughter acquired doing an Ecology MSc. The first thing to do was to produce a Whittaker plot of the data by sorting all my 1221 diptera species by the number of records, and then plotting those numbers in that order, giving the horizontal axis labelled species rank – see Figure 1. To make the curve clearer the vertical axis is logarithmic, going from 1 to 10 to 100 to 1000 in equal steps. Towards the right there are big steps as we go down to species with 4, 3, 2 or finally 1 record – the 295 singletons. Going to the left the steps get smaller so that they form a rather smooth curve culminating in two points clear of the rest for *Lonchoptera lutea* and *Scathophaga stercoraria*.

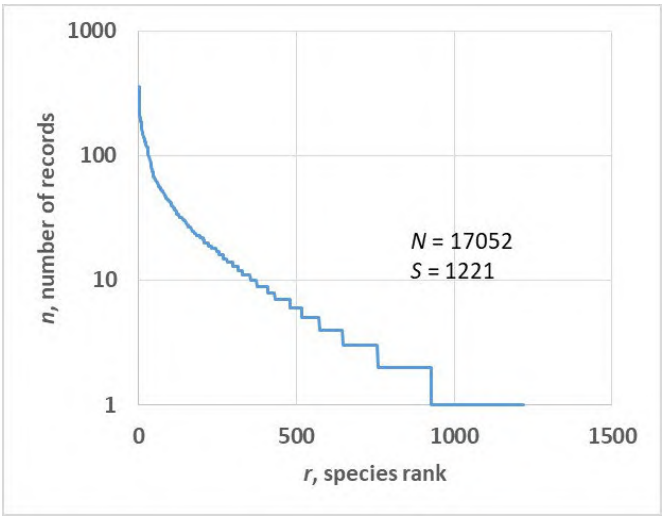


Fig 1. Whittaker plot of diptera species caught by general sweep-netting in Lancashire and Cheshire between 2012 and 2018.

Einstein's theory of relativity used four dimensions, three for space and one for time. These are what are used in most analyses of insect records such as spatial distribution maps (altitude being the third dimension), phenology plots or trends from year to year. So this graph can be regarded as a fifth dimension looking at the profile of the relative apparent abundance of species.

Well, so what? What does this curve tell us about our diptera fauna or about my collecting methods? Magurran's book is full of different types of plot and formulae for exploring this fifth dimension. The original Whittaker plot was used to compare the diversity of vegetation at different altitudes in the mountains of the Western USA the 1960s. But the book took me back further to 1943 and a paper by three authors (J. Anim. Ecol. 12, 42-58). These included Sir Ronald or R.A. Fisher (pictured), the originator of all the statistical methods you have ever heard of in biology and ecology: what is more his mathematical theory combining Mendelian genetics and natural selection was a key step towards the modern theory of evolution – Richard Dawkins has called him the greatest biologist since Darwin.

Fisher's co-authors, Steven Corbet of the British Museum, Natural History (as it then was) and C. B. Williams of the Rothamsted Experimental Station had just the same problem as I have, with significant proportions of singletons from butterfly collecting in the tropics and from moth trapping in Hertfordshire.

Based on some "simple" statistical assumptions, very broadly that species range very widely in abundance and that the sampling is nowhere near covering this full range, Fisher produced the following simple series based just on N the number of individuals, or records in my case, and the number of species S:

Editor's analogy: Remove 28 tiles from a bag of Scrabble tiles. Use them to estimate the contents of the entire bag. That's a sampling strategy, the basis for many analytical methods, including the one described by Phil.

No of species with 1 record: αx

No of species with 2 records: αx2/2 ……

No of species with n records: αxn/n

where

S= αln(1+N/α) x=N/(N+α)

These simultaneous equations are a bit tricky to solve, but it can readily be done by trial and error with Excel.

Turning this into numbers for my dataset with N = 17,052 and S = 1,221, produces almost exact agreement for the singletons and a reasonable match up to species with 10 records:

No of records per species	No. of species	Fisher prediction
1	295	296
2	170	145.4
3	111	95.3
4	74	70.2
5	57	55.2
6	35	45.2
7	50	38.1
8	22	32.7
9	35	28.6
10	20	25.3

Table 1

At the other end of the scale, it is better to make the comparison with a smooth curve derived from the Fisher series and added to the Whittaker plot from above, as in Figure 2.

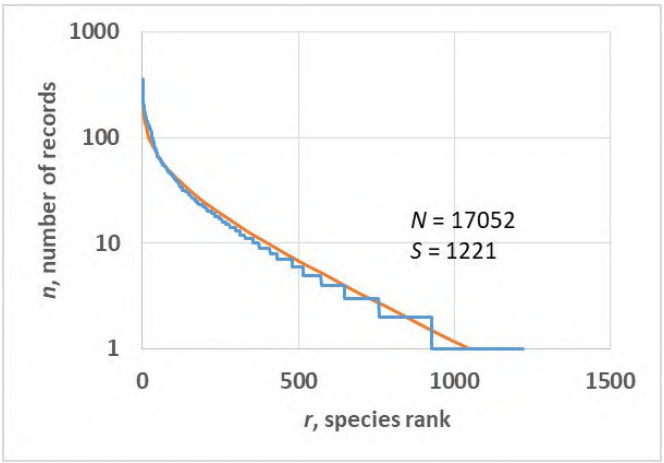


Fig 2. As Fig 1 with addition of the curve r = □E1(— n ln x) where E1 is the exponential integral function.

And again, there is a remarkably good fit as the data points curve upwards for the 100 commonest species. In fact this is almost magical – remember that there is no adjustable parameter here, the theoretical distribution coming from just the two numbers N and S.

To check that this is not just a fluke, I have tested it against several other sets of diptera data. For instance, Peter Vincent published the data from a set of malaise trap samples of Dolichopodidae from different habitats on the Walberswick National Nature Reserve in Suffolk in Dipterists Digest 20 (2013) 161-175. The numbers of individuals of different species over the whole reserve are shown in a Whittaker plot below where N = 11,858, S = 76, α = 10.86 and x = 0.9991. Even on this prime site, the number of species observed at 76 was much smaller than that on the current UK checklist at 304. This results in a rather lumpy set of data, but nevertheless they generally follow the predicted curve throughout the abundance range.

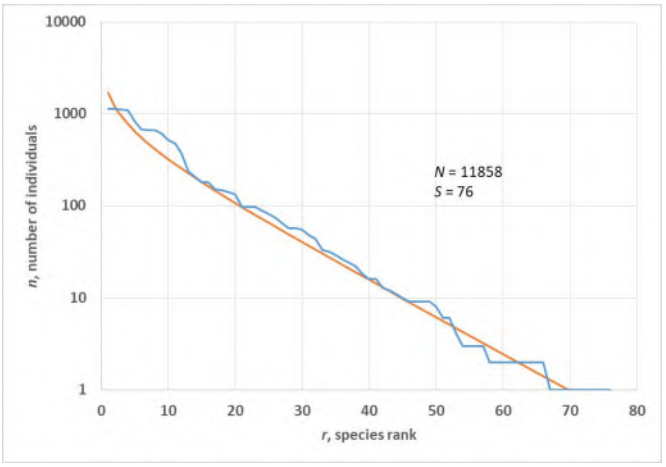


Fig 3. Whittaker plot for Dolichopodid individuals at Walberswick NNR (Vincent, 2013)

Again the numbers for the scarcest species are in reasonable agreement with Fisher's series:

No of records per species	No. of species	Fisher prediction
1	10	10.9
2	9	5.4
3	4	3.6
4	1	2.7
5	0	2.2

Table 2

Another good example is provided by Laurence Clemons in his Anthomyiid records from Kent (see Anthomyiid Newsletter No 12 included in this edition of the Bulletin).

In Fisher's theory α is a parameter defining an underlying probability distribution of species numbers in the total population, independent of the number of individuals in the sample. Over the past year I have continued collecting in a similar pattern to previous years so that my tally now stands at 20,249 records. The formula for S above predicts that the number of observed species should increase by 51 from 1,221 to 1,272. In fact I did 20 better than this, but then some of my collecting was done at new sites. Taking this further the formula suggests if I were to carry on sampling across the same region for another six years to double my number of records, I should only expect to get another 200 species – unless I find some different new habitats, adopt different methods or study a wider range of families, or large numbers of new species arrive in the region. In the case of the Walberswick Dolichopodidae, Fisher's formulae suggest that even if twice as many specimens had been gathered, only 7 or 8 more species would have been added to the list.

However, there is a problem with Fisher's formula, as it can be extrapolated *ad infinitum* whereas in reality for a specified region over a given time, there will be a limit to the number of species which are to be found. Since the publication of

Magurran's book, the methods of biodiversity measurement have been extensively developed by Anne Chao and others, based on statistical inference from the complete set of species abundances without any prior assumption of an underlying distribution. In this analysis, instead of being a puzzle to be explained, the number of singletons becomes an important indicator of the sample completeness: there is a formula to predict the number of unobserved species based just on the numbers of singletons and doubletons.

This all shows the value and importance of recording common and scarce species on a consistent basis – indeed there are no natural dividing lines between common, local and scarce. In terms of ecological processes, it is the common species that are the important ones - all species are equally "interesting", not just the rare ones. While the multiplicity of species may be the first question of evolutionary biology, perhaps the second is what leads to those species varying so widely in abundance. Magurran's book discusses the many processes, both evolutionary and environmental, which may influence the shape of Whittaker plots and other biodiversity measures, and their variation in space and time.

While these statistical regularities might be seen as a law of diminishing returns in terms of the species list for a site or a county, I hope rather that dipterists will be encouraged that comprehensive regular recording in a consistent pattern will yield data that will be valuable as a yardstick in the future. For one thing, the numbers of the common species should provide an index of the amount of recording done, so that the numbers of uncommon ones can be assessed on a consistent basis.

As for *Fannia canicularis*, I found as many as three of them in 2019. One was in woodland on a former colliery site and another at Hale duck decoy down by the Mersey. The third was actually in the house, or at least the conservatory – which is actually almost a repeat of my first observation last year.

Phil Brighton (helophilus@hotmail.co.uk)

Noeeta pupillata **[Tephritidae], Dobarsko, Bulgaria 02 Aug 13, coll & det Alan Outen**

Records from the Stirling Field Meeting - an update

To date, six people have sent in spreadsheets of data (Dec 30th 2019). I do, however, have at least a few records from almost all attendees, thanks to Phil Brighton, Peter Chandler and Martin Drake who have identified the Anthomyiidae, fungus gnats and Doliochopodidae specimens given to them during the meeting. The dataset currently holds 3052 Diptera records (780 species from 64 families). These were recorded from 84 monads in 33 hectads. A summary of the current dataset is given below, where figures in brackets are (number of species, number of records).

Eristalis rupium **taken at Loch Lomond (Jane Hewitt)**

Anisopodidae (2, 6); Anthomyiidae (44, 90); Anthomyzidae (2, 2); Asilidae (5, 7); Athericidae (1, 1); Bibionidae (3, 6); Bolitophilidae (5, 17); Bombyliidae (1, 1); Brachystomatidae (3, 29); Calliphoridae (7, 8); Ceratopogonidae (1, 4); Chamaemyiidae (1, 1); Clusiidae (2, 3); Conopidae (1, 1); Diadocidiidae (2, 3); Diastatidae (3, 8); Ditomyiidae (1, 4); Dixidae (3, 3); Dolichopodidae (101, 1172), Dryomyzidae (2, 8); Empididae (44, 182); Ephydridae (18, 33); Fanniidae (11, 28); Heleomyzidae (10, 19); Hippoboscidae (1, 1); Hybotidae (21, 72); Keroplatidae (17, 85); Lauxaniidae (16, 58); Limoniidae (24, 36); Lonchopteridae (5, 29); Micropezidae (5, 16); Muscidae (63, 160); Mycetophilidae (131, 386); Opomyzidae (3, 38); Pallopteridae (3, 8); Pediciidae (3, 6); Phaeomyiidae (1, 1); Piophilidae (1, 1); Pipunculidae (6, 8); Platypezidae (2, 2); Platystomatidae (1, 7); Pseudopomyzidae (1, 1); Psilidae (8, 11); Psychodidae (2, 2); Ptychopteridae (1, 1); Rhagionidae (8, 43); Rhinophoridae (1, 1); Sarcophagidae (1, 1); Scathophagidae (19, 55); Scatopsidae (1, 1); Sciaridae (8, 14); Sciomyzidae (30, 83); Sepsidae (9, 23); Sphaeroceridae (3, 4); Stratiomyidae (9, 26); Syrphidae (67, 163); Tabanidae (2, 7); Tachinidae (13, 18); Tephritidae (13, 34); Thaumaleidae (1, 1); Therevidae (1, 1); Tipulidae (3, 3); Trichoceridae (1, 1) and Ulidiidae (2, 8).

I hope to receive more records over the winter as people work through their specimens. We plan to upload the data to iRecord in Spring 2020. This will make them available to national recording schemes, local record centres and the NBN Atlas (where they will appear as a Dipterists Forum dataset).

Jane Hewitt (jane.e.hewitt@ gmail.com)

Fly spotting

A new feature suggested by Nigel Jones. Well, he actually used the title "interesting flies" but I'm drawn to fly puns.

If you enjoy Nigel's piece below and have an idea for further stories, be they short or long, then do contact the Bulletin editors. There are clearly authors who can spin a good yarn, in those excellent "Fly of the Month" blogs. That series has ended now after our highly successful Year of the Fly, authors are now welcome to put them in the Bulletin. Even if you only have a partial idea, perhaps from one good photograph, pop that idea onto our website and see if some other member can help turn it into a story. Do check with Recording Schemes first though, your idea might be more appropriate in their newsletters.

Finding Piophilidae

Nigel Jones

The small, black, shiny flies in the family Piophilidae are well known for their association with bones and decaying flesh, but finding animal corpses is very hit and miss, so the opportunities for finding Piophilids are usually quite limited. I do infrequently find Piophilids by sweeping tree foliage, but rarely find them in any numbers. So what is one to do about finding these rather elusive flies? I have found a bait trap placed high up in a tree works wonders. I made one of those simple bait traps out of two plastic bottles, where one cuts up the bottles and cobbles them together with duct tape to create a collecting chamber at the top. The lower part of the trap then has an open "window" cut into the side, through which flies gain access to the bait. This is the sort of design employed by fans of the Calliphoridae.

***Pseudoceps signata* :** (Nattsjön, Ångermanland, Sweden) [Kurt Holmqvist]

I obtained some good bony bait, by getting the local butcher to debone some chicken thighs for me and asking him for the bones "to make stock with"; I wasn't brave enough to tell him I wanted the bones for attracting flies, especially with other customers in the shop. During July 2019 I placed a few of the bones, which usefully had bits of flesh on them, in the trap. I then hauled the trap up into an ash tree in my garden (SJ4911). To get the trap into a high place, I threw a weighted line over a branch (several attempts were required), attached the trap to the line, pulled it up and waited. Within days the trap was swarming with Calliphoridae and to my surprise a not inconsiderable number of Piophilids. These were all *Parapiophila vulgaris*, a fly that previously I had seen only a few times as singletons in my garden, so plainly they are more numerous than collecting by sweeping indicates.

Any good Dipterist is rarely caught unprepared for random collecting opportunities, thus my walking daypack always contains a few collecting tubes - really useful if you want to take advantage of any Piophilid collecting opportunities that might arise. Occasionally one does stumble upon a nice decomposing carcass, as was the case on a couple of outings in hill country in 2016 (Long Mynd, SO4492 and Rhos Fiddle, SO2085) where I chanced upon dead ewes in fairly remote locations. Being careful to eat my packed lunch BEFORE collecting off the carcasses, I was able to collect plenty of specimens of both *P. vulgaris* and *Stearibia nigriceps* by placing tubes over the flies as they walked about over the carcasses.

Deer carcass : Nigel Jones

Another tool for assisting in the collection of Piophilids, is the Dipterists own nose. The sweet, sickly stench of decomposing flesh can carry a fair distance and finding the source of the stink can be fairly easy to accomplish. In July 2019, at Loton Park in Shropshire (SJ3513), I was delighted to find a red deer carcass (only an entomologist would say that!) by following my nose (Fig. 1). The carcass really was well rotted and was swarming with Diptera and Coleoptera. The stench was so strong that it was very difficult to stay near the carcass for any length of time, so tubing at close quarters was more or less out of the question. Thankfully I had a zipseal plastic bag with me, so I swept the carcass and captured lots of Diptera, and then quickly got away from the carcass. Pooting was not an option, but thankfully I had with me a zip-seal plastic bag, so I bunched up the end of the net to trap Diptera in a pocket and then stuffed this pocket inside the bag and placed a tissue, soaked in ethyl acetate, in the bag, then sealed it shut. Once the flies were immobile they were tipped into large tubes with plenty of tissue to soak up moisture. The catch contained many Piophilids with lots of *S. nigriceps*, a single *P. vulgaris* and best of all there was a single male of the rarely recorded *Protopiophila latipes* – the first I had collected.

The only other flesh haunting Piophilid I have collected is the common *Allopiophila luteata*, usually found by sweeping vegetation and tree foliage; it's another small, black shiny fly. Piophilids are smart little flies, often sporting partly bright yellow leg parts, so they stand out quite well in day's sample of small acalypterates. There is a useful key to British species available (Stubbs & Chandler, 2001), so I recommend holding your nose and giving these flies a go – you'll enjoy it.

Parapiophila latipes **:** Nigel Jones

Reference

Stubbs, A. and Chandler, C. 2001. A provisional key to British Piophilidae (Diptera) and Parapiophila flavipes (Zetterstedt, 1847) new to Britain. Dipterists Digest 2001, 8, 71-78.

Coming to a compost heap near you!

Tony Irwin

Hermetia illucens is a stratiomyid that looks rather like a large black Sargus, but with very long antennae and a translucent patch at the base of the abdomen. It is a native of South America, but has spread widely throughout the warmer regions of the world. It is a saprophagous species, the larvae feeding on any decaying organic matter. Known as the Black Soldier Fly (BSL), it is widely bred as animal feed (particularly for salmon farming), and is readily available to the public as "calci-worms" – the name given to the maggots of this fly. They are sold as live food for pet reptiles and birds, and I think it's only a matter of time before escapees establish themselves in compost heaps across the country. Although the British climate is not ideal for them, the larvae and pupae can survive sub-zero temperatures for short periods of time, and the nature of compost heaps is such that they generate heat which will enable larvae to survive the winter with ease. They are supplied in a box warning the purchaser not to release this non-native species into the wild, but having come across giant stick insects and African land snails in deepest Norfolk, I suspect not everyone heeds that sort of warning.

As our young hedgehog seemed to find them unappetizing, I retained the culture and now have quite a few adults. If anyone would like a specimen or two, please get in touch.

Hermettia illucens **:** Black Soldier Fly [Tony Irwin]

Conservation

And now you see it ... now you don`t

Extinction Rebellion has evolved out of a sudden expression of latent public concern, even anger, at the rate of loss of biodiversity in the world, in tandem with climate change. The facts and knowledge of the problems have been flagged-up by conservation organisations, and even some of the media, for many years but a new spark has lit. It was heartening that some reports cited children being worried even about the loss of insects. What is more, the environment normally disappears from focus group priorities at election time, yet last December it was high in most manifestos.

But we have been here before. In 1991 the Rio Earth Summit proclaimed all biodiversity is important and virtually all nations signed up to maintain biodiversity and prevent extinctions. Moreover, development was to be sustainable within that objective. And the precautionary principle applied: if in doubt, don't develop. That was the basis of the British Biodiversity Action Plan. But meanwhile many nations have since trashed their bit of the planet. Even in Britain successive governments have fallen short of commitments that are inconvenient, such as the political imperative to develop brownfield, a BAP Priority Habitat, without any commitment to sustainability and precaution towards high concentrations of threatened species (almost impossible to get SSSIs, no local or national strategic plan, sites of major importance being lost at fast rate). 'Sustainable 'for biodiversity' has morphed into economical sustainability, and precaution thrown into the wind (a gale) in such examples in Britain, let alone worldwide.

So will biodiversity now remain in high focus or will it become largely reduced to gesture politics only? Yes it relates to climate change being brought under control, but the political challenge and turmoil will over-whelmingly be human priorities (translocation of human populations re rising sea level and climates unable to support farming), set against more billions of people on an already over-crowded planet. The range of environmental priorities is forever increasing, plastic for instance, creating priority over-load and all competing for attention. Priorities based on "ecological services benefit" will fall into the economic sustainability trap. It will be all too easy for sustaining biodiversity as a whole to slip down the agenda of priorities - vigilance is required.

As regards insects and other creepy-crawlies, they usually get minor bit parts on TV whilst wildlife is portrayed as largely consisting of mammals and birds, and their often less precise habitat niches. By far the major component of extinction so far has been among invertebrates (including many undescribed species), as will be the case in the future. It is a crazy distorted world when exploration of space and the search for life elsewhere in the solar system gets immense funding compared with discovering and documenting the millions of unknown species on our home planet, and providing sufficient refuge for like on Earth. Life in space is not threatened with extinction yet on Earth the future is bleak unless there is political will to change tack. In many parts of the world with high biodiversity, that is a very big ask.

Alan Stubbs

Insectageddon?

There has been a flurry of papers in 2019 on changes in insect distribution and abundance in Britain and further afield. You may recall the paper three years ago reporting a greater than 75% decline in total flying insect biomass over 27 years in protected areas in Germany (Hallman et al.2017). 2019's papers on what has become known in some quarters as insectageddon or insect apocalypse was kicked off in January by Sanchez-Bayo and Wyckhuys (2019) who reviewed 73 reports of insect decline across the globe and concluded that the dramatic rates of decline found may lead to the extinction of 40% of the world's insect species over the next few decades (as reported in the last issue of the Bulletin). However, while not doubting that insects are in decline, others have found this conclusion unnecessarily alarmist and the following media hype exaggerated. Thomas, Jones and Hartley (2019), from the Universities of York and Cardiff, observe that since Sánchez-Bayo and Wyckhuys only searched for references with the term "decline" in their title and not stability or increase, it is inevitable that the situation should appear worse than it probably is. They also note that while species may decline greatly in abundance this does not mean they are en route to rapid extinction – in Britain we have lost few insects completely despite what we believe to be massive changes in abundance of many. Populations hang on in nature reserves and so forth. Also, most of the studies are from Europe and North America: extrapolating from these to the whole world is a stretch too far. Simmons et al. (2019), the authors working for the Universities of Cambridge and East Anglia, Natural History Museum and RSPB, make the same points, adding that Sánchez-Bayo and Wyckhuys misapply IUCN Red List criteria by treating local assessments as if they were global. Both these critiques call for more robust data and rigorous analyses. They warn that hyping-up the situation may generate much needed short term attention but could backfire if politicians subsequently find out that claims have been exaggerated (not that politicians are immune to this themselves).

we urgently need more baseline and monitoring research, and governments and funding bodies must be prepared to pay for it

A paper with authors from universities in the States, Australia and the Netherlands together with Rothamsted Research and Butterfly Conservation in the UK, explores the challenges faced by those trying to document changes in insect populations and diversity (Montgomery et al. in press). First and foremost is the lack of robust long term datasets, coupled with the decline in insect identification expertise. This severe shortfall in insect biodiversity knowledge is well illustrated by the number of insects with global IUCN statuses – just 8,355 out of an estimated 5.5 million species worldwide. Second is a need for more relevant science of a high standard – at present far too much reliance has to be placed on anecdote such as the numbers of insects that used to be splattered on car windscreens. Scientific journals must also be far more prepared than they are now to publish articles that report no change, as unexciting as this maybe. Reports of where insects are stable or increasing are as important as reports of where they are declining.

Montgomery *et al.* warn against confirmation bias – the tendency to interpret data to support existing hypotheses or beliefs. I have noted a tendency among entomologists in the conservation sector to be dismissive of reports of insect populations doing well, trying hard to find fault and reasons why the conclusions must be wrong. Surely, we should celebrate good news as well as decry bad news lest a sense of hopelessness sets in.

Nevertheless, Montgomery *et al.* conclude that we know enough to be certain that insects are in trouble (see for example Powney *et al.* 2019 on loss of pollinating insects in Britain) and that we should be taking conservation action now – but so much remains unknown about the extent and causes of this decline that we urgently need more baseline and monitoring research, and governments and funding bodies must be prepared to pay for it.

In October an article appeared in the journal *Nature* on arthropod decline based on rigorous science (Seibald *et al.* 2019). In three regions in Germany, between 2008 and 2017, arthropods were collected annually at 150 grassland sites by standardised sweep netting, and at 30 forest sites with flight interception traps. The research revealed dramatic declines in biomass (67%), abundance (78%) and number of species (34%) in grasslands. In forests, abundance increased by 17% (not significant), while biomass and species number declined by 41% and 36% respectively. The declines occurred across all trophic guilds except that herbivores showed an increase in forest sites. In grasslands, but not in forests, the decline in species number was attributed mainly to the loss of rare species. Clearly these rates of decline over such a short period are deeply worrying. The authors conclude that the declines are driven by factors occurring at a landscape scale rather than a site scale, for both grasslands and forests. They could not be certain though, whether the declines are driven by legacy effects of historical land-use intensification or by recent agricultural intensification, nor was the influence of climate change clear. Nevertheless, they call for a paradigm shift in land use policy at a national level.

It appears that the German Government is listening! In September they announced a €100 million action plan for insect protection, which includes at least €25M a year for research and monitoring of insect populations. Increased protection will be given to some habitats like meadows and hedges, glyphosate will be phased out and steps taken to reduce light pollution. More support will be given for taxonomy research and training. Can we only dream that the UK Government will do likewise?

Here in the UK, in the autumn a wide partnership of organisations presented the *State of Nature 2019* report (Hayhow 2019). Since 1970, the abundance of 696 terrestrial and freshwater species (across all taxa although butterflies and moths are the only arthropods included) chosen as indicators has fallen by 13%, the rate of decline getting steeper in the last ten years although not significantly so, and an indicator of average species' distribution (occupancy) has fallen by 5% and is now 2% lower than in 2005 (based on 6,654 terrestrial and freshwater species). 41% of species have decrease in abundance, while 26% have increased. Focussing on insects, butterflies and moths have declined in abundance by 16% and 25% since 1970, and by 12% and 9% since 2005. In terms of distribution insects have decreased by 10% over the long term

and 8% over the short term. These figures are not nearly as bad as reported for Germany, but nevertheless are clearly of considerable concern. (It is worth reading the full report, since considerable differences are evident between the four UK countries.)

The report identifies agricultural intensification as being the most important driver of wildlife loss, with agricultural productivity, a measure of intensification, continuing to rise. While the use of fertilizers has decreased since peaking in the 1980s, as has the total weight of pesticide used, the number of hectares treated with pesticides, and the frequency of treatments has increased. In addition, the toxicity and variety of pesticides used on single crops has increased. In this respect, a recent paper reports that honeydew from aphids and other Hemiptera feeding on crops treated with neonics has been found to be lethal to pollinators and other beneficial insects (Calvo-Agudo et al. 2019). According to the paper, honeydew is the most abundant carbohydrate source for insects in farmland and a major source of nutrition for many insects including some hoverflies, *Sphaerophoria rueppellii* being one of two test species used in the research.

Climate change is considered in the State of Nature 2019 report to be the second main reason for changes in biodiversity in the UK, driving widespread and rapid changes in the abundance, distribution and ecology of the UK's wildlife. Hydrological change is another important factor, the report noting that wetlands continue to be lost and, of particular concern, a growing human population is leading to increased over-abstraction from water bodies such as rivers, especially in South-East and Eastern England. Further pressure is created by urbanisation, non-native invasive species and pollution – here nutrient enrichment via atmospheric N deposition remains a particular concern: NOx levels may have fallen but are still too high for sensitive habitats and ammonia emissions are on the rise once more.

The complexity of understanding what is happening to our insect populations, and the need for rigorous unbiased interpretation of data, is revealed by recent publications on moths. Macgregor *et al.* (2019), using data from the Rothamsted insect monitoring programme, find unexpectedly that macromoth biomass has increased by 2.2 times between the first (1967-1967) and last (2008-2017) decades of monitoring. During the mid to late 1970s moth biomass rose sharply – since 1982 it has declined gradually but is still higher than in the late 60 and early 70s. The authors point out that this shows the value of long-term datasets. The greatest post 1982 decline has taken place in grassland and woodland, with no decline on arable land, suggesting that the overall decline since 1982 is not driven by agricultural intensification, again contrary to expectation. Nonetheless, biomass levels were typically lowest in urban and arable areas and nearly twice as high in woodland as any other habitat.

In support of this, the magnificent newly published *Atlas of Britain and Ireland's Larger Moths* (Randle *et al*. 2019) finds that in Britain the distribution of 121 species decreased but that of 148 species actually increased over the 47 year period 1970 – 2016 (for species where data sets are sufficiently good for statistical testing). Perhaps there has been an upturn in fortunes since the last such as analysis was done, reporting on figures up to 2010. In terms of abundance, however, the atlas finds that 136 species decreased (34% of the total) while just 45 (11%) increased.

The picture painted above is reflected well in a quick review carried out in December 2019 in northern Devon, where I live, by people with detailed local knowledge of wildlife, of evidence of recent biodiversity decline and the underlying factors. Only for birds could we say with any certainty that declines have occurred – as with lichens, vascular plants, etc, the information is just not there at a county level for any invertebrates, butterflies and moths included. However, based on what scraps of knowledge we do have and drawing on national data, we reached the conclusion that the major cause of any ongoing loss of biodiversity is likely to be continuing agricultural intensification – Devon's green, grassy, fields are virtual wildlife deserts – coupled with a lack of landscape dynamism leading to a paucity of early successional habitats and gradual ecotones. As with so many other parts of England, we have a landscape that is, in land-use terms, effectively frozen in time. Poor soil management, eutrophication due to atmospheric N deposition, and increasing use of pesticides (especially for maize) are probably other important factors.

The report identifies agricultural intensification as being the most important driver of wildlife loss

The impact of climate change on Devon's biodiversity is as yet unclear from the evidence available. A major conclusion is confirmation that we need to continue to promote changes at a landscape level rather than just focussing on those habitat patches that remain relatively biodiverse – their wildlife is heavily impacted by external factors and cannot survive in isolation.

My thanks to Alan Stubbs, Roger Morris and Richard Fox for drawing my attention to relevant publications.

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Robert Wolton

Conservation News

Coul Links

My thanks to Craig Macadam for this update:

Following the completion of the Public Inquiry in March the inquiry parties submitted closing submissions to the Scottish Government Reporters. These submissions, together with all the evidence provided before and presented during the Public Inquiry, were considered by the Reporters and their report, including recommendations, was submitted to the Scottish Government Planning Minister at the end of November. We are now waiting for the Scottish Government to issue their decision. Once this decision is announced the Inquiry report will be made public. Unfortunately there is no guide on when the decision will be made.

Heath bee- fly *Bombylius minor*

Chris Spilling tells me that last spring more than 80 were recorded on one afternoon on the west side of the Studland Peninsula, either feeding on sea lavender or looking for/ovipositing in suitable holes.

***Bombylius minor* female - Godlingston Heath, Dorset [Steve Falk]**

Status reviews

David Heaver (Natural England) tells me that he plans for Pete Boardman's review of craneflies to be published in 2020, and that he hopes to work with Peter Chandler to revise the draft fungus gnat review to be consistent with the new format and to take into account new records. From my own perspective, I would very much like to see progress also being made on those calypterate families that remain to be covered in the new format, namely the tachinids and scathophagids. These status reviews are such very useful documents!

I am hugely grateful to Judy Webb for her account below of wetland flies in Oxfordshire. It is so encouraging to hear of all this splendid conservation work she is so closely involved with and I am sure readers will wish her and all those involved great success.

I would very much welcome further such news of conservation work going on for flies, whether or not Section 41 (UK Biodiversity Action Plan) species are involved. Please do get in touch.

Rob Wolton

Wetland flies in Oxfordshire

Judy Webb

Here in the south east (Oxfordshire) 2019 had an early warm and dry spring which led to a droughted early summer, with high temperatures and insignificant rain until after mid-July. From then, rain and cooler conditions operated patchily through to the heavy abundant rain this winter. Fast moving climate change is upon us; climatic fluctuation between extremes seems the new norm. Late summer and autumn rain have re-wetted dry fen sites so they superficially look better, but this will be low-calcium rainwater and the needed high-calcium alkaline groundwater still seems not up to normal. Wetland-breeding flies will have had a particularly bad year due to summer drought drying down shallow breeding pools and high air temperatures (e.g. 34 degrees C) then baking the dried mud. Just one episode of too hot and dry in June/July will kill soft bodied aquatic larvae, no amount of subsequent rain in autumn and winter will bring them back. There is no good news from my fly guardian species in Oxon. I hope those that occur in wetter counties such as Anglesey in North Wales have done better.

***Milichia ludens* (**Milichiidae**)**

This small black fly breeds in the nests of the Jet Ant *Lasius fuliginosus* inside the 'carton' nest of chewed wood (similar to a wasp nest) that the ants construct inside hollow trees, usually in the base. Obviously the fly depends on the ant colony being healthy. In Cothill fen SSSI/SAC, the Jet Ant nest I study is in the base of an old ash tree on the fen margin. Despite being present in sunny weather regularly at normal *Milichia* emergence time during April and early May, sweeping round the tree found none on the wing or sitting on the tree bark as is normal. Perhaps they were out either before or after my visits. The ash tree has ash dieback *Hymenoscyphus fraxinea* and had been high pollarded in the previous winter to take weight out of the crown. Further height reduction will be carried out as necessary to keep the trunk with its ant nest going as long as possible as the ash tree shows more disease symptoms.

***Triogma trisulcata* (**Cylindrotomatid cranefly**),**
***Odontomyia argentata* Silver Colonel** (Stratiomyidae),
***Stratiomys chamaeleon* Clubbed General Soldierfly** (Stratiomyidae) **and *Odontomyia angulata* Orange-horned Green Colonel Soldierfly** (Stratiomyidae)

I have lumped all these species together as they all depend on short fen wetland or shallow fen pools for successful breeding, having aquatic/amphibious larvae. Soldierflies also seem to depend as adults on nearby nectar-rich flowers. I have never seen *Triogma trisulcata* adults visit flowers and feel it is likely it has no dependence on them. I found no *Triogma* in Cothill Fen but a few were on the wing as usual in the Lye Valley SSSI fen in Oxford on 24th April; when two males were swept and retained. These were placed in 70% alcohol and posted to Herman de Jong in Leiden for his study of the male internal genitalia. Rob Wolton also found many *T. trisulcata* in a small patch of moss on the edge of a shallow pond in the bottom of an old limestone quarry (Meldon Quarry) on the edge of Dartmoor on 23rd of April. He was thus able to send additional male specimens to Herman. This is an inconspicuous brown grey cranefly but Rob's photos are far better than any I have been able to achieve (see Cranefly News). The moss in Rob's photo is a *Philonotis* species. *Triogma* seems to be associated with a variety of wetland moss species, as long as they are

waterlogged. The larvae graze on moss and have camouflaging frilly extensions that resemble moss leaves.

Whilst this cranefly does not seem to need flowers to complete its life cycle, soldierflies in this respect vary, some visit flowers and some don't seem to. The big *Stratiomys* species seem to target, and may much depend on, umbellifer (Apiaceae) flowers during their flight time. These flowers produce a lot of easily accessible nectar. Of these the best liked seem to be hogweed *Heracleum sphondylium* and wild parsnip *Pastenaca sativa* (these do not grow in fens, needing drier soil which is ideally on land adjacent to fen breeding pools) with parsley water-dropwort *Oenanthe lachenalii* , a wetland plant with flowers much favoured when actually growing in the fen breeding site. Marsh thistle flowers are now abundant in Cothill Fen NNR as a result of fen restoration activity and are much visited by butterflies and bees, but never by large soldierflies, presumably they have an unhelpful flower structure for flies with a short proboscis with a big flat pad on the end.

I have also seen *Stratiomys* species feeding on aphid honeydew on the leaves of scrub near the fen, so maybe this can substitute for Apiaceae flowers. Recently the owners of the adjacent green lane to the Cothill fen have cut back a lot of hazel scrub, letting more light into the lane margins. Here there have always been a few hogweeds in semi-shade. Perhaps some further encouragement of hazel coppicing here will give us high light and a good stand of flowering hogweed as a result. This would attract and feed *Stratiomys* species adults, supporting their energy needs and enabling me to get some useful adult population counts.

The orange-horned green colonel *Odontomyia angulata* also visits parsley water dropwort flowers. I'm grateful to Peter Andrews for this photo from Parsonage Moor of one visiting flowers in July. My surveying found numbers of adults were down, but I swept several on 5.07.2019 just by targeting rush and sedge vegetation. Here also they may often be observed sitting on a leaf by a shallow pool, head downwards. Despite much sweeping at the right times in April and May, I found no silver colonel *Odontomyia argentata* adults. These are reported as nectaring on hawthorn flowers, but there are no appropriate hawthorns near the fen, so I cannot test this out.

Orange-horned green colonel *Odontomyia angulata* on parsley water dropwort at Parsonage Moor, Cothill fen 29.07.2019. Peter Andrews

The hot and dry spring meant the first *Stratiomys* of any species I saw was a female flecked general *Stratiomys singularior* at the early date of 15th May. This is not a fly guardian species as it is becoming more common these days, but I keep track of it. This year it had a very long flight season, occasional adults were found and the last noted as a freshly dead specimen on a leaf on 6th September. Banded general *Stratiomys potamida* are usually seen occasionally and I netted the first, a female, on 26th June. Despite the very rare clubbed general *S. chamaeleon* being fly of the month for August (for 'Year of the Fly'- did you see Malcolm Smart's interesting account?) out in Cothill Fen the only sighting I had of this species all year as an adult was a single female fly on 2nd August, nectaring on parsley water dropwort flowers in the Parsonage Moor section of the Cothill SSSI. Peter Andrews also found one male on parsley water dropwort at this site on 29th July. However he was more successful at nearby Dry Sandford Pit, seeing 3 adults (2 males, one female) nectaring at the abundant flowering wild parsnip and commented that the springs still seemed to be running well to feed the proto-fen wetland despite the drought. I'm grateful for his records and photo and pleased the site was so wet.

Female clubbed general Stratiomys chamaeleon on wild parsnip flowers at Dry Sandford Pit on 29.07.2019. Peter Andrew

What is the result of the drought on fly habitat this last summer? In Cothill fen two sections of the SSSI/SAC dried down very markedly after the end of June for three months. It was heartbreaking to see good Diptera and Odonata breeding pools in old peat cuts dried down to a layer of dead bleached stonewort *Chara* algae on top of a dry mud crust that was hot to the touch. However the NNR section of the fen and a large pool was kept wet throughout the drought by a carefully installed partially leaky log dam in the outflow drain (put in place in July 2018). Such damming needs to ensure water continues to flow through the site and avoid causing stagnant conditions with consequent anoxia. This winter it is hoped further careful damming of outflow drains in the other SSSI sections may be achieved by volunteer workers of Natural England and the Wildlife Trust (BBOWT). This should retain more water during future summers and much improve the breeding prospects for the rare soldierflies on site.
The photograph below shows the ideal condition of a shallow *Chara* pool breeding habitat in midsummer. The sparse emerging reed stalks and leaves are used by *Stratiomys* species as egg-laying sites. Larvae hatch from an egg mass and then drop into the water of the shallow pool beneath. I have seen *Stratiomys* egg masses laid on reed leaves above dried out pools. Presumably hatched larvae fall onto a dry crust below and die in these situations.

Shallow Chara stonewort alga soldierfly breeding pool, Cothill Fen NNR 02.08.2019. J A Webb

Stratiomys egg mass on reed leaf, Cothill Fen NNR 02.08.2019. J A Webb

It is relatively easy to see numbers of larvae of some of the larger soldierflies in March and April on a warm sunny day (these are semi-mature, development can take several years). They rove over exposed wet mud surface leaving characteristic trails in bare wet mud. I imagine this is basking behaviour to achieve warmth from sun, but maybe they are also feeding on unicellular algae (or both). Of course such larvae are not identifiable to species but such trails give an indication of a good breeding site.

Stratiomys larvae and trails in mud, Cothill Fen NNR 26.04.2019. J A Webb

As parsley water dropwort *Oenanthe lachenalii* is such an important perennial wetland plant for nectar and pollen feeding insects, it is one I have been encouraging in calcareous fens that are being restored in Oxon as part of the Oxfordshire Fens Project, run by the Freshwater Habitats Trust (see https://tinyurl.com/s6la7dp). This project is working in five fens (four SSSIs and one Local Wildlife Site) which have had no cutting management or grazing for many years and consequently are becoming dominated by scrub or tall reed and rush/sedge. A Water Environment Grant is funding this work which involves scrub removal and reed and rush cutting and raking to restore short fen vegetation (contract and volunteer work). Abundant seed of parsley water dropwort is available from species-rich hay arising from cutting management in the Lye Valley calcareous fen in Oxford and this is being distributed to the five fens in the project to establish useful populations of this plant to meet the nectar/pollen needs of soldierflies in particular. Established plants will also provide a way of monitoring the return of desired soldierfly species by counts of adult flies visiting the flowers. *Stratiomys* species are large flies that are strong fliers. It is a hope that they may be able to find these newly opened up fens as they disperse in the future from the central important breeding area of Cothill Fen and Dry Sandford Pit.

This year has seen further malaise trapping of flying insects in the Cothill Fen NNR section. Historic records are available from a trap run in the same position in 1988. I have visited regularly to collect and sort flying insects from the trap in 2019 and other entomologists more expert than I are engaged in identifications now, funded by Natural England. The aim is to see if the flying insect fauna is still as good as was the case 31 years ago, considering the nitrate enrichment problem the site has and climate change and the general decline of insects widely reported. The trap was sited just on the fen edge in light woodland, this being a position designed to avoid catching large rare *Stratiomys* and *Odontomyia* species, which fly only in the sunny open fen it seems.

The nitrate pollution mitigation scheme at Cothill (mentioned in my accounts in 2018) to clean up polluted water from agriculture entering the fen via springs has been on-going with groups of volunteers working with the Local Wildlife Trust (BBOWT) and Natural England. The mitigation involves directing nitrate-polluted water through an area of anaerobic waterlogged rotting vegetation to encourage de-nitrification, thus cleaning up the water (anaerobic bacterial activity on nitrate means N is returned to the air as nitrogen gas). Cut reed and rush generated by fen management with volunteers has been used to form the rotting vegetation and has been placed in the ditches with high nitrate. This is working moderately well in reducing nitrate but only when conditions are warm enough for bacterial action to remove the nitrate. It needs annual input of fresh cut material. The ideal long term solution is removal of fertilizer input in the source arable fields near the site.

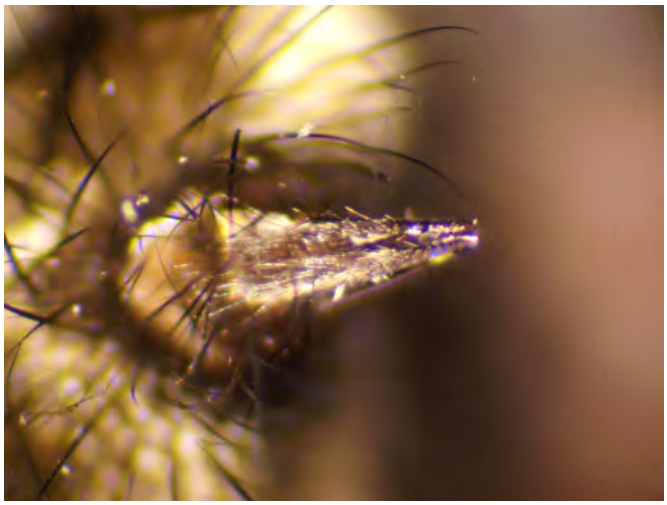
Judy Webb (December 2019)

Regional Groups
Northants Diptera Group

The group continued to meet into September but the wet Autumn curtailed our activities thereafter. There was quite a sharp fall of records from early October. Amongst the more interesting finds in the second half of the season was a fine specimen of *Leopoldius signatus*, taken in a moth trap in a glade in mixed woodland at Pitsford Water Nature Reserve. The finder was the assistant warden at the reserve, Mischa Cross. She took several good photos, one of which is shown below. This is the second record from the county, both of which have been at Pitsford Water.

***Leopoldius signatus*, moth trap, Pitsford Water Nature Reserve. [Mischa Cross]**

Members took part in a bioblitz at the North-west end of Pitsford Water. This is a neglected poplar plantation where there had been little previous recording, partly because the vegetation was too dense to gain access. A number of paths were cut into the area and that enabled us to carry out some recording. Amongst the diptera recorded were the comb-horned cranefly *Ctenophora pectinicornis* and the hoverfly *Brachypalpoides lentus*. Both recorded by Lisa Rowley. I took a tachinid, which, with some help from Chris Raper, I identified as *Carcelia puberula*, a fairly scarce species in the East Midlands.



***Carcelia puberula* genitalia © John Showers 2019**

***Carcelia puberula* male. © John Showers 2019**

***Carcelia puberula* genitalia © John Showers 2019**

There are still quite a lot of specimens to identify and not all records have been submitted yet so more interesting specimens may yet turn up.

John Showers

Devon Fly Group

Another year has passed in the blink of an eye and here is the annual review of the Devon Fly Group's activities in 2019. As usual, we kicked things off with an excellent indoor meeting at **Woodah Farm near Doddiscombsleigh**. Despite a lower turnout than expected, it was an educational and enjoyable gathering. Firstly, Martin Drake gave a potted history of diptera recording in Devon which was followed by a discussion led by Rob Wolton on the changes over the last hundred years in some species since Yerbury's time in Plymouth. Richard Lane clarified the complex options for slide preparations and the top three prizes in the annual Fly Bingo were shared by four people! These included a bottle of Blandford Fly ale, fly biscuits (Garibaldi) and a blue drinking bottle. As always, possibilities were keenly discussed for venues to visit during the year ahead.

In April, Geoff Foale arranged a return visit to **South Milton Ley** on the South Devon coast for our first field meeting. Bitter winds greeted our arrival in the car park so it was unsurprising that the beachside cafe was full forcing us to "warm up" with a hot drink and cake outside.

Thankfully, most of South Milton Ley had some shelter from higher ground either side and we did quite well for an early spring field session. The reed beds in the ley and paths on both sides required more effort than usual to eke out a decent sample but it was the sheltered wooded inlet at the top of the ley where we found most flies. Some of the highlights from the reed beds were *Syntormon mikii* (Dolichopodidae), *Calamoncosis aprica* (Chloropidae), *Dixella martinii, D. serotina* (Dixidae) & *Molophilus pleuralis* (Limoniidae). Considering the presence of a large reed bed, one would expect a few Sciomyzidae but the cool wind limited us to just two, *Pherbellia schoenherri & P. ventralis*. Extending net handles to the maximum lengths and sweeping flowering salix trees chalked up five species of hoverfly and an impressive fourteen anthomyiids. The family of Sphaeroceridae (lesser dung flies) were represented by nine species with the tiniest being found on the window of the toilet block at the end of the day, namely, *Telomerina pseudoleucoptera*.

Halsdon Wood near Dolton was the venue for the field meeting in May which was held jointly with the Devonshire Association and Devon Wildlife Trust to promote 'The International Year of the Fly'. The most exciting discovery on the day was *Leucophora sponsa* (Anthomyiidae). Apparently, this has not been recorded in Devon before and is considered Nationally Threatened with only a handful of British records since the 1960s. The larvae are kleptoparasites in the nests of ground-nesting solitary aculeate hymenoptera. Another decent find was *Coenosia pudorosa* (Muscidae) which is a Near Threatened species and a Devon Special Species meaning this county has a national responsibility for its survival in Great Britain. This was followed up by *Phaonia gobertii* (Muscidae)

for which there is only one previous record on the Devon Fly Group database. The diminutive bee fly, *Bombylius canescens*, was another nice sighting and was adored by everyone present.


Slapton, Higher Ley, 15th June 2019

In June, we enthusiastically returned south to the superb **Slapton Ley National Nature Reserve** and it didn't disappoint. The weather was glorious and we made the most of a long day covering as many areas as we could including **Higher Ley**, the upper end of **Lower Ley, Southground Fen** and the well vegetated shingle beach at **Strete Gate**.


Strete Gate, 15th June 2019.

Martin Drake's fondness for Dolichopdidae ensured this family was well represented with gems such as the Nationally Scarce *Rhaphium fasciatum* alongside *Chrysotus laesus, C. blepharosceles, Sybistroma crinipes, Gymnopternus assimilis, G. cupreus and Hercostomus nanus*. The lesser house fly, *Fannia lucidula* (Fanniidae) found today was a new species for the Devon database. A female specimen of *Helina deleta* (Muscidae) was perhaps the fourth record for Britain. The second and third being from Dawlish Warren and Kingswear (Froward Point) respectively prompting speculation that this could be a recent colonist or just a migratory species. Outside the UK, the larvae have been found in the dung of Brown Bears so we may need to visit some zoos or rewild a few bears. Craneflies were well represented by the Red Data Book species, *Tipula marginella* as well as *Helius flavus and Thaumastoptera calceata*. Last time we visited Slapton Ley a few years ago, we found the rare sepsid *Themira biloba* on waterfowl dung. Thankfully, we found it was still present. The tiny psychodid *Telmatoscopus longicornis* was recorded and is interesting as Phil Withers' draft key says the only English record is from Norfolk (it is also present in Scotland and Ireland). Several fungus gnats were handed over to Peter Chandler thereby increasing the records total and with one being the remarkable *Keroplatus testaceus* which is classed as Lower Risk (Nationally Scarce).

Due to holidays and various other reasons, a smaller group than usual met up for the July field meeting at **Emsworthy** on Dartmoor by kind permission of the Devon Wildlife Trust.


Devon Fly Group (Emsworthy), 20th July 2019

The car park on higher ground was being battered by cool strong winds and the sunshine could only be seen on the distant coast below. Our premature pessimism was swiftly dispelled as we descended to lower ground into the reserve and the sunshine came out turning it into a productive day for flies and other orders. Initially, we dropped down to the open mires with some scattered trees and carr before heading northwards alongside **Blackabrook** and, then up on to higher ground for the return leg.


Blacka Brook, 17th August 2019

Recent discoveries of note here have been *Eristalis cryptarum* (a new site) and the impressive tabanid, *Atylotus fulvus*. Even as this is being written in December, samples have yet to be identified but so far, the notable finds of the day were *Fausta nemorum, Tachina grossa* (Tachinidae), *Trichopsomyia flavitarsis* (Syrphidae), *Diastata nebulosa* (Diastatidae) and *Achalcus flavicollis* (Dolichopodidae). An unusual occurrence was the discovery of the distinctive scathophagid, *Pogonota barbata*. The open mire with scattered trees was perfect habitat for it but it was in one very specific area. It could be seen or caught within a twenty metre square damp spot but move away from this and it couldn't be found despite the habitat remaining similar. John Day's keen interest in leaf miners yielded a good record of *Liriomyza valerianae* on Valerian. This is a nationally rare species with only about six accepted records held by the National Agromyzidae Recording Scheme. This is the second or third time he has found it in Devon. On our way back to the car park, inspection of the traditional Dartmoor stone walls scored a good spider record, *Pseudeuophrys erratica*.

August saw us travel to the deep south to visit **Shaugh Bridge** near Plymouth. This is a beautiful riverine woodland on the periphery of Dartmoor and was visited by Colonel Yerbury exactly 100 years ago. Being close to the large city of Plymouth, this location is very popular with kayakers, ramblers, picnickers, dog walkers, selfie takers, etc. Fortunately, the National Trust warden met us and escorted us to their **Lower Cadworthy Farm** base at the northern end allowing us to roam without interruption.

Lower Cadworthy Farm, 17th August 2019

We were privileged to explore a beautiful upland river running through oak woodland with some open areas containing a mix of boggy patches, seepages and acid grassland. Many specimens still remain unidentified but so far there are interesting records of *Helina vicina* (Muscidae) which is Nationally Scarce and known from just three other sites in Devon. Another muscid we don't hear much of either was *Lophosceles cinereiventris*. After having had our fill of Lower Cadworthy Farm a few of us ventured on to higher ground on the open moor to finish the day off at **Blackabrook** and broaden the range of species we were catching. It paid off beginning with *Coenosia campestris* which is another Nationally Scarce muscid, and known from just one or two other sites in the county. The picture-winged fly *Tephritis matricariae* was first found in Kent, in 2000. Since then it has spread through much of the rest of the country, and the second known Devon record was found here. Blackabrook also produced *Syntormon zelleri* (Dolichopodidae), *Meiosimyza illota* (Lauxaniidae) and the muscular *Ochthera mantis* (Ephydridae).

Stover Country Park, 21st September 2019

Stover Country Park near Bovey Tracey was our venue for the September meeting. A large lake dominates this very popular reserve with woodlands surrounding it being divided by several footpaths. The woods are mixed but have an emphasis on conifers. One section looks remarkably like a caledonian pine forest. Some of the paths run alongside or across shaded streams offering good hunting ground for fungus gnats. One side of the large lake has an extensive swampy bank supporting a quality amount of Bog Myrtle which is not a common plant in Devon. For starters, the warden met us and guided us around a recently completed project close to the Drumbridges roundabout. This is a large roundabout on the A38 and has just been expanded. Brake dust is one of the principal pollution run offs from roads so there was concern for the lake. Some small settling pools were built to accept the run off and filter the dirty water before it reached the lake. Already some plants and insects had colonised the pools so we had a golden opportunity to study the diptera fauna at this early stage with a mind to return over the years and see how things shape up. We also had the presence of a renowned poet, Fiona Benson, shadowing us for the day to garner some material for her poetry. As for the flies, we saw some noteworthy species. One path through a wide clearing had a flower filled ditch running alongside it and despite the flowers being past their best, there were lots of pollinators present including *Sericomyia superbiens, Ferdinandea cuprea, Volucella zonaria & Helophilus trivittatus* (Syrphidae) along with *Cinochira atra, Phasia pusilla & Nowickia ferox* (Tachinidae). The aforementioned boggy

ground on the edge of the main lake yielded a couple of quality Sciomyzidae by way of *Psacadina verbekei & Dichetophora obliterata* (Sciomyzidae). There was also *Oropezella sphenoptera* (Hybotidae), *Paramormia ustulata* (Psychodidae), *Dioxyna bidentis* (Tephritidae), *Scellus notatus* (Dolichopodidae), *Paraplatypeza atra* (Platypezidae), *Helina lasiophthalma* (Muscidae) and *Metalimnobia bifasciata* (Limoniidae). Several interesting plants were recorded including Yellow Dodder. Everyone came away extremely satisfied and agreed a return visit was a must.

Last year the weather thwarted our plans to visit **Heron's Brook** (Sticklepath) near Okehampton but we managed to end our field season here in October this year. Thanks to the kindness of our hosts, Wilf and Helen Hodges we enjoyed some good habitat starting in their garden which had a well vegetated pond, a shaded stream and a very boggy woodland floor before climbing up through a steep sided woodland on to an open mire on the edge of Dartmoor. After a generous and hearty lunch including hot home made soup courtesy of Wilf and Helen, the afternoon was finished off exploring a huge spoil mound left over from copper mining. The weather was less than ideal but our efforts turned up a few species of interest such as *Ramonda spathulata, Cinochira atra* (Tachinidae), *Agathomyia unicolor* (Platypezidae), *Rhamphomyia spinipes* (Empididae), *Brillia bifida* (Chironomidae), *Thecophora atra* (Conopidae), *Conisternum decipiens* (Scathophagidae), *Mydaea affinis* (Muscidae) and *Emmesomyia grisea* (Anthomyiidae). A large number of fungus gnats and allies were collected and passed on to Peter who kindly identified them for us. Altogether, there were at least twenty five different species with one classed as 'Vulnerable', *Rymosia affinis*.

Membership of the Devon Fly Group is open to anyone who is interested. You simply need to join our Yahoo Newsgroup (email Andrew Cunningham via ajc321@hotmail.com) which is an efficient platform that distributes details of our field meetings, events and other items of interest. Devon is a popular holiday destination so, if you happen to be here, then you are most welcome to join us on a field meeting. Our next meeting is due to be held at Woodah Farm (indoors) on Saturday 7th March 2020. Hopefully, we will see you there!

Andrew Cunningham

Logging on to the new website

To log onto our new website is 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

Members

Membership Matters

At the end of 2019 we had 397 paid-up members and 344 subscribing to the Dipterists Digest. In addition, we have 5 new or returning members starting their subscription in 2020. This is a very encouraging position.

I do urge all members to keep up to date with subscriptions, which 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:

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NN14 6JQ
Tel.: 01536 710831
E-mail: showersjohn@gmail.com

Membership & Subscription Rates for 2020

Membership and Subscription Rates for 2020 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 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

Obituary

Dr Elizabeth Howe 1959 to 2019

Liz, Megan & Mike. Wangford Warren 2013 on the Dipterists Forum Summer Field Meeting (Photo by Darwyn)

Many readers will have been saddened to hear that Liz Howe had a terminal diagnosis last year and died in May 2019. Liz was an active entomologist, a long time member of the Dipterists Forum who undertook sterling work as our Membership Secretary for several years and, of course, was the wife of long time DF member and entomologist Mike Howe. Together they have contributed an enormous amount to entomology particularly with regard to Wales. Separating their entomological achievements is almost impossible since they were very much a team.

I first met Liz and Mike on Dipterist's Forum weeks in the late 1980's and early 1990's. There was a group of young DF members on these meetings in their late twenties/early thirties who formed friendships and learnt about Diptera and other entomology from the older, experienced members. Liz and Mike formed an efficient collecting team and I remember back in the labs, how one would sort flies whilst the other would pin with a constant instruction and dialogue between the two which created much amusement amongst the other DF members present. I also remember Liz and Mike recounting a foreign trip where Liz had picked up a screw-worm (Diptera; Calliphoridae) in her ankle. The larvae was carefully removed medically, retained and proudly displayed to DF members present in a vial of alcohol.

Liz was born in Kingstanding in the West Midlands, the daughter of Robert Pulford, an electrical engineer and his wife Margaret. After Aldridge Grammar School in Walsall (1971-1978) she went to Queen Elizabeth College, University of London where she won the Cheeseman prize for physiology. As an undergraduate she undertook herpetological studies and subsequently, went on gain a PhD on the physiology of the ocellated skink at Bangor University.

Liz and Mike met at Bangor University where Mike was also undertaking his PhD on Culicidae. They married in 1989 and gained employment at what was the Nature Conservancy Council, which became the Countryside Council for Wales (CCW) and is now Natural Resources Wales. With work based at Bangor they settled on Anglesey. They had two daughters Megan and Gwenllian. Some DF members may remember Megan being brought on DF meetings as an infant in the 1990s.

Liz worked as a contract scientist for the Nature Conservancy Council between 1986 and 1991 where she worked on surveys and the preparation of conservation site management plans. She was then promoted to become a species team leader and herpetologist in CCW. For ten years from 1987 she managed a series of survey teams that mapped vegetation across Wales. One outcome of this is the publication *Habitats of Wales: A Comprehensive Field Survey, 1979-1997* published in 2010 and part authored by Liz. This important work has provided a foundation on which much later conservation work has been based.

Liz was also a leading herpetologist and pursued this successfully in her professional work. She led programmes on captive rearing and reintroduction of sand lizards and natterjack toads partly in collaboration with Chester Zoo and the Amphibian and Reptile Conservation Trust. Some of her herpetological and many other professional achievements are detailed in her obituary in *The Guardian* on 11th May 2019.

Dipterists Forum

Liz and Mike's contributions to Diptera can be found throughout the Dipterist's Digest. One concerns the recording of *Stratiomys chamaeleon* on the Black Isle which was during a DF summer meeting (DD 1995 Volume 2, Part 1: 24-28).

Closing remarks

Liz was planning to retire in October 2019 on her 60th birthday and was hoping to spend more time on entomological recording.

Liz is survived by Mike and their daughters.

Andrew Godfrey

Review

Equipment

Fly by night

If you have a wish to use a UV moth lamp to try to attract Diptera then a recent LED lamp, the LepiLED, developed by Dr. Gunnar Brehm, may be of interest. It's well described on his website at http://gunnarbrehm.de./en/homepage.html the appeal is that it is lightweight (350g), compact and can be run from the powerbank batteries that we all carry around to recharge stuff these days. You'll have to devise your own trap mechanism and at €385 (for the smallest version) you'll not be wanting to leave it unattended.

Fly bags

Supermarkets are currently selling drawstring net bags made from 100% recycled plastic bottles. They are intended for your purchases of fruit & veg but the possibilities for entomology are immediately apparent. At 25p each and small enough to fold into a pocket you could carry a number around for stashing your leaf-mine or leaf-mould samples, carrying around a dead mouse as bait, scooping up debris from water, as a vasculum for taking plant samples, or even as an impromptu net.

Software

Flickr appeal

Many of us rely on Flickr to some extent, whether it's just to check the appearance of some flies on Steve Falk's site, as a space to deposit and share images with friends or using it to get involved in biological recording through iNaturalist.

It's under threat because it's a business model that simply loses money. Their CEO and founder, Don MacAskill, sent out an appeal in December for users to shift from the free to the subscription model to help them move out of the red. The letter is frank, about Facebook he says "*Unlike platforms like Facebook, we also didn't buy it to invade your privacy and sell your data.*"

Go PRO and you'll be helping this endangered species to survive.

PDF reader & editor

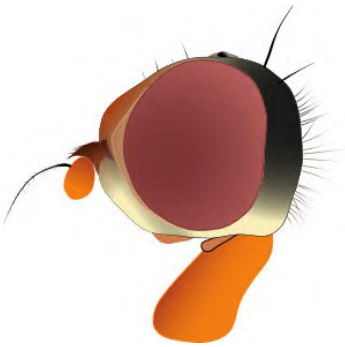
I daresay many are happy with the default free PDF reader from Adobe but following their change to cloud versions I began to search for alternatives. There are a surprising number of these but one that I am most impressed by is **Foxit**. They produce a free reader with a nice clear interface, take a look at https://www.foxitsoftware.com/pdf-reader/ There's always a catch with free stuff but this one is permanent, you can keep it forever, their only catch is a tiny, two-line unobtrusive advert on the menu bar. There is no time limit, barrage of advertising emails or pop-up adverts with this one.

They also do a full PDF editor (£100 one-time, not subscription) if you have a need for serious compiling & collating from scanned material.

Affinity

There are now three products in Serif's stable. Many will be familiar with **Affinity Photo** which has moved into the mainstream so substantially that it is now included in the regular "how to" sections of popular photography periodicals (and this one.) For our needs its strengths are in the areas of simple scaling, cleaning up etc. as detailed in Bulletin 88. For those interested in Focus Stacking it's also very good. It seems to have been designed with the user in mind rather than the software geeks, it's hard to fault the user-interface and the whole thing is backed up by well-executed online videos and a busy Forum.

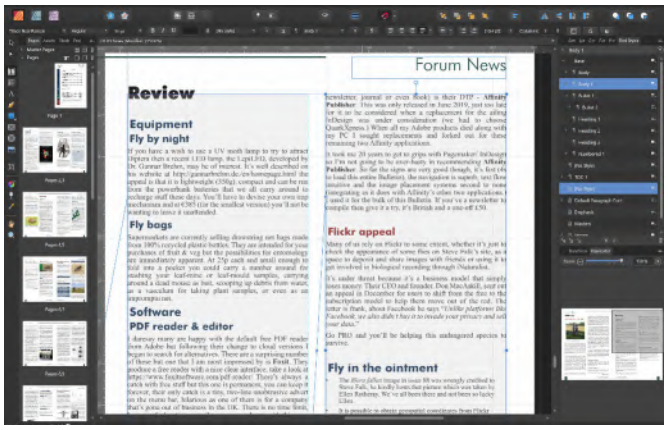
Similarly their vector graphics application **Affinity Designer.** Not a mainstream application for most but some do use it for line drawing of insects.



***Neria cibaria* head drawn in Affinity Designer [Darwyn Sumner]**

The most useful of the three, at least to someone like myself who has to collate and compile items into a magazine (or newsletter, journal or even book) is their DTP - **Affinity Publisher**. This was only released in June 2019, just too late for it to be considered when a replacement for the ailing InDesign was under consideration (we had to choose QuarkXpress.) When all my Adobe products died along with my PC I sought replacements and forked out for these remaining two Affinity applications.

It took me 20 years to get to grips with Pagemaker/ InDesign so I'm not going to be over-hasty in recommending **Affinity Publisher**. So far the signs are very good though, it's fast (4s to load this entire Bulletin), the navigation is superb, text flow intuitive and the image placement systems second to none (integrating as it does with Affinity's other two applications.) I used it for the bulk of this Bulletin. If you've a newsletter to compile then give it a try, it's British and a one-off £50.



Fly in the ointment

• The *Blera fallax* image in issue 88 was wrongly credited to Steve Falk, he kindly hosts that picture which was taken by Ellen Rotheray. We've all been there and not been so lucky.

• It is possible to obtain geospatial coordinates from Flickr images (see Bulletin 88.) Click on the map to to expand it to full size. Now click on the "Link to this map" in the top right corner. This produces a url which contains the Lat & Long values thus:

https://www.flickr.com/map?&fLat=52.9683&fLon=0.5233&zl=13&min_upload_date=2019-11-17%252000%253A00%253A00&max_upload_date=2019-12-17%252000%253A00%253A00

Additionally you can find it in the EXIF list - sometimes.

Meetings

International

Report of the 10th International Syrphid Symposium in Mytilene, Greece

University of the Aegean, Mytilene, Greece 8- 12 September 2019

Many people have been drawn into studying Diptera from the increased focus on Syrphidae over the past 35 years. The classic British Hoverflies, of Alan Stubbs and Steven Falk, was published in 1983. However, there is plenty of interest in other countries as well.

The most important international conference on hoverflies met for the tenth time in 2019, hosted by the University of the Aegean in the delightful city of Mytilene on the Greek island of Lesvos, from September 8th to 12th.

I had hoped to avoid flying, but the train journey looked far too complex, so it was a flight to Athens and then the overnight ferry from Athens to Mytilene. One regret was that so few of us travelled from the UK to the symposium. Apart from myself the only other was Francis Gilbert from Nottingham University. The report of the 6th Symposium held in Glasgow in 2011 appeared in DF Bulletin 73 and Roger Morris noted 22 UK delegates at that event.

Siberia (2013) and Brazil (2017) understandably had few UK delegates, but even Monschau in Germany (2015) attracted only a small number of us. To help those British Dipterists who have an interest in hoverflies to think about the next symposium, a note to say that it will be in Southern France at the end of August or in early September 2021 (appears in the Hoverfly Newsletter.)

The arrangements for the 10th Symposium were excellent. We must thank Theodora Petanidou and Thomas Tscheulin for sorting out the details at the university, which we gathered offered a few bureaucratic hurdles. However extensive networking between people of different nationalities was promoted by some well provided refreshment breaks! Most of the administration of the conference details was efficiently covered by the large Serbian team under Ante Vujic of the University of Novi Sad in Serbia.

Francis Gilbert reckoned this was the most enjoyable conference since they began in 2001, although staying in a relaxing hotel, with a swimming pool next to the bar, and a warm sunny view across the Aegean Sea certainly helped our joie de vivre. The majority of delegates were based in Europe, but it was good to have several who had travelled further. Mirian Morales from Brazil had been an organiser of the previous symposium. Jeff Skevington is a regular attender from Ottawa. I also met up again with Brigitte Howarth, now at the Zayed University in Dubai. Brigitte completed a Ph.D. on mimicry in hoverflies some years ago at the University of Central Lancashire, Preston, with Malcolm Edmunds.

One thing that amazes me is that so many researchers are able to fluently explain their ideas in a language that is not their own. As at many international conferences now, all the proceedings are in English. There is no need to brush up your French for your presentation in 2021.

Presentations were 15 minutes apart from the opening lecture by Martin Speight from Dublin. His topic was how to assess the size of forest needed to conserve the syrphids of forest habitats, particularly those with aphidophagous, saproxylic or polytrophic ground layer larvae. A few comments stood out. It is not enough to know the location, knowing the habitat is the essential first step. We may need 100 hectares for an ecologically valuable forest. We also need advocacy for the scarce Diptera, and for the ancient trees.

I can mention a few memorable contributions. Ximo Mengual from Bonn was one of the 2015 organisers. His first talk was about the life of the sundew flowerfly, *Toxomerus basalis*. Its larvae feed on the insects recently trapped by the sundew, and it needs adaptations to avoid coming to a sticky end itself. A second talk he gave was a report of larvae of *Eristalinus*

arvorum in the skull of a murdered woman, but this was presumably not its usual habitat!

My own research (my Ph.D. was completed quite a few years ago) was on the genetics of *Eristalis* species, and so I was delighted to talk to Santos Rojo and his group from Alicante in Spain, where they have worked for several years on the rearing of *Eristalis* species for use in greenhouse pollination. Andres Campoy gave a talk on the temperature regimes needed to synchronise the emergence of adults with the flowering of the plants. We looked out for the younger delegates who may become well known in the future. Klara Dankova from the Czech Republic discussed an experimental study on the trade-offs between mimicry and thermoregulation in *Eristalis*, and she has not actually started her Ph.D. work yet!

The one aspect that could become a little contentious is a conflict between "lumpers" and "splitters" as more and more DNA sequences become available. There are now a much larger number of Merodon species in the world! However, it cannot be helpful to the field naturalist to be told that two species that are visually identical can only be separated by their DNA sequence. There was no discussion of variation within species and how this clouds accurate taxonomy.

As happens, one or two delegates failed to arrive and left a gap in the programme. I took this opportunity to throw out one or two heterodox thoughts on the concept of "The Species" with reference to *Eristalis* and *Heringia*. I managed to comment on a species I have not yet found, the unusually scarce bog hoverfly, *Eristalis cryptarum*. Why evolve to a habitat that is so limited in extent?

I also asked for advice on a species of *Heringia* that I had reared from leaf curl galls on bay leaves (*Laurus nobilis*) caused by the Bay sucker psyllid, *Lautitrioza alacris*. My copy of British Hoverflies (2nd edition, 2002) pointed to *Heringia heringi* or *H. senilis*, whose separation relied on a subtle difference in the male penis. I was relieved to be told that the two species have now been reduced to one. However, I would not be surprised to find intraspecific variation in this species which uses such restricted locations for breeding. It seems to be limited to leaf curl or petiole galls on a few trees only. We have no idea if *H.heringi* raised in one gall will then search out the same gall for their next generation.

In all there were 41 talks as well as 24 posters that were discussed in two poster sessions. In total there were over 70 delegates (I counted 73 of us in the official photograph). One book was on display, pre-publication, which was a very detailed Atlas of the Hoverflies of Greece. It will be available from Turpin Distribution at an address in Biggleswade in 2020.

On the last day we had a coach trip around the island of Lesvos, stopping off at several locations. The main visit was to the Petrified Forest Geopark. Sadly we saw rather few insects as September was both hot and dry. The best collecting spot was not one planned in advance, being a neglected little field across the road from the car park at one comfort stop! The sudden emergence of a band of entomologists wielding nets did puzzle a few of the local people. On the return we finished with an excellent Greek meal at an authentic restaurant, to complete an excellent symposium. There was no printed copy of the abstracts, but I have them on a USB flash drive and can circulate to anybody interested. Contact me at jhalleynes@hotmail.com

Stop Press. It is now suggested that the 2021 symposium could be held in the Seolane University centre in the French Alps. I will pass on future details via the DF Bulletin

Jon Heal

Reports (2019)

Diptera Recording Schemes Meeting

Martin Harvey's full reports are to be found at www.dipterists.org.uk/schemes-meetings

Showcase 3: Amateur Entomological Society Exhibition

Saturday, 12th October 2019

Kempton Park

All photos by Judy Webb who manned the Dipterists Forum stand

Please volunteer to help man the next one in October 2020 (and take snaps)

Annual Meeting

9th & 10th November 2019

National Museum Cardiff

We were warmly welcomed back to Cardiff Museum for the third time for our annual meeting. Our hosts, Mike Wilson and Mark Pavett from the museum's entomology section, provided unstinting and good humoured help throughout the weekend. Nearly 40 dipterists came on Saturday and about 20 stayed for Sunday. The best exhibit was won by Jenni Wilding for her photographic record of her progress with flies (see Dipterists Digest 26, p208), and we are most grateful to Pemberley Books for donating the prize.

Speakers at the Annual Meeting: Stuart Ball, Howard Bentley, Liam Olds, Abigail Lowe, Peter Boardman and David Clements. Photo Jenni Wilding

Liam Olds: Spoilt for choice - Diptera of colliery spoil tips

We started with a local flavour in our first talk looking at the invertebrates of the coal spoil tips of South Wales. Liam Olds introduced himself as a graduate of the Natural Talent training scheme run by The Conservation Volunteers (TCV). He currently works for Buglife and as a freelance entomologist.

Having shaped the history and economy of South Wales for over a century, the coal industry has had a surprising influence on the landscape as it has progressively disappeared over the past four decades. Although most spoil heaps were flattened and reclaimed in the wake of the Aberfan disaster of 1966, on those that remain a remarkable mosaic of varied habitats has developed. Much bare shaley ground remains but the natural succession includes flower-rich grasslands, dry heathland on the high tops, wetlands formed in ditches and seepages as well as extensive reed-beds and woodland. Many of the wetlands have developed a peatland character, and there are also calcareous tufa-forming springs of particular interest for scarce Diptera.

Between 2015 and 2018, invertebrate surveys were carried out at 15 sites scattered from one end of the coal field north of Swansea to Pontypridd near Cardiff. Sampling was carried out between April and September each year with a range of techniques. A total of 901 invertebrate species were recorded, of which 773 were insects, including 204 Heteroptera, 176 Diptera and 90 bees. 22% of all the species have a local or national conservation designation, a figure rising to 34% for the Diptera. Highlights of the latter included the Sciomyzids *Dictya umbrarum, Psacadina verbekei* and *Tetanocera phyllophora*, the soldierflies *Stratiomys potamida, Oplodontha viridula,* and the *Oxycera* species *rara, nigricornis, pygmaea and pardalina* (this from the tufa), and the impressive tachinids *Tachina grossa* on heathland, *T. ursina* and *Phasia hemiptera*. Amongst the hoverflies there were several with specific habitat associations: *Scaeva selenetica* in areas being colonised by conifers; all three British *Sericomyia* species in boggy areas with devil's-bit scabious; and *Xanthogramma* and *Microdon* species associated with the many ant nests in open terrain.

Bare ground and scrub at Craig-Evan-Leyshon Common, Cilfynydd (©Liam Olds)

Marshy grassland at Clydach Vale Country Park (©Liam Olds)

The stony ground makes some of the spoil heaps resistant to succession to scrub and woodland, but there is a need for habitat management to preserve the current biodiversity in many cases. Currently little of the area has any conservation designation and there is often pressure to do something "useful" with the land, such as growing biofuels, extracting aggregates or building wind turbines. Liam has founded the Colliery Spoil Biodiversity Initiative to promote recognition and preservation of this important part of the heritage of South Wales – for further details visit his excellent website at https://collieryspoilbiodiversity.wordpress.com/

Phil Brighton

Stuart Ball: Automated identification of hoverflies from photos

Inspiration came from Cornell Ornithology Lab's Merlin app for Android or iOS devices. This allows bird species to be recognised from photographs with a high degree of accuracy. Stuart thought, "why not apply similar techniques to identify hoverflies from photographs?" and in his fascinating talk introduced us to what is involved.

Work on the visual system of mammals has suggested that we do this via a multi-stage process fed with signals from our retinas, that enables us to identify objects based on features, such as edges and corners, and colours, then building these into more complex shapes such as wheels or wings, limbs or eye, and finally using memory and experience to attach labels and so identify them. Machine learning techniques have been

developed, attempting to use analogues of these multi-layered processes, to allow computers to recognise objects from images. The development of the necessary technology has been driven by problems such as handwriting recognition, facial recognition and driverless car technology. The most successful techniques currently are "Convolutional Neural Networks" and Stuart attempted to explain, in simple terms, what is involved. The underlying processes are much the same whatever you are trying to recognise and pre-trained CNNs are freely available, so Stuart has not had to start from scratch. One of these publicly available models, "Inception V3", was trained to identify general images of a wide range of every-day objects by researchers from Google and University College, London. Stuart retrained some of the later layers of this model, attempting to make it relevant to identifying hoverflies. Even this involves a great deal of time, computer and brain power!

Stuart has started with 50 hoverfly species that can be positively identified from photos, accumulating 170 images of each – that's 8,500 images in all! 120 of these are used for training the system, 30 for validation and 20 for evaluation. Finding the best parameters to drive the computer learning process is basically one of trial and error, and requires Stuart to try out many combinations, each training run taking several hours of computer time. Image augmentation, such as random flipping, rotating, darkening and lightening of images, before they are presented to a training step all help with the learning process. Currently he has achieved around 84% accuracy across 20 test images of each of 50 species – e.g. 838 out of 1,000 test photos correctly identified, and those that are incorrect usually involve the same sort of confusions that a human identifier might suffer, e.g. between *Eristalis tenax* and *pertinax* or *Eupeodes corollae* and *luniger*.

Why is Stuart doing this? He explained that more and more people are submitting photo-based records – indeed slightly over half of the records received by the Hoverfly Recording Scheme since 2012 (when the Facebook group was started) have been based on photos. Furthermore, 50% of such photos are of just nine frequently encountered species and *Episyrphus balteatus* alone accounts for 10%. So, even if a system could reliably recognise just a handful of common and obvious species, it could potentially save verifiers a huge amount of time. Ultimately Stuart hopes to have a mobile app available for hoverflies, similar to Merlin for birds, but the more immediate use would be to filter submitted photos to direct the attention of those responsible for verifying records to the more interesting and difficult cases which require their special skill and expertise.

Rob Wolton

Abigail Lowe: DNA barcoding to understand hoverfly foraging at the National Botanic Garden of Wales

Abigail gave a well presented and clear presentation of her PhD project at the National Botanic Gardens in Llanelli, Camarthenshire, where she works within the Saving Pollinators project. Gardens are important potential refuges for pollinators, the total area of UK gardens apparently exceeding that of nature reserves. Increasing our understanding of the foraging preferences of pollinators on garden flowers could help to increase the value of this habitat. Therefore, the aims of Abigail's project are to identify which are the most important flowers used in gardens, the relative contributions of native and non-native species, and how floral resources are partitioned (for example between different genera). This works follows on from a previous PhD project that studied hoverflies foraging patterns in semi-natural grasslands. Although she is studying both solitary bees and hoverflies, Abigail focused on her results from hoverflies in her talk.

Determining which plants pollinators preferentially visit is not a trivial task. Simply noting which species land on a particular plant only gives a snapshot of their behaviour; furthermore determining full species identity of the insect may not be possible. A more systematic approach is to collect insects along defined transects and identify both the insects and the plant(s) of origin for the pollen trapped on their bodies. Although pollen can be identified by microscopic examination, this is time consuming and has a limited resolution. Instead, Abigail is using DNA metabarcoding, a molecular technique that allows researchers to study large numbers of samples containing a mixture of species. Barcoding uses the polymerase chain reaction to amplify a set of defined genome markers (using amplification conditions that will work across all species of interest) from small amounts of pollen. The DNA sequences of these markers are determined and then compared to a database of known sequences (a reference library) in order to identify which species are present in the original sample. Dipterists may be reassured to learn that Abigail identified her hoverfly specimens the old-fashioned way using Stubbs and Falk!

The resolution and accuracy of barcoding is dependent on the quality of the reference library. Here, Abigail is at an advantage as the National Botanic Garden of Wales led the development of a DNA barcode library of all Welsh native plants and conifers – the Barcode of Life Database. She included additional sequences representing non-native plants in her reference library in order to capture information from garden plants.

To collect her insects and associated pollen samples Abigail used monthly sampling along predetermined transects within both the National Botanic Garden and in the surrounding Waun Las National Nature Reserve (in order to compare foraging in gardens with a more natural habitat). Samples were collected during the spring and summer of 2018 and 2019, although only the 2018 data have been analysed so far. Pollen samples were was collected from each insect, DNA isolated and the barcode regions amplified and sequenced. Pollen barcodes were successfully produced from 91 hoverfly specimens (26 species in 13 genera). Although the dataset is currently not sufficient for complex analysis, Abigail's data show that the plants foraged most frequently by hoverflies were Wild Angelica, *Cirsium* and *Centaurea* spp. (thistles and knapweeds), *Heracleum* spp (hogweeds), *Ranunculus* spp. (buttercups) and *Rubus* spp (bramble). She also analysed her data temporally. For example, during March, hoverflies most frequently carried pollen from members of the Daisy family, while in July Hogweeds were favoured. While these results are perhaps not a surprise to readers of the Bulletin, they support the validity of this approach and its application to more complex analysis. Once samples from later years have been added to the dataset, Abigail will be able to build on these initial results to investigate other aspects of the study, such as how flower choice varies between genera or even individual species.

Jane Hewitt

David Clements: Progress in the Conopidae - Britain, Europe and the World

David opened by acknowledging the select group of authors who have shaped our knowledge of the group, Sidney Camras in the States, Otto Kröber in Germany, and our own Ken Smith. Singled out for particular praise was Jens-Hermann Stuke, who has made a tremendous contribution in recent years culminating in his 2017 publication of a world catalogue (Conopidae (Diptera) World Catalogue of Insects, volume 15; available from Brill at https://tinyurl.com/sesefet a snip at just €138.00!).

Species recently arrived on our shores include *Thecophora cinerascens* Meigen, 1804 recorded from Jersey in 2015 (see Dipterists Digest second series, vol. 22, part 2, 2015), and *Leopoldius calceatus* (Rondani, 1857) recorded in Ipswich in 2018 (added to the UK checklist as a probable adventive, see Dipterists Digest 2018 vol. 25, page 170). There is also a record of another *Leopoldius* species again from Jersey in 2015; though clearly neither of the familiar UK species (*L. signatus & L. brevirostris*) it was not possible to arrive at the species identification for the record.

Data added to the UK recording scheme since 2000 has revealed some interesting range shifts. *Conops strigatus* and *C. vesicularis* have expanded their range North and West, along with *Leopoldius signatus* and *Physocephala rufipes*. Also moving northwards are *Myopa buccata* and *M. testacea*, and more modern central records for *Physocephala nigra* fill out its previously disjunct distribution.

Recent work in the taxonomic position of the family has proved inconclusive. It is clear that the genus *Stylogaster*, whose larvae are parasitoids of orthopteroid insects, are a separate clade that could merit elevation to separate family status, but this change leaves the rest of the Conopidae as a paraphyletic clade. Likewise recent phylogenetic analyses by the FLYTREE consortium (see Wiegmann et al. 2011 PNAS 108: 5690-5695) have been unable to resolved the position of the family within the Diptera. The division Schizophora is returned with a well-supported monophyletic Calyptratae, and the remaining taxa forming the most likely paraphyletic acalyptrate grade. The superfamily Conopoidea is not consistently defined in terms of its constituent families. The Sciomyzidae were returned as the sister group to the Conopidae, but with both as paraphyletic clades (details taken from Brian Wiegmann's chapter on the Phylogeny of Diptera, in the Manual of Afrotropical Diptera, volume 1). You can download volumes 1 and 2 of the manual for free as low resolution PDFs from http://afrotropicalmanual.org/

The Conopids remain a fascinating, but difficult group to study, some so infrequently encountered that even museum collections hold only a few rare precious specimens.

Zoe Adams

Pete Boardman: Live at the Fly Olympics

Pete Boardman's talks are always worth attending; not just for the fly facts that he is able to rattle off, not just for his amusing anecdotes and insightful stories, but for the feeling that you are listening to what we have all encountered when studying these creatures – frustration, wonder and joy. The talk focused on his work describing Cameroon craneflies but it also described his dipterological journey and the many folks that have helped him on his path. Pete was sent craneflies from a collection that occurred in Mount Kupe, and they arrived in ethanol and many had missing legs, back in 2008. And so he did what many of us have done, he hid them in a drawer. But after attending the International Congress of Dipterology in Potsdam in 2014, he was inspired to go back to these specimens. He is very modest about his talents but his attention to detail is what makes him a great dipterist (and a useful one to all) as he imaged all of these 'odd looking' flies. He used the Natural History Museum, London, collections to help him but what he needed was to get to the Smithsonian Institution, to study their collection as it was home to the Charles Parker Alexander (1889-1981) collection of Types, the largest global collection of craneflies. Alexander is arguably one of the greatest taxonomists, having described over 11,000 species of cranefly (greatly assisted by his wife Mabel), most of which are still valid and this incredible work load equates to one new species every day of his career!

Pete describes applying for a Winston Churchill Memorial Trust Fellowship including the interview process where he spent 40 minutes telling Captains of Industries, Lords and so on, what a cranefly was, and was rewarded by his endeavours by successfully being funded for a month's visit to Washington and the collection. He is infectious when talking about being able to access these collections and rummage through the material, becoming familiar with the specimens and understanding the original descriptors, and spending hours alone (except for one visit by the military). And what did he discover? Well the original list included 88 species of cranefly. To this and the world list, he added 21 species new to science of Tipulidae and Limoniidae, and one new Ptychopteridae (not bad, as Pete concludes, from one tiny bit of Cameroon). From the original list he was able to add 23 more species that had not previously been recorded and he presented these findings at the International Congress of Dipterology in Namibia in 2018. The talk was a wonderful account of 10 years in Pete's life, his frustrations and inspirations, and the reward at persevering with these difficult flies.

For more information please read Pete's report (https://tinyurl.com/upmmdff) that lists all the species as well as more information on the grant, the visit and C.P. Alexander.

Erica McAlister

Dipterists Forum - 25 Years

AGM presentation by Howard Bentley

It is not easy to determine the exact date of origin of the Dipterists Forum because it didn't spring into being fully formed, like Athena from the head of Zeus, (if you'll forgive the Borisism) but rather evolved from pre-existing organisations. I'll take a very brief look at the early history. A recording scheme for craneflies was established by Alan Stubbs with entomologists from the British Museum (Natural History) as it then was, as long ago as 1973. This started an annual indoor meeting, residential field meetings and a regularly published newsletter, and so provided the template for the DF's activities. In 1988 Derek Whiteley began to produce the Dipterists Digest which was eventually taken over by the DF in 1996. Recording schemes and study groups for other families of flies began to accumulate. In the early years, the bulk of the activities were organised by Alan Stubbs. By the early 1990s it was becoming clear that the organisation of Diptera recording had become large enough to require some sort of structure which could coordinate work by a larger number of people, and that a cash reserve was needed to cope with the demands of bookings for courses, field meetings etc. The stage was set for the establishment of a society, with a committee to run it, a constitution to give it structure, and a bank account. And so, in January 1994, a committee consisting of Alan Stubbs, Martin Drake and Stuart Ball began its work of constituting this organisation. So that was the real starting point of the Forum as we know it today; hence our present celebration of its 25th anniversary.

What a task that small committee had. Coming up with the name 'Dipterists Forum' was spot on. Forum – 'a public facility for open discussion and the exchange of information'. What could more accurately describe the workings of the DF? But once the name was chosen, there arose what must have been a really sticky problem – do we need an apostrophe? And if we do, where are we going to put it? Well, a good case can be made to put one before the final 's' in 'Dipterists', or after the final 's'. Perhaps that problem was just too difficult, and they avoided open warfare by deciding not to bother with one at all. By the end of their deliberations, when they had fixed the name, the aims and objectives of the society, the relationship with the BENHS, the officers required and what their functions should be, procedures for holding meetings and so on and so on and so on, they could probably have taught the Brexit negotiators a thing or two. Seriously, that early task was enormous.

"What's the matter, Howard?"
"Oh I can't get this damned tephritid to key out!"
Richard peers down my microscope.
"That's because … it's a sciomyzid."

And they must have made an excellent job of it, for the constitution was agreed, and the Dipterists Forum was born and began work under its first chairman, Roy Crossley. And here we are, twenty-five years on, with a thriving community of mutually supportive dipterists, an unparalleled mix of professionals, amateurs with lengths of experience ranging from a few weeks to more than half a century, and complete beginners just getting going in this fascinating area of study. The DF is a unique, and a very British institution.

If you mix the ignorant with the knowledgeable, and the ignorant want to learn and the knowledgeable are prepared to teach, then, to coin a phrase, things can only get better. This is where the DF excels. It puts people like me – still a beginner, having started my study of flies only about a dozen years ago – in touch with entomologists with life-long experience of their specialities. An example: when I first summoned up the courage to have a go at the notoriously difficult Anthomyiidae, I wrote to Michael Ackland with a query about an identification, expressing the hope that I wasn't wasting his time. Michael is a man with an international reputation as one of the great experts of dipterology; a man with a whole genus of flies named after him! I wasn't sure I would even get a reply. What I got, the very next day, was not only an answer to my question, but a whole mass of background information, and the assurance that nothing concerning the Anthomyiidae would ever be wasting his time. And I've had similar experiences with other professionals with high academic reputations – some of them are here right now, and I won't embarrass them by naming them – and I can honestly say that I've never been ignored and I've never had the brush-off from any of them. Every one has always replied to my queries carefully and courteously, even when the query only arose in the first place because of a silly error on my part. I know of no other organisation in any field where there is such fruitful cooperation between experts and beginners, amateurs and professionals. What better way could there be to disseminate information and bring new people into a field of study.

Now the Forum has a wide range of functions and activities: two excellent biannual publications, the Bulletin and the Digest; an annual long-weekend training course on particular families of flies held at the field studies centre at Preston Montford, many other training courses at numerous venues around the country, an adoption scheme for endangered species, and a presence at meetings of other organisations such as the BENHS and the Amateur Entomological Society where we publicise study of the Diptera. Our website has discussion forums, test keys, help with identification and so on, and a brand new website has been launched and is still under development. Peter Chandler keeps the British checklist under constant review and publishes regular updates in the Digest and online. We now have a bursary scheme designed to help students and others to attend our Preston Montford meetings and Summer field weeks. A number of local groups for the study of Diptera have been started by DF members and are supported by the Forum. And I understand that we have a presence, indeed an increasingly important presence, on something called facebook and twitter, though I must admit that personally I find them about as intelligible as female Chironomidae.

For me, the greatest learning experience, and the core of the Forum's activities, is the field meetings, especially the week-long residential experience that is the Summer field week. For the benefit of those of you who have never been on one of these I'll give you a very brief description: each day you get up in the morning, have breakfast (which usually involves a lot of fly-related conversation), decide where you're going and who you're going with, and set off. You then spend several hours floundering about in bogs, struggling through undergrowth and walking for miles, then you return to your accommodation in time for dinner and more fly conversation. Then it's off to the lab to start sorting and pinning your catch. You are constantly interrupted by people who want you to look at what they've caught, and you, in turn, are constantly interrupting everyone else. An example: at one of the first meetings I attended it was getting late, I had an aching back,

and I was really struggling with a picture-wing. I suppose I must have been cursing a bit because I attracted the attention of Richard Underwood. Two things about Richard, in case you don't know him: first, he is endlessly helpful to anyone less knowledgeable than himself, which of course includes me, and second he is a very quiet unflappable individual. He comes over. "What's the matter, Howard?" "Oh I can't get this damned tephritid to key out!" Richard peers down my microscope. "That's because … it's a sciomyzid." And I'd learnt to avoid yet another common pitfall which can cause hours of wasted time and threaten your mental stability– wrong family!

Back to the field week. If you're like me, you knock off at about ten o'clock because a fourteen hour day is enough, but people with more stamina and determination have been known to go on past midnight. This pattern is repeated each day. If you've had constant good weather, by about the Thursday you find yourself praying for rain so that you can do a bit of catching up with the pinning. At the end of the week you are well and truly shattered, and you have added enormously to your knowledge through the constant interaction with your colleagues both out in the field and in the lab. It's exhilarating, exhausting, addictive and unforgettable, and I do not know of any other organisation which runs anything quite like the DF Summer field meeting.

When I first sat down to think about what to talk about today I started writing a list of names of people who have made great contributions to the establishment and development of the Forum. The list grew very long, and it soon became obvious that the task was beyond me. I have only been a member of the Forum for a little less than half of its existence, and I would have been sure to give offence by missing people out. So, I've mentioned only a few names during this little talk, and I don't intend to mention any more. But before I finish I must just name again one person without whom there is no doubt that the Forum would not exist: Alan Stubbs. Without Alan's vision, his energy and his brilliance, none of us would be here today.

Let me finish with a look into the future. What about the next twenty-five years? That takes us, for the arithmetically challenged among you, to 2044. Now I am by nature a pessimist, and all this up-beat stuff I've been feeding you, despite the fact that it is all the perfect, unexaggerated truth, leaves me feeling a bit queasy. So I leave you with a couple of questions about 2044 which might restore a proper air of gloom to these proceedings: first, in 2044, will there be any flies left to study? And second, will there be any people left to study them? … Discuss!

Thank you.

Martin Harvey: Fly identification from photos: challenges, limits and opportunities

The Sunday workshop followed the theme of Stuart's Saturday talk on fly recognition from photographs. This involved a lot of audience participation, with a wide range of ideas, sometimes conflicting, being presented. We didn't make a note of all the good points but the event deserves repeating.

Collated by Martin Drake

Annual General Meeting 2019

Minutes of the Annual General Meeting of the Dipterists Forum

held on the 9th November 2019 at the National Museum Cardiff

The Chairman, Rob Wolton, opened the meeting at 14:15

Apologies for absence

Received from Victoria Burton, Andy Godfrey, Peter Herkenrath (Germany), Tony Irwin, John O'Sullivan, Alan Stubbs, Marc Taylor, and Judy Webb

Minutes of the last AGM and matters arising

The minutes of the 2018 AGM, as published in the Autumn 2019 Bulletin, were accepted unanimously as correct (proposer, Barbara Ismay; seconder, Andrew Halstead). There were no matters arising.

Chairman`s Report.

2019 is the Dipterists Forum's 25th year. I shall not go into the details here – Howard Bentley is talking on the subject at this meeting - but it is clear that our society has achieved a huge amount since it was formed in 1994. This is especially so given that the society is entirely run by volunteers. Numerous committee members and others have given up their time and energy over the years to ensure the society's success. This is as true now as it has ever been – I am constantly in awe of the commitment and professionalism of committee members, especially officers, who quietly get on with the essential tasks, often complicated, necessary for the society to run smoothly and deliver on its aims, supporting and helping one another along the way.

Very sadly two past committee members have died this year, Liz Howe and Amanda Morgan, both far too early. I have reflected briefly on their contributions in my last Chairman's Roundup, and obituaries are appearing in the Bulletin, so I will not dwell on their loss here. Suffice it to say that we remain hugely grateful for their contributions and that they are sorely missed.

Both Howard Bentley and Martin Drake are stepping down as committee members at this AGM, after many years of service. Howard joined committee in 2008 immediately becoming Treasurer, a position which he retained until 2014 when he took on the role of Chairman for the customary two year term. He was most effective in both roles, bringing a business-like, yet friendly, approach to our meetings. His mathematical prowess came to the fore whilst acting as Treasurer. I have greatly valued his support as Vice Chairman over the least three years. During this time he stepped in to act as Secretary for a while after Amanda was forced to resign due to ill health. One of his particular interests and achievements was to encourage further participation from young people in the society.

Martin was Howard's predecessor as Chairman and held the post for four years (2010 – 2014) having joined committee just a year beforehand! This was the first time that anyone had taken on the role of chairman for two successive terms, and under Martin's leadership the society continued to grow in strength and influence. After serving as Vice Chairman for the following two years he immediately took up the position of Indoors Meeting Secretary (2016 – 2019), very ably and efficiently organising and running our annual Dipterists Days

and Spring workshops at Preston Montford during that time. Reflecting his own skill set as an outstanding entomologist, Martin has played a particular role in helping to develop key production skills, and I am sure will continue to do so.

I am very pleased to welcome Zoe Adams and Marc Taylor to committee. Zoe is taking over from Martin Drake as Indoors Meeting Secretary, and Marc has agreed to take on an ex-officio role of providing further field meetings and training opportunities beyond our normal Spring, Summer and Autumn field meetings, Spring workshop and Dipterists Day. We are keen to try and offer further opportunities for members and others to become actively engaged through trialling a range of events of different formats and purposes. Mark hopes in particular to help students or those in work who may find events which are either inexpensive or of short duration more attractive than current options. I'm grateful to Marc and Zoe for providing the following quick autobiographies:

Marc writes: "Roger Morris and Stuart Ball were responsible for my entry into Diptera whilst acting as tutors during my biological recording MSc at the University of Birmingham. They created clear and concise ID resources that still fire up my continuing interest in all fly groups. Sharing this interest through accessible learning resources of all types motivates me now. I have completed two seasons with CEH as a seasonal surveyor in the High Weald, have volunteered with NHM Diptera department, sorting some of its gardens' Malaise trap samples, and provide invertebrate surveying services. I'd really like to offer all the encouragement and support given to me back with interest as a way to say 'thank you' to my first two tutors."

And Zoe writes: "Over the years I've had a number of different fly hats. I started out at the NHM as a research assistant to the then Medical and Veterinary Diptera group, getting involved in research on vector biology, myiasis agents, and forensic entomology. In 2013 I transferred to the Diptera curation team, which brought me into contact with the Dipterists Forum. I've always been greatly impressed by the Forum and its members, their knowledge and enthusiasm are certainly infectious, and I hope to do a good job of supporting the running of the Forum during my time on the committee. "

Several former committee members have continued to help long after they stepped down. These include Richard Underwood and Ken Merrifield. At the Spring Workshop at Preston Montford I was very pleased to give Richard life membership in recognition of his role proof-reading and distributing the Digest for 8 years or more, and providing specimens for the spring workshops from Liverpool Museum's collections ever since 2000. Ken has helped in many ways, including producing excellent pooters for members and trainees and very recently visiting Falmouth to assess the suitability of the Penryn Campus there for a summer field meeting – we are now booked in for this summer (27 June – 4 July).

2019 is also International Year of the Fly! We have certainly played our part in raising the profile of flies, led by our publicity star Erica McAlister. She and others have given numerous talks, attended a wide range of events, and bombarded social media (although we can still, collectively, do better here). The Fly of the Month blogs on the website Discover Wildlife run by BBC Wildlife magazine have been read many times – that on bee flies well over 2,000 times!

Our splendid new website is now running well and proving a very useful resource. Now that it is easy to upload photos to the forum, and work is in hand to make it easier for recording scheme organisers to populate their pages, the site is in sufficient order for us to be confident that it's right to close our old website at the end of December.

Our deep thanks to the Biological Recording Centre for developing and hosting the new website at no cost to the Dipterists Forum. We are also indebted to the BRC for photocopying materials for our workshops, for copying the site dossier for the summer field meeting at Stirling and for posting the Bulletin to members. All this saves us a great deal of money and is hugely helpful.

Reflecting this publicity and communications push, I'm delighted to say that our membership continues to rise, with a remarkable 53 new people joining us this year - a 14% rise. If, as we expect to happen, the majority of those who have yet to renew their subscriptions do so, we will have comfortably over 400 members when the final tally is made by the New Year. My thanks to John Showers, our Membership Secretary, for this information and indeed for managing our membership so efficiently. Please may I remind readers that late payment of subscriptions adds a lot to John's workload and that of Martin Drake who distributes copies of the Bulletin and Digest to late re-joiners.

Much else has happened during the year at the instigation of the Dipterists Forum – a workshop on key writing (many thanks to Martin Ebejer), a meeting of recording scheme organisers, several identification courses and the inception of a Sarcophagidae Recording Scheme, for example. (A remarkable 23 Recording Schemes now operate under our auspices: we have been pleased to offer Charlie Griffiths a grant to set up the Sarcophagid scheme, assisted by Nigel Jones and Dan Whitmore.)

Looking ahead, committee reviewed our development priorities in March 2019, and have agreed that in addition to increasing membership further, we need to focus on developing and publishing keys (a subject riddled with complexities), on making records more accessible and improving their verification, and on training.

Finally, on the conservation front, we await word from the Scottish Government on the fate of Coul Links, site of the endemic Fonseca's seedfly among many other rare species. Will the future of wildlife in this very special place win out another golf course and short-term economic gain? Will they be as enlighted as the Welsh Assembly at refusing permission for a road across the Gwent Levels? Let us hope so. The society provided a grant to Buglife to help cover their costs at the public inquiry.

Rob Wolton

Treasurer`s Report

A surplus of £768 was recorded in 2018. This represents a return to near equilibrium since the large deficit in 2016 and the bounce back in 2017. We are again grateful that Roger Morris and Stuart Ball pass on their royalties from the WildGuide hoverfly book, and we also received a share in the proceeds of John and Barbara Ismay's Diptera course at Oxford Museum. Subscriptions fell back by approximately 10%.

On the expenditure side, the normal complement of two editions of each of the Bulletin and the Digest were produced. We are grateful to the CEH at Wallingford for continuing to distribute the former. The editors obtained some competitive quotes from a new printer, Latimer Trend in Plymouth, which has enabled us to move to full colour in the Bulletin with only a 7% increase in the overall costs.

The venue for the 2018 summer field meeting in Stoke-on-Trent was agreed to be particularly good value, resulting in a reduction in both income and expenditure passing through the accounts. As usual the Forum funded the laboratory facilities, as well as a bursary for one participant, accounting for the mismatch in the field meeting figures. Two bursaries were also awarded for the February workshop at FSC Preston Montford, for which participants pay the venue directly.

Present financial situation: At the end of September, following the issue of the latest Bulletin and Digest, we had £29,218 in the bank, which was £1,317 more than at the same point of 2018. As last year, the balance sheet at the end makes no attempt to account for the value of the material assets: there have been no significant additions.

The Treasurer's report was accepted unanimously (proposer, John Ismay; seconder, Martin Ebejer).

Phil Brighton

Dipterists Digest Editor`s Report

Two issues have so far appeared this year, the second part of volume 25 for 2018 and the first part of volume 26 for 2019. These were published on 27 February and 28 June.

This overlap in the previous two years has been due to insufficient material for an issue being received in the second half of the year. The situation now is rather different in that a greater number of contributions have been received recently. Presently I have 23 items totalling 178 pages, so substantially more than one issue for which 118 pages is the maximum we have allowed. While this current position is welcomed, it should be noted that there are relatively few new contributors. There is also a shortage of short notes needed to fill the space between the several articles that are odd numbers of pages.

I am expecting that the second 2019 issue will be ready for publication this year, though what is included will depend on what is ready before the end of this month and I apologise in advance for having to hold back some currently held items untill a later issue.

For the past two years both the Digest and Bulletin have been printed by Latimer Trend, at substantially lower costs than the previous printer Henry Ling. But after printing only four issues of the Digest they have gone into administration. I will seek quotations from several printers before deciding who to go with.

Since 2013, distribution of the Digest to subscribers has been carried out efficiently by Richard Underwood, who kindly offered to take on this job when it then became vacant. Following the distribution of the latest issue in June, Richard decided to stand down from this task. He is continuing with his other job of proof reading the text, and I am grateful for all the assistance he has given over the past six years. An advertisement seeking a successor was placed in the Autumn Bulletin. If you could consider taking on this role please let me know. [Update Dec 2019: Andrew Halstead has kindly volunteered to take on the role of Digest distributor. Many thanks to him.]

I am also considering the composition of the editorial panel, as Graham Rotheray has resigned from it. In practice, I consult whoever are the most appropriate reviewers of each article received, though help might sometimes be needed if there are no obvious candidates. I would be pleased to hear from anyone who would like to join the editorial panel and provide such occasional assistance. [Update Dec 2019. Ashley Kirk-Spriggs and Martin Ebejer have now joined the Dipterists Digest Editorial Panel.]

I thank all contributors and again stress that any new authors are always welcomed.

Peter Chandler

Any Other Business

Barbara Ismay thanked the Secretary for organising quotes and selection of a new printer after our current printer ceased trading shortly before the Autumn Bulletin was about to be produced.

Stuart Ball highlighted the current threat to Askham Bog, a remnant of Yorkshire's fenland, by a planning proposal for a large housing development adjacent to this important wetland site. Despite being refused planning permission in July 2019, the developers are appealing this decision and a Public Inquiry will be held in late November.

The Chairman`s Vote of Thanks

The Chairman thanked the two retiring members of Committee, Martin Drake and Howard Bentley, for their many years of contribution to the Committee (see above Chairman's report for details).

Election of Officers and ordinary members to committee

The Officers and Ordinary Members proposed for re-election or election this year.

Officers	**Already elected (elected 2018)**
Chairman	Robert Wolton
	For re-election/election
Vice Chairman	Vacancy
Secretary	Jane Hewitt
Treasurer	Phil Brighton
Membership Secretary	John Showers
Indoor Meetings Secretary	Zoe Adams (new committee member)
Bulletin Editor	Darwyn Sumner
Assistant Bulletin Editor	Judy Webb
Dipterists Digest Editor	Peter Chandler
Publicity Officer	Erica McAlister
Website Manager	Martin Harvey
Conservation Officer	Vacancy
Training Coordinator*	Marc Taylor
Ordinary Members	
For re-election (elected 2017)	Tony Irwin
For election	Marc Taylor (new committee member)
Already elected (elected 2018)	
Stuart Ball	Peter Boardman
Victoria Burton	Chris Raper
Malcolm Smart	Matt Harrow

The meeting voted unanimously to elect the officers and members of the Committee (proposer Nigel Jones; Seconder, Andrew Halstead).

* Matt Harrow subsequently had to step down as Training Coordinator due to work commitments. Marc Taylor has taken on this role.

Chairman's thanks to hosts and formal closing of the Annual General Meeting.

The Chairman thanked the National Museum Cardiff for hosting our Meeting. Mike Williams, Mark Pavett and Liam Olds were thanked for local organisation and audiovisual assistance.

Forthcoming (2020)

2020 Spring Field Meeting

The Broads

15th to 17th May 2020 (Friday to Sunday)

The 2020 DF Spring Field Meeting will be based in The Broads from 15-17th May, focusing on sites that are less well-recorded for Diptera. There will be opportunities to visit river valley fens (Carlton and Castle Marshes in Suffolk, and Wheatfen and Buckenham in Norfolk) and also coastal sites (Benacre, Covehithe and Kessingland Ness). More details about these sites and options for accommodation are given on the DF website.

Please let Tony Irwin (dr.tony.irwin@gmail.com) know if you are intending to attend this field meeting.

Showcase 4: Staffordshire Invertebrate Science Fair

Saturday, 7th March 2020

Staffordshire University

Leek Road Campus ST4 2DF

Summer 2020 Field Meeting

Falmouth

27th June to 4th July 2020 (Saturday to Saturday)

The 2020 Summer Field Meeting will be in Cornwall, based at Exeter University's Penryn Campus near Falmouth (TR10 9FE). 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 price for the week 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 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.

The DF offers up to three half-cost bursaries for this meeting.

We have block-booked 25 rooms. To reserve your place a deposit of £100 (per person) is required, with the remaining amount payable by 1st May.

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 (Jane Hewitt) who will be coordinating the administrative arrangements.

For those who would to prefer to pay by cheque, the booking form in the Autumn 2019 Bulletin may be used and sent to the Treasurer. Again, please email the Secretary to let her know you are planning to attend.

Jane Hewitt, Secretary

Showcase 5: Amateur Entomological Society Exhibition

Saturday, 17th October 2020

Kempton Park, London

TW16 5AQ

Events Calendar Spring 2020

13-18 February 2020, DF Advanced Identification Workshop. Flies with patterned wings, Families: Tephritidae, Ulidiidae, Pallopteridae and Opomyzidae. Preston Montford Field Studies Centre, Shrewsbury. Details & booking on FSC website: http://www.field-studies-council.org/prestonmontford

13-18 February 2020, DF Beginners course on Hoverflies runs simultaneously with the above advanced course at Preston Montford Field Studies centre, Shrewsbury Details & booking on FSC website: http://www.field-studies-council.org/prestonmontford. Two bursaries are offered for the Preston Montford course. Each bursary covers half the total cost including accommodation. If you would like to apply please send your application by email to Rob Wolton: robertwolton@yahoo.co.uk

15 February 2020, 10:30- 16:00. An introduction to soldierflies and allies. BENHS. Tutors Martin Harvey and Alex Dye. Dinton Pastures, Pelham-Clinton Building, Hurst, Reading.

07 March 2020, Staffordshire Invertebrate Science Fair, 10:30-4pm. A host of recording societies will be in attendance raising awareness of invertebrate conservation and recording. The event is very family friendly with most stalls being interactive including learning how to identify flies and other insects. There is also a series of talks throughout the day. Cafe on site, free entry and free parking. The event is on facebook https://www.facebook.com/staffsbugfest/ and twitter @sisf_2020 Staffordshire University, Leek Road Campus, ST4 2DF. Andy Jukes (@ConopsEnto)

21 March 2020, at 10:30. Introduction to Craneflies (Tipulidae) identification. BENHS Headquarters The Pelham-Clinton Building, Dinton Pastures Country Park, Davis Street, Hurst, Reading, Berkshire, RG10 0TH United Kingdom. Created for UK Cranefly Recording Scheme.

28 March 2020, BENHS Annual General Meeting and Members Day. The Oxford University Museum of Natural History, Parks Road, Oxford. See www.benhs.org.uk when details available.

15-17 May 2020, DF Spring Field Meeting will be centred around The Broads (Norfolk and Suffolk). Details in this Bulletin.

27 June - 4 July 2020, DF Summer Field Meeting to Falmouth. Accommodation at University of Exeter Penryn campus. Details in this Bulletin. We offer up to three Bursaries for this meeting. Each bursary covers half the total cost including accommodation. If you would like to apply please send your application by email to Howard Bentley: jhowardbentley@gmail.com

17 October 2020, AES Annual Exhibition and Trade Fair, Kempton Park, London Sunbury-on-Thames, TW16 5AQ, UK. See www.amentsoc.org

7 November 2020, BENHS Annual Exhibition and Dinner, Conway Hall, 25 Red Lion Square, Holborn, London WC1R 4RL. See http://www.benhs.org.uk . Bring your best fly exhibits for the Diptera table.

Throughout the Year:

BENHS Dinton Pastures Open Days in the Pelham-Clinton Building, Hurst, Reading. Open 10:30-16:00 on second and fourth Sunday in each month except April to September when only on the second Sunday of each month (except for August when there are no Open Days). We encourage you to bring along your pinned flies and use the Diptera Collections and library for identification. Other Dipterists are usually present meaning good chat and assistance with identifications may be possible. The grid reference for Dinton Pastures is SU 784718, turn left off the B3030 driving North from Winnersh. The site is about 15 minutes walk from Winnersh station, which has trains running on a half-hourly service from Reading and Waterloo. See: www.benhs.org.uk

The Northants and Peterborough Diptera Group hold meetings every weekend from end of April until sometime in September/October. See: northantsdiptera.blogspot.co.uk or contact John Showers on email: showersjohn@gmail.com

The Devon Fly Group will be holding regular field meetings throughout the year. Contact Martin Drake (01460 2206650, email: martindrake2@gmail.com).

And Now... Flies for Food

The idea is catching on. In some countries eating insects is OK but in Britain some slick marketing is needed: Dick Vane-Wright's party trick was to eat a cranefly, but 60 years later and this gastronomic delight is still not on sale at Tesco's. I am still unclear whether Vegans count flies as animals but at least, as far as I know, no flies have 'red' meat.

The main incentive is to develop environmentally acceptable ways of providing more protein, either as food for farmed animals or directly for the human diet. The black soldier fly *Hermetia illucens* (L.) is one of the options, the larvae becoming quite large by feeding efficiently on a wide spectrum of waste organic matter. The larvae of blue bottles likewise can turn some types of waste into a useful product, beyond just maggots sought by fishermen.

Of course, you will me expecting me to offer ideas for the menu.

Blackfly Burgers

Carrot-fly casserole (no need to throw edible maggots away).

Leaf-miner salad (adds artistic look to your meal, and adds extra-zip to taste)

Leatherjacket lasagne

Maggot moose, with garnish of cranefly legs (has to be some use for all those shed legs).

Midge muffin (goes well with vegi haggis).

Puparium purée.

Soldierfly sausages (only made from the best quality *Hermetia*)

Syrphid syrup (made from nectar-gorged hoverflies)

Bon appétit.

Alan Stubbs

Anthomyiidae Recording Scheme

Newsletter No 12

Spring 2020

By the time you read this in print, the collecting season for Anthomyiidae could once again be well under way. The previous Newsletter a year ago (see Bulletin No 86) highlighted three genera, *Egle*, *Chiastocheta* and *Leucophora* which are particularly suitable for targeted recording in the spring, so please look back at that issue if you are not already familiar with them. If you have good relations with local bee recorders, you might encourage them to look out for and catch *Leucophora* females lurking near the burrows of solitary bees. Noting the bee species on any such records would give added value.

This issue reviews the continuing growth of the Recording Scheme database as well as where to find data on Anthomyiidae from other sources. Another good genus for targeted recording later in the season is *Chirosia* with its twelve species currently recorded in Britain, all of whose larvae attack ferns. As with *Pegomya* leaf-miners discussed in Newsletter No 11, the feeding signs of some species are popular amongst recorders, but the association with particular species is not as clear-cut as previously suppose, as discussed in the final item.

Current State of Recording Database

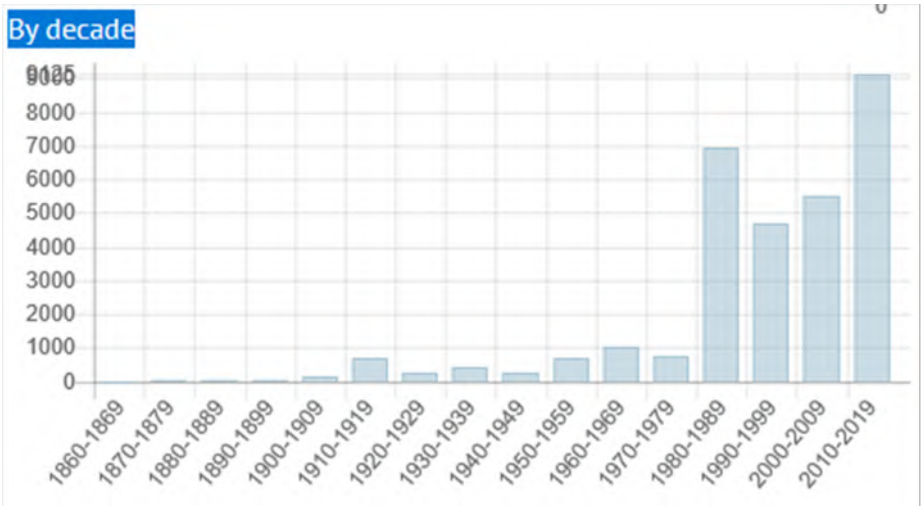
The number of records credited to the Anthomyiidae Recording Scheme on the NBN Atlas was 17,374 in early December 2019. This is a 153% increase on the 6846 which were initially uploaded to IRECORD in autumn 2017. However, the number of Anthomyiidae records on the NBN Atlas amounted to 30,643, a factor 1.76 greater. If you type "Anthomyiidae" into the taxa search on the Atlas, you can reach a number of bar-charts showing the distribution of these records between data providers and vice-counties as well as their temporal distribution by decade and year since 1990. If you click on an individual bar you can get the details of the constituent records. The second biggest contributor to the NBN was the Welsh Invertebrate Database (WID) provided by Natural Resources Wales on 4869 records, followed by two local records centres, Rotherham on 1176 and South-East Wales on 1064. Amongst the vice-counties, East Kent is in the lead with 4432 records, with Glamorgan (1672) and South-West Yorkshire (1372) a distant second and third.

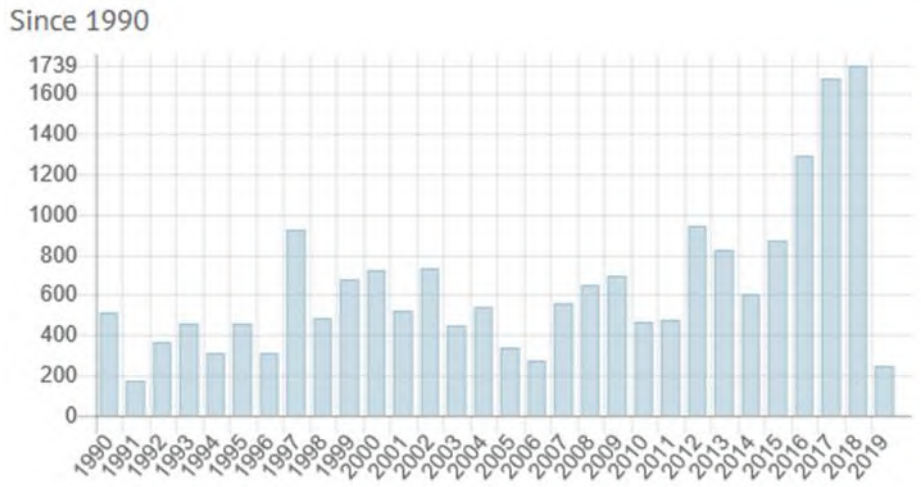
The charts by decade and by year since 1990 (reproduced overleaf) show a sharp increase from the 1980s largely sustained over the next 3 decades with a further boost in the last 3 or 4 years as the Recording Scheme was launched. That first rise must be associated with the start of the Study Group, for which Michael Ackland issued the first Newsletter in this series in December 1995. As yet, few spreadsheet records have been sent in for 2019.

The League Table

Despite this increase in on-line data, the coverage is still very patchy over the country. Distribution maps tend to show the distribution of dipterists rather than diptera. Aggregating the data over larger regions as in Newsletter No 10 provides a more balanced picture: to provide an update on that would require downloading all the individual records from NBN,not the work of a moment. For now, just the overall league table of the top 10 Anthomyiidae is presented on page 2.

NBN Anthomyiidae Records (accessed in early December 2019)





Anthomyiidae Recording Scheme League Table (Dec 2019)

Species	Total	Number of records in ARS at end 2019	Increase on end 2017	Number of records on NBN	Ratio of NBN to ARS number
Delia platura	316	1431	353%	2209	1.54
Hylemya vagans	260	1218	368%	1867	1.53
Botanophila fugax	224	962	329%	1309	1.36
Pegoplata infirma	248	737	197%	1540	2.09
Pegoplata aestiva	225	690	207%	2308	3.34
Hylemya variata	199	688	246%	1790	2.60
Anthomyia liturata	177	619	250%	855	1.38
Anthomyia procellaris	149	551	270%	691	1.25
Delia florilega	147	471	220%	1219	2.59
Delia radicum	118	378	220%	882	2.33

Despite the 153% increase in records, the top ten ranking shows only two changes. *Botanophila fugax* has gone up from 3rd to 5th place. *Hylemyza partita* has dropped out as a result of swapping places with *Delia radicum*, the cabbage-root fly. All of the top ten show a greater percentage

increase than the overall increase in records: they now provide 45% of the number of records, up from 30% previously. This is only to be expected as the initial data collection by Michael Ackland was oriented at defining the whole range of the British fauna, with much data from collections in which the numbers of the commonest species are inevitably limited by space.

Laurence Clemons has been recording Anthomyiidae over the length and breadth of Kent since 1982, and in an early report (*Enthomologist's Record* **110**(1998)290-293) he found that his ten most frequent species constituted over 50% of his 1400 records of 100 species. Eight of his top ten species appear in the current ARS top ten. With continued recording up to last year, his tally had extended to 4088 records and 122 species. His top ten are now the same as those of the ARS dataset and constitute 58% of his total.

These data provide another excellent illustration of the effectiveness of the Fisher statistical theory of relative abundances described in the article "The Fifth Dimension" in the main body of Bulletin No 89. With N=4088 and S=122, α is found to be 23.65. For the 1998 figure of 1400 records, this predicts that 97 species would have been found compared to the actual 100. The number of singleton records has now reached 20 compared to a predicted 23.5. Doubling the number of records would be expected to yield a further 16 species.

I will make just two points about the total NBN figures in the League Table. First, the 10 species listed provide 48% of the total records, a slightly larger proportion than in the ARS database currently. Secondly, *Pegoplata aestiva* stands out as much better represented, toppling *Delia platura* from the No 1 position. The NBN bar-chart for the species shows that almost half the records come from Wales via the Welsh Invertebrate Data base (WID). The proportion of *P. aestiva* in the WID reaches 23.5% compared with only 4.0% in the ARS – an intriguing disparity.

Other data sources

The updated guide to the British Anthomyiidae produced for the Dipterists Forum Workshop in February 2018 contained a listing of all the species with the numbers of ARS records in 10 regions spanning the British Mainland. 90 of the 246 species were "starred" indicating that they were assigned a national scarcity or rarity designation in the Natural England status review of Calyptrates (NE Contract Report No. 234). If you do manage to collect a specimen of one of these species, you may want to consider a write-up for the *Dipterists Digest.* If so, you should be aware that even for these species, the coverage in the ARS database is not necessarily complete, as not all the data sources cited in NECR 234 are yet included: the report was based on information compiled from diverse sources over a period of 20 years or so up to 2012.

There are other significant stores of Anthomyiid records not yet available on the NBN.

The incidence of diptera species in the five vice-counties within the historic boundaries of Yorkshire is given in a checklist which can be found on the website of Yorkshire Naturalists Union. This currently lists 167 Anthomyiidae species compared to the mere 74 in the region of 11 vice-counties including Yorkshire, as listed in Newsletter no 10. Thus Yorkshire becomes one of the three best-recorded regions alongside south-east England and the Scottish Highlands, as far as number of species is concerned. You can contact Andrew Grayson (andrewgrayson1962@live.co.uk) for further details.

There may also be data worth having in your local records centre if there is a history of active dipterising. For instance, I noted back in 2014 (Bulletin No 77) that the Cheshire LRC contained 2375 Anthomyiid records, among over 50,000 non-syrphid diptera records. These have yet to be verified and published via the NBN, but there is an online facility which reveals the status of individual species (http://www.record-lrc.co.uk/SpeciesSearch/Searching.aspx).

Finally a comprehensive inventory of the diptera of the Western Isles of Scotland was one of the last publications of the late Peter Skidmore in Dipterists Digest **15** (2008) 99-194: this article provides full listings of locations and dates cross-referenced to the species list. The Outer Hebrides Biological

Recording Group (www.ohbr.org.uk) would like to make this data accessible online, but the transcription would be a big job and help may be needed, as indeed is true of the other treasure troves mentioned above.

I would be glad to learn of any other local data sources that you may know of.

New names now available on the UK Species Index

Newsletter 10 mentioned a problem with some species lacking a home in the UK Species Index (UKSI) which defines the taxon names that available in both IRECORD and the NBN Atlas. This arose from species new to Britain and other nomenclature changes in recent years. This has now been resolved, and the data for the species affected have been successfully loaded on IRECORD, and should appear on the NBN Atlas after the next regular transfer of data.

Two of the commoner species were affected. *Pegoplata juvenilis* (Schnabl in Schnabl & Dziedzicki, 1911) subsp. *nitidicauda* is now again a species in its own right: *P. annulata* (Pandellé, 1899). This is a larger species with plumose antenna, so you might easily be misled as to its genus if you are used to getting lots of *P. infirma* (as most of us do). *P. juvenilis* is a North American species.

The restoration of *Botanophila discreta* (Meigen, 1826) as a species distinct from *B. striolata* (Fallén, 1824) – see Newsletter No 11 - has caused some complications. As the latter name was already on the UKSI, all existing records were transferred to a new "taxon concept" *B. striolata/discreta* agg. of which *B. striolata* and *B. discreta* remain synonyms. To record a definite decision between the two species the name needs to be entered on a spreadsheet as "B. striolata s.str." or "B. discreta s.str." (without a space in "s.str."). All 5 options appear on the drop-down lists in IRECORD.

Recording fern-fly signs

The 12 British species of *Chirosia* are one of the more distinctive Anthomyiidae genera, because of a strong posteroventral seta on the hind tibia and usually a blackish appearance, sometimes rather shiny. They all breed in ferns and sweeping these in woods or expanses of bracken usually yields adults in spring and early summer.

When I embarked on the verification of Anthomyiidae data in IRECORD, I discovered that three *Chirosia* species have been the object of interest from recorders of galls and leaf-mines. Two of these are on bracken (*Pteridium aquilinum)*: *Chirosia grossicauda* Strobl, 1899 is held responsible for galls in which the frond-tip is rolled over with a white larva (Redfern *et al.* (2002), p397); while *Chirosia histricina* (Rondani, 1866) is associated with the mining out of the tip of a frond, as seen in these typical photographs posted on IRECORD.

Chirosia betuleti (Ringdahl, 1935) is stated by Redfern *et al.* (2002, p. 288) to cause characteristic galls on other types of fern, such as lady-ferns (*Athyrium*) and male-ferns (*Dryopteris*). The tips of the frond are "rolled upwards into a loose, conspicuous mop-head involving many pinnae; inside a white maggot mines along [the] rachis causing it to coil". I can confirm from experience that these are very noticeable in the field once you are sensitised to them. As far as the fern identification is concerned you need only to be able to distinguish bracken from the others.

Ackland and Bratton (2013) cast doubt on this specific attribution on the basis of the capture of one adult male of *Chirosia similata* (Tiensuu, 1939) around this type of gall. The patch of ferns had been seen developing the galls in previous years, but efforts to rear the larvae failed. In 2010, this was a first record of the fly for Wales, but 2 more have been recorded, on Anglesey and in Merionethshire, by Andrew and Janet Graham.

I can also report here for the first time the only record of *C. similata* from Scotland. I caught a male in the vicinity of some "betuleti" galls at the foot of Ben Ledi, during the Dipterists Forum 2019 summer field meeting. The galls were widespread in the area though that was the only adult fly I found of either alleged gall-former.

Michael Ackland recently sent me the article on *C. flavipennis* (Fallén, 1824) by the late Graham Griffiths in the catalogue of the Nearctic Diptera in connection with an identification query. The yellow wings and plumose aristae of this species (unusual as the hairs are not confined to a plane) make this species particularly distinctive. Griffiths reported the breeding of five males from leaf-mines similar to those of *C. histricina.* They came from bracken fronds collected in Surrey in late September. After the first winter only braconid parasites emerged and Griffiths had to wait until May of the following year for the flies themselves. Griffiths stated that the late date of the larval feeding accounted for an older claim in the literature that *C. histricina* was bivoltine.

Both of these associations would be additions to the otherwise very comprehensive account of *Chirosia* species on the UK fly-mines and European plant parasite websites (www.ukflymines.co.uk and https://bladmineerders.nl). Both these websites are extensively illustrated with pictures of larvae as well as of the leaf-mines, and contain very lengthy reference lists. The other *Chirosia* species are associated with mines further down the stems of fern, though there are also suggestions that *C. cinerosa* (Zetterstedt, 1845) can form *histricina*-type mines.

Do not let these uncertainties in attribution deter you from recording these galls and leaf-mines. *C. grossicauda* remains unchallenged as responsible for rolled leaf-tip galls. *C. betuleti* should still be used for the "mop-head" galls. However, we have asked leaf-mine recorders to use simply the genus name *Chirosia* for the leaf-mines formerly attributed solely to *C. histricina.* In IRECORD, the "Stage" field should be set to "pre-adult" or "other" according to whether a larva was present or not. The "Comments" field should be used to indicate the type of gall observed and the host plant, at least whether bracken or another fern.

Although the maps displayed on the NBN Atlas do not take account of the life-stage, inclusion of these fields will enable the gall and leaf-mine records in down-loaded data to be separated from those for the adult flies to look for correlations in distribution and phenology. If you catch the relevant flies in the vicinity of these galls or leaf-mines, just note that in the comments of a record with the Stage field set to "adult".

References

Ackland, D. M. & Bratton, J. H. 2013. Some new records of Anthomyiidae (Diptera) from Scotland and wales, and a summary of *Chirosia* host ferns. *Dipterists Digest* **20,** 153-155.

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Phil Brighton

Cranefly News

Dipterists Forum Cranefly Recording Scheme
For Superfamily Tipuloidea & Families Ptychopteridae & Trichoceridae

Newsletter No 35 **Spring 2020**

Editor: John Kramer


Achyrol

News! New Cranefly for the British List (See Dipterists Digest 2019 Vol 27 No.2)


Fig.1.A.neonebulosa
Male genitalia (JK)

On 25 Sept 2019 Michael James from Norfolk posted on the DF website photographs of a specimen which he correctly identified as *Achyrolimonia neonebulosa*. The adult fly emerged from the compost of a plant pot containing a plant of *Sarracenia.* This is a genus of North American insectivorous trumpet pitcher plants which are indigenous to the Eastern side of the USA. It was purchased from a garden centre at Fritton, Norfolk on 29 August 2019. The assumption is that the larva must have been present in the compost surrounding the plant, imported from the Netherlands, although of course there are a number of other logical possibilities which could be investigated. The larvae live in humus-rich soils. The species has a circum-polar (Holarctic) distribution, ranging from the Nearctic North America, across Palaearctic Europe and Asia to China and Japan. The wing pattern is very similar to *A. decemmaculata* and it is well worth examining the genitalia of all specimens of this species in case there has been misidentification. In Holland the species was first detected in a commercial greenhouse, but was later collected in the wild. This is the first cranefly new to Britain recognised from a photo on the DF website. *A. decemmaculata* has genitalia which place it close to *Dicranomyia*, but when we look at the genitalia of *A.neonebulosa*, it seems to be so different to *A. decemmaculata* as to place it in a separate genus. It would be interesting to see if DNA barcoding reveals some other affinity

Field Work & Records

Pete Boardman, Natural England Mail Hub, Natural England, Worcester County Hall, Spetchley Road, Worcester, WR5 2NP. Pete.Boardman@naturalengland.org.uk

Craneflies as part of a landscape scale invertebrate recording project including several new to Staffordshire (VC39)

Over the past eighteen months I have been involved through my work in Natural England in the development and implementation of a landscape scale invertebrate monitoring project. This is probably not the place to go into the methodology in detail, but in brief, craneflies were used as a proxy for other wetland flies at a number of sites in the pilot study area; the Cannock Chase to Sutton Park Priority Focus Area (CC to SP). Craneflies were used because their ecology is relatively well known and they are coded into Pantheon invertebrate analysis software (Webb, *et al*. 2019), which is central to our interpretation of results under this new methodology.

A number of interesting craneflies were encountered over the survey period of 2018/19, some of which were significant as new country records or uncommon species in a Staffordshire (VC39), or a Warwickshire (VC38) context, so are listed here for interest. [Note species listed as new for VC39 were determined from the Staffordshire Ecological Record online atlas - http://www.staffs-ecology.org.uk, and Warwickshire detail was gathered from the NBN Atlas - https://nbnatlas.org/]

Staffordshire (VC39)

Barr Beacon LNR – heathland: *Limonia dilutior* (Nationally Scarce and third record for Staffordshire VC39).

Gentleshaw SSSI – area of valley mire (a very rare habitat within the West Midlands): *Dicranomyia distendens* (Nationally Scarce and new to Staffordshire VC39), and the *Sphagnum* associates: *Euphylidorea meigenii*, *Molophilus occultus*, and *Phylidorea squalens.*

Jockey Fields SSSI – area of swamp: ***Triogma trisulcata*** (Nationally Scarce and 2nd Staffordshire VC39 record)

Leighs Wood LNR – are of reed fen, swamp, and fringed pool: *Erioptera meijerei* (Nationally Scarce and new to Staffordshire VC39), *Lipsothrix nervosa* (Section 41 species and new to Staffordshire VC39). Sutton Park NNR – extensive wet heath and small area of valley fen: *Dicranomyia lucida* (Nationally Scarce and 4th Warwickshire VC38 record), *Idioptera pulchella*, Nationally Scarce, only Warwickshire site, and second record there – the other being in 1938. The *Sphagnum* associate *Euphylidorea meigenii* was recorded and *E. aperta*, which is uncommon in the West Midlands and was found at only its second Warwickshire VC38 location.

Cannock Chase SSSI – northern part of Unit 18 (area of alder carr with a shaded shallow stream running through it): *Atypophthalmus inustus* (new to Staffordshire VC39), *Eloeophila trimaculata*, *Gonomyia abscondita*, (new to Staffordshire VC39), *Tanyptera atrata* - all Nationally Scarce, and *Ormosia depilata* (new to Staffordshire VC39). Chasewater Heaths SSSI – wet heath and bog within Unit 6: *Sphagnum* associate *Euphylidorea meigenii* Clayhanger SSSI - area of reed fen and fringed pool: *Pilaria scutellata*, and ***Triogma trisulcata*** (both Nationally Scarce and both new to Staffordshire VC39).

These records suggest that there are still many undiscovered species of interest within the West Midlands and builds on work done in this region over many years by the stalwart Mike Bloxham in the Sandwell Valley. Some of the sites visited as part of this project were in urban areas and might not be in the first set of sites selected by dipterists on which to swing their nets, so it was particularly rewarding to find some interesting flies as part of this project. Many thanks to Jaclyn Lake and Vicky Gilson at Natural England, and the various landowners who gave permission to record on their land.

Fig. 2. Triogma trisulcata Male hypopygium Ventral view (JK)

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Pantheon https://www.brc.ac.uk/pantheon - Webb, J., Heaver, D., Lott, D., Dean, H.J., van Breda, J., Curson, J., Harvey, M.C., Gurney, M., Roy, D.B., van Breda, A., Drake, M., Alexander, K.N.A. and Foster, G. (2018). Pantheon - database version 3.7.6

Craneflies recorded at Plas-y-brenin, Capel Curig, North Wales in 2019

On 3 June 2019 I accompanied the British Arachnological Society field excursion to a bog close to the Plas-y-brenin outdoor activity centre at Capel Curig in North Wales (VC49 Caernarvonshire). 18 species of craneflies were recorded on the visit including: *Gonomyia dentata, Euphylidorea phaetostigma* (Nationally Scarce), *Phylidorea longicornis* (Nationally Scarce), *P. squalens, Molophilus ater* (collected by Richard Gallon), and *M. occultus*. Thanks to Richard Gallon of Cofnod for arranging access to the site, and the British Arachnological Society for so willingly accepting a dipterist in their midst.

***Dicranomyia aquosa* new to West Gloucestershire (VC34)**

During 2019 I visited **Slade Brook SSSI** in West Gloucestershire (VC34) on two occasions as part of a survey of invertebrates there associated with the W134 SAT assemblage, the nearest Pantheon (Webb et al 2019) assemblage to tufa habitats. Slade Brook SSSI contains some of the most tufa-rich wetlands in England, though very little in the way of bryophytes such as *Palustriella commutata* that usually accompany tufa, and the tufa-specialist cranefly *Ellipteroides alboscutellatus* was absent at the times of sampling. A few interesting species were recorded however including *Dicranomyia aquosa*, which appears to be a new record for this Vice County. Other species of note recorded were: ***Paradelphomyia dalei, P. ecalcarata,* (See below)** *Dicranomyia lucida* (Nationally Scarce), *Lipsothrix nervosa* (Section 41 species), and *Molophilus corniger* (Nationally Scarce). Thanks to Ali Swanson and Nick Button of Natural England, and the landowners for access to the site.

Pete Boardman,

***Paradelphomyia* from Slade Brook West Gloucestershire (VC34) - John Kramer**

Males of two species of *Paradelphomyia* were collected by Pete Boardman at this site on 1 Aug. 2019 and details of the hypopygia are shown and discussed below.

Jaroslav Starý's observations on the genital apodemes of *Paradelphomyia dalei* (Edwards 1939) and *Paradelphomyia ecalcarata* (Edwards 1938) in the latest Dipterists Digest (Dipterists Digest 2019 Vol. 26 No.1) leave us with a problem and stimulates more work in the context of the British species. From Ralph Coe's key in the RES Handbook (Vol IX, Pt. 1, 1950) to the release of Alan Stubb's Key to the British Limnophilinae in 1997, and onwards, we have always used the presence/absence of prescutal stripes, to identify *P. dalei* and *P. ecalcarata*. These characters were described by Edwards and are good field characters. For conclusive identification, the apodemes are checked for the presence of lateral arms, using a microcope. Because of discoloration in ethanol, in place of the striped/unstriped prescutum Jaroslav Starý offers structural features as more reliably diagnostic of each species, as shown on the table below.

Table to compare diagnostic characters used by Jaroslav Starý to identify *P. dalei* and *P. ecalcarata*

Characteristic	*P. dalei*	*P. ecalcarata*
[Prescutal stripes	Paler. Prescutal stripes present	Darker. Prescutal stripes absent]
Aedeagus length	As long as parameres	Shorter than parameres
Outer style	Shorter and broader	longer and more slender
Long tooth	Less conspicuous and curved	More conspicuous and curved
Lateral arm of apodeme	Thin at base	Thick at base

Because the prescutal stripes are listed as diagnostic by Edwards we must assume that this is the case with the two specimens of *P. dalei* used by Starý. According to Jaroslav's hypothesis the cluster of characters listed above for *P. dalei* always occur together and are correlated with the prescutal stripes. Some doubt is shed on this when Figs. 8, 17 and 18 in my review of *Paradelphomyia* **(DD. 2015 Vol.22 No.1)** and also in **Cranefly News 29, Spring 2015** are compared. They

do not fit neatly with Jaroslav's hypothesis since there is no significant difference in the thickness of the lateral arms proximally of some of the British *P. ecalcarata*. We need to observe a sufficiently large sample of specimens to decide on the range of intra-specific variation for the characteristics listed by Starý. To this end I offer 3 more examples below.
The two species of *Paradelphomyia* were found by Pete Boardman at Slade Brook West Gloucestershire (VC34) on 1 August 2019, and details of the hypopygia are shown below. (a. genital apodeme, b. inner style. Photos JK.)

Fig 3a *P. dalei* (PB30)

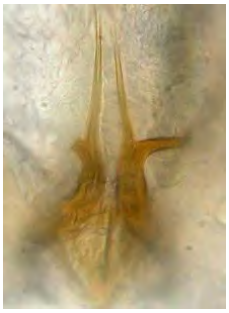


Fig 4a *P. ecalcarata (PB28)*

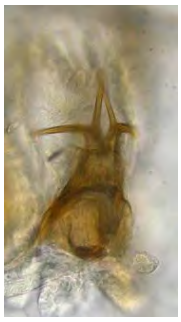


Fig 5a P. ecalcarata (PB29)

Fig 6b *P. dalei (PB30)*

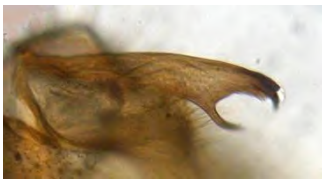


Fig 7b *P. ecalcarata (PB28)*

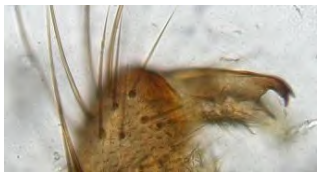


Fig 8b P. ecalcarata (PB29)

We can see that two of the proposed differentiating characters, the lateral apodeme arm, and the features of the outer style, shown above are shared by both species shown here. Contact with continental Europe was lost about 8,000 years ago when the rising post-glacial sea-level led to the formation of the English Channel and the North Sea. Before then the British and European *P. ecalcarata* shared a common gene pool. *P. dalei* seems to be endemic to Britain, and, if so, it probably evolved here from the isolated British population of *P. ecalcarata.* It would therefore not be surprising if there were variation towards *P. dalei* in the present-day *P. ecalcarata* population; incipient *P dalei*, perhaps. If *P. dalei* and *P.ecalcarata* are indeed members of different species then each will occupy a different ecological niche and be reproductively isolated. It is very possible that, due to its 8,000-year isolation, the intra-specific variability of the British population of *P. ecalcarata* differs from that on continental Europe, and it is notable that all of the 22 specimens of *P. ecalcarata* studied by Jaroslav are from central Europe.
John Kramer

Dicranomyia sericata **in Northamptonshire**
John Showers

Fig 9. *D. sericata*, terminal Segments (JK)

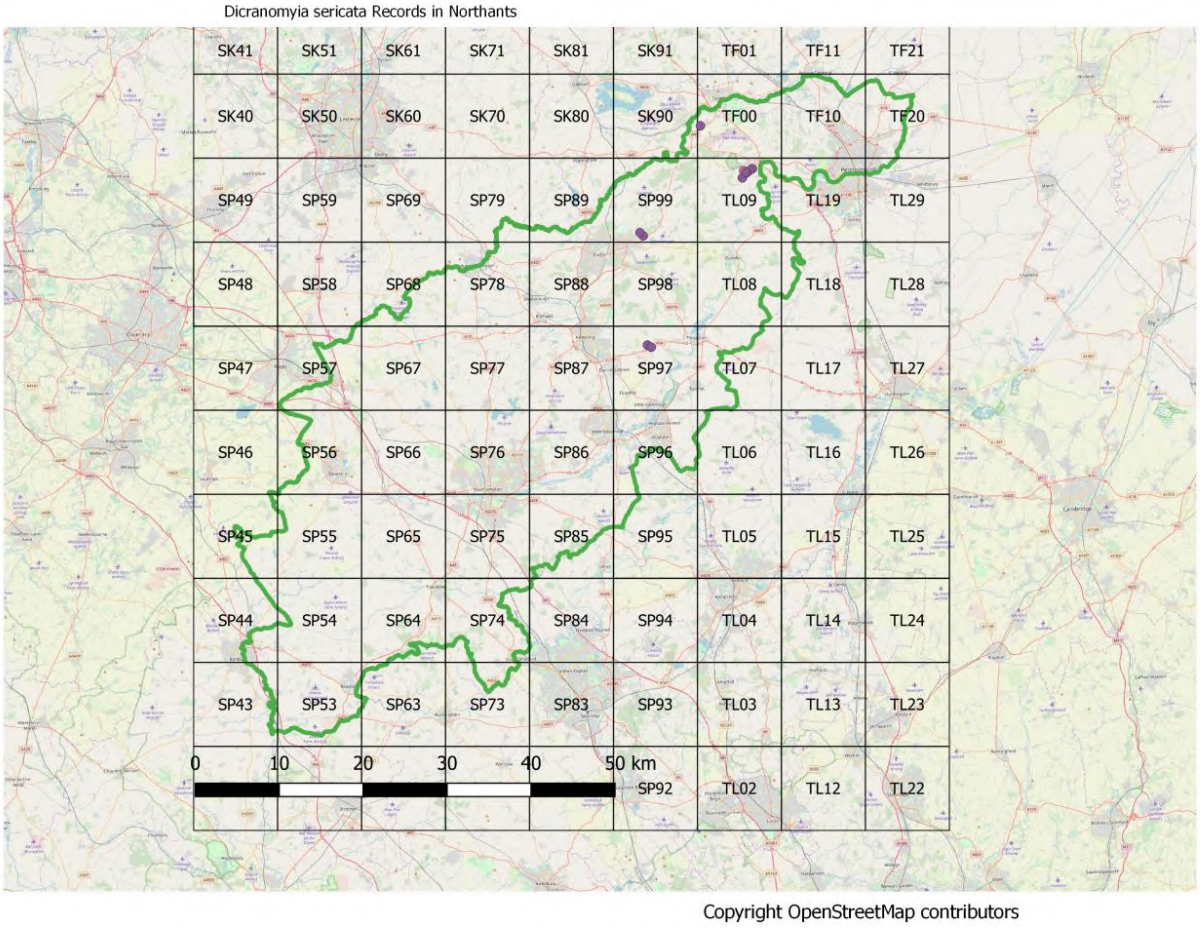
Introduction
Dicranomyia (Glochina) sericata has an inflated inner style which is typical of the genus *Dicranomyia* (Limoniidae). It is readily identified by a pair of long processes which extend ventrally from each side of tergite 9 on each side of the long external aedeagus (penis).

Distribution
This species appears to have a very limited range in Northamptonshire, being associated with the inferior oolite group of Jurassic limestone in the Rockingham Forest area. It was first recorded by Jon Cole at Collyweston Quarry on 30/5/1997. This site, an SSSI and Nature Reserve, is a former quarry for "Colyweston slate", a finely bedded limestone that cleaves easily into thin slabs traditionally used for roofing locally. The site is a rich limestone grassland, with scattered hawthorn and blackthorn scrub and is dry.
The next records were in 2011 when Alan Stubbs recorded it at Ring Haw on 30th April in limestone grassland and I recorded it on the same day at Old Sulehay Forest, an adjacent site. Both these sites lie on the same belt of limestone as Collyweston and both are dry. The Old Sulehay Forest site is ancent woodland but with an open central ride with limestone flora. The Ring Haw site has old grassed-over limestone workings surrounded by woodland.

In 2013, during the Dipterists Forum Spring Field meeting on 19th May, both Alan Stubbs and I recorded several at Twywell Whitestones nature reserve, another former limestone quarry. This site consists of steep grassy banks with substantial areas of hawthorn and some blackthorn scrub. A number of the hollows contain ponds, many of which dry out in hot summers.

The species was not recorded again until 2019 when I found it at two sites whilst participating in bioblitz follow-ups for the Northants Biodiversity Records Centre. The first site was a disused quarry and sand/gravel pit adjacent to Old Sulehay. The floor of the quarry had limestone outcrops and overgrown spoil banks covered in grassland and birch scrub. The second site was another former limestone and ironstone quarry at Prior's Hall, near Corby. Here the site consisted of a broad gullet with exposed limestone rock faces and bedrock at the sides and a series of ponds in the centre. Along the banks scattered birch scrub is establishing on spoil heaps.

The map below shows the locations of the records within the county.



The following table summarises the habitats where the cranefly was found.

Site	Grid Ref.	Underlying Geology	Surface Topography	Presence of Water	Main Scrub Species
Collyweston	TF003038	Inferior Oolite Series (Jurassic)	Shallow hills and holes	No	Hawthorn and blackthorn
Old Sulehay	TL065987	Ditto	Flat	No	Bramble and open ground along oak/ash forest ride
Twywell Whitestones	SP940777	Ditto	Steep hills and holes	Some ponds but may dry out in hot summers	Extensive hawthorn scrub and some blackthorn
Yarwell Quarry	SP0598	Ditto	Steep spoil heaps and flat areas	Permanent ponds	Extensive birch scrub with areas of hawthorn in old parts.
Prior's Hall, Corby	SP931911	Ditto	Broad, deep gullet with exposed limestone	Ponds in bottom of gullet	Extensive birch. Poor soils.

The common features are the presence of the inferior oolite close to the surface and the presence of scrub or tees. The presence of water does not appear to be a factor and, indeed, on those sites with water present, the drainage is sharp. There are other parts of the county with this geology, although, further south, the exposed areas are much less extensive. However, they may provide further records in future.

Cranefly Records from the Devon Fly Group – Compiled from notes by Andrew Cunningham, Rob Wolton and Martin Drake.

Andrew Cunningham writes: On a field trip to Slapton Ley NNR *Tipula marginella* was recorded in short cattle grazed *Phragmites* reed/*Iris* habitat, and species-rich tall fen, by the northern part of the freshwater lake known as Higher Ley. (See below)

Fig 10. The margin of Higher Ley (SX829448), habitat of *Tipula marginella* and *Thaumastoptera calceata*. Photo. Andrew Cunningham.

Good numbers of *Thaumastoptera calceata* were taken along a boardwalk cutting through a large reed bed and from wet willow carr, also at Slapton Ley. The study of this Field Studies Council Reserve goes back a long way – at least to 1966 and the habitats are well mapped out and defined. *T. calceata* was also recorded at Tidcombe Fen near Tiverton, Mid Devon in late May. *T. calceata* were also recorded at Tidcombe Fen (SS977126) in wet alder & willow carr flanked by rushy meadow.

Rob Wolton writes 'On 23 Apr I found about 20 ***Triogma trisulcata*** in a small patch of a few square metres of moss in a wet depression at the base of Meldon Aplite Quarry on the north-western edge of Dartmoor. (See Cranefly News #33, 2018 for location details). I knew the species was there, so no surprise, but I was able to take some photos. Fig shows the over-all shape of the cranefly which belongs to the family Cylindrotomidae, or 'damselle craneflies'. Fig. shows details of the head and thorax of this warty bog-fly.

Fig 11. T. *trisulcata* (RW)

[Judy Webb located a population of *Triogma* at Cothill Fen (Cranefly News #31, 2016). The botanists have put this site down as M13 (*Schoenus nigricans-Juncus subnodulosus* mire) on the National Vegetation Classification. It would be interesting to compile a cranefly species list for each of the NVC categories. Ed.]

Fig 12. *Triogma trisulcata* (RW)

Some good news was the re-finding of the rare coastal limoniid cranefly *Geranomyia bezzii* (the sea snout) at Dawlish Warren on 19 August 2019. (See Dipterists Digest 2011 **18)** Half a dozen individuals were found in exactly the same position as 2 years ago, on the upper foreshore just to the NE of the bird hide at SX98837965, sheltering deep within low sea purslane bushes, plus one in a similar bush on the raise high tide roost SX98737968. It was a huge relief! Because the major dune restructuring/flood defence work in 2018 had ignored the presence of the fly, there was concern that spreading surplus sand from the works over the mudflats where the fly breeds might have led to its demise,

Martin Drake again recorded *Arctoconopa melampodia* on The Spittals on 22 May 2019, just into Dorset and writes that it is one of the most easily located craneflies on the parts that look like a builder's yard consisting of bare sand and bouldery clay, slipped from the cliffs in the most recent storms. Rather less interesting is *Dicranomyia lucida* at woods near me in East Devon (Holyford Woods LNR, Hook Wood down the lane), with a lot of squidge by the stream at the bottom of each wood.'

Andrew Cunningham, Rob Wolton and Martin Drake.

A New British *Gonomyia* ?

Geoff Hancock was working through some specimens when he came across an unusual *Gonomyia* from Loch Ailort, captured on 4 July 1992. Unfortunately the aedeagus is broken (See photos, Figs 12 & 13 taken by Geoff.) but the part that remains is distinctly different from the currently known British species. If you have any specimens of *Gonomyia* to identify it would be a good idea to look out for this one, especially from the Loch Ailort area of the west coast of Scotland, VC 97, West Inverness-shire (NM7379).

Fig 13. *Gonomyia* style

Fig 14. *Gonomyia* aedeagus

There was also a rumour of another *Gonomyia* (subgenus *Leiponeura*) being found in Cumbria but there is no publication yet, that I know of.

***Dicranomyia pauli* Geiger 1983. J.Kramer**

Along with *Tipula mutila, Tipula siebkei, Tipula sarajevensis* and others, *Dicranomyia pauli* is a species seldom seen. In fact it clings onto the British checklist by its finger-tips. It was first netted by Alan Stubbs on Gaitbarrow, North Lancashire, on the evening of 19 July 1977, and was identified by Willy Geiger a Swiss dipterist. Gary Hedges at The World Museum, Liverpool (Gary.Hedges@liverpoolmuseums.org.uk) is hunting this snark of a species which seems to fly in the evenings and so may turn up in a light trap. (Let's hope that it's not a Boojum!!!) Please let Gary (or Pete or myself) know if you catch any dark brown *Dicranomyia* with a pale stigma. The illustration of the distinctive hypopygium shown here (Fig.15) is from Podenas et al 2006.

Fig. 15

Ref: **Podenas, S., Geiger,W., Haenni, J-P., & Gonseth, Y. 2006**. Fauna Helvetica 14, Limoniidae & Pediciidae de Suisse. Schweizerisches Entomologische Gesellschaft, Neuchâtel.

Field Work in France – J. Kramer

Pierre Tillier (p.tillier.entomo@free.fr) and **Clovis Quindroit** (clovis.quindroit@etud.univ-angers.fr) have put out a request for cranefly records from France and they would be grateful for any records of any fieldwork you have done there. Pierre is especially interested in Tipulidae, and Clovis will take records of the other cranefly families, especially Limoniidae.

My work in the Ravin de Valbois in eastern France is recorded in the recent issues of Dipterists Digest and there was much of interest. A black *Molophilus* was collected identified as *M. tirolensis* Hancock by Jaroslav Starý. Like that species, first described by Geoff Hancock the upper style (outer dististyle) is bent inwards near the distal end – rather like a hockey stick. The lower style (inner dististyle) forms a downward-pointing hook, broader in the middle. The coxite has a knife-like ventral blade which has tufts of short bristles on the ventral edge, giving a serrated appearance, and there is a pointed extension, a 'peak', distally. It differs, from the typical *M. tirolensis* however, in that the bend of the upper style (us) is smooth, lacking the distinctive 'heel'. Just in case anyone else finds this form I am calling it var *valboisensis.* In addition to the population in the Ravin de Valbois, looking back at my previous records I found that I have previously collected this form in the Gorge de Bruyant, S.W. France. on 28th May 2007 (See Cranefly News 17, Autumn 2008).

Fig 16. *M. tirolensis*.us to show 'heel

Ref: Hancock, E.G., 2005. Notes on Molophilus (Diptera, Limoniidae) including the description of a new European species. Entomologists Monthly Magazine Vol. **141**. 59-63

The Rotation of the hypopygium in *Molophilus* and other Chioneinae

Fig 17. *M. flavus* male to show coxite and styles *(JK)*

Ever since I read about this curious phenomenon in a paper by F.W. Edwards, (Edwards 1938) I have looked for the evidence for the process. The coxite of *Molophilus* forms a protective hood extending over the more delicate styles which are inserted below this hood. Without this rotation the styles would be exposed to damage. In 1936 Edwards wrote: *Many years ago* (Ann. Trop. Med., **14**:24 1920) *I called attention to the fact that in the (Tipulid) genera Molophilus and Rhypholophus, as in all mosquitoes, the hypopygium of the fully developed male occupies an inverted position, the anal parts being ventral and the genital parts being dorsal; the rotation takes place shortly after emergence from the pupa and once it has taken place the organs remain in their new position and are not freely rotatable as in Sciara and many other Mycetophilidae. A recent re-study of the genera of the Eriopterini shows that the phenomenon of inversion is of somewhat wider occurence in the tribe than I thought at first. Thus it occurs in* the *all species (so far as I have seen) of Molophilus, Dasymolophilus, Tasiocera, Ormosia*

(including Rhypholophus), Ilysia, Empeda, Cheilotrichia and Styringomyia (Not Brit). *... the normal, non-inverted hypopygium is found in all species of Erioptera* sensu stricto, *Gonempeda, Symplecta and Trimicra. ...* (Edwards 1936)

It is not clear whether this 'recent re-study' cited above is one carried out by Edwards himself, or someone else and I have still not traced this. As far as I can discover so far, the first person to describe rotation was Major S. R. Christophers of the Central Research Institute, Kasauli in 1915, and in another paper in 1922 he observed that, in mosquitoes, between 24-48 hours after emergence of the imago, segment 8 is rotated through 180°. This later paper describes his excellent work where he uses histology to observe the relative positions of the gut and the genital tract in sections of the inverted mosquito abdomen. Edwards also worked with mosquitoes and perhaps also observed directly a similar rotation of the hypopygium in genera of Chioneinae, including *Molophilus*. To avoid confusion Edwards (1920) used the terms 'upper' and 'lower' in place of ventral and dorsal respectively for these genera.

The following observations are from Hennig 1973: *Cheilotrichia* - Inverted, 180° after 7th segment, *Erioconopa* - Incompletely twisted through 45-90°, *Hoplolabis* - Inverted, 180° after 7th segment, *Molophilus* - Inverted, 180° after 7th segment, *Ormosia* - Incompletely twisted through 45-90°, *Rhypholophus* - Incompletely twisted through 45-90°.

Perhaps the proto-Molophilus was like *Ormosia* and the hooded protective coxite evolved later, after rotation, allowing the protected styles to evolve into the wide variety of structures that we see today?

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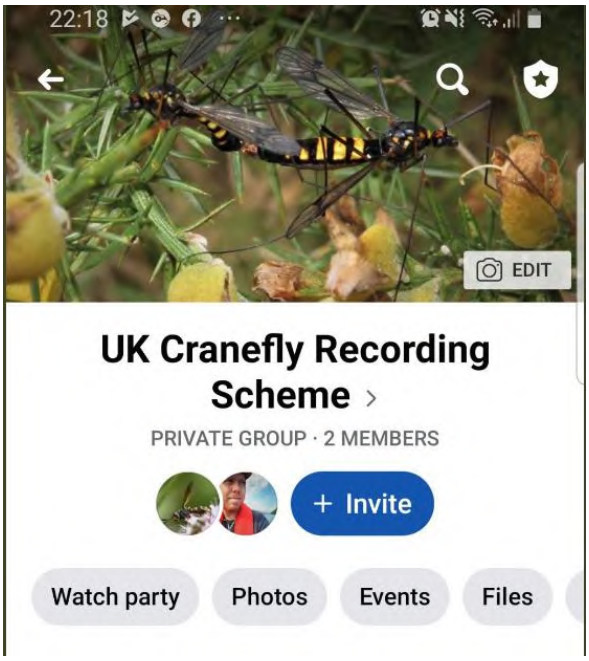
Recording Scheme update – social media and iRecord news - Pete Boardman

Alongside our Twitter page @CRStipula we now have a Facebook page which has been set up by Ryan Mitchell and is moderated by Ryan and Ian Andrews. Even though the Facebook group has only been running for a short period of time it already has 150 members. Also Ryan is now helping with the backlog and future verification of records on iRecord. Currently we get around 3000 records on iRecord each year, 1000 or so of these come with photographs. Many thanks to Ryan and Ian for taking on these roles with the Scheme. Spreadsheets can be sent to: pete.ento22@gmail.com



Meetings

Meeting of Diptera Recorders - NHM 20 Sept 2019

This was an opportunity to discuss the aims of Recording Schemes, our needs and to question the methods we currently use. A number of speakers contributed their perspectives. To summarise: Digital photography, photomicroscopy, writing, website management, fieldwork and recording, writing and editing are a few of the different jobs that are needed to sustain a successful Recording Scheme. It is better to build a team of people to share these activities, and also for the sake of continuity, so that younger members could take over when necessary. Recruiting new recorders is important, and ways to

do this were also discussed. Websites and social media are demonstrably important, especially when combined with digital photography. Pete Boardman and his team are pushing forward with these aspects for the CRS. Accurate identification is obviously important, as is the frequency of recording presences and absences at any given site. The need for workshops, and a system of mentoring is needed to stimulate and support interest and the whole ethos of the Dipterists Forum is directed to this. If anyone needs help with identification, they only have to ask. Effective communication through 'Cranefly News' also continues for the moment, and I believe that it still offers useful support. If anyone would like to help me with the production of Cranefly News, please let me know. For all field records and digital contributions, Pete Boardman is your contact. (See above.)

BOLD Meeting - Peterborough 3 Dec. 2019 [BOLD = Barcode Of Life Database]
This meeting set out to address the gaps in the database of invertebrate DNA barcodes. The specialists from the Insect Recording Schemes can play an important role in providing fresh correctly identified specimens for DNA analysis, and also in checking the names of specimens already bar-coded and identified. Different species have different DNA but, as with other features, there are both intra- and inter-specific variations. Which differences to choose to define different species is work which is on-going and work that the Recording Schemes can assist. Environmental DNA – eDNA - is that which can be found by taking a sample of (say) soil or water from a habitat and doing an analysis for the DNA content, and a species list derived from this. Thanks to the use of computers, this analysis process can be an automated, although currently it is not a very accurate process and also, as someone at the meeting said, 'where's the fun in that?' A fear is that the use of eDNA would eventually circumvent the work of experienced and qualified field-workers. It could also be a useful tool for biologists, for example, to determine the food webs in a biotope, including larval food. A dystopian future can be imagined where there is no human intervention and they who control the digital data control the 'truth' !! We must hope that Marvin is programed to act in the interests of the survival and happiness of all human beings on the planet and not just a powerful few. This meeting should lead to activity and rapid progress in increasing the accuracy of this potentially useful tool.

Recent papers on Craneflies in the Dipterists Digest.
Since the last issue of Cranefly News in Bulletin 86, in Autumn 2018 there have 4 issues of Dipterists Digest:

Dipterists Digest 2018 Vol. 25 No.1 :

John Kramer. A review of the statusof *Ula mixta* Starý (Diptera, Pediciidae) in Britain.
The motivation for this paper was the lack of voucher specimens supporting records. Photographs are shown to show the hypopygia and genital apodemes of British specimens of *U. mollissima* and *U. mixta*. The specimen of *U. mixta* is shown with a shallower notch on the sternite than *U. mollissima*, if the former is defined by its larger apodeme, with membranous flange.

Alan Watson Featherstone. *Ctenophora flaveolata* (Fabricius) (Diptera, Tipuidae), unexpected occurrence in Scotland.
This note records the first observation of *C. flaveolata* in Scotland on 26 May, 2018. Since there is a lack of beech or oak in the vicinity this may have been carried passively by a car, although the mild dry weather prevalent at that time may have allowed flight for some distance. May 2018 was the warmest May since 1910, when records began.

Dipterists Digest 2018 Vol. 25 No.2 :

John Kramer and Michel Billard. Two wet-rock (hygropetic) species of Limoniidae from the Savoie, France.
Photographs of larvae and adults of two non-British species, one an *Elliptera*, the other a *Dactylolabis* are shown.

Dipterists Digest 2019 Vol. 26 No.1 :

Four papers on craneflies were in this Spring issue.
E. Geoffrey Hancock. Some records of craneflies from Kola peninsular, Russia.
Geoff Hancock has identified 11 cranefly species from a collection made by Fred Woodward on the Kola peninsula. Eight of these are found in the UK.

Jaroslav Starý. Some notes on the genus *Paradelphomyia* Alexcander (Diptera, Limoniidae)
This paper clears away some historical classification and abolishes the subgeneric classification of this genus. Addressing British dipterists, Jaroslav Starý also compares the aedeagal length, the structure of the aedeagal complex and gonostyli of *P. dalei* and *P. ecalcarata* as a means of separating these two closely related species, especially when, as with specimens in ethanol, the colour has faded. Whereas Jaroslav's taxonomy offers simplification, the comparative anatomy in his paper stimulates further work with Britsh specimens of *P. ecalcarata*. When Figs. 8, 17 and 18 in my review of *Paradelphomyia* **(DD. 2015 Vol.22 No.1)** are compared, they do not fit neatly with Jaroslav's hypothesis. We now need to observe a sufficiently large sample of genital apodemes to decide on the range of intra-specific variation in *P. ecalcarata*. (See ***Paradelphomyia* from Slade Brook West Gloucestershire (VC34)** above)

John Kramer and Dominique Langlois. Craneflies (Diptera, Tipuloidea) of the Ravin de Valbois, France.
The Editor (JK) has done some work at a National Nature Reserve in France with Dominique Langlois, the Conservation Officer on the site. It is a varied location with many biotopes suitable for craneflies and as a consequence, in this paper, about 80 species have been identified including 5 new for France.

Pete Boardman, Siobhan Hillman and Adrian Gardiner. A population of the cranefly *Limonia maculipennis* (Meigen) (Diptera, Limoniidae) on a North Norfolk sea wall.
Pete Boardman and colleagues have located a thriving colony of this very attractive species on the sea wall in North Norfolk in mid-April, 2019. It will stimulate searches of similar habitat for more colonies.

Dipterists Digest 2019 Vol. 26 No.2:

Michael James and John Kramer. *Achyrolimonia neonebulosa* (Alexander) (Diptera, Limoniidae) – a new cranefly for the British list. Recorded on the Dipterists Forum website. (See article above.)

J**ohn Kramer and Dominique Langlois. More craneflies (Diptera, Tipuloidea) from the Ravin de Valbois National Nature Reserve, France.** A continuation of the work recorded in DD Vol 26 No1. A further 5 species were added making a total of 10 new to the French fauna, out of about 90 cranefly species for the Reserve.

Correction to Cranefly News No 34 (Autumn 2018) Phil Brighton
Pjotr Oosterbroek has pointed out that the picture I claimed to be *Tipula luna* in the Outer Hebrides was not that species, as the quadrate outer clasper of the subgenus *Tipula* can be discerned by the keen-eyed. In fact the small printed photo also shows up the dark leading edges of the wings which were not so evident in the original photo. *Tipula oleracea* is the most likely species for early July, and already well known from the Outer Hebrides.
The observation of *Tipula maxima* in the hotel toilet remains indisputable. Moreover, my hypothesis of a migration of large tipulids to the Western Isles last year is supported by two records of *Tipula luna* from the NBN Atlas for June 2018, both by Stephen Bungard and identified by Murdo Macdonald. These were from the west coast of Skye (NM394814) on the 2nd and from a small islet just off Muck (NG187397) on the 26th. They were the first records since 1990 of the species from the Inner Hebrides.
Phil Brighton

Identification
Key to European species of Crypteria and Neolimnophila (Diptera, Limoniidae, Chioneinae) Jaroslav Starý[1] & Pjotr Oosterbroek[2]
1Neklanova 7, Olomouc-Nedvězí & Silesian Museum, Nádražní okruh 31, Opava, Czech Republic; e-mail: stary.cranefly@gmail.com
2Naturalis Biodiversity Center, Darwinweg 2, Leiden, The Netherlands; e-mail: p.oosterbroek@chello.nl
Introduction
Recently the North American species *Neolimnophila alaskana* (Alexander, 1924) was added to the fauna of Europe (Starý 2019). This was reason to write a key to the now four European species of *Neolimnophila*, the more so because all four are rather widespread, *N. bergrothi* (Kuntze, 1919) and *N. carteri* (Tonnoir, 1921) in Europe, and *N. alaskana* and *N. placida* (Meigen, 1830) throughout the Holarctic. So far, *N. carteri* and *N. placida* are known from the British Isles. The period of flight of all four species is from about May to August or September.

Among the European Limoniidae of the subfamily Chioneinae, the genera *Neolimnophila* and *Crypteria* are characterized by having a long and conical third antennal segment (fig. 1-3, 7). These two genera, furthermore, share a closed discal cell, vein M1+2 forked (fig. 4-6, 9) and male genitalia with elongate gonocoxites, each bearing two slender gonostyles (fig. 8, 10-13). Because of the unique antennal segment, the only European species of *Crypteria*, *C. limnophiloides* Bergroth, 1913, is included in the key. This species also has a large distribution in Europe, including European Russia and is also known from Georgia.

Key
1.a. Wing extra broad in the middle; vein Sc ending at about fork of veins R_3 and R_4; vein R_2 absent; vein R_3 strongly arched and much longer than vein R_{3+4}; anal vein (A_2) ending beyond broadest part of wing (fig. 4). Hypopygium without hypopygial spines (fig. 8).

Crypteria limnophiloides

b. Wing of normal shape; vein Sc ending at about fork of veins R_{2+3+4} and R_5; vein R_2 present; vein R_3 not strongly arched and about as long as vein R_{2+3+4}; anal vein ending before broadest part of wing (fig. 5). Hypopygium with hypopygial spines (fig. 18-21).

***Neolimnophila* 2.**

2.a. Thorax without prescutal stripes. Vein R_2 mostly its own length or more beyond fork of R_{3+4} (fig. 5-6).

3.

b. Thorax with distinct brown prescutal stripes (fig. 1, 7). Vein R_2 mostly just beyond, at or before fork of R_{3+4} (fig. 9).

4.

3.a. Dark brown species. Vein A_2 ending at from one-third to half-way length of Rs (fig. 5). Outer gonostylus hooked; inner gonostylus simple (fig. 10); most frequently only dorsal hypopygial spine present, rarely a tiny ventral spine present (fig. 18).

Neolimnophila carteri

b. Grey to dark grey species. Vein A_2 ending more or less opposite origin of Rs (fig. 6). Outer gonostylus only slightly curved at tip; inner gonostylus long and slender, apical part bent backwards and covered with stiff setae (fig. 11); ventral hypopygial spine present, about one-third of length of dorsal spine (fig. 19).

Neolimnophila bergrothi

4.a. Wing relatively narrow, width-length ratio 1-3.8 (fig. 1); vein R_{2+3+4} simply arched, not sinous (as in *N. carteri* fig. 5). Outer gonostylus moderately long and stouter (fig. 12); distal outer corner of parameres conspicuously extended (fig. 16); ventral hypopygial spine at most one-third of length of dorsal spine (fig. 20).

Neolimnophila placida

b. Wing relatively broad, width-length ratio 1-3; vein R_{2+3+4} sinous (fig. 9). Outer gonostylus long and slender (fig. 13); distal outer corner of parameres not conspicuously extended (fig. 17); ventral hypopygial spine two-third of length of dorsal spine (fig. 21).

Neolimnophila alaskana

Acknowledgements
The work of J. Starý was financially supported by the Ministry of Culture of the Czech Republic by institutional financing of long-term conceptual development of the research institution (the Silesian Museum, MK000100595).

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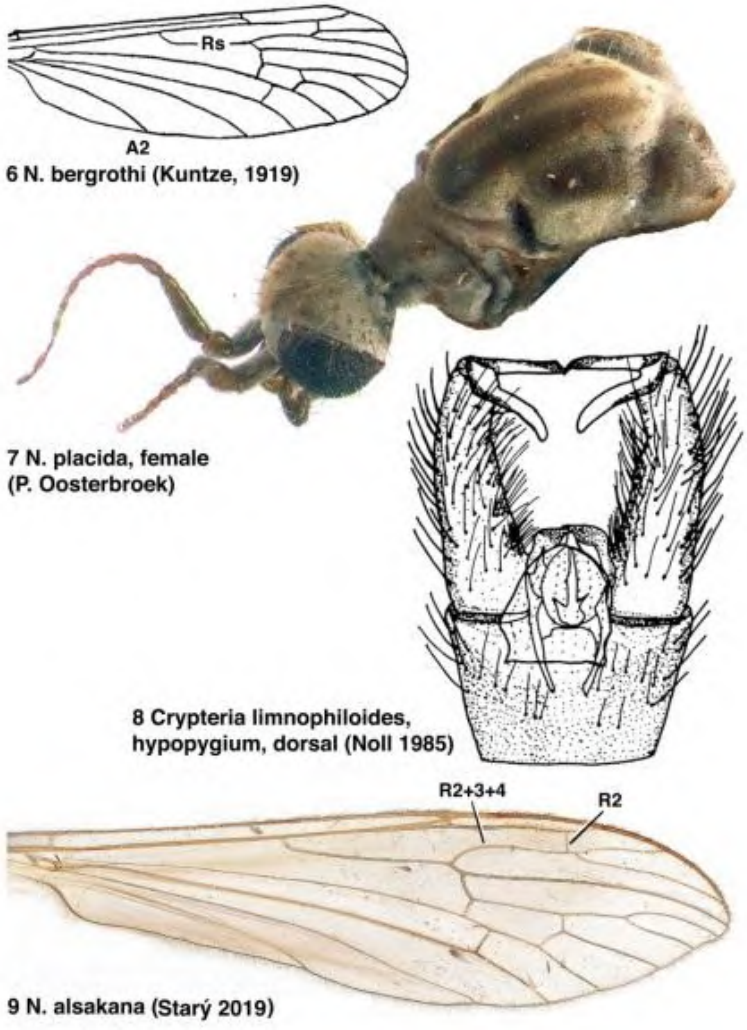
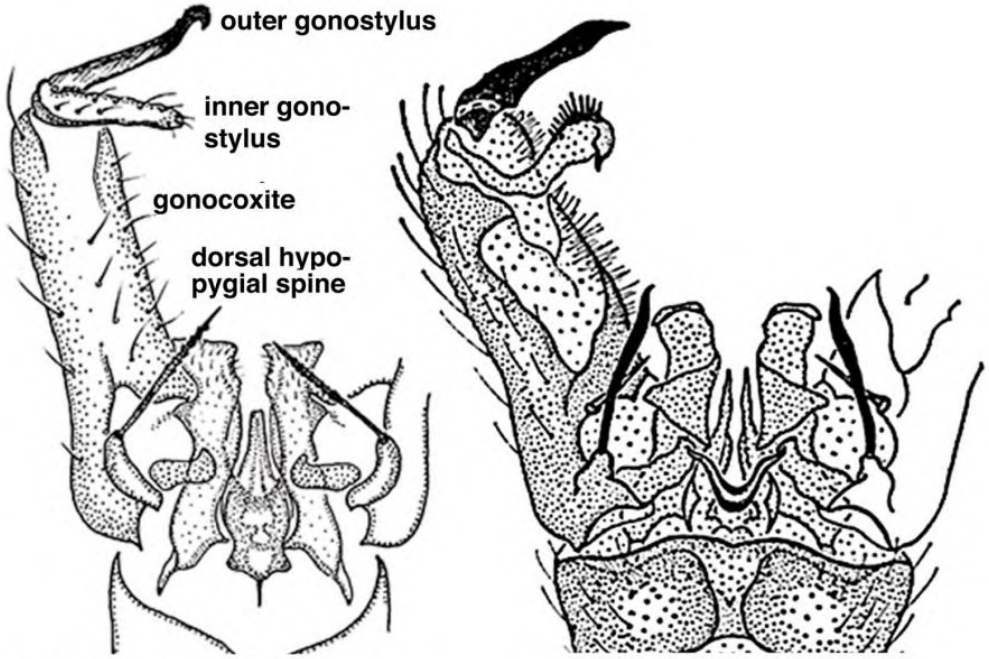
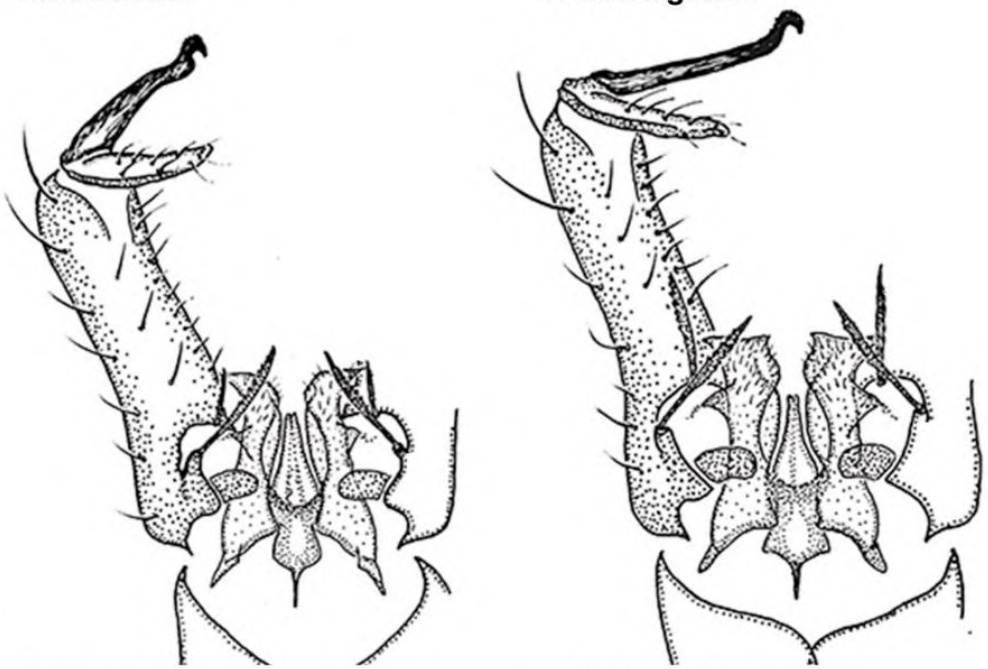
Figures





10 N. carteri

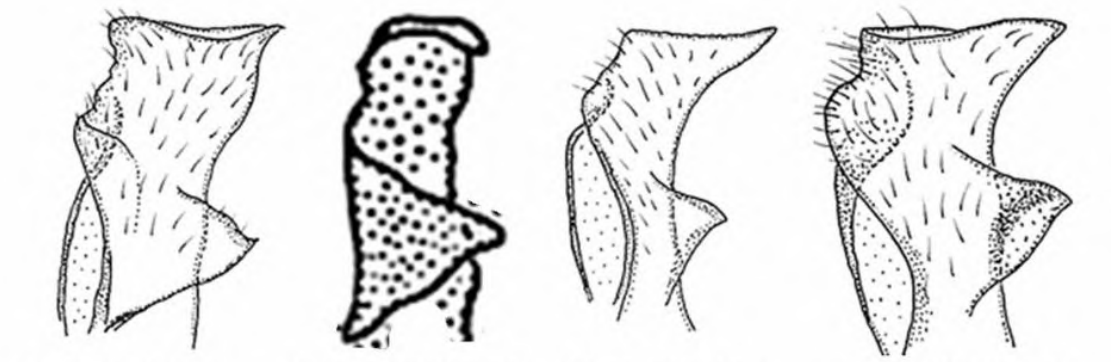
11 N. bergrothi



12 N. placida

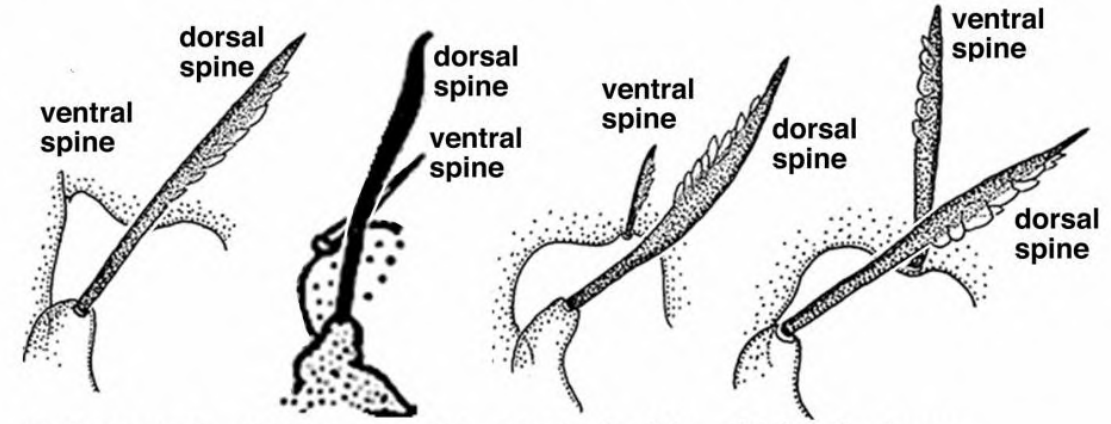
13 N. alaskana

Hypopygium, dorsal (10 12 13 Starý 2019, 11 Savchenko 1982)



14 N. carteri 15 N. bergrothi 16 N. placida 17 N. alaskana

Parameres, dorsal (14 16 17 Starý 2019, 15 Savchenko 1982)



18 N. carteri 19 N. bergrothi 20 N. placida 21 N. alaskana

Hypopygial spines, dorsal (18 20 21 Starý 2019, 19 Savchenko 1982)

Early issues

The early issues of the Cranefly Recording Scheme newsletters, nos. 1-7, from 1973, have been scanned and appear in pdf on the Dipterists Forum website. The newsletters of all recording schemes were issued together in one Bulletin from 1976. News about craneflies can be obtained either as 'News from the Schemes' or as a separate newsletter. There are also 'Reports on Field Meetings' which contain some interesting information. Idices will be published to help navigate these documents.

Thanks to all contributors for an interesting and useful issue.
The next copy deadline is 20 July 2020
Good hunting ! Editor
john.kramer@btinternet.com

Flat-footed Fly Recording Scheme

Newsletter 3 Spring 2020

Introduction

The Flat-footed Fly Recording Scheme was launched in the 2016 Autumn Bulletin, and the first Newsletter (Chandler 2016) reported the recording situation as it was at the end of July 2016. The scheme covers the 35 British species of the family Platypezidae, but also accepts records of the single British species of Opetiidae. The female of *Polyporivora ornata* (above photo by Jeremy Richardson) has been adopted as the emblem of the Recording Scheme.

Records are acceptable in any form and specimens can be submitted to me for checking. Data received is being added to the spreadsheet begun in 2016, which now includes all records known to me, presently around 5000 of Platypezidae and 1040 of Opetiidae.

The first Newsletter included sections on identification, fieldcraft (with smoke flies *Microsania* treated separately), fungus hosts, recognition of immature stages, phenology of adults, and the history of platypezid studies in the British Isles. The second Newsletter (Chandler 2018b) reported on the then imminent Status Review (Chandler 2018a), and included a map showing the national coverage up to the end of 2016 which had been the basis for that Review. It also covered significant new records of *Agathomyia* species, including *A. cinerea* new to Scotland and *A. falleni* new to Wales. An account by Nigel Jones of the rich platypezid fauna of Shropshire was also included. Both Newsletters, and a manuscript key to the British species, are available as pdfs on request. Reemer & de Jong (2016) is also recommended for identification.

A presentation *Flat-footed Flies – a challenge to record* at the 2018 AGM of Dipterists Forum outlined progress to date, including some of the new findings for 2018 that are also presented here. The main theme was fieldcraft to maximise the chances of finding platypezids. The host fungi and larval biology where known were highlighted.

Results of recording in 2018 and 2019

As with 2016 and 2017, the latest two years have also been fairly unproductive of platypezid records and they have continued to be sparse on Forum field meetings.

The 2018 summer meeting at Stoke-on-Trent produced only one record by Rob Wolton of *Agathomyia antennata* from Hopton Quarry on 27 June. The 2019 meeting at Stirling provided three records: *Paraplatypeza atra* was found at Stirling University grounds on 22 June by Nigel Jones, and on 25 June I caught *P. atra* at the River Tay reedbeds (on a giant hogweed leaf) and *Polyporivora ornata* at Tentsmuir, in conifer plantations behind the dunes.

Platypezid data for 2018 and/or 2019 have been provided by Peter Andrews, John Barnard, Howard Bentley, Laurence Clemons, John Coldwell, Steve Crellin, Andrew Cunningham, Martin Drake, Andrew Halstead, Jane Hewitt, Gordon Jarvis, Nigel Jones, Ryan Mitchell, Ivan Perry, Alistair Shuttleworth, Donald Smith, Judy Webb and Rob Wolton. iRecord (via Martin Harvey) provided records (to end of 2018) from Graham Calow, Stephen Foster, Susan Morris, Sandy Rae, Andy Slater, Lowri Watkins, Michael Woods and Tim Worfolk. I thank everyone for the interest they have shown.

There are records of 24 species from 2018/2019 together; 22 were found in 2018 and 19 species have so far been reported for 2019, with 17 species found in both years. This means that 11 species, nearly a third of the British species of the family, have not been noticed by recorders in these years. Some others were found but rarely, as recounted in the notes below although, as will be seen, several species are clearly extending their ranges. More recorders are 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.

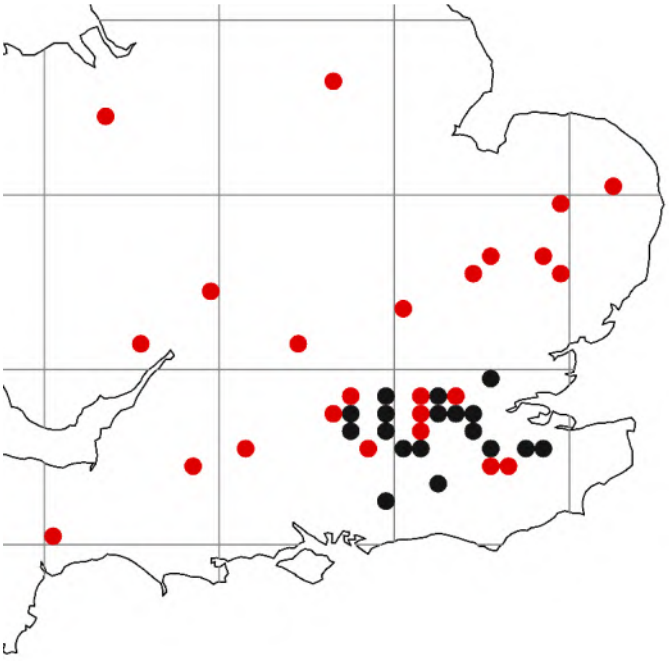
Agathomyia collini – a new record from Cambridgeshire

When reporting a new record for South London from 2012 in Newsletter 2, it was mentioned that the only other record for this rare species in the present century was a male caught by Ivan Perry at Bradfield Wood (TL930573), Suffolk in 2007. The larval biology remains unknown, its occurrence in orchards and gardens suggesting its host may be a fungus that grows on old fruit trees of the family Rosaceae, e.g. *Phellinus tuberculosus* (= *P. pomaceus*).

In 2019, Ivan encountered *A. collini* again at Fulbourn Fen (TL528562), Cambridgeshire, and he exhibited specimens at the 2019 Exhibition of the British Entomological & Natural History Society. He first found it there on 5 April, when a male was swept from secondary woodland at this site. On three further visits during April, 11 more males and 4 females were also found there, and another female on 27 June. All were swept from an area where fallen and standing trees were largely covered in ivy and no suitable fungus host was seen. He suggested that they may have originated from one of the large mature gardens, with fruit trees, nearby.

Agathomyia falleni now in Yorkshire and other records

In Newsletter 2, *A. falleni* was recorded as new to Wales; it was also remarked that the most northerly English records were from two sites in Norfolk, in 2004 and 2013 – this overlooked that David Gibbs had found it at Edwinstowe, Nottinghamshire in 2007, as seen on the map below which shows the distribution to the end of 2017.



Black first record 1952-1999 (18 hectads)
Red first record 2000-2017 (24 hectads)

As explained in Newsletter 1, my interest in Platypezidae began in 1966 when I found *Agathomyia falleni* at Knole Park, Kent (Chandler 1968), the second British record after first being found by Len Parmenter (1953) at Box Hill in 1952. As seen from the map, records in the rest of the 20th century were concentrated in the south-east, but in the present century it has spread to occupy much of southern England, plus the records from North Wales and Notts. The only 2018 record known to me is a female I found on 19 October on lime *Tilia* foliage in the lime avenue at Swinley Park (SU8967), Berkshire, a new hectad for it – it had been recorded previously from the other two hectads of Windsor Forest and Great Park (SU97 and SU96), and from Yateley Common, Hampshire, in SU85 in 2017.

By contrast, in 2019 it was reported from Sussex, Wiltshire, Oxfordshire and, most surprisingly, from Yorkshire, to confirm that its range is still expanding. John Coldwell found a male on 17 September at Silkstone Wagonway (SF295066) near Barnsley. Then on 2 October, John Barnard photographed a male at Tophill Low Nature Reserve (TA072486), in East Yorkshire, inland from Hornsea, a bird reserve with a wooded fringe around a reservoir –a long way from other likely habitat for *A. falleni*.

Agathomyia falleni ♂ **above,** ♀ **below (photos Peter Andrews)**

At the same time I heard from Peter Andrews that he was photographing this and other platypezids at Coate Water (SU180815) near Swindon, Wiltshire. It was observed on five dates from 25 September to 10 October (altogether 5 males and 7 females). Then, on 22 October, he came across a female at Cothill Fen (SU459997), Oxfordshire.

This and other species found at Coate Water were feeding on leaves of an introduced dogwood species, with quite large white berries. This had been planted in a small copse to screen a walkway to a hide, and had spread through the small woodland, which has mature willows, poplars, and dead wood (Peter Andrews *pers. comm.*).

Gordon Jarvis observed *A. falleni* at sites near Peasmarsh (TQ82), Sussex on dates from 23 September to 2 October 2019 (5 males and 4 females, all on leaves of sweet chestnut at a height of about 4ft).

Thus six hectads can be added to the distribution of *A. falleni*, bringing the total to 48, with 30 added this century.

Agathomyia lundbecki new to Ireland

by Ryan Mitchell

This autumn I have been looking for Platypezidae with some success, mainly finding two fairly common species *Protoclythia modesta* and *Agathomyia unicolor* in most woodland sites around the Belfast area in Northern Ireland. Late in 2019, on 2 October, during some casual fieldwork in Belvoir Park Forest, located in south Belfast along the banks of the river Lagan (Irish Grid Ref: J33217 69420) I was lucky to find a single female *Agathomyia lundbecki* – this was a rather nice surprise as this species has never been recorded in Ireland previously.

The female has a distinctive coloration on the abdomen, so it can be easily distinguished from other species in the genus. It seems rather unlikely to be a recent arrival and has probably been missed, as the adult has a late flight period in September to October. The ecology of this species has been well documented, with a strong association with the common alder bracket fungus *Xanthoporia* (*Inonotus*) *radiata* so is likely to be a widespread species across Northern Ireland and possibly Ireland as a whole.

***Agathomyia lundbecki* from Belvoir Park Forest, Northern Ireland (photo Ryan Mitchell)**

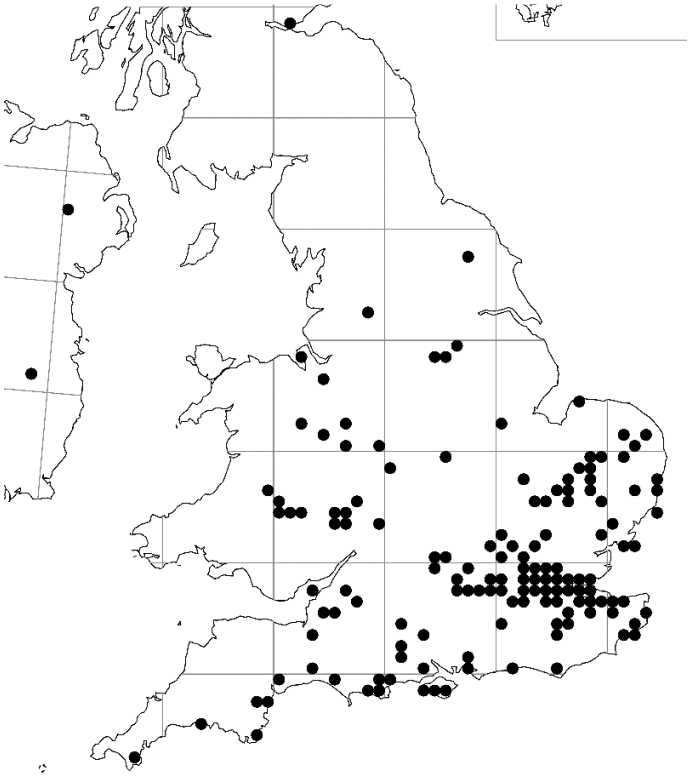
Also, whilst undertaking fieldwork at Clandeboye Estate, Newtownards, Northern Ireland. I collected a single female specimen of *Platypeza aterrima/hirticeps*; unfortunately the females currently cannot be separated reliably and both species are currently not on the Irish Checklist, so with further effort recording Platypezidae in Ireland it seems likely there are more exciting discoveries to be made.

Lindneromyia dorsalis new to Scotland and to the Isle of Man

A female was swept on 26 September 2018 by Alistair Shuttleworth at Dalgety Bay (NJ1683), Fife, from mixed habitat at the edge of housing, woodland and farmland. This is the first record north of Yorkshire, excepting one from Northern Ireland, as seen on the map, which was prepared in 2018 to show this extension to its range – it shows all British Isles records of which I was then aware.

This species develops in field mushrooms *Agaricus* spp, and can occur in more open habitats than most other platypezids, so there is no obvious reason why it should have been restricted to a southern distribution in Britain. It provides yet another example of a species that is extending its range northwards.

Perhaps more surprising is that it has got as far as crossing the Firth of Forth without being noticed in the intervening regions. However, on 30 August 2019, Donald Smith observed 8 females on an unidentified mushroom in coniferous woodland at Clerkington (NT505724), East Lothian, so it's also on the south side of the Firth.



It has also come to notice that Steve Crellin had swept a male of *L. dorsalis* from sycamore foliage on 25 August 2018 at Close Sartfield Manx Wildlife Trust Reserve (SC359955), on the Isle of Man. He also informed me that he had earlier swept a male of *Paraplatypeza atra* from tree foliage at the same site on 21 June 1995.

As far as I am aware these are the first records of the family Platypezidae from the Isle of Man.

Microsania pallipes

In Newsletter 2, I stated that there have been no records at all of the genus *Microsania* in the British Isles since 2008 – suggested as being due to potential recorders not encountering bonfire smoke attracting male swarms. However, Andrew Halstead reminded me that he had found a swarm of *M. pallipes* at bonfire smoke on his allotment at Brookwood, Surrey on 1 July 2015. Then, at the 2018 BENHS Exhibition, he exhibited a specimen from Snakes Field, Ockham Common, Surrey, where males were attracted to hot wood ash, with little smoke remaining, from a conservation volunteers' bonfire, on 7 October 2018.

There are 5 British species of *Microsania*, all found at smoke but rarely seen otherwise (see Newsletter 1), and their larval biology is still unknown. More attention from recorders is needed to unravel the mystery of *Microsania*.

Paraplatypeza bicincta

The first British record of this species was in Surrey in 2001 (Chandler 2002), but it has since spread widely in southern England, reaching Norfolk and Shropshire. As its females are distinctively marked, and so likely to attract the attention of dipterists, it is likely to have been a recent arrival in this country. The all-black male closely resembles the male of the widespread species *P. atra*, of which the females are also dark coloured.

There have been three new hectads, all records of single females, to bring the national total to 30. Nigel Jones caught it at Maddox's Coppice (SJ380031), Shropshire on 9 October 2018. I swept one at Swinley Park (SU8967), Berkshire on 19 October 2018. Then Peter Andrews observed it at Coate Water (SU180815), Wiltshire, on 2 October 2019 (see p. 2 above regarding this locality).

***Paraplatypeza bicincta* female (photo Peter Andrews)**

Other recent records

Andrew Halstead exhibited 8 species found in Surrey in 2018 at the 2018 AGM of Dipterists Forum. A report on his exhibit entitled *2018 – A good year for platypezids?* appeared in *Dipterists Digest* (*Second Series*) **26:** 170).

Agathomyia boreella. Ivan Perry found both sexes in alder carr at Flitwick Moor in 2018 (1♂ 5.v, 2♀ 19.v, 1♀ 2.vi) and a female at Brandon Country Park, Suffolk on 21.v.2019. This remains the only member of the *A. elegantula* group to be recorded in Britain.

Agathomyia woodella. Ivan Perry found a female at Flitwick Moor on 3.x.2018. Peter Andrews photographed a male at Coate Water on 23.ix.2019.

Bolopus furcatus. Two females were seen under a bracket of *Polyporus squamosus* at Cothill Fen, Oxfordshire on 4 May 2018, when I visited the site with Judy Webb. I have not heard of other records since I recorded it on its host fungus at Blenheim in 2017, as reported in Newsletter 2.

Platypeza hirticeps. Nigel Jones caught a male at Bucknell Wood (SO3473), Shropshire on 3.x.2018.

Acknowledgements

Stephanie Rorke kindly provided the maps included here. I am grateful to Ryan Mitchell for his note on *Agathomyia lundbecki*. Martin Harvey continued to inform me of the platypezid records on iRecord. Peter Andrews, John Barnard, John Coldwell, Steve Crellin, Andrew Halstead, Gordon Jarvis, Nigel Jones, Ivan Perry, Alistair Shuttleworth and Donald Smith are thanked for the information on their finds included here, and Peter Andrews for use of his photographs. I also thank all other recorders for their contributions.

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Peter Chandler

Fungus Gnats Recording Scheme

Newsletter 11 Spring 2020

The previous Newsletter 10 appeared in the 2018 Spring Bulletin, so findings from 2018 and 2019 are reported here. The gnat heading this and previous newsletters from Spring 2014 (no. 7) onwards is *Synplasta exclusa*, still the only British specimen.

Results of Field Meetings in 2018 and 2019

There were two Dipterists Forum field meetings in 2018, and three in 2019. I attended the summer and autumn meetings in 2019 and the spring meetings in both years.

The number of species recorded at each meeting were:
2018: New Forest, Hampshire, 17-20 May (118 species); Stoke-on-Trent, Staffordshire, 23-29 June (137 species).
2019: West Sussex, 17-19 May (49 species); Stirling, 22 June – 5 July (153 species); West Sussex, 18-20 October (18 species)

New Forest, Hampshire, 17-20 May 2018: This meeting produced good catches at some of the woodland inclosures, notably Holmsley Inclosure (SU225008) (63 spp), Brock Hill (SU267058) (56 spp) and Tantany Wood (SU367042) (52 spp). At both Holmsley and Brock Hill, *Mycetophila stylatiformis* was present, confirming it, along with other recent records of this species, as well-established in SE England. A catch of 26 species of gnats in a wooded fringe (mainly *Rhododendron*) of heathland at Foxbury Plantation on 18 May included *Dynatosoma thoracicum* and *Mycetophila lubomirskii*. At Anderwood Inclosure (SU249058) on 19 May, *Mycetophila immaculata* was among 33 species found. Catches at Mark Ash Wood and Denny Wood were more meagre.

Stoke-on-Trent, Staffordshire, 23-29 June 2018: Although very hot and dry conditions prevailed during this meeting, gnats were caught by seven of those attending: Andrew Cunningham, Martin Drake, Andrew Halstead, Roger Morris, John Mousley, Alan Stubbs and Rob Wolton. The highlights were *Trichonta girschneri* new to Britain from Hawksmoor Wood (see p. 2 below), and the fifth British record of *Macrocera fastuosa* from Cotton Dell, both caught by Roger Morris. *Mycomya pectinifera* turned up at 15 sites, so it is clearly now common in this part of the country. Other notable finds were *Mycetophila immaculata* from Hawksmoor, *Phronia electa* from there and Dimminsdale and *P. sudetica* from Cotton Dell. The latter site was most productive with 65 species, thanks to catches by 4 people.

West Sussex, 17-19 May 2019: The preceding and then prevailing drought contributed towards the low catches on this meeting. Gnats were caught by Martin Drake, Andrew Halstead, Roger Morris, Rob Wolton and myself The most productive site was Ebernoe Common (37 spp) with relatively few at other sites, and only 15 species on the Knepp Castle Estate. No significant records were obtained.

Stirling, 22 June – 5 July 2019: As gnats were sparse at most sites visited, the overall total of 153 species after all catches were submitted was encouraging. A highlight was the finding on 20 June of three males of *Urytalpa macrocera* in the Loch Lomond NNR, in carr (NS435891) by the Endrick Water river near its entry to the Loch; there are 7 previous British records, 6 from Scotland and 1 from Cumbria, and some of these are from similar situations in woodland on the shore of water bodies.

***Urytalpa macrocera* site, looking towards the Endrick Water (with L-shaped tree growing upwards after falling)**

At Flander's Moss NNR (NS618978) on 27 June *Dynatosoma nigromaculatum* was found by Rob Wolton, and he also caught *Exechiopsis furcata* at Tarmachan (NN593391) on 28 June. A male of *Boletina minuta* was caught at Dollar Glen (NS963987) by Alan Stubbs. This was only the 4th British record (previously from Windsor in 1978 and two previous Scottish records, both in 1998, Morrone Birkwood and Rothiemurchus). Sauchie Craig (a wood by Bannock Burn) (NS7690), which I visited on 28 June, produced the highest site total of 36 species, including one male of *Mycomya lambi* (9 previous British records, all in Scotland) and two of *Mycetophila lubomirskii* (the second Scottish site for an uncommon southern species, recorded at Linn of Tummel by Ivan Perry in 2013 and 2014). Andrew Cunningham found

Mycetophila lastovkai at Glen Artney (NN751184) on 28 June; this is now widespread in the south, but had not yet been recorded north of East Anglia, so it was a surprise so far north.

West Sussex, 18-20 October 2019: Like the spring meeting this was organised by Tony Davis, and was also attended by Andrew Halstead, Roger Morris and myself. It began at Ebernoe, where conditions were cold and soon turned to rain. At Knepp on the following day it was drier but still cold, and areas near the Hammer Pond that had been very dry in May were now under water. An afternoon visit to the Mens was cold and dark and the meeting was abandoned. As I was continuing to Dallington Forest and staying at Henfield, I visited the Wood's Mills nature reserve on Sunday 20 October, where it was still cold but sunnier, and insects active by the afternoon – the 11 species of gnats found there was the highest site total for the weekend.

Gnats new to Britain

Like other recent additions to the British list, the species dealt with here can presently only be treated as Data Deficient. *Boletina gusakovae* has been identified by Vladimir Blagoderov (National Museums of Scotland), who has provided the note below. The other two additions are based on specimens collected by Roger Morris.

Boletina gusakovae Zaitzev, 1994

by Vladimir Blagoderov

A male specimen of *Boletina gusakovae* Zaitzev, 1994 was collected by Ian Strachan in Arkaig Pinewood (NN085899; Scotland, West Inverness-shire) (Malaise trap sample in period 5.vii-15.viii.2018). The species belongs to the *Boletina nitida*-group, of which members have the gonostylus bearing a characteristic finger-like processus with strong apical spines. *Boletina gusakovae* is similar to *B. digitata*, but has the ventral median appendages of the gonocoxites pointed, not rounded. Although the species was described from the Russian Far East (Zaitzev 1994), it has later been reported from Sweden, Finland, and Estonia (Kjærandsen *et al*. 2007). Zaitzev *et al*. (2006) also suggested that *B. gusakovae* might occur in Austria, based on the figure by Kidd & Ackland (1970) of *Boletina nitida* sensu Strobl, and the Netherlands, based on the figure of *B. dispecta* by Barendrecht (1938).

Boletina gusakovae **male habitus, lateral view (all photos of this species by Vladimir Blagoderov).**

Boletina gusakovae **male genitalia, ventral view**

Boletina gusakovae **male genitalia, dorsal view**

Trichonta girschneri Landrock, 1912 new to Britain and France

This species was added to the British list during the 2018 Dipterists Forum summer field meeting at Stoke-on-Trent. Roger Morris caught a male at Hawksmoor Wood (SK038442), Staffordshire on 23 June 2018. This is a widespread Holarctic species that has been recorded widely in Europe. Landrock (1912) described it from Czechoslovakia and the Ukraine. Gagné (1981) had seen specimens from Finland, Italy, Romania, Iran and throughout Canada and the USA. The Russian records cited by Zaitzev (2003) stretched from Karelia to the Primorsky region and Sakhalin Island. Jakovlev (2011) reared it in Finnish Lapland from *Datronia mollis* on a decaying aspen log. He noted that it had previously been reared from a resupinate polypore on spruce (Zaitzev 1984) and from an *Oxyporus* species on *Maackia amurensis* (Zaitzev 2003).

There are records from several other European countries (see www.faunaeur.org) and I collected it in France at Le Gros Fouteau in the Fontainebleau Forest near Paris on 20 September 1997, a record that didn't make it to Fauna Europaea. In view of its wide distribution, its occurrence in Britain is not entirely unexpected, but perhaps more surprising that it should first turn up in the West Midlands – so something to look out for further south.

***Trichonta girschneri* male genitalia, ventral view with dorsal lobes of gonostyli extended (photo Janet Graham)**

Phronia elegantula Hackman, 1970

Males collected by Roger Morris at two sites in Scotland have been concluded to most likely belong to this species, and I am grateful to Jostein Kjærandsen (Arctic University Museum of Norway at Tromsø) for reminding me of the photographs of the genitalia of *P. elegantula* provided by Salmela & Kolcsár (2017), who recorded it as new to Norway. It was described from Finland and has also been recorded from Russian Karelia, the Murmansk region, widely in Sweden and once from Germany (Bavaria). The first Russian record was by Polevoi (2000), but additions made in that paper were too late for inclusion in the keys to Russian species by Zaitzev (2003), being listed in an addendum.

Two males were caught at Inverliever Forest (NM955103) on 1 June 2018. One male was then found at Newyork (NM964116) near Dalavich on 7 June 2019. Both sites are in Argyll, to the west of Loch Awe. A leg has been sent to Jostein Kjærandsen, so that DNA barcoding can confirm whether it is indeed conspecific with the Norwegian specimens.

***Phronia elegantula* male genitalia, ventral view (photo Janet Graham)**

***Phronia elegantula* male genitalia, dorsal view (photo Janet Graham)**

Janet Graham has continued to photograph both the species that she and her brother Andrew have recorded in North Wales, and also the genitalia of selected specimens of Mycetophilinae that I have been supplying in batches. Her excellent photographs of genitalia and whole insects can be viewed on her Flickr site: www.flickr.com/photos/149164524@N06

Other recording in 2018 and 2019

Batches of fungus gnats were received from Keith Alexander, Mike Bloxham, Pete Boardman, Steve Crellin, Andrew Cunningham, Scotty Dodd, Martin Drake, Andrew Foster, Andrew Halstead, Anna Hart, Martin Harvey, Nigel Jones, Adam Mantell, Mark Mitchell, Ryan Mitchell, Roger Morris, John Mousley, Ivan Perry, David Sheppard, Alan Stubbs, Judy Webb, Mark Welch, Rob Wolton and Ivan Wright. Records have also been received from Laurence Clemons, Andrew Graham and Donald Smith.

In addition to records cited elsewhere in this newsletter, Ivan Perry recorded *Palaeodocosia flava* at **Brandon Country Park**, Suffolk on 15 May, and *Trichonta bicolor* at **Flitwick Moor**, Bedfordshire on 30 June. His visits to Scotland and the New Forest were less productive than in earlier years, due to unfavourable weather, but *Exechiopsis magnicauda* at Denny Wood and Pondhead Inclosure on 9 and 10 June 2019 respectively, was a new record for the New Forest. This is a rarely recorded species, with records in the Cotswolds predominating (the most recent in 2007); otherwise there is an old record for Oxfordshire (Stokenchurch 1907) and more recent records for Windsor Forest (1987, 1999), Burnham Beeches (1996-2001) and Humber Carr Wood, Herefordshire (1998).

Roger Morris toured Scotland from 27 May to 17 June 2018 and recorded 140 species of fungus gnats. Finds included *Phronia persimilis* at Drimsynie (NN191050) on 29 May and *Trichonta tristis* at Rogie Falls (NH444583) on 14 June. *Phronia persimilis* was known in Britain from four previous records, two in Scotland (Craigellachie NNR 1967, Dundreggan 2012) and two in England (Main's Wood, Herefordshire 1973, Buckingham Thick Copse, Northants 1992); *T. tristis* was added to the British list on two Scottish records in Newsletter 10.

Then from 24 – 30 August 2018, a party of dipterists gathered at Strathpeffer in Easter Ross. Gnat records were contributed by Alan Stubbs, Roger Morris, Andrew Halstead and myself. I also recorded at several sites in Perthshire en route to Strathpeffer, from 21 to 23 August. Altogether 138 species of fungus gnats were found. These included *Dynatosoma nigromaculatum* at Glen Strathfarrer (NH3239) on 25 August, *Mycetophila abbreviata* and *M. mohilevensis* at woods by Conon Dam (NH388578) on 29 August, and *Rymosia acta* at Dog Falls (NH2426) on 30 August.

In 2019, Roger toured Scotland again from 1 – 21 June, and obtained records of 125 species. *Brevicornu kingi* was found at two sites: Glen Etive (NN244543) on 10 June and River Carron (NH487916) on 16 June. *Sceptonia flavipuncta* was recorded at Allean Forest (NN858599), in the Tay Forest Park on 21 June; this is becoming more frequently recorded in the south, with records as far north as Lincolnshire, but is new to Scotland.

Rob Wolton ran a Malaise trap at **Scadsbury Moor**, Rutleigh (SS518014), on his Devon farm in 2018 and 2019, and again obtained a considerable catch of gnats. This brought the gnat list for Scadsbury Moor to 239 and for Locks Park Farm, which includes this area, to 266 (all within hectad SS50); *Mycetophila immaculata* was added in the period 16 March to 30 April 2019.

Keith Alexander again reared *Sciophila varia* from *Hydnum repandum*, collected in Argyll in 2017 (Alexander 2018). Some records from his 2018 and 2019 surveys are cited elsewhere here. **Ausewell Wood**, an ancient woodland south of Dartmoor, produced records of 170 gnat species in 2019, a large proportion of these from a trap placed within a collapsed branch from a mature beech in an old beech and pine plantation (SX733720); this evidently acted as a refuge, with great numbers during the early summer (95 species) and autumn (117 species) peaks of gnat activity, with a total in the year of 161 species from this one hollow. This catch included *Acnemia amoena*, *A. longipes*, *Dynatosoma cochleare*, *Leptomorphus walkeri*, *Mycetophila immaculata*, *M. lubomirskii*, *M. sublunata*, *M. uliginosa*, *Phronia electa*, *P. sudetica*, *Trichonta nigritula* and *T. pulchra*. Keith's survey at **Crickley Hill** (SO9316), Gloucestershire (dry woodland on limestone), produced 77 species: 39 from the ancient woodland area described below (p. 6) under *Grzegorzekia bushyae*, including *Trichonta fusca* (see p. 7 below), while 41 species trapped at a whitebeam with rot holes included *Allodia westerholti*. Both catches included *Mycomya insignis* and *M. pectinifera*.

I have continued to record at **Windsor Forest and Great Park**. The gnat list has risen from the 291 reported in Newsletter 10 to the present total of 300. Some of the additions (*Macrobrachius kowarzii*, *Mycetophila immaculata*, *Sceptonia pilosa*) were reported by Chandler & Alexander (2018), when also recording the occurrence of *M. kowarzii* (see below) at Dallington Forest. Those finds were part of very large numbers of gnats recorded along the almost dry streambed at Highstanding Hill on two visits in July 2018, during the then prevailing hot dry conditions in SE England. At the same stream on 10 May 2018, *Phronia sylvatica* was found for a second time on the Estate; the first English record of this species was from Old Windsor Wood in 2017, as noted in Newsletter 10. Other additions in 2018 included *Phronia egregia*, *P. forcipula* and *Sciophila buxtoni*. Overall in 2018, 196 species of fungus gnats were recorded on the Estate, of which 20 species were additional to those recorded in 2014 to 2017, bringing the total of fungus gnat species recorded for those five years to 258.

The *Macrobrachius* record from **Forge Wood** (TQ6520) in **Dallington Forest**, East Sussex was from a trapping survey for saproxylic insects carried out by Jamie Simpson; the catches were referred to Keith Alexander, who passed the Diptera to me for identification. The prevailing drought in the summer of 2018 resulted in low gnat catches (only 31 species) but these did also include *Dynatosoma cochleare* and *D. thoracicum*; it is unusual for both these uncommon species to be found at the same site. In 2019, I made three visits to this locality, mainly to follow up the finding on that same survey of a rare cranefly *Ellipteroides alboscutellatus*. The first visit on 13 May was before the spring field meeting, and that on 22 October after the autumn meeting, with an intermediate visit on 6 August. The site has SSSI status for its ghyll woodland, including a steep-sided wooded ravine with a stream and flushes, fed by smaller streams. The three visits provided records of 80 species of fungus gnats, 14 in common with the 2018 survey, bringing the site total to 97 species, mostly common. *Mycetophila stylatiformis* and *M. sublunata* were recorded; both species are clearly now well-established in southern England.

Two visits in 2019 to **High Park, Blenheim**, continuing the survey organised by Aljos Farjon, were less successful. The BENHS saproxylic field meeting on 15 June (12 species) was a wet day, and the late autumn visit on 30 October (22 species) began cold, and access was more restricted. However, on that second visit *Epicypta fumigata* was found (see below).

Before the Stirling field meeting I spent a few days in Durham. At Gill Wood, Scargill (NZ0610) on 20 June I found *Mycomya pectinifera*, which is the most northerly record so far. Following the field meeting I went to Findhorn, at the request of Alan Watson Featherstone, to record on 1 and 2 July in a coastal area managed by the Findhorn Hinterland Trust; 20 species of gnats were identified from old pine plantations with some birch, behind the dunes. I then visited some sites in the Spey Valley and Cadgill Wood in Dumfriesshire on the way back south.

Gnats new to Scotland

It is mentioned above (p. 2) that *Mycetophila lastovkai* from Glen Artney and (p. 4) *Sceptonia flavipuncta* from Allean Forest are new records for Scotland. *Ditomyia fasciata* is another new national record.

***Ditomyia fasciata* (photo Donald Smith)**

The previous newsletter reported finds in 2017 by Roger Morris at Egglestone Abbey, North Yorkshire and Wingate, Durham, the most northerly then known, following on from 2015 records in Derbyshire and Nottinghamshire. Now it has arrived in Scotland. Donald Smith observed a male on 8 November 2019, sunning itself on the trunk of a beech tree at Clerkington (NT508727), East Lothian.

Gnats new to Ireland

I looked at material from three Irish surveys carried out by Buglife. The first was in 2017, at two woods in Northern Ireland, Breen Wood, Co. Antrim and Rostrevor, Co. Down; this resulted in 9 species of fungus gnats new to Ireland (Chandler 2018b; *Mycetophila sumavica* was wrongly included as it was not the first Irish record). A survey in 2018 of sites in The Burren, Co. Clare, also produced new Irish records of three species, which are first published below, all from traps run in hazel woodland on limestone pavement at Slieve Carran (M32900382):

Boletina bidenticulata 1♂ in sample emptied on 7 July 2018.
Manota unifurcata 1♀ in sample emptied on 7 July 2018.
Mycetophila gibbula 1♂ in sample emptied on 8 August 2018.

Two of these species are widespread throughout Britain, while *Manota* has a more southerly distribution in England and Wales (see p. 6). Two other species can also be added, *Leia longiseta* (see p. 7 under *Looking for Leia*) and *Rymosia connexa*.

A male of *Rymosia connexa* was caught by Ryan Mitchell at Belvoir Park Forest (J336695), in Northern Ireland on 2 October 2019. This species is rarely recorded in Britain, though the 9 known hectads are widely scattered – there is only one record in the present century, on 24 July 2005 at Whinfell Forest Center Parc (NY5727), Cumbria by David Gibbs, and the only other post-1990 record is from Great Triley Wood (SO313182), Monmouthshire on 12 October 1998 by Ken Merrifield. Earlier records, the most recent in 1936, are mostly from the east side of the country.

Other significant records

Boletina landrocki

This species was added to the British list on 4 males trapped by the RSPB at Abernethy Forest in 1999 (Chandler 2006). It was not found again until 2019, when Rob Wolton turned it up during a short trip to the north-west of Scotland. One male was found at Inchnadamph (NC265213), near Loch Assynt, Sutherland on 14 October 2019. Among the 13 species of gnats recorded at this site were *B. trivittata*, *B. dubia* and *Exechiopsis furcata*.

Clastobasis alternans

This distinctive species was newly recorded from six mainly wetland sites from 1993 to 1998 (Chandler 2001). Two further sites noted here are the first this century.
Gibraltar Point, TF563582, Lincolnshire, vi.2017, 1♂ (J. Shaw); Ferry Meadows, Heron Hide scrape, TL154975, Cambridgeshire, 4.vii (5♂) and 13.vii.2018 (1♂) (A. Stubbs).

Epicypta fumigata goes east

Since being found in Devon by Rob Wolton at Scadsbury Moor Rutleigh in successive years from 2013 to 2015 (Chandler 2014, 2015, 2016), there have been some additional records from the south-west, but it was a surprise for it to be found in Cambridgeshire and Oxfordshire in 2019. The new records are as follows.

Watersmeet, Exmoor, SS751489, North Devon, 21.iv.2018, 1♂ (R. Wolton); Titcombe Wood, Loddiswell, SX733500, South Devon, 15.ix.2018, 2♂ (R. Wolton); Waresley Wood, TL262548, Cambridgeshire, 27.v.2019, 1♂ (I. Perry); High Park, Blenheim, SP4315, Oxfordshire, 30.x.2019, 1♂ (P.J. Chandler).

However, Rob's record of a male from Whiddon Deer Park, Devon (reported as *fumigata* by Chandler 2018a) has proved to be *E. torquata* Matile, a widespread European species that is new to Britain. Specimens have also been seen from two other sites in the south-west. Full details will be published elsewhere.

Exechia lucidula still out there

This has always been a rare species in Britain, with the most recent records in 1988 from wetland surveys in East Anglia carried out by Andrew Foster and Deborah Procter, when it was recorded at Mills Marsh, Norfolk and Chippenham Fen, Cambridgeshire (Falk & Chandler 2005). It had been recorded earlier at the latter site – J.E. Collin collected it there in 1941. It is pleasing to report that this species has survived there as a male was swept in open fen at the same site by Ivan Perry on 12 September 2019. Nationally there are records from only 6 hectads, four in the eastern counties, one in Cheshire (Goyt Valley) and one in Scotland (Logie). It is a distinctive species among British *Exechia* as it has a shining thorax. It is evidently more frequent in other parts of Europe and has been reared from

several genera of soft fungi, mostly agarics, both terrestrial and saproxylic.

Grzegorzekia bushyae goes west

This species had not hitherto been seen since it was described (Chandler 2015) from specimens obtained at Bushy Park, Middlesex and at a *Quercus pubescens* forest in France. How it came to be at Bushy Park was a matter of speculation; owing to the lack of any other British records of such a distinctive species, the possibility that it was a chance introduction was considered. However, its discovery in 2019 at an ancient woodland in Gloucestershire suggests that it may be a rare native.

A male and a second specimen that had lost part of its abdomen were caught in flight interception traps operated by Keith Alexander at Crickley Hill (SO9316). The intact male was from a trap on a field maple coppice stool with rot-holes, sample dated 21 May – 24 July, and the other was from a trap on an ash coppice stool with rot-holes, sample dated 24 July to October. These two traps were sited in ancient semi-natural woodland. There was a lot of recently cut branch-wood where the Cotswold Way passes through the wood, but it is otherwise closed-canopy, albeit a narrow strip with strong lateral light (Keith Alexander *pers. comm.*).

Grzegorzekia bushyae **male (from Chandler 2015: photo Chris Spilling)**

Macrobrachius kowarzii goes north

This genus and species (characterised by its very short posterior wing fork and rather simple male genitalia) was added to the British list from Ashenbank Wood, Kent, where Keith Alexander obtained 7 males in a trapping survey in 2016 (Alexander 2017). It was discussed and illustrated in Newsletter 10. Then, during 2018 it was found at two further sites, Dallington Forest in East Sussex and Windsor Forest, Berkshire (Chandler & Alexander 2018). As mentioned there, these specimens and males that I have seen from elsewhere in Europe have unmarked wings (as shown in the habitus photograph by Jostein Kjærandsen), while ill-defined markings are present on the female wing. Females have yet to be found in Britain but the finding of another male can be reported. This was caught by Ivan Perry on 12 May 2019 at Chippenham Fen, Cambridgeshire. As all previous records are from south of the Thames, this indicates a remarkable extension to its range. Unlike the previous British records, this male has a faint grey marking occupying the base of the median fork, as depicted by Dziedzicki (1889), reproduced in Newsletter 10, but not extending beyond the fork veins as indicated there.

Macrobrachius kowarzii **male (from Kjærandsen 2015)**

Macrocera fastuosa

A record from the Stoke field meeting is mentioned above. Pete Boardman also recorded 1 male each at two well-separated sites in Gloucestershire in 2018: Midger's Wood, ST794892, 31.vii and Hen Wood, Sapperton, SO951043, 1.ix.

Macrorrhyncha hugoi

British records were discussed in Newsletter 9 (Chandler 2016), adding records from the Berkshire/Surrey border and Oxfordshire to the previous Hampshire distribution. A male was caught in the period May to July 2019 by a flight interception trap on a decayed holly with rot holes (SX731709) at Ausewell Wood, Devon (K.N.A. Alexander).

Manota unifurcata

New records from Surrey, North Wales, Derbyshire, Nottinghamshire, Devon and Somerset have been cited in previous Newsletters, to augment those shown in the distribution map included in Newsletter 7 (Chandler 2014). It is cited above as new to Ireland, and some further new records are given here: Branscombe Mouth, SY205883, Devon, 27.ix.2018, 1♂ (A. Cunningham); Scadsbury Moor, SS519014, Devon, 2018, Malaise trap, 1♂ (R. Wolton); Pierce Wood, ST53649592, Monmouthshire, 26.vi-9.viii.2018, 1♂, 1♀ (K.N.A. Alexander); Waresley Wood, TL262548, Cambridgeshire, 29.vi.2019 1♂, 13.vii.2019, 1♂ (I. Perry).

Mycetophila hyrcania

This mainly Mediterranean species was added to the British list in Newsletter 9 with 3 males caught by Martin Townsend in an aerial trap at Chalkhills Farm, Buckinghamshire. Then in Newsletter 10 a record by Ivan Perry from the Warburg Reserve, Oxfordshire was reported. Ivan has now found it at 3 more sites, all in Cambridgeshire, and Mark Mitchell has found it in Hampshire: Chippenham Fen, TL645693, 24.x.2018; Devil's Ditch, Stetchworth, TL645583, 30.iv.2019; Fulbourn Fen Nature Reserve, TL528562, 3.vii, 16.vii and 13.viii.2019 (I. Perry); Shoulder of Mutton, SU733265, Hampshire, 20.iv.2019, 1♂ (M. Mitchell).

Mycetophila immaculata

There has been an apparent recent increase in records for this species. A few records were cited in previous Newsletters; Chandler & Alexander (2018) recorded it from Windsor Forest and four more new records are cited above. Chandler (2018b) added it to the Irish list from Breen Wood in Northern Ireland and a second record from Northern Ireland was obtained by Ryan Mitchell from the Clandeboye Estate (J490771), on 6 October 2019.

Third site for *Neoempheria striata*

This is another distinctive species first recorded in Britain from Cothill Fen, Oxfordshire on 13 July 1985 (Chandler 1987), a male caught in damp woodland adjoining fen. It had since been recorded only from *Salix* carr at Osier Lake, Godmanchester, Huntingdonshire by Jon Cole on 23 July 1998 (Cole 1999). Now it has been found at High Park, Blenheim, Oxfordshire, where a survey of all organisms has been in progress since 2017. A male was caught by Ivan Wright in a flight interception trap (at SP43451542), in a sample dated 11-26 June 2018. The location was a moderate-sized horizontal dead oak trunk with an upper quarter missing and the trap was placed on the rotting wood on the floor of the exposed cavity. The area is not particularly damp, but it does have a very sheltered microclimate, closely surrounded by woody shrubs, bramble (and bracken when mature); also it is at about the elevation of the upper spring line and there is much damp soil around (Ivan Wright *pers. comm.*).

Mating pair of *Neoempheria striata* taken in France (source uncertain; note that *N. proxima*, also widespread in S Europe, is similar and separated by characters of the ♂ genitalia).

It is a widespread and not uncommon species in Europe, and I have identified it from several sites in France, Spain and Greece, so there is no obvious reason why it is so rare in Britain.

Falk & Chandler (2005) cited the following records of its biology: Dufour (1842) found larvae in mucous webs under brackets of the polypore fungus *Trametes suaveolens* on poplar (*Populus*) trunks, while Matile (1963) found larvae in webs on pine (*Pinus*) branches lying on the ground and considered them to be carnivorous on nematodes, which became immobilised (probably by oxalic acid) on contact with the web.

Phronia petulans

Also at Chippenham Fen, Ivan Perry caught this species on 24.x (4♂) and 17.xi.2018 (1♂). The only previous British record was from Nesbitt Dene, Durham in 1990 (Chandler 1992), but it is small and easily overlooked.

Sciophila rufa

Following Ivan Perry's discovery, noted in Newsletter 10, of *S. rufa*, previously recorded in Britain only from Scotland, at Flitwick Moor, Bedfordshire, Judy Webb reared it from larvae collected at Thompson Common, Norfolk (Webb 2019, in which the larva, its web on *Fomes fomentarius* and a mating pair of the gnats are illustrated). Ivan had also reared it from a cocoon found on *Fomes* at Flitwick Moor on 5 May 2018, the adult emerging on 8 May.

Trichonta fusca

The second British record from Yocklett's Bank in Kent was reported in Newsletter 9. As well as two new records in 2019, a Scottish specimen from 2014 has been recognised to be *T. fusca*.
Crickley Hill (SP9316), Gloucestershire, flight interception trap at ash coppice stool with rot holes, vii-x.2019, 1♂ (K.N.A. Alexander); Waresley Wood (TL262348), Cambridgeshire, 29.vi.2019, 1♂ (I. Perry); Altnaglander, Glenlivet (NJ170285), in birchwood with a stream, 2.vi.2014, 1♂ (A. Stubbs).

Zygomyia matilei

Records for Devon (R. Wolton), Oxfordshire and Hampshire (I. Perry) were mentioned in Newsletter 10. Ivan has now found it in Suffolk, at Brandon Country Park on 4 July 2019.

Update on Looking for *Leia* (see Newsletter 10)

New records are provided of the two rarest species of this genus.

Leia longiseta new to Ireland

A male was identified from a Malaise trap operated by Brian Nelson at Portmore Lough Nature Reserve (J1068), Co. Armagh, Northern Ireland, caught in the period 2 May to 8 June 1997. The trap was run soon after the RSPB had acquired the site (Brian Nelson *pers. comm.*).

New records of *Leia piffardi*

Leia piffardi was reported in Newsletter 10 as most recently recorded in Britain in 1985, with previous records from only eleven hectads, and it was noted that nine of the 13 British records were obtained by rearing from bird nests (blackbird, song thrush, magpie and buzzard are recorded) or dreys of both red and grey squirrels. It is pleasing to record that the following three new records (each of 1 male) have now come to notice:
Kensington Garden (TQ26080), London, 29 May 2018 (S.G. Dodd).
Dibden (SU402087), Hampshire, flight interception trap placed in front of a rot-hole on oak in a wooded field boundary strip

with a wet seepage below it, catch in period 9 July – 20 August 2019 (K.N.A. Alexander).
Fulbourn Fen Nature Reserve (TL528562), Cambridgeshire, 16 July 2019 (I. Perry).

Acknowledgements

I thank Vladimir Blagoderov for the note on *Boletina gusakovae*, and Janet and Andrew Graham for the genitalia photographs of two other additions to the British list. I also thank all those who have provided records and specimens for examination, and in particular Keith Alexander, Pete Boardman, Martin Drake, Scotty Dodd, Mark Mitchell, Ryan Mitchell, Roger Morris, Brian Nelson, Ivan Perry, Jim Shaw, Donald Smith, Ian Strachan, Alan Stubbs, Rob Wolton and Ivan Wright for the opportunity to include their records here. I thank Natural England and the Crown Estates for permission to continue with surveys of Windsor Forest and Great Park, Alan Watson Featherstone for the assistance and hospitality shown to me during my visit to Findhorn, Jamie Simpson for enabling and assisting my visits to Dallington Forest, and Aljos Farjon for the opportunity to record at Blenheim.

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Peter Chandler

Hoverfly Newsletter
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On 21 January 2020 I shall be attending a lecture at the University of Gloucester by Adam Hart entitled "The Insect Apocalypse" the subject of which will of course be one that matters to all of us. Spreading awareness of the jeopardy that insects are now facing can only be a good thing, as is the excellent number of articles that, despite this situation, readers have submitted for inclusion in this newsletter.

The editorial of **Hoverfly Newsletter No. 66** covered two subjects that are followed up in the current issue. One of these was the diminishing UK participation in the international Syrphidae symposia in recent years, but I am pleased to say that Jon Heal, who attended the most recent one, has addressed this matter below. Also the publication of two new illustrated hoverfly guides, from the Netherlands and Canada, were announced. Both are reviewed by Roger Morris in this newsletter. The Dutch book has already proved its value in my local area, by providing the confirmation that we now have *Xanthogramma stackelbergi* in Gloucestershire (taken at Pope's Hill in June by John Phillips).

Copy for **Hoverfly Newsletter No. 68** (which is expected to be issued with the Autumn 2020 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 20 June 2020.

The hoverfly illustrated at the top right of this page is a male *Leucozona laternaria.*

News of the next hoverfly international symposium

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I went to the Greek island of Lesvos in the Aegean Sea for the tenth International Symposium on Syrphidae organised at the University of the Aegean. This was held in the city of Mytilene from 8 to 12 September 2019. The only other person from the UK was Francis Gilbert. Although many British dipterists were at the 2011 Symposium in Glasgow, I often had to point out in Greece that we don't seem to travel well at the present time! However I would encourage more dipterists to consider the next Symposium in 2021. An offer was made by one of the French delegates, and the location is likely to be Marseille in September 2021, although there was a discussion about the possibility of choosing a venue out of the city. Marseille is easy enough to reach, with Eurostar and TGV services making the trip not difficult by train.

It is fascinating to meet so many other people who are also fascinated by hoverflies. There were about 80 this year, mostly from Europe, but with others from further afield, from Brazil, Canada and Russia. The approaches to study often have national characteristics. The Serbians send a strong delegation but have a reputation for creating new species at the sight of a slight change in DNA, so that I did have reservations

about flies that are identical in appearance being named as separate species. The Czech Republic were also well represented.

Besides the lab studies of DNA barcodes there was also plenty of more traditional taxonomy, as well as ecology, evolution, biodiversity assessments and conservation. The introductory lecture was given by Martin Speight from Dublin about insect conservation.

We hope more British dipterists will make it to the next symposium. Although there were such a variety of topics, they were all presented in English, which is the way of international conferences these days.

I am also writing a report of the 2019 meeting in Mytilene for the Dipterists' Bulletin.

Two new hoverfly guides

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This year we have seen two magnificent new guides to hoverflies that may appeal to some readers. Both have some relevance to the British Fauna in the sense that they cover the Palaearctic fauna:

Velgids Zweefvliegen **[Field Guide to Hoverflies]** by Sander Bot & Frank van de Meutter. KNNV Veldgids (Field Guides). A5 Hardback, 388 pages, 1600+ colour photos, colour illustrations, colour distribution maps. In Dutch. (about £31 + p&p)

The promotional advice is that: this is the first field guide to the hoverflies of the Netherlands and Belgium. Identification keys are included. It describes all 382 species that are currently known or might occur in the two countries and is illustrated with over 1600 macro-photos. Species accounts discuss identifying features and relevant ecology, including distribution maps and flight times.

There is no doubt that a lot of hard work has gone into the production of this book and I suspect it will be a welcome addition to the bookshelves of Dutch-speaking entomologists. The species account are accompanied (opposite page) by relevant photographs and arranged with two or three accounts to each double-page byspread. As a non-Dutch speaker, I can only surmise the level of detail, but suspect that it probably compares with our own WILD*Guide*. For the English-speaking entomologist, its value lies in the phenology information and the illustrations, which go some way to resolving questions that we might have about species that we do not know but suspect might be present in the UK.

Production quality is excellent. My only concern is one that I will express about a lot of modern field guides: the illustrations can be rather small and as a result some subtler features may not be as apparent as one might like. Having worked on a British equivalent (albeit not comprehensive) the choices are understandable because the A5 format is quite restrictive of what can be achieved.

For me, one of the most important elements of this book is that the head of each species is depicted to show those characters that may be of particular use in making a firm identification: so, frons characters are depicted where appropriate and face profiles are presented elsewhere. There is much to learn from this arrangement and I expect we will gain a lot from this aspect of the book. Sadly, without a stronger grounding in Dutch I am unlikely to benefit greatly from the text but perhaps the better-educated British Dipterists will fare better than me!

Field Guide to the Flower Flies of Northeastern North America by Jeffrey H. Skevington & Michelle M. Locke *et al*. Princeton Field Guides. A5 hardened, 512pp. (RRP £22.00 +p&p)

The promotional advice is that: 'this is the first comprehensive field guide to hoverflies of northeastern North America. It contains more than 3,000 color photographs and 400 maps, and covers all 416 species of flower flies that occur north of Tennessee and east of the Dakotas, including the high Arctic and Greenland. Each

species account provides information on size, identification, abundance, and flight time, along with notes on behaviour, classification, hybridization, habitats, larvae, and more. The 3000+ colour photos (field and museum shots) include also multiple images per species, with arrows highlighting key field marks; greyscale images showing the actual size of the insect; and there is a range map for each species.

In common with the Dutch guide, one has to start with complimenting the authors on a magnificent piece of worth that is beautifully laid out and illustrated. The scale of the job is on a par with that of the Dutch guide, perhaps more so, as the book itself is some 120+ pages longer.

In common with all field guides that attempt to pack a huge amount into the format, the authors face an insurmountable problem: how to provide sufficient information to aid identification, yet to do so in as economical a manner as possible. For a North American readership this book will be invaluable as it starts to open up a fauna that has otherwise been the preserve of museum curators and specialist devotees. To further aid popularisation, colloquial names have been constructed for each species; none that I saw really grabbed me as a name that might have some resonance and stick.

The authors will doubtless have anticipated my biggest wish – that there should be keys to species! Having attempted to produce a field guide without keys, I well appreciate the problems that the authors faced! The sheer volume of species involved means that a comprehensive guide would be an order of magnitude bigger and is a job that can only be tackled once there is sufficient demand for such a book. This guide is the first step on that path and as such it does a very good job of introducing hoverflies to a new readership.

From the perspective of an occupant of a small island off the coast of Europe, this book probably won't be the first one I reach for when I need to check something relevant to the British fauna; nevertheless it is a welcome addition to my library and should I ever travel to northeast North America I will have a fighting chance of making my way a little inland!

Hoverfly Recording Scheme Update – Spring 2020

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

In our last report (June 2019), we asked 'will hoverfly numbers be any better than they were in early June'. At that time, there was a feeling that hoverfly numbers were lower than expected. By October, the results looked more positive, but one can never be certain when looking at raw data. Bearing in mind that there are a lot of data to incorporate at the time of writing, the only consistent comparison can be made with data extracted from the UK Hoverflies Facebook page. These data tell an interesting story, as the numbers of records greatly exceed 2018 (Figure 1a), whereas the numbers of recorders (Figure 1b) only exceeded 2018 from July onwards. Numbers of species (Figure 1c) are far closer to the data for 2017 but vary from month to month.

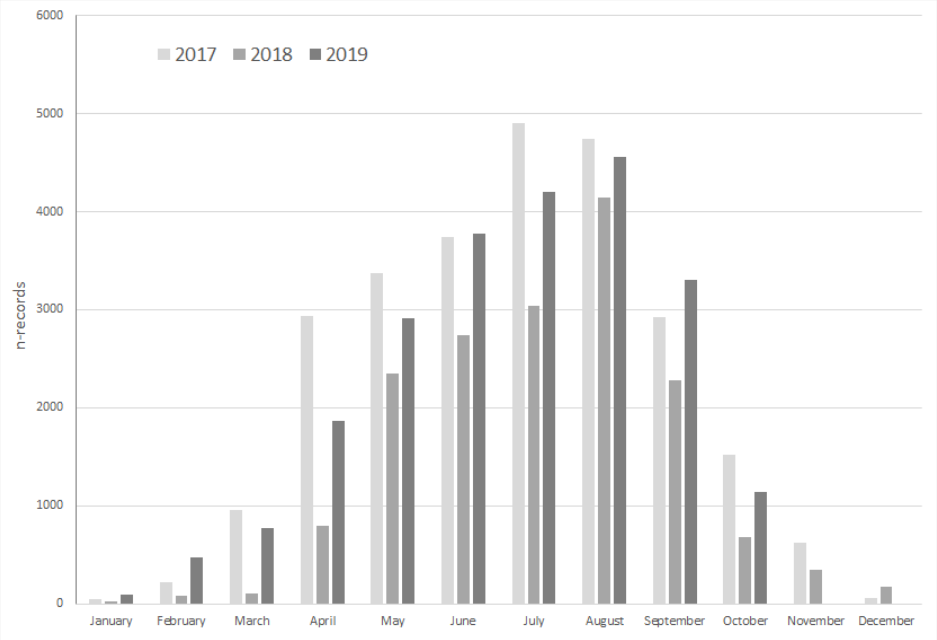

Figure 1a. Numbers of records

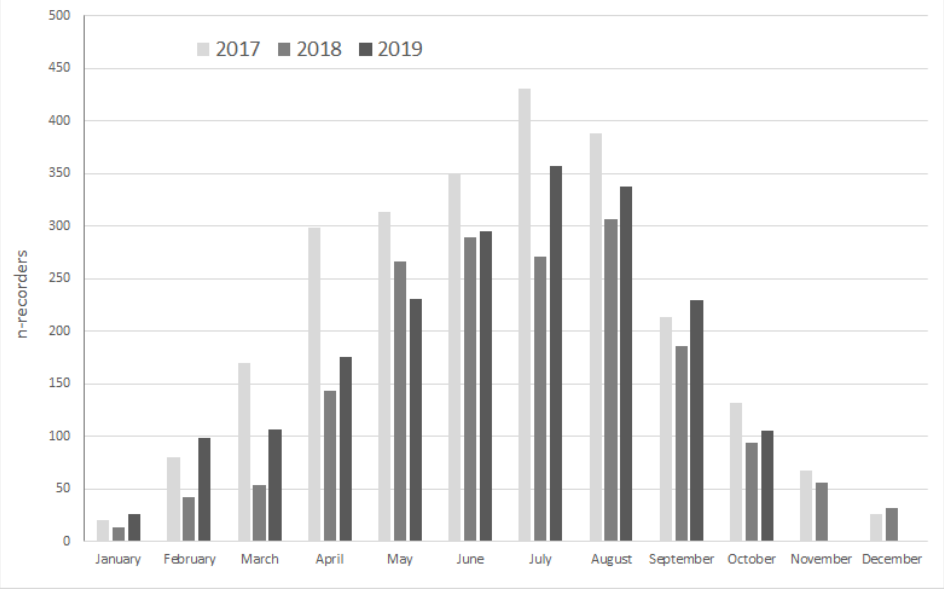

Figure 1b. Numbers of recorders

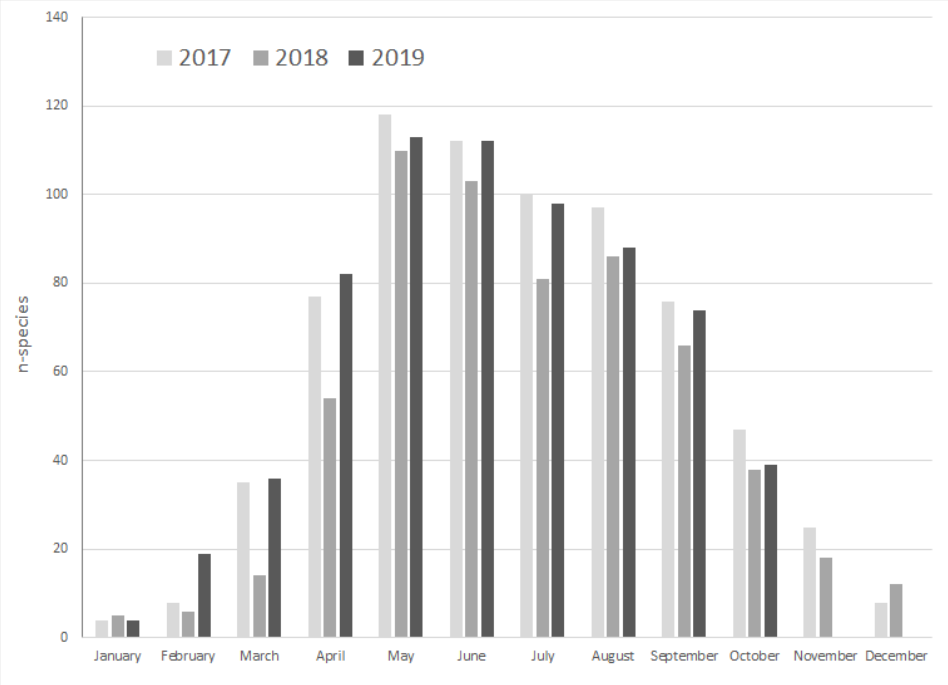

Figure 1c. Numbers of species

Is it possible to draw any conclusions from these graphs? Comparing year on year data is always challenging; the weather is different, the preceding winter was different, the recorders differ (although given enough records, these differences smooth out to some extent). Nevertheless, all three graphs strongly suggest that 2018 differed from both the preceding and following years. It must be remembered, however, that in 2018 the spring was delayed (or closer to the norm of 30 years ago).

Looking at the shapes of the three plots, there seem to be some parallels between 2018 and 2019 but for different reasons: In 2018, June and July were terribly hot and dry, whereas in June 2019 there was above-average rainfall. The end of July turned out to be equally scorching and the monthly average was the 8th warmest since 1910! That seems to show in the data because the numbers of records in July were lower than August despite more recorders in July! The numbers of species recorded each month appear similar to 2017, thus emphasising the anomalies of 2018. Unlike 2018, there were also important regional differences, with southern and eastern England experiencing a heatwave (especially on 25 July) whilst northern and western Britain were much cooler and wetter.

The effects of the 2018 heatwave continue to impact on some species. Low numbers of *Rhingia campestris* in southern and eastern England are still evident, whilst numbers of *Sericomyia silentis* across the country seem to be exceptionally low. *Platycheirus granditarsus* and *Leucozona lucorum* also seem to have suffered disproportionately. Others, such as *Volucella pellucens* and *V. zonaria* seem to have bounced back! The big question is whether any dips are short-lived or long-term impacts? We won't know for several years, but it is possible to develop a convincing conceptual model that links extreme temperature and drought effects to an overall decline in insect numbers in southern and eastern England. An analysis of the 2018 situation has been prepared for *Dipterists Digest* and should appear in the next issue.

There were relatively few major highlights in 2019, but it is heartening to find that *Doros conopseus* continues to be recorded from two well-known sites: Yealand Hall Allotments and Martin Down NNR. *Callicera rufa* made its customary appearances south of the Scottish border, with two reports from the same locality in south Wales and a report of larvae in artificial rot holes in Derbyshire. Clearly, it is quite widespread across the Midlands and Wales and could be found in many more locations so there is a strong case for creating artificial rot holes wherever the opportunity arises; and, maybe lekking males will be found at more locations if suitable pines are investigated. *Callicera spinolae* also continues its march southwards, with the most recent being from Mitcham Common in south London in October. Surprisingly, there were no reports by the Facebook group.

Two species turned up in exceptional numbers in 2019: *Meligramma euchromum* and *Parasyrphus nigritarsis*. It is possible that *M. euchromum* benefitted from the heatwave of 2018, but the reason behind the rise in numbers of *P. nigritarsis* lies in the numbers of people looking for larvae. Now that its larval habits have become known, it has proven to be a lot more common than was once thought.

HRS data used to good effect?

There is a constant stream of requests for access to HRS data. Sometimes they result in papers that have a significant impact. Two recent papers have gained a fair amount of interest:

> Wotton, K.R., Gao, B., Menz, M.H.M., Morris, R.K.A., Ball, S.G., Lim, K.S., Reynolds, D.R., Hu, G. and Chapman, J.W. 2019. Mass Seasonal Migrations of Hoverflies Provide Extensive Pollination and Crop Protection Services. *Current Biology* **29**, 2167-2173 DOI: 10.1016/j.cub.2019.05.036

The authors used insect-monitoring radars to show that up to 4 billion hoverflies travel to/above southern Britain each year in seasonally adaptive directions. Their analysis also found that abundance of migratory hoverflies fluctuated greatly between years but that there was no evidence of a population trend during the 10-year study period.

> Powney, G.D., Carvell, C., Edwards, M., Morris, R.K.A., Roy, H.E., Woodcock, B.A. and Isaac, N.J.B. 2019. Widespread losses of pollinating insects in Britain. *Nature Communications* **10,** 1018.

This paper demonstrates substantial inter-specific variation in pollinator trends, based on occupancy models for 353 wild bee and hoverfly species in Great Britain between 1980 and 2013. It estimates a net loss of over 2.7 million occupied 1 km^2 grid cells across all species and argues that declines in pollinator evenness suggest that losses were concentrated in rare species.

These are important and influential uses of the HRS data and show how vital it is to continue to maintain and grow the network of recorders. At this point, the HRS dataset is the third largest invertebrate dataset after Lepidoptera and dragonflies. Will we catch up and overtake the dragonflies? That is a big challenge, but not impossible! Growth in recorder activity has been phenomenal ever since the development of the UK Hoverflies Facebook page. We do, however, need to keep an eye on the data for species that cannot be identified from photographs. Stuart and Roger have recently submitted a paper that shows how photographic records can affect the assessment of trends. Hopefully it will be accepted and be influential on the development of more refined models. Meanwhile, we continue to encourage recorders to retain specimens (Roger will identify them if sent in the winter).

Meanwhile, Stuart has been looking at the effectiveness of predictive models linked to environmental variables. His results provide plenty of food for thought, but they also highlight the importance of improving coverage in many parts of Britain, especially Scotland and northern England. Part of the problem lies in the degree to which it can be assumed that the most common species have been recorded and thus how many absences are likely to be genuine. So, do please make sure that you aim to generate lists which are as complete as possible, especially when visiting new and out of the way places: the models will only ever be as good as the data permits!

Ideas for future activity

Reports of flower visits in the 'Biological Floras' published in the *Journal of Ecology* often contain scant records of insect visitors, even for plants such as ivy that are well-known lures for autumnal flower visitors. Stuart and Roger recently reviewed HRS data for ivy visitors and have a paper accepted for *Dipterists Digest* that extends the recorded list from 23 species (including two dodgy records) to 82 species. We can now be pretty sure about the species of hoverflies that are likely to be significant pollinators. There are innumerable other plants that could be investigated and published as stand-alone accounts. There is therefore a great opportunity to develop the theme further and try to improve our knowledge of what the main flower visitors are.

If you know of a good stand of an unusual plant and fancy developing a species list of insect visitors, there are plenty of opportunities. Even widespread and abundant species are comparatively poorly reported; for example, there are no insect visitors to Horse Chestnut reported and the well-known occurrence of

Brachyopa insensilis is also omitted! The only real challenge is having the patience to stop and watch, perhaps for several hours at a time! Anyone wanting to check on species that have been covered can find them on the British Ecological Society's *Database for the Biological Flora of the British Isles* which lists 350 species, many of which were described several decades ago. If the plant is not covered then there is even more justification for making the effort so that there is a detailed account available as and when the need arises.

Following on with this theme, a recent article by John Feltwell drew attention to the possible value of sweet chestnut as a nectar and pollen source during times of thermal stress (Sweet Chestnut flowers, a life-saver for insects during the 2017 drought in the Occitanie region of France; *Br. J. Ent. Nat. Hist*., **32**: 211-216). Under normal circumstances most Dipterists probably ignore this potential nectar source but perhaps more attention needs to be paid to this species. Who can come up with a comprehensive list?

Developing targeted monitoring

When the species status review for hoverflies was prepared (Ball, S.G. & Morris, R.K.A., 2014 *A review of the scarce and threatened flies of Great Britain. Part 6: Syrphidae. Species Status 9*), there was very little data available for *Caliprobola speciosa* but equally there was no reason to believe that its situation had changed. Put simply, it seemed that as nobody recorded regularly from the New Forest, there were no records of this charismatic species. Since then, we have been given to understand that people who visit the Forest believe that it has declined. We still have no data though! As a result, we want to develop a programme of regular monitoring of this species and encouraging efforts to locate it away from the honeypot sites. A post on the Facebook page generated a lot of interest and as a result we are looking for somebody to take on the role of coordinating the effort and making sure that the results are analysed.

On a broader level, perhaps it is time to encourage other regular surveys for readily recognized species? Some that come to mind are:

Anasimyia interpuncta, which is mainly known from East Anglia but seemingly occurs also on several grazing marshes on the south coast and in the Thames Estuary and Somerset Levels.

Doros conopseus which has been checked for fairly regularly in north Lancashire and, in recent years, has been regularly reported from Martin Down NNR. But there are other known centres of population.

Lejops vittatus which is found in various grazing levels, mainly on the south coast and Thames Estuary, but also in Somerset and Norfolk.

Microdon devius on its various haunts; there is scope for several local groups to be established, as there are populations in the Chilterns, Norfolk, Kent, Surrey and Sussex as well as North Wales and a very old record from the Wyre Forest.

These are just a taster and maybe offer the first thoughts that might lead to the establishment of local hoverfly groups? The HRS is starting to get to a size where it really needs an element of regional organization, so the development of monitoring groups might be a first start.

UK Hoverflies Larval Group

Geoff Wilkinson, Ellie Rotheray, Nicola Garnham & Joan Childs

The UK Hoverflies Larval Facebook Group was established in July 2015 to promote better recording and study of immature hoverflies. It is open to anyone in the UK and Ireland, whether novice or expert, to encourage one another by posting photos, helping with identification, sharing observations and developing

techniques for finding and rearing the early stages. The group complements the UK Hoverflies Facebook Group which focuses on adults and the Hoverfly Recording Scheme (HRS).

Our group now has over 660 members whilst the UK Hoverflies Facebook Group boasts over 4,500. The numbers reflect a historic bias in favour of the adult insect. This is understandable since the early stages are often harder to find and most identification keys such as Stubbs and Falk (2002) rely on adult characters. The best identification key for early stages can be found in Rotheray (1993) which enables the identification of around 40 species in their larval form. Consequently, most early stages need to be reared to adulthood for identification and the extra delay, effort and uncertain success can be discouraging to many naturalists.

Nevertheless, finding and rearing immature hoverflies provides additional ecological information that cannot be gleaned from adults alone. Learning about larval habits can be critical for determining species status and initiating conservation action as exemplified by the Malloch's Society work on Priority Biodiversity Action Plan (BAP) flies *Blera fallax* and *Hammerschmidtia ferruginea* (Rotheray & MacGowan 2015). For some species it is easier and more appropriate to record larvae than the more elusive or difficult to identify adults. This appears to be the case for *Callicera rufa*, *Parasyryphus nigritarsis*, *Microdon mutabilis* and *M. myrmicae*. Finally, the early stages are fascinating in themselves and our limited information about them provides fantastic scope for original research and observations.

Selected highlights

The following snippets which have been contributed by members of the UK Hoverflies Larval Facebook Group provide some idea of the group's activities. There may be some errors and omissions. Hopefully a more complete and detailed report will be compiled soon.

Callicera rufa. Notable records include a dead larva from a Scots pine rot-hole in April 2017 at Montreathmont Forest, Angus, Scotland; a first county record (Geoff Wilkinson). In England, larvae were found in artificially created rot-holes at Dovestone, Greater Manchester and Longshaw Estate, Derbyshire in September 2017 and August 2019 respectively (Ken Gartside, Joan Childs & Rob Foster). Larvae can be recognised in the field in all stages by their short rear breathing tube and possession of two groups of three to four black hooks on either side of the prothorax (Fig. 1). Larvae can be found throughout the year and searching suitable development sites will likely produce a more accurate picture of their distribution in England as it did in Scotland (see Rotheray & MacGowan 2000, Ball and Morris 2013).

***Epistrophe nitidicollis*.** This species appears to be unique among congeners in possessing fleshy papillae on the lateral margins giving a toothed appearance to the larval outline (Mazanek et al. 2001). The remaining British species have a smooth margin. (Fig 2). We received two records of larvae fitting this description: 3 larvae in cherry leaf curls feeding on *Myzus cerasi* aphids at Warton Crag LNR, Lancashire in June 2019 (Nicola Garnham) and 2 dormant larvae on the ground in a garden near Poole, Dorset in July 2019 (Jim Gardner). These appear to be the first known larval records from the UK.

Eriozona syrphoides. A larva was photographed making its way along someone's trouser leg at Llyn Coed-y-Dinas, Montgomeryshire in October 2016 (Paul Roughly). In August 2017 a larva was found in a giant willow aphid *Tuberolachnus salignus* colony near Lewes, Sussex with a male reared in captivity (Ellie Rotheray) (Fig 3). The report of larvae feeding on giant willow aphids is notable as previous observations only mention an association with spruce aphids (Speight 2018).

Eristalis arbustorum. Larvae were found among *Eristalinus aeneus* in a rock-pool of decaying seaweed at Boddin Point, Angus in July 2018; first rearing record from this habitat (Wilkinson 2019a). The usual larval development site for *E. arbustorum* is nutrient enriched freshwater both temporary and permanent, especially in an agricultural setting (Speight 2018).

Parasyrphus nigritarsis. The adults are tricky to identify and can be overlooked among similar looking syrphids such as *Syrphus*. The larvae, in contrast, are easily identified due to their unique colour pattern and being the only hoverfly to routinely feed on immature leaf beetles on dock, willow and alder (Rotheray,

1993; Childs, 2017) (Fig. 4). Records were received throughout May and June from Wiltshire, Yorkshire, Lancashire, Cumbria, Derbyshire (England), Ayrshire, Highland, Aberdeenshire, Orkney (Scotland) and Antrim (Northern Ireland). All sightings were associated with *Gastrophysa viridula* leaf beetles on broad-leaved dock. The white eggs of the hoverfly contrast strongly with the orange eggs of the beetle and the larvae can be spotted feeding on the egg clusters, pupae and larvae of the leaf beetles. A broader search for larvae will likely reveal this species to be more common and widespread than records based on adults suggest.

Mallota cimbiciformis. Larvae were found in January 2018 in rot-holes of horse-chestnut and sycamore at Pollok Park, Glasgow (Wilkinson 2019b). The 'long-tailed larva' is superficially similar to *Myathropa florea* but has three pairs of short, fleshy lateral projections at the base of the 'tail'; this feature can be seen on the puparium too. With the aid of a hand-lens the larvae are readily identified in the field when sufficiently cleaned of gunk from the rot-hole!

Melanostoma. Very little is known about the larval habits of *Melanostoma*. In captivity they readily accept a wide range of aphids but are scarcely found at aphid colonies in the wild. This is curious, given the abundance of *M. scalare* and *M. mellinum*. Rotheray (1993) speculated they were generalist predators in leaf litter. The group has made some progress in furthering our knowledge by providing over 66 records of 88 *Melanostoma* larvae and puparia. Larvae can be readily identified to genus from a good photograph but an adult is required for species identification. A smaller subset included 19 records of 23 reared *Melanostoma scalare*. Only three *M. scalare* larval records were from aphid colonies (on hogweed and broad-leaved dock) with the majority of the rest found in winter leaf litter between October and April. Observations confirmed that larvae were active throughout the winter feeding on cohabiting Diptera larvae such as Lauxaniids and Lonchopterids as first reported in Wilkinson & Rotheray (2017). There were two records of *M. mellinum*: from *Cavariella* aphids on hogweed and from cabbage inhabited by aphids and lepidopteran larvae; in captivity *M. mellinum* were observed readily capturing and eating lepidopteran larvae (Nicola Garnham).

Microdon mutabilis. The larvae are predators of ant larvae mostly in nests of *Formica lemani* found under stones in sparsely vegetated, well drained soils. The closely related *M. myrmicae* lives in the nests of the ant *Myrmica scabrinodis* found in tussocks in wet situations. At present *M. mutabilis* is only reliably distinguished from *M. myrmicae* by features of the early stages and differences in larval prey (Schonrogge et al. 2002). Larvae and puparia were reported in 2018 and 2019 between December and April from Eilean Dubh, Isle of Mull (Geoff Wilkinson) and various sites in the limestone regions of Cumbria and Lancashire such as Arnside Knot, Gaitbarrow, Hutton Roof, Trowbarrow and Yealand Allotment (Nicola Garnham, Mo Richards). (Fig 5).

Cheilosia. *C. grossa* and *C. albipila* have been routinely found in the stems and roots of thistles, particularly marsh thistle throughout July to August. These two species can be identified in the field as described in Ball and Morris (2013). Splitting a multi-stemmed plant with a knife will often reveal a brown stained feeding tunnel and the larva within. Also from marsh thistle were several rearing records of *C. fraterna* and *C. proxima*. Non-thistle *Cheilosia* included *C. albitarsis* in the root of creeping buttercup in September 2016 from Angus, numerous *C. longula* from the disintegrated bodies of bolete fungi from Speyside, Scotland in September 2018, and several records of *C. variabilis* larvae found in the roots of common figwort throughout July to September at sites in Angus and Aberdeenshire.

***Volucella*.** The group received several reports of *Volucella* associated with social wasp nests where the larvae are scavengers and predators of immature wasps. There were 10 records of *Volucella pellucens/zonaria* and 7 records of *V. inanis*. The only confirmed *V. zonaria* was of 2 larvae found near a vacated wasp nest at Cuerden Hall, Lancashire in January 2019 which were reared to adulthood (Kevin Lee) (Fig. 6). Most records came from residential properties where larvae appeared on the carpet during autumn/winter looking for pupation sites after vacating wasp nests in the attic. Additional sightings came from active wasp nests that had been dug out by badgers.

Leaf Litter. During the autumn and winter many members turn their attention to finding larvae in woodland leaf litter. Most aphid-eating species winter as mature dormant larvae and pupate the following spring (a few may delay pupation for several years). Sycamore can be particularly rich especially as it often hosts a late summer bloom of *Drepanosiphum platanoides* aphids. *Syrphus* is the most frequently reported group and a few recorders reared adults to confirm the identities of *S. ribesii*, *S. torvus* and *S. vitripennis*. Other frequent species though less abundant included: *Epistrophe grossulariae*, *Melanostoma scalare*, *Parasyrphus punctulatus* and *Dasysyrphus albostriatus*. Also recorded were smaller numbers of *D. tricinctus*, *D. venustus* ss., *Melangyna cincta*, *Meliscaeva auricollis*, *M. cinctella*, *Platycheirus scutatus* sl., *Baccha elongata*, *Epistrophe eligans* and *Leucozona glaucia*. A record of *Scaeva* sp. from deciduous leaf litter from January 2019 is interesting but, unfortunately, without examination of the larva cannot be ascribed to a species. Of the non-vagrant species *S. pyrastri* is said to overwinter as a puparium whereas the conifer-associated *S. selentica* does so as a larva (Speight 2018).

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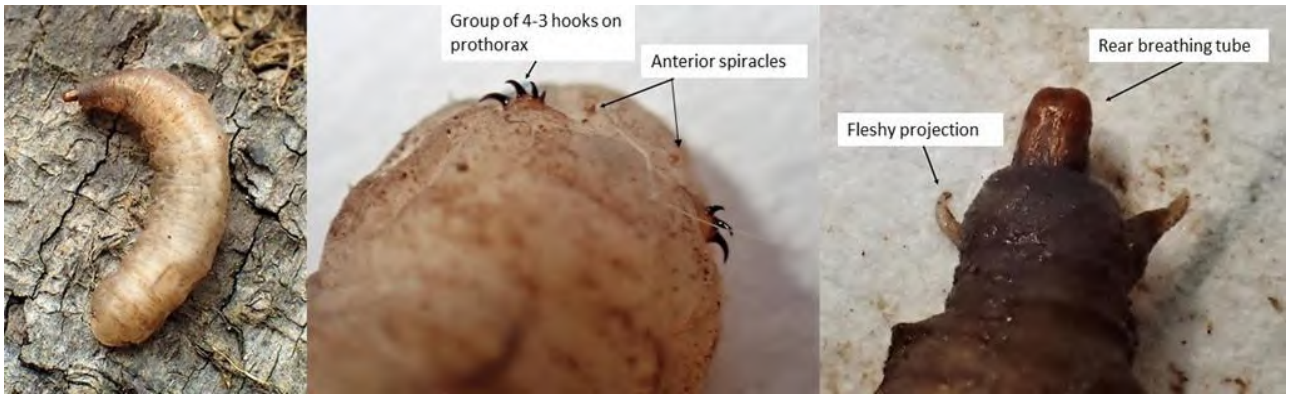

Figure 1. *Callicera rufa* larva. Geoff Wilkinson

Figure 2. *Epistrophe nitidicollis*. 1) active larva 2) dormant larva with *E. eligans* bottom 3) rear breathing tube. Nicola Garnham.

Figure 3. *Eriozona syrphoides*. Larva, puparium and adult male. Ellen Rotheray.

Figure 4. *Microdon mutabilis*. Larvae and puparia in ant nest of *Formica lamani* under stones. Nicola Garnham/Geoff Wilkinson

Figure 5. *Parasyrphus nigritarsis*. 1) Eggs 2) hatched 1st stage larva and eggshells 3) 1st larva 4) 3rd stage larva feeding on larval leaf beetle on broad-leaved dock. Geoff Wilkinson

Figure 6. *V. zonaria* larva, puparia and adult (Kevin Lee)

Something to look out for in May/June - Hoverfly *Parasyrphus nigritarsis* – eggs and larvae

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Last spring, I had a tip-off that the hoverfly *Parasyrphus nigritarsis* had been discovered occurring locally in North Derbyshire. Not that anyone had knowingly seen the hoverfly itself, which is very elusive. The trick for discovering its presence, apparently, was to look for single white eggs on laid on top of the clusters of the yellow eggs of green dock-beetles (*Gasrophysa viridula*) laid on the undersides of dock leaves. I knew of a local site, so infested by dock beetle that the dock leaves were chewed almost to lacework with holes. I checked it out and found dock beetle egg-clusters aplenty. After a little searching, I found, on them, not only the eggs of *Parasyrphus nigritarsis* but larvae in their early stages - probably just a week old - feeding not just on beetle eggs but on the newly hatched beetle larvae.

Parasyrphus nigritarsis egg (white) and larva on dock beetle egg cluster (yellow),

Parasyrphus nigritarsis larva feeding on on dock beetle larvae
Photos: Rob Foster

I decided to make an attempt at breeding out the larvae and collected a few. They were doing all right; feeding voraciously on dock beetle larvae and even pupae - very active and growing fast.

Parasyrphus nigritarsis larva mature lava feeding on dock beetle pupae

Photos: Rob Foster

Then I had a few casualties due to my inexperience and neglect. Only one survived; this too suddenly stopped eating and was hardly moving at all. I feared the worst, expecting another fatality, until I realised it had gone into a semi-hibernatory diapaused state. I found it somewhere cool but frost free to spend the winter: just keeping it on a paper tissue in a jam jar with the cap pierced with holes together with a few moistened balls of paper to keep the humidity up and stop it drying out.

It remained, without moving at all for nearly 8 months, until it finally pupated in mid-April.

Diapaused Larva 24-3-2019 Pupa 17-4-2019

Photos: Rob Foster

The adult hoverfly emerged a few weeks later. I was intrigued to know how it would look, as I had never knowingly seen it in the wild. I realise now, however, that it is quite possible that I might have without recognising it. It looks very much like very common Syrphus hoverfly species and would easily pass unnoticed amongst them, distinguished only by its black tarsi.

Emerged adult (female) hoverfly 28-4-2019 Dorsal view- doing a bit of wing cleaning

Photos: Rob Foster

I released it close to where I had found its egg: a home-coming of sorts.

Cheilosia ranunculi bred from Bulbous Buttercup

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I have been recording the occurrence of the closely similar hoverflies - *Cheilosia albitarsis* and *C. ranunculi* in my part of the Derbyshire Peak District for a number of years in the hope of elucidating whether *C. albitarsis* is associated with the larval food-plant Creeping Buttercup *Ranunculus repens* and *C. ranunculi* is associated with Bulbous Buttercup *Ranunculus bulbosus*. According to *British Hoverflies* (Stubbs and Falk) at the time the 2nd edition[1] was published (2002), this was suspected but not resolved. *Cheilosia ranunculi* had only just been separated off from the *C. albitarsis* s.l. complex on the basis of several characteristics, especially the shape of the front feet (tarsi 5) of the males. In the UK, this species was initially described by Gibbs[2] as *Cheilosia albitarsis* "form A". It was named as *Cheilosia ranunculi* - a species nova in its own right by Doczkal[3] on the basis of European specimens collected from "Southern England to Northern Spain and Eastward to Bulgaria". From re-examinations of past collections of *Cheilosia albitarsis* agg, in the UK, it was established that *C. ranunculi* was of more local occurrence and rarer than *C. albitarsis* s.s. and was more likely to be found on dryer better drained sites. It was concluded[1] - "The host plant is almost certainly a buttercup, but it seems questionable whether two such closely related hoverflies feed on creeping buttercup; bulbous buttercup would seem to be a potential candidate on dryish sites." Doczkal[3] confirmed "The host plant of *C. ranunculi* is still unknown. From its preferred sites in S.W. Germany I presume it will be found to be *R. Bulbosus* L." Doczkal[4] reported observing female hoverflies, tentatively identified as *Cheilosia* c.f.*ranunculi*, egg-laying on Bulbous Buttercup in 2001. Apart from this, I am not aware that any attempt has been made subsequently to confirm this conclusion.

Cheilosia ranunculi male on Bulbous Buttercup flower
Photo Rob Foster

Bulbous Buttercups are distinguished from other buttercups, as you would expect, by the fact that they arise from a bulb-like corm. However, even without digging them up they are readily identifiable since the sepals of their flowers curl downwards, away from the cup of petals, whereas the sepals of other buttercups curl upwards clasping the cup (apart from the Hairy Buttercup *Ranunculus sardous*, but this is distinctively hairy and unlikely to be encountered in the Peak District). Whenever I had found *C. ranunculi* locally, I had also been able to find Bulbous Buttercups. But, since almost inevitably, the very common Creeping Buttercups and Meadow Buttercups were also present, no conclusions could be drawn. Bulbous Buttercup tends to flower earlier than other buttercups and to have a short flowering period. Last year, in the early spring, I found a field in which, judging from sepals, the flowering buttercups were almost exclusively Bulbous Buttercups. Furthermore, I collected seven Cheilosia males from the field and all of them proved to be *C. ranunculi;* none were the normally very common *C. albitarsis*. Although no reliable way has been found to distinguish female *C. albitarsis/ranunculi*, it seemed reasonable to assume that if I collected females from this field they would also be *C. ranunculi*. I collected about half a dozen each of males and females and introduced them to each other in a netting cage together with flowering Bulbous Buttercup plants (identified by their sepals) dug up from the field and planted in a pot.

The hope was that I could get the hoverflies to lay eggs from which I could rear larvae. It got off to a bad start. They seemed to ignore each other; getting them to mate seems as difficult as pairing pandas. There was also the question in my mind as to how long after mating I would need to wait, keeping the females alive, before I might expect any egg-laying.

Fortunately the nectar and pollen of the flowers on the buttercups proved an adequate food source. Eventually after about a week, to my relief, I noticed females heading purposefully from the flowers of the Bulbous Buttercups down the stems with their ovipositors extended (as described by Doczkal[4]). Subsequent examination of the base of the stems revealed a number of eggs laid singly or in loose groups, mostly inside the rim of dead leaf bases above the underground bulb/corm. Eventually the hoverflies died naturally. I then placed the pot in a sealed fleece bag and placed it outside. The buttercups and their charge of hoverfly eggs/larvae were then left to develop until the late autumn, with little attention except the occasional watering. The development of larvae of *Cheilosia ranunculi* appears not to have been described, but is presumably along the lines of the closely similar *C. albitarsis*. Larvae of *Cheilosia albitarsis* are known[5] to

hatch from their eggs, penetrate into the stems/roots of creeping buttercups, then go into diapause without much further development until the autumn when the fleshy roots are most charged with starch etc. The larvae then feed on the roots though the winter and pupate in the soil. It is reasonable to assume that the larvae of the closely similar *Cheilosia ranunculi* would do much the same thing, though consuming the bulb of the Bulbous Buttercup rather than the roots.

Egg-laying by *Cheilosia ranunculi/albitarsis* on Bulbous Buttercups

Photo Rob Foster

Photo Rob Foster

Cheilosia ranunculi males and presumed females introduced to potted Bulbous Buttercups in a net cage. Egg-laying at base of buttercup plants by females was seen after about a week.

Photo Rob Foster

Photo Rob Foster

Eggs were mostly laid inside collar of dead leaf stalks at base of buttercups.

Having over-wintered the pot of Bulbous Buttercups in a frost free shed, in the early spring, I removed the soil and carefully sorted through it searching for pupae. It was notable that hardly any bulbs were found and that those that were found proved to be hollowed out with worm-holes, suggesting that most of them had been consumed by the larvae. About 20 pupae were found; they were clearly hoverfly pupae. The larval integument, which forms the outer surface of the pupae, indicated that the larvae must be similar in form to those of *C. albitarsis* agg. larvae extracted from buttercup roots described by Rotheray[6]. In particular: "the [larval] body ends in a flat disc with the PRP [posterior respiratory process] in its centre: prp with four pairs of apical projections and anal opening transverse". As can be seen in the photo, the PRP appears octagonal in end-view, cut in half by a slot: formed by a circlet of 8 blunt spurs (4 on each side). At a length of @7mm the pupae seemed smaller than might be expected given the size of the adult *Cheilosia ranunculi/albitarsis* flies. Perhaps there was insufficient food in the bulbs for this number of larvae. I transferred the pupae into the folded tissue and placed them in jars with perforated lids, together with balls of damp tissue to maintain humidity. These were then stored in a cool shed awaiting emergence.

Cheilosia ranunculi pupae bred from Bulbous Buttercup

Photo Rob Foster

Photo John Leach

I was aware that only if I bred identifiable male *C. ranunculi* would I be able to demonstrate a connection between this species and Bulbous Buttercup. Eventually about 20 flies emerged. Amongst these were 7 males, all of which were clearly *C. ranunculi* - as demonstrated (see photos) by the slightly tapering rather than spade-shaped front feet, the broader-than-long 3rd segment of their antennae, the entirely white hairs along the edge of tergite 2 of the abdomen and specifically the lack of a clump of black hairs in their anterior (front) corners. The clinching difference is the slim surstyli of the male genitalia (see photo) which are quite different from those of *C. albitarsis* (see Steven Falk's illustration from *British Hoverflies* (Stubbs and Falk)[1]). Local hoverfly expert, Derek Whiteley, checked them over to confirm the identification.

Cheilosia ranunculi males raised from eggs laid on bulbous buttercups

The photos below were taken of specimens obtained from the breeding experiment and the characteristics shown were exhibited by all the bred males.

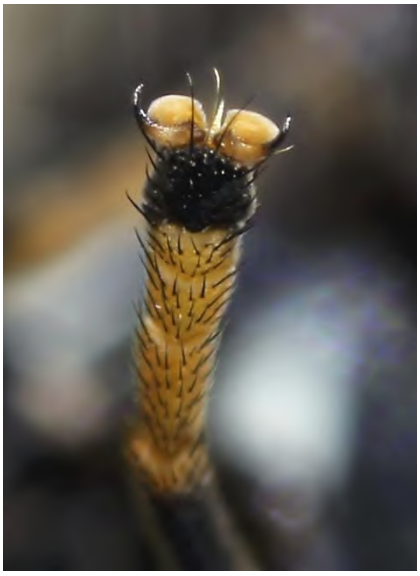

Photo John Leach

Photo John Leach

Cheilosia ranunculi shares with *C. albitarsis* characteristic tarsi with segments 2-4 pale, contrasting with black segments 1 and 5. However, in *Cheilosia ranunculi* the black front feet (tarsi 5) are not parallel-sided, but converge towards their apices. Amongst other distinguishing features; the antennae of *C. ranunculi* are broader than long and tend to be dark brown rather than black -

Photo John Leach

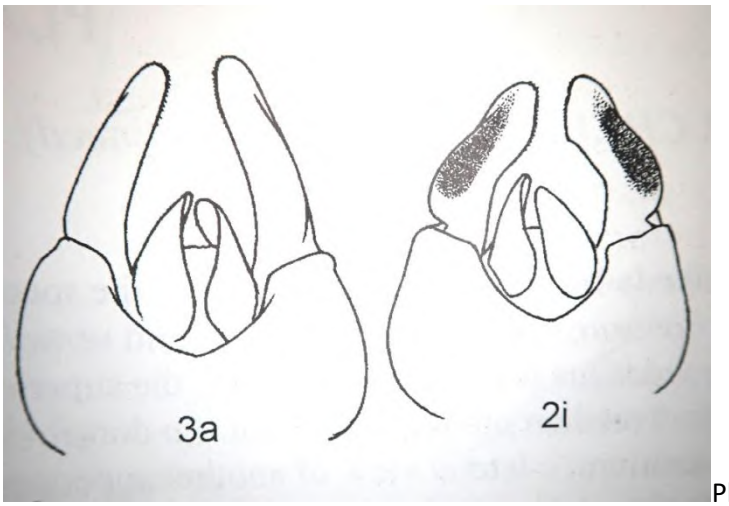

Illustration Steven Falk

Left: Dorsal view of epandrium of genitalia showing slim surstyli consistent with *C. ranunculi.*

Right: Illustration by Steven Falk in “British Hoverflies” Stubbs and Falk (2002)

Dorsal view of epandrium: 3a Genitalia *Cheilosia ranunculi:* 2i Genitalia *Cheilosia albitarsis*

It seems reasonable to assume that the females that emerged are also *C. ranunculi*. I must admit from a cursory inspection they appear much like *C. albitarsis* females and lack the distinctive features of the *C. ranunculi* males. The front foot shape seems intermediate in shape between those of the males of the two species. However, it seems to me that they are slightly smaller and that their abdomens are more pointed and less broadly oval than *C. albitarsis* females; The lunules surrounding their antennae bases lack the groove which Docskal[3] speculated signified *C. albitarsis* s.s. females and are quite similar to the lunules of what he speculated were female *C. ranunculi* taken from S.W. Germany (see illustration from his paper). The thoracic dorsum was predominantly pale-haired (also a feature of females from S.W. Germany) in contrast to the normally predominantly black-haired female *C. albitarsis*. Perhaps closer scrutiny will reveal more differences. They seem to me to be a valuable resource for an expert. I will keep them as voucher samples,

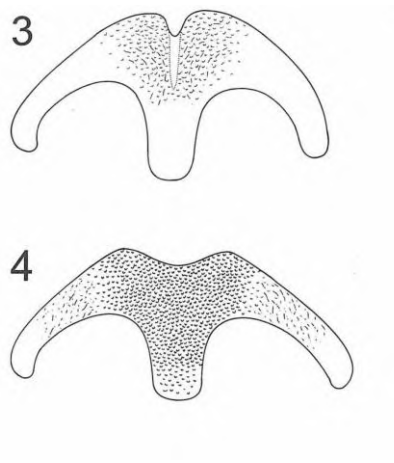

Photo John Leach

Left: Fig.3 Lunule of *C. albitarsis* with central groove: Fig. 4 Lunule of *C. ranunculi* lacking groove

Illustrations from Description of *Cheilosia ranunculi* spec, nov. by Dieter Doczkal (Volucella: 5 2000)

Right: Lunule of a female from the breeding experiment presumed to be *C. ranunculi* showing the lack of a central groove.

Repeating the exercise with other buttercup species, such as Meadow Buttercups, which also occur in drier meadows, would be informative. Similarly, repeating the exercise with Bulbous Buttercup using *C. albitarsis* males and presumed females might show that *C. ranunculi* does not have exclusive use of the plant as a larval food source. Besides this, the larvae of *C. ranunculi* have not been seen, photographed or described. It would also be interesting to find out whether their life cycle is the same as those of *C, albitarsis*; whether they similarly go into diapause until the late autumn/winter; whether they create rot-holes and feed on bacteria or whether they directly consume the bulb. I had hoped to raise a second generation but my hoverfly husbandry was not up to keeping the adult hoverflies alive long enough for egg laying. However, I haven't given up; I will try again with fresh hoverflies; there is plenty still to be done!

References:
[1]Stubbs, A.E., and Falk, S.J. 2002. British Hoverflies. British Entomological and Natural History Society, Reading.

[2]Gibbs, D. 2000. Are there two species confused under *Cheilosia albitarsis* s.l. Hoverfly Newsletter 30: 4-5.

[3]Doczkal, D. 2000. Description of *Cheilosia ranunculi* Spec. Nov. from Europe. Volucella 5: 63-78.

[4]Doczkal, D. 2002.Further presumed host plant relationships of *Cheilosia* Meigen obtained from observing egg-laying females. Volucella 6: 163-166.

[5]Rotheray, G.E. and Gilbert, F. 2011. The Natural History of Hoverflies. Forrest Text, Cardigan, 224 pp.

[6]Rotheray, G.E. 1991. Larval stages of 17 rare and poorly known British hoverflies. Journal of Natural History25: 4, 945-969.

Acknowledgements:
Thanks are expressed to Derek Whiteley for confirming the identification of the bred male *Cheilosia ranunculi* specimens. John Leach is thanked for taking the excellent macrophotographs of the pupae and bred hoverflies used in the article. Deiter Doczkal and Steven Falk are thanked for their kind permission to reproduce figures illustrating features of the adult hoverflies from their papers and books respectively. They and Graham Rotheray are thanked for looking over the article and their helpful suggestions.

Cheilosia caerulescens in Northamptonshire

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On 20th April 2019, I was just finishing examining my garden moth trap at the above address SP811815, when I noticed a Cheilosia hoverfly perched on the book I had been using. I potted the specimen and later examined it. Initially I keyed it out to a member of the Pagana Group in Stubbs and Falk[1] but it failed within the group's key. I had noticed some wing shading, particularly over the cross-veins and remembered that this was a feature of *Cheilosia caerulescens*. I turned to van Veen[2] and it easily keyed out to a female of this species. As far as I am aware, this is the first record of this species in Northants or vice-county 32. I have not recorded another since.

I do have houseleeks Sempervivum spp. in my garden and immediately checked them for signs of leaf damage but could find none. Nor have I found any damage subsequently so that it appears that the fly was a one-off rather than being established in the area.

Habitus of female *Cheilosia caerulescens* showing projecting lower face

Shaded cross-veins of wing.

References:

[1]Stubbs, A. E. and Falk, S.J. 2002. *British Hoverflies: An Illustrated Identification Guide.* 469pp. British Entomological and Natural History Society, Reading.

[2]van Veen, M.P. 2004. *Hoverflies of Northwest Europe: Identification Keys to the Syrphidae.* 254pp. KNNV Publishing.

Meliscaeva auricollis with yellow facial knob

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On 19th June at Yardley Chase, Northants SP841556, I took a hoverfly, which I thought was *Meliscaeva auricollis.* On examining under the microscope I noticed that the face was completely yellow, including the facial knob. Both Stubbs and Falk[1] and van Veen [2] state that this should be black. I re-examined the specimen using both keys to check if I had mistakenly identified it but came to the same determination on the balance of other features. In particular, I noted that the hind edges of the wing were lined with minute black flecks, a feature confined to Meliscaeva and Episyrphus as noted in Stubbs and Falk[3]. (Van Veen treats Meliscaeva as Episyrphus). The alula was broad and triangular and the lunule yellow, contrasting with the black area above it. The attached photos show the habitus, hind edge of the wing and the face of the specimen.

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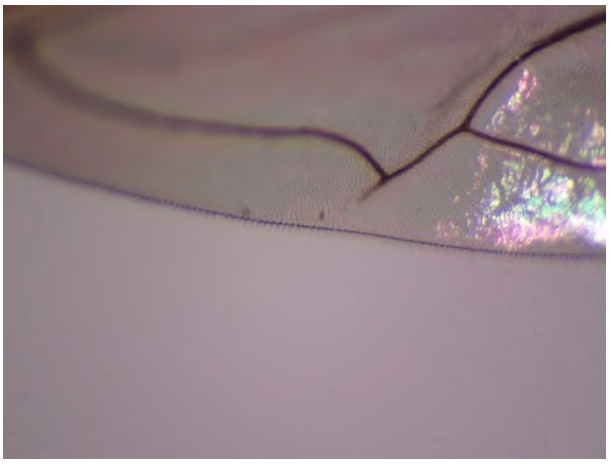
Habitus of *Meliscaeva auricollis*



Hind edge showing minute black flecks

Face showing yellow knob

This is not the only example of this. On 14th July 2019 Kev Rowley also found a similarly yellow-faced example at Lilbourne Meadows Nature Reserve, Northants SP558760. Both specimens have been retained as vouchers.

References:

[1]Stubbs, A. E. and Falk, S. J. 2002. *British Hoverflies: An Illustrated Identification Guide.* P101. British Entomological and Natural History Society, Reading

[2]van Veen, M. P., 2004. *Hoverflies of Northwest Europe: Identification Keys to the Syrphidae.* P95. KNNV Publishing

[3]Stubbs, A. E. and Falk, S. J. 2002. *British Hoverflies: An Illustrated Identification Guide.* P219. British Entomological and Natural History Society, Reading

When to hover, when to chase

Jon Heal

Male *Eristalis nemorum* are often photographed hovering in their distinctive way above a feeding female. I have read several suggestions for this behaviour but my own explanation requires comparison with other *Eristalis* species. First of all, *Eristalis* pairs are rarely seen mating, and from my experience of breeding them in the past, females probably only mate once. Coupling takes place in flight. Only the fittest males - "fittest" in more than one sense - are able to mate. I have never seen evidence that *Eristalis* males hold territories. Nor do males guard females after mating. After they separate physically, they separate for good. However the time for which *Eristalis* pairs couple, usually over 10 minutes in my observations, may prevent other males from interfering when the female is receptive. The male's problem is to find a receptive female of his own species. That probably means one recently emerged and not yet mated. Most insects it sees are not what it is looking for.

July 2019 had many warm days that allowed me to study the behaviour of *Eristalis tenax*. On most days in July, there was direct sunshine on one part of my back garden by 7.30am, marking the arrival of the earliest males. Early in the morning males bask a little in the sunshine, but they rarely visited flowers until later. Their first behaviour was a searching flight, leaf to leaf, and very like the flight of a *Vespula*. I assume the search is for a freshly emerged female. Later in the morning males are more often seen perching on leaves and darting out at passing insects.

The behaviour that seems to indicate a receptive female is a slow flight that allows the male to follow, slightly behind and below the female's flight. If she pauses to feed, the male hovers alongside or may perch nearby. I observed this in my garden a few times, especially on the 11th and 12th July, and always in the morning. Later in the day, males and females fed together on patches of flowers in my garden, especially a shaded clump of marjoram, with hardly any interactions. By late August nearly all *E. tenax* I saw were foraging with few signs of mating behaviour - at least when I was paying attention! Late September onwards was very wet, and there were few *Eristalis* of any species until I had some female *E. tenax* flying indoors searching for hibernation spaces. I had several visitors flying around in the house in the period 9th to 20th October. Their slow buzzing indoor flight inside the house reminded me of their slow summer flight that allowed a male to follow, and possibly mate. I did not see males attempt to mate with a feeding female.
Occasionally they get things wrong. On 25th July a male was repulsed by a *Vespula* worker when it tried to couple.

I suggest the *E. nemorum* behaviour is related. Female *E. nemorum* tend to prefer flat-topped flowers, often purple ones, where males locate them. The male's opportunity to mate is when the female leaves the flower, so they hover above until she moves. Sometimes other similarly sized insects elicit the same behaviour, but mostly they do not. Of course the female may already have mated, and so does not respond. The "bouncing" down of the male, that many of us have seen, seems a ploy to disturb the female off the flower to allow the male to pursue. When two males are both hovering above the female, I have rarely seen any interaction. The chance to compete only comes when she leaves the flower. Mostly the pursuit is going to be unsuccessful in any case.

The hovering response of a male *Eristalis nemorum* to a feeding female

Occasionally the response is triggered by wrong species!

(Photos: David Iliff)

Xanthogramma stackelbergi new to Gloucestershire

Xanthogramma stackelbergi was added to the British list in 2012. On 22 June 2019 John Phillips found the first example to have been identified in Gloucestershire at Pope's Hill SO6814. Photographs of his specimen (a male) appear below.

Xanthogramma stackelbergi (male) at Pope's Hill (Gloucestershire). (Photos: John Phillips)

Micropezids & Tanypezids

Stilt & Stalk Fly Recording Scheme

Newsletter 2 Spring 2020


Dusky Spectacle (*Psila fimetaria*)

First newsletter

Looking back at this Recording Scheme's notes published in the Dipterists Forum Bulletin since 1999 it appeared that there had never been sufficient material to warrant a full newsletter. The development of the ***Scratchpad*** website however has provided the opportunity to discover much more information.

So this is the first Newsletter for the Recording Scheme. numbered 2 because all the above notes have been collated and compiled into a single document: Newsletter 1, which may be downloaded from the Newsletter pages on this scheme's website.

Accordingly it may be that for some readers this may be their first encounter with the group, here's some helpful material:

Identification

Working through keys to Families is not the best way of sorting material to the level of Family with these groups, that's a last resort. It's probably necessary in the case of *Pseudopomyza atrimana* but it should be possible to get a feel for the general appearance of most of the others and then try to narrow them down. Much space on identification websites is devoted to using images to gain pattern recognition skills or in utilising the skill of others. Decide on a Family or Genus, post it online (e.g. Diptera.info) then see what others make of it. Browsing through all the pictures on the website (Media Gallery | Photograph) is also a useful ploy.

The **keys** from the 2004 workshop are available on the website's Identification page. The experimental **online key** on the same page is based upon features readily recognised from images.

There are plans to do better but in the meantime, use the above and make use of the website's **European Species list** to locate your suspect and study the descriptions there - it's what the original authors said about them and thus definitive.

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 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.

Recording

If you wish to contribute to this Recording Scheme then I would be happy to attempt to deal with records from anywhere in Europe. The website has already achieved Checklists for every European country.

Spreadsheets are the main currency for this, I receive many from UK contributors who may also use ***iRecord*** (which unusually will allow records without pictures.) Elsewhere in Europe check for your own countries system (listed in ***GBIF*** at https://tinyurl.com/wudtq93) or use ***iNaturalist***.

For dedicated recorders wanting to keep detailed records at home there are desktop systems such as ***MapMate*** and ***Recorder 6***.


Common Strider (*Neria cibaria*)


Broom Stilter (*Micropeza lateralis*)


Broomrape Tailcoat (*Chyliza extenuata*)


Photo Nigel Gilligan

Atlantic Reed (*Loxocera fulviventris*)

European Micropezids & Tanypezids at http://micropezids.myspecies.info/

Darwyn Sumner

UK Checklist

Nerioidea (Micropezids) Stilt-legged

Pseudopomyzidae

Pseudopomyza atrimana (Meigen, 1830)	Scarlet-eyed Compost

Micropezidae

Calobatinae	Striders
Calobata petronella (Linnaeus, 1761)	Brown-shouldered Strider
Cnodacophora sellata (Meigen, 1826)	Dusty Ruddered Strider
Cnodacophora stylifera (Loew, 1870)	Montane Ruddered Strider
Neria cibaria (Linnaeus, 1761)	Common Strider
Neria commutata (Czerny, 1930)	Fingered Strider
Neria ephippium (Fabricius, 1794)	Amber Strider
Neria femoralis (Meigen, 1826)	Bulbous Strider
Micropezinae	Stilters
Micropeza corrigiolata (Linnaeus, 1767)	Common Stilter
Micropeza lateralis Meigen 1826	Broom Stilter
Taeniapterinae	Échasseur
Rainieria calceata (Fallén, 1820)	Beech Échasseur

Diopsoidea (Tanypezids) Stalk-eyed

Tanypezidae

Tanypeza longimana Fallén, 1820	European Harlequin

Strongylophthalmyiidae

Strongylophthalmyia ustulata (Zetterstedt, 1847)	Western Juggler

Megamerinidae

Megamerina dolium (Fabricius, 1805)	Bearded Fool

Psilidae Rust Flies

Chylizinae	Tailcoat Flies
Chyliza annulipes Macquart, 1835	Conifer Tailcoat
Chyliza extenuata (Rossi, 1790)	Broomrape Tailcoat
Chyliza leptogaster (Panzer, 1798)	Common Tailcoat
Chyliza nova Collin, 1944	Sap Tailcoat
Chyliza vittata Meigen, 1826	Orchid Tailcoat
Psilinae	
Loxocerini	Reed Flies
Loxocera aristata (Panzer, 1801)	Black-faced Reed
Loxocera maculata Rondani. 1876	Black Reed melanic form of above
Imantimyia albiseta (Schrank, 1803)	Yellow-faced Reed
Imantimyia fulviventris (Meigen, 1826)	Atlantic Reed
Imantimyia nigrifrons (Macquart, 1835)	Small Reed
Imantimyia sylvatica (Meigen, 1826)	Yellow-shouldered Reed
Psilini	
Psila fimetaria (Linnaeus, 1761)	Dusky Spectacle
Psila merdaria Collin, 1944	Common Spectacle
Psilosoma lefebvrei (Zetterstedt, 1835)	Atlantic Pierrot
Chamaepsila atra (Meigen, 1826)	Katchit's Columbina
Chamaepsila bicolor (Meigen, 1826)	Roder's Columbina
Chamaepsila buccata (Fallén, 1826)	Pugh's Columbina
Chamaepsila clunalis (Collin, 1944)	Peterkin's Columbina
Chamaepsila humeralis (Zetterstedt, 1847)	Claypole's Columbina
Chamaepsila limbatella (Zetterstedt, 1847)	Sommer's Columbina
Chamaepsila luteola (Collin, 1944)	Armstrong's Columbina
Chamaepsila nigra (Fallén, 1820)	Fleeman's Columbina
Chamaepsila nigricornis (Meigen, 1826)	Verence's Columbina
Chamaepsila obscuritarsis (Loew, 1856)	Baldwin's Columbina
Chamaepsila pallida (Fallén, 1820)	Pocket's Columbina
Chamaepsila pectoralis (Meigen, 1826)	Foole's Columbina
Chamaepsila persimilis (Wakerley, 1959)	Le Foi's Columbina
Chamaepsila rosae (Fabricius, 1794)	Carrot Rust
Chamaepsila unilineata (Zetterstedt, 1847)	Dagonet's Columbina

For checklists of all European countries and the 2018 & 2020 papers on English names please refer to the website.

The UK is home to 43 of Europe's 90 species. France is top with 55

How to record in Europe

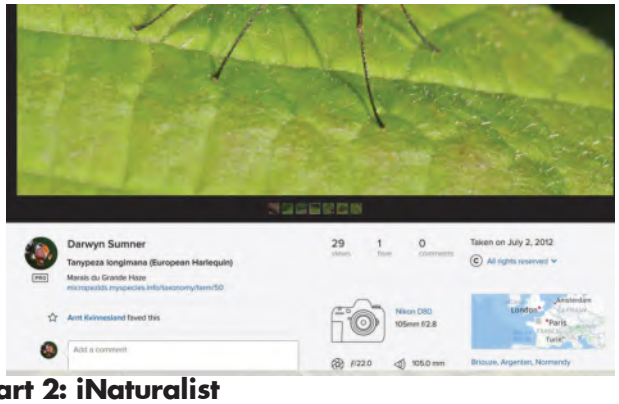
The objective is to get records of species occurrences onto ***GBIF*** (a Global Biodiversity Gateway.) In the light of recent reports of massive declines in insect biodiversity, this publicly accessible silo provides invaluable data to researchers studying distribution patterns, phenology, constructing habitat models or for monitoring changes.

Recording systems across Europe are patchy. If you've a system in your country (e.g. the Swedish ***ArtDatabanken***) then you'll find distribution maps in ***GBIF*** because your country has a system for recording. Use that system in preference to others. Duplication of species occurrences by two or more different systems is accepted by GBGs so don't be anxious about testing different methods.

If there is no system for the country, or you can't use it because of language, then occurrences can be added via ***iNaturalist*** as follows:

Part 1: Flickr

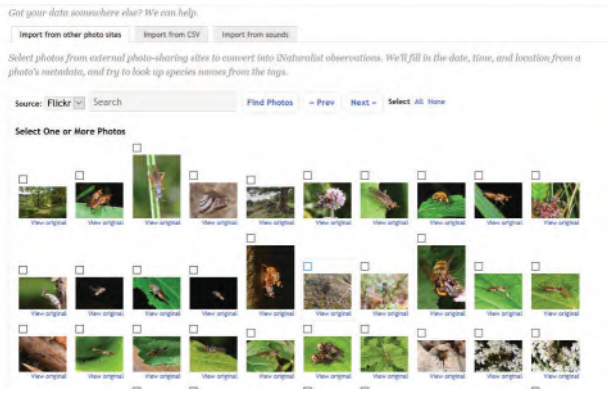
1. Sign up to Flickr and add your image in the usual way. Note that the first 1,000 images are free.
2. Get it identified as best you can (maybe only Family but best to run it through ID websites first to get as close as you can)
3. Geotag your image as follows:
   - 3.1. Click on the "**Add this photo to your map**" button
   - 3.2. This results in the message: "**We've put the photo into the Findr for you (below). All you have to do now is drag it onto the map!**" Select **OK** and you are taken to a map panel whose initial position is determined by various factors (such as other geotagged images in your collection which were taken at around the same time)
   - 3.3. Hunt around the map to get your desired location on screen then drag and drop the thumbnail image onto the exact spot on the map
   - 3.4. The display below your Flickr image should now have a map and the name of the nearest town.
4. In Flickr ensure you've added the full species name and location. Also ensure that that will be sufficient to find your image later (2.5) using a filter. This will work on both the text in the description and any Tags (such as "iNaturalist").



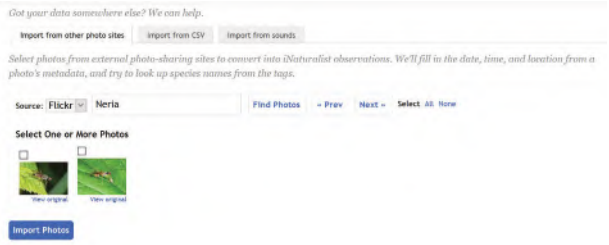
Part 2: iNaturalist

1. Sign up to ***iNaturalist***.
2. Select "**Add observations**"
3. Ignore the "Choose files", select the "**More import Options**" and choose the "**From Flickr, Facebook, etc.**" option. The first time you do this you will be asked for details of your Flickr account and for permission.

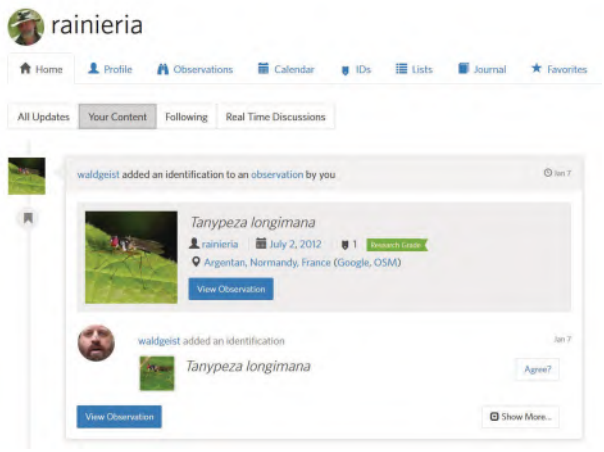
4. You are now presented with a panel as below:



5. Use the filter to narrow down the number of thumbnails you are presented with:



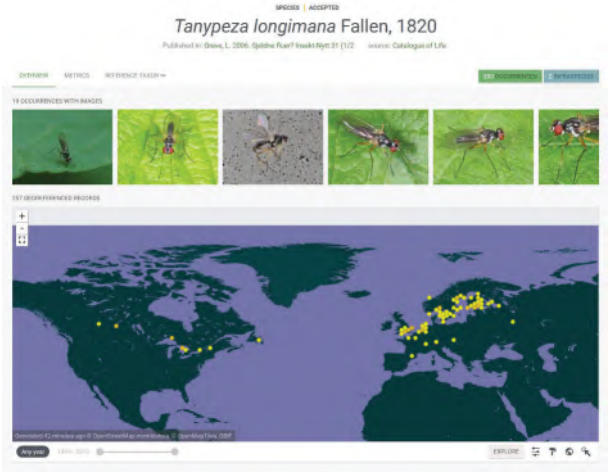
6. Tick the choice boxes on the image(s) you wish to upload
7. This image is now added to your list of ***iNaturalist*** observations:



8. Fortunately in this example, someone stepped in straight away and confirmed my identification. There are identical images on ***GBIF*** so helpful persons like this need not be amazing experts. Having a collaborator to assist in raising the record to Research Grade would, of course, be invaluable.
9. Now wait. The above observation was confirmed on 7th Jan and ***iNaturalist*** uploads to ***GBIF*** about once a week. If you are impatient then you can check the upload dates at https://tinyurl.com/yx2rm65f this one was sent to ***GBIF*** on 15th Jan:

Part 3: GBIF

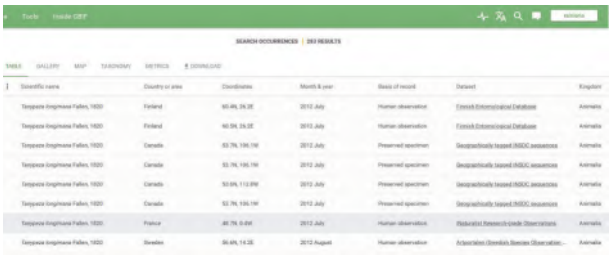
1. Search for your taxon in ***GBIF***. There are several ways to do this but the fastest may be simply to enter "GBIF Tanypeza longimana" into your search engine.
2. You are presented with the following:



2.1. Et voila! My record is there, it's the westernmost dot near the north coast of France.

2.2. Note the distribution pattern, many records are from countries with recording systems such as UK, France, Belgium, Netherlands and Sweden. Russian contributors are likely to be using the system detailed above. The overall distribution picture is not accurate though. I can find many more than that from published papers.

3. There are useful functions on this page, a list can be obtained detailing each record (indeed the whole dataset can be downloaded). It was hard to find but my record is listed here:



Conclusion

Anyone with a ***Flickr*** account is already well on the way to making ***GBIF*** contributions. There are certainly several across Europe whom I would dearly like to see using ***iNaturalist*** in this way. Other photographers too, such as those posting *Neria octoannulata* (Mediterranean Amber Strider) images on the Spanish ***Biodiversidad Virtual*** (zero records on ***GBIF***) or many others on ***Diptera.info***

I would be willing to assist anyone wishing to try this out for Micropezids & Tanypezids. Trusted collaborators would be invaluable in ensuring properly verified records attain Research Grade status.

If you have material from expeditions abroad then these can readily be uploaded to ***GBIF***. Simply take photographs of your specimens (super high quality not necessary), upload to ***Flickr*** then ***iNaturalist*** in batches and seek verification.

Geotagging photographs directly

Users of GPS devices can transfer geospatial coordinates to images taken with cameras. They can be added to pictures via software such as ***Basecamp, Geosetter*** or ***iMatch***. Mobile phones and some cameras store such data in the picture's EXIF metadata automatically.

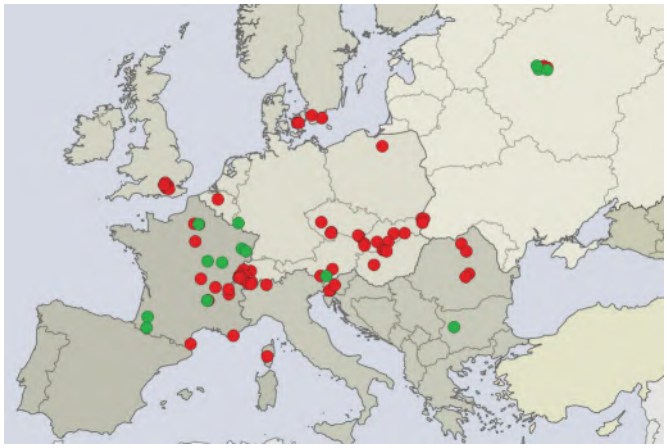
If you' didn't geotag at the time then all is not lost, use ***Google Earth*** to locate your site, add a placemark then copy Lat/Long from its Properties. It's worth naming and saving all these placemarks for later use, just remember to "**Save my places**" before exiting. Placemarks can be saved as kml files and shared with others.

Micropezid & Tanypezid Recording Scheme - News

Endorsed by GBIF

I managed to get this Scheme's site to be an "endorsed organization" by ***GBIF*** (thanks to ***NBN***.) Nothing unusual about that, several other UK Diptera Recording Schemes are also "endorsed". What I seek now though is a mechanism to submit records at intervals to ***GBIF***. It looks as though I've set myself a complex task, somehow I've to get the collected records into Darwin Core format.

What the facility to upload to ***GBIF*** could mean in generating European distribution maps is illustrated below:



Rainieria calceata **in Europe. Red = researched sources, Green = GBIF (Jan 2020)** NB a strong association with ancient beech woodland

The red spots are all the occurrences I have collected from a wide variety of sources such as published papers, photo websites (Diptera.info, MacroID etc.), personal records and those sent to me (Phil Withers' French records) and collections. They include, of course, the UK's NBN Atlas records. Outside the UK are all the records that I wish to upload to GBIF somehow.

The green spots are from a recent GBIF download. They arise from two main sources, firstly participating countries (e.g. France from the Galerie of Le Monde des Insectes) and secondly iNaturalist.

(iNaturalist requires pictures in order to upload to GBIF)

Online identification keys: European species

Shortly after the last Bulletin went to press, I sent my ***FSC Identikit*** (see Bulletin 87) files to Charles Roper. He kindly uploaded them to the FSC servers and gave me the links.

Now at www.micropezids.myspecies.info/node/235

They've been used successfully a few times by European workers on ***Diptera.info***. Notably by Paul Beuk who found them helpful in narrowing down an Austrian record of *Neria longiceps* (Long-headed Strider). Hopefully UK recorders will find them useful too, it would be nice to think that the keys had been used prior to folk making ***iRecord*** postings.

Vernacular names

Vernacular names were assigned to all the European species in a paper (see website) first published in 2018. It has recently been updated in order to include two *Neria* species that have recently been confirmed for Europe. These are *N. caucasica* (Caucasus Strider) & *N. schumanni* (Barred Strider)

Species to look out for ...

Spectacles: The most commonly encountered genus, *Psila*. Unfortunately there are two very similar looking species (see front page) which have the distinctive "spectacle" markings on the thorax (sometimes very feint - look hard.) To distinguish between *P. fimetaria* (Dusky Spectacle) & *P. merdaria* (Common Spectacle) you'll need either a very good photograph showing the antennae clearly or pick it up and use a hand lens.

Typical habitat is moist woodland in dappled shade where they hop around on patches of dense vegetation.

Buckle Wood, Angidy River, Wye Valley (near Tintern)

Catch the right time of year and you may be lucky to see scores of them, do look closely to see if you can spot them ovipositing - we know so little about their life histories.

Striders: Similarly requiring damp areas and shady lekking and roosting patches of vegetation. Typically they hop around patches of tall herbs such as nettle leaves. You are more likely to find them by careful watching than by sweep-netting. Possible association with *Ranunculus* spp. (e.g. Bulbous buttercup), for scarcer European species do make a plant list if you can. Also try standing in reed-fringed pools and searching towards the shore..

Burgh next Aylsham, Norfolk

Soldierflies and Allies Recording Scheme

Newsletter 7, spring 2020

Edited by Martin C. Harvey
ISSN 2053-471X (print)
ISSN 2053-4728 (online)

The Downland Robberfly Machimus rusticus *from Ivinghoe Beacon, 12 July 2019 – the first record of this species in vice-county Buckinghamshire. Recorded and photographed by Sue Taylor.*

Welcome to the spring 2020 newsletter, with many thanks to everyone who has contributed records, photos and articles.

See page 2 for Linda Pryke's account of how she got started with soldierflies and allies, and some of her highlights from 2019. On page 3 Alistair Shuttleworth describes how he found larvae of the rarely seen, and possibly overlooked, Pine Black soldierfly, *Zabrachia tenella*. Pages 4 and 5 return to a regular theme: bee-flies! With news of new county records for Dotted Bee-fly *Bombylius discolor*, an update on the latest Bee-fly Watch season, and the exciting possibility that Anthracite Bee-fly *Anthrax anthrax* is now established in Kent.

Finally page six has some recording scheme news and updates on training courses and publications.

I wish you many soldierflies and allies during the coming field season!

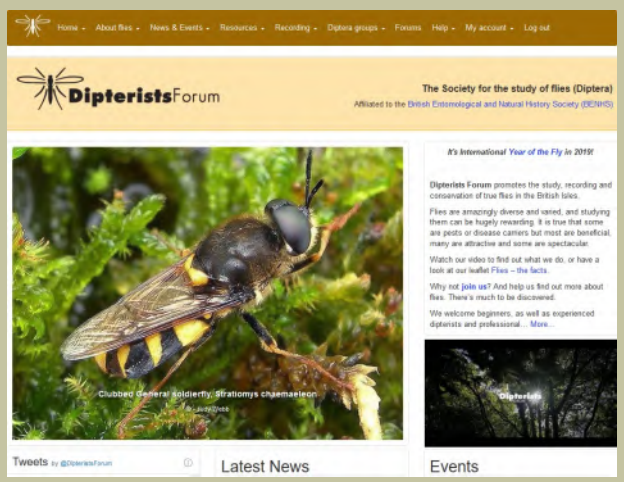
Martin Harvey

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.



Getting to know soldierflies and allies during 2019

by Linda Pryke

Fly recording for me began as it does for many of us these days: seeing and photographing unusual or attractive looking flies, then trying to find out with varying degrees of success what they were. I've found soldierflies, horseflies and robberflies particularly bewitching and attractive (well I think so!), easy to spot, often large and distinctive, although not always easily got to species from photos.

Most of my identifications had been achieved with the help of Steven Falk's Flickr collections, and the ever-patient help from the British Soldierflies and Allies Facebook group. Since 2012 I'd logged many bee-flies *Bombylius major* and have an ever-growing tally of those hairy-eyed *Chloromyia formosa* from my garden.

This year I was fortunate to get a place on an FSC Biolinks course devoted to soldierflies and allies led by Martin Harvey, covering everything from practical fieldwork to id (field & lab) to recording and more. I really enjoyed the time, and I'd recommend something similar to anyone interested in soldierflies, or who are looking for an intro into fly ID and recording (see page 6 for a similar course in 2020). For those who don't wish to continue with microscopes and lab work afterwards, I believe there's still plenty that can be achieved once the basics are in place, with the support of the recording scheme.

For me the course sorted out the finer points, vastly improving my ID success rate, which is encouraging. I get the best out of my photos and in the field by making sure I've got the features that separate similar species. There's more that I can do with a hand lens, and finally there are those that can be put under the microscope.

Overall, it's been an enjoyable & productive year. I think my personal favourites will always be those magnificent robberflies, but the highlight for me, and I suspect many, has to be the appearance of the Downland Villa bee-fly *Villa cingulata* in unexpected places (for us, they were buzzing around the meadows during Martin's field ID day at Bushy Park!).

Looking ahead, who knows what 2020 will bring, but if it brings it to my corner of north Surrey there's every chance it'll be photographed, identified and recorded.

Linda's photos show, from top to bottom:
Stripe-legged Robberfly *Dioctria baumhaueri*; Broad Centurion soldierfly *Chloromyia formosa*;
Kite-tailed Robberfly *Machimus atricapillus*; Downland Villa bee-fly *Villa cingulata*

Larvae of Pine Black soldierfly, *Zabrachia tenella*, in Scotland

by Alistair Shuttleworth

In the spring of 2019 one of a small group of pines at Cullaloe LNR (Fife, VC85) was chopped down, presumably because of beetle infestation. I have kept an eye on this cut down pine, which hasn't been moved, and swept over it occasionally, but it didn't give up anything interesting. In September I decided to peel back some bark to see if I could locate the beetles. This wasn't successful, but I noticed a larva which immediately struck me as stratiomyid, though with abundant setae.

Left: life under the bark of the fallen Scots Pine trunk; right: one of the larvae found under the bark. Photos by Alistair Shuttleworth.

On returning home I keyed it out using Stubbs and Drake "Soldierflies and Allies" and it ran easily to *Zabrachia tenella*. I was delighted to find the species description exactly match the situation it was found in under pine bark and in association with beetle tunnels. I had decided to leave the bark substantially alone, but in December I took off another small section of a few inches square and located another larva, which I'm currently trying to raise through with some of the removed bark. I'll leave the remainder of the bark alone in the hopes that it will produce further adults.

Zabrachia tenella adult. Photo by Dick Belgers at waarneming.nl, a source of nature observations in the Netherlands.

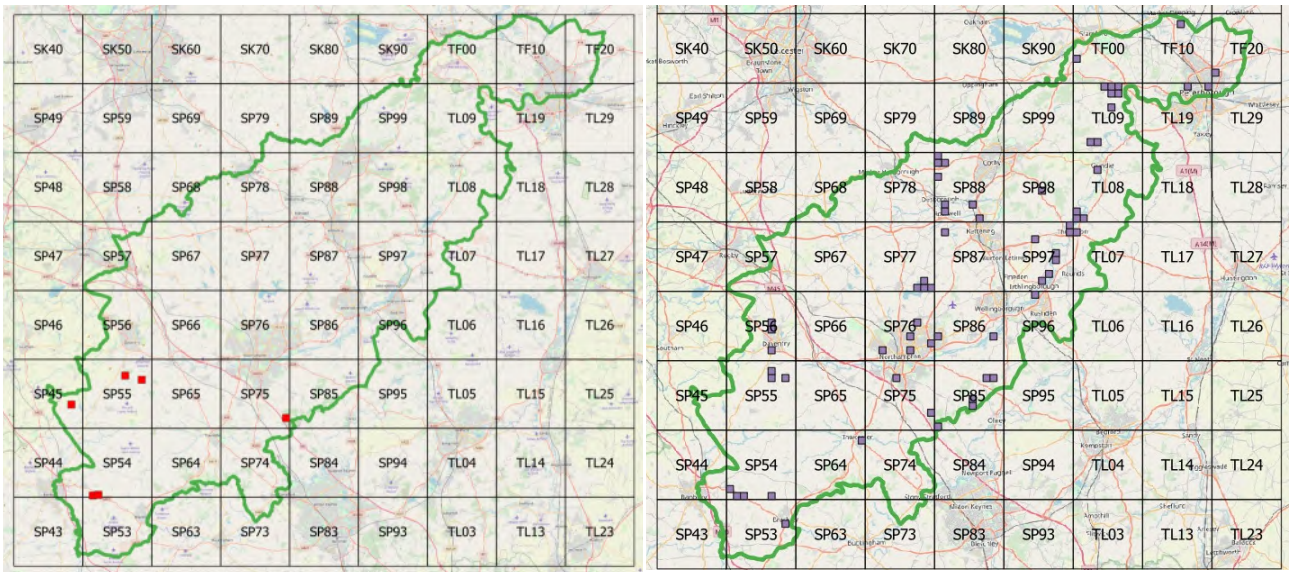
This is a group of half a dozen pines on the edge of an old, decommissioned, reservoir, though it is close to a large Forestry Commission woodland. A visit to that woodland suggests it is made up of mostly spruce and some larch, and though some bark beetles were located no further dipteran larvae were located as yet. However, it seems reasonable to suppose that there is a population in the area, e.g. nearby Cullaloe Hills has plenty of Scots Pine.

[*Zabrachia tenella* was categorised as Endangered and Nationally Rare in the recent review (Drake, C.M. 2017. A review of the status of Larger Brachycera flies of Great Britain – *Species Status* 29. Natural England Commissioned Reports 192), due to an apparent severe contraction in its range in recent decades. The recording scheme has records from Scotland but not since 1938, and the only recent records available to the scheme are from south-east England. So this record from Fife is very welcome. However, it appears that there may be other Scottish records that are not yet in the scheme nor supplied to the NBN Atlas.]

Dotted Bee-fly *Bombylius discolor* in Northamptonshire

by John Showers

As was reported in the spring *Bulletin* of the Dipterists Forum, *Bombylius discolor* was first recorded in Northants in 2019, although a photograph taken in April 2018 by Chris Colles at Boddington churchyard also turned out to be of this species. After prompting local recorders to look out for this species a few more records were submitted. So far all records have come from the South-west of the county, as can be seen on the attached map. The Northants Biodiversity Records Centre ran a "Look out for Bee-flies" campaign. The differences between *B. major* and *B. discolor* were explained so it is believed that the distribution map truly reflects the distribution in 2019. For comparison I have attached the map of *B. major* records for 2019. The "Look out for Bee-flies" campaign will be run again in 2020 to see if the distribution has changed.



Left: *Bombylius discolor* in 2018/19 (red squares) ; right: *Bombylius major* in 2019 (purple squares); Northamptonshire boundary in green; Underlying map © OpenStreetMap contributors

Anthracite Bee-fly *Anthrax anthrax* in numbers in Kent

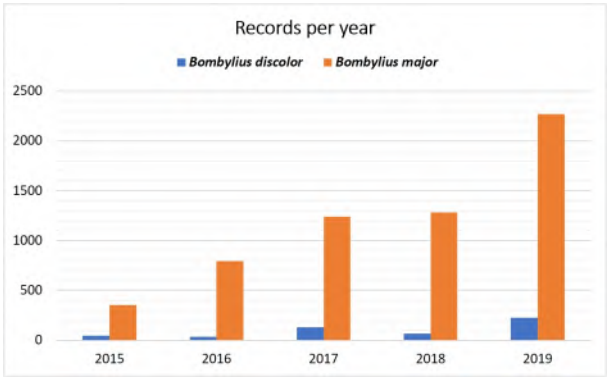
In Newsletter 6 we reported that Michael Woods had managed to get a brief glimpse of what was very likely to be a second UK record of the Anthracite Bee-fly, *Anthrax anthrax*, near Canterbury, Kent, in 2018. In 2019 Michael saw another, a female at exactly the same spot as in 2018. Further individuals were later seen on another 11 other occasions over 18 days, 26 May to 15 June.

There have been two other reports in the UK for which details are yet to be fully confirmed, and it is looking more and more likely that this bee-fly is going to become an addition to the UK fauna.

Anthrax anthrax in Kent. Photo by Michael Woods.

Bee-fly Watch 2019

by Martin Harvey

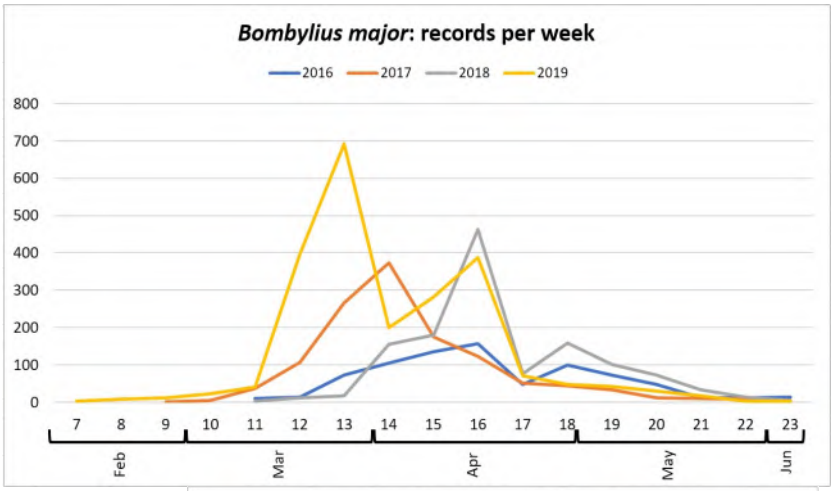


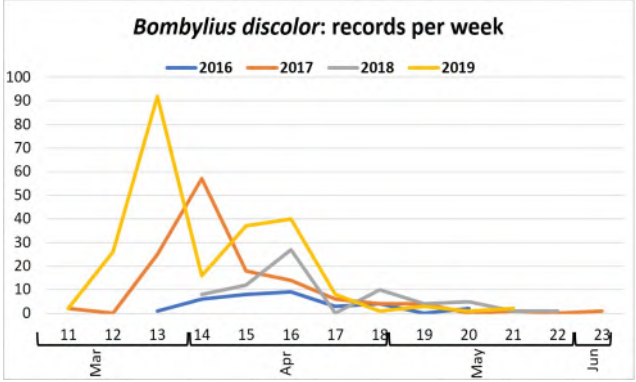
Bee-fly Watch has now been running for four years , and 2019 seems to have been an excellent spring for the two target species: Dark-edged Bee-fly *Bombylius major* and Dotted Bee-fly *B. discolor*. Both were recorded in much higher numbers than ever before – in part due to continued publicity for the project (aided in 2019 by the focus on Year of the Fly), but there is little doubt that the spring weather conditions meant that these two species had a good year, and emerged earlier than has previously been the case.

In fact *B. major* emerged earlier than it has ever done before, with the first two records on the astonishingly early date of 17 February 2019 (Brian Hopper in East Sussex and Wes Attridge in Surrey). And the peak of records was in the last week of March, about three weeks earlier than in the cooler conditions of 2018. *B. discolor* showed a similar pattern with the earliest record on 17 March 2019, found by Keith Ross on the Kent coast (not quite beating the earliest 2017 date of 15 March). Both species show a clear pattern of early seasons in 2017 and 2019, and late in 2016 and 2018.

As usual, a few records were submitted of *B. major* in late June and in July, and also as usual none of these were supported by photos! Some may well refer to the Western Bee-fly *B. canescens*, which has a later flight period, and in at least one or two cases they seem to be misidentified Humming-bird Hawk-moths. (If you see a late bee-fly in 2020 please do try to get a photo to support the record, so we can establish the end of the flight period more clearly.)

B. discolor continued to spread its range to the north and east. As well as the Northants records (see previous page), in 2019 there were new vice-county records for Staffordshire (from Thomas Woodhall and Lukas Large) and amazingly in Leicestershire (Alexandra Wallace-Hicks). In Surrey Ryan Mitchell had the first fully confirmed record for the county since 1964 (following a probable but unconfirmed sighting in 2015).





B. major was recorded widely as usual. During 2019 a comprehensive review of its Scottish distribution was published by Murdo Macdonald and James McKellar (see publications on the following page) showing that its range there has remained relatively constant, but with increased records resulting from the greater recording effort in recent years.

What will happen in 2020? Take part in Bee-fly Watch to find out!

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

Recording scheme updates

Training courses and resources

During 2019 we updated our guide to identifying bee-flies in genus *Bombylius*, to provide some more information on how to distinguish the two clear-winged summer bee-flies: Western Bee-fly *Bombylius canescens*, and Heath Bee-fly *Bombylius minor*. See: www.brc.ac.uk/soldierflies-and-allies/node/81

We ran an identification workshop in January 2020 as part of the BENHS series. Later in the year there is a workshops as part of the FSC's BioLinks project:

- Soldierfly ID with Microscopes, Thurs 18 June 2020, FSC Bishops Wood, Worcestershire (www.field-studies-council.org/biolinks-courses)

Soldierflies and allies in Dipterists Digest

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

- Andrew, R.H. 2018. A fifth site for *Chrysops sepulcralis* (Fabricius) (Diptera, Tabanidae) in Dumfries and Galloway. *Dipterists Digest* **25**: 177–178. [Brief descriptions of the sites supporting this species, which in Scotland is confined to the Dumfries and Galloway area.]
- Neill, W., and Macdonald, M. 2019. Occurrence of *Dioctria baumhaueri* Meigen (Diptera, Asilidae) in the Western Isles. *Dipterists Digest* **26**: 47–48. [An unusual early emergence a long way outside the normal range, maybe translocated with human assistance.]
- Macdonald, M., and McKellar, J. 2019. The Dark-edged Bee-fly *Bombylius major* Linnaeus (Diptera, Bombyliidae) in north Scotland. *Dipterists Digest* **26**: 169–174. [Reviews the records of this species and provides information on its habitats, phenology and flower and host associations in north Scotland.]

Year of the (Soldier)Fly

One of the ways in which Dipterists Forum celebrated Year of the Fly was by publishing a series of "Fly of the month" blogs on the BBC Wildlife website. Soldierflies and allies appeared on three occasions, in each case providing lots of fascinating background stories as well as information on the main subject species:

- Hornet Robberfly *Asilus crabroniformis*, by Erica McAlister
- Clubbed General soldierfly *Stratiomys chamaeleon*, plus how soldierflies got their name, by Malcolm Smart
- Bee-flies, Bombyliidae species, by Erica McAlister

Many thanks to Erica and Malcolm for sharing their knowledge and enthusiasm. You can read the whole fly of the month series via www.discoverwildlife.com/tag/year-of-the-fly

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.

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
Ben Deed
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

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

Dipterists Forum Recording Schemes and Study Groups

Craneflies
Cranefly Recording Scheme
Tipuloidea & Ptychopteridae

Pete Boardman
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Newsletter: John Kramer
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Chironomids

Patrick Roper
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Dixidae & Thaumaleidae

Julian Small
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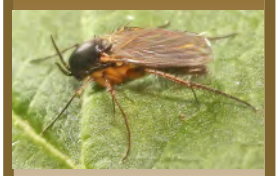
Fungus gnats
Mycetophilidae & allies



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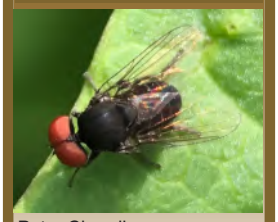
Flat-footed flies
Platypezidae



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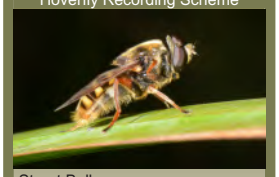
Hoverflies
Hoverfly Recording Scheme



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Study Group

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Chloropids
Chloropidae Study Group

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Recording Scheme

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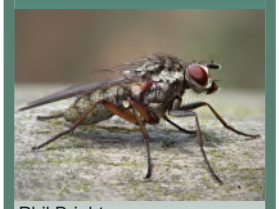
Dipterists Forum

Anthomyiids
Anthomyiidae Recording Scheme



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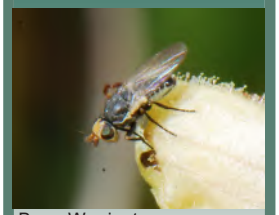
Agromyzidae
Leaf-miner Recording Scheme



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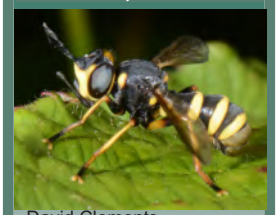
Conopids
with Lonchopteridae, Ulidiidae, Pallopteridae & Platystomatidae



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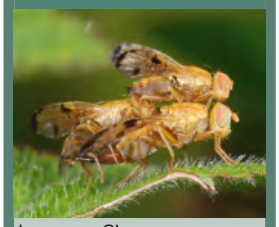
Tephritids
Tephritid flies Recording Scheme



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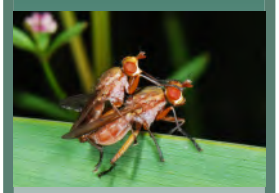
Sciomyzids
Snail-killing flies Recording Scheme



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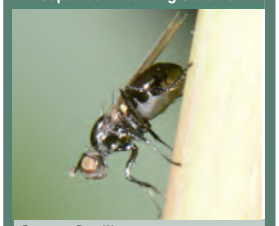
Sepsids
Sepsidae Recording Scheme



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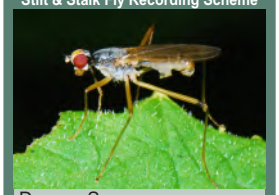
Micropezids Tanypezids
Stilt & Stalk Fly Recording Scheme



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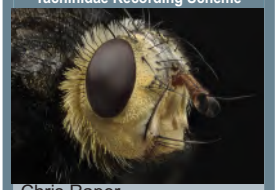
Tachinids
Tachinidae Recording Scheme



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Matthew Smith
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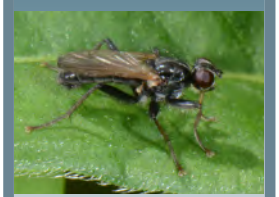
Iconography

- Recorder 6 or earlier versions
- MapMate
- MS Excel
- iRecord
- MS Access
- GIS tools used by organisers to create maps and atlases (e.g. QGIS, DMap)
- Website available, faded icons = temporary sites
- NBN Atlas: Datasets are uploaded to publicly accessible site

Download this guide as a pdf from
http://micropezids.myspecies.info/node/301

Scathophagids
Scathophagid Recording Scheme



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Oestrids
Oestridae Recording Scheme

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Calliphorids
Calliphoridae Recording Scheme

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Sarcophagids
Flesh Fly Recording Scheme

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Charles Griffiths CharlesEGriffiths1@outlook.com
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Other recording initiatives

Recording initiatives ongoing or under consideration:

Dipterists Forum Field Weeks.
Currently available on NBN Atlas

Non-recording scheme species/groups, non-native species, regional diptera groups

Interactive pdf. Click on the panels to access internet sites. Upper half = website, lower half = Atlas datasets

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