Micropezids & Tanypezids

Stilt & Stalk Fly Recording Scheme

Newsletter 4 Spring 2022

European Harlequin (*Tanypeza longimana*) photo ©Barry Webb (on iRecord)

Recording Scheme - News

Open Data updates: UK

The UK database on NBN Atlas has been updated in recent months. In August the number of Scheme records stood at 4073; it rose to 5386 in September. Spreadsheets submitted by scheme contributors since 2016 were processed and 526 records added. In June 2021 we gained access to the scans of Steve Falk's field note and survey folders (to 2014) and using the methods detailed at https://tinyurl.com/7kfh5u5d I was able to add a further 777.

Scheme Publications

Preprints: Though I've had offers from journals to publish items arising from this Recording Scheme, the decision to publish them as preprints on **ResearchGate** seems to have been prudent. Anything containing distribution maps or phenology reflects the state of knowledge at a particular point in time and so such fast publishing has proved valuable. The recent 20% increase in our UK records underlines this.

The following preprints are now accessible …

Sumner, D. P. (2018). Vernacular names: European Micropezids & Tanypezids (Diptera, Nerioidea & Diopsoidea). Preprint, A 3(3 V2), 1–14. https://doi.org/DOI: 10.13140/RG.2.2.10298.31688

Sumner, D. P. (2018). Observations on Phytomyza orobanchia Kaltenbach, 1864 (Diptera, Agromyzidae) and Chyliza extenuata Rossi, 1790 (Diptera, Psilidae), both new to Wales, on Ivy Broomrape (Orobanche hederae). Preprint, 1(2:V1), 7. https://doi.org/DOI:10.13140/RG.2.2.31761.35686

Sumner, D. P. (2018). Biogeography, population dynamics and status of Micropeza lateralis Meigen, 1826 (Diptera, Micropezidae) in Europe. Preprint, 1(3 V1). https://doi.org/DOI: 10.13140/RG.2.2.15823.00160

Sumner, D. P. (2018). European Atlas: Micropezids & Tanypezids (Diptera, Nerioidea & Diopsoidea). Preprint, A 1(1 V5), 1–94. https://doi.org/DOI: 10.13140/RG.2.2.34834.99529

The above ResearchGate preprints have been read widely by researchers (over 500 times) and even cited once or twice.

Atlas, phenology & revised status

The UK Atlas has now been updated:

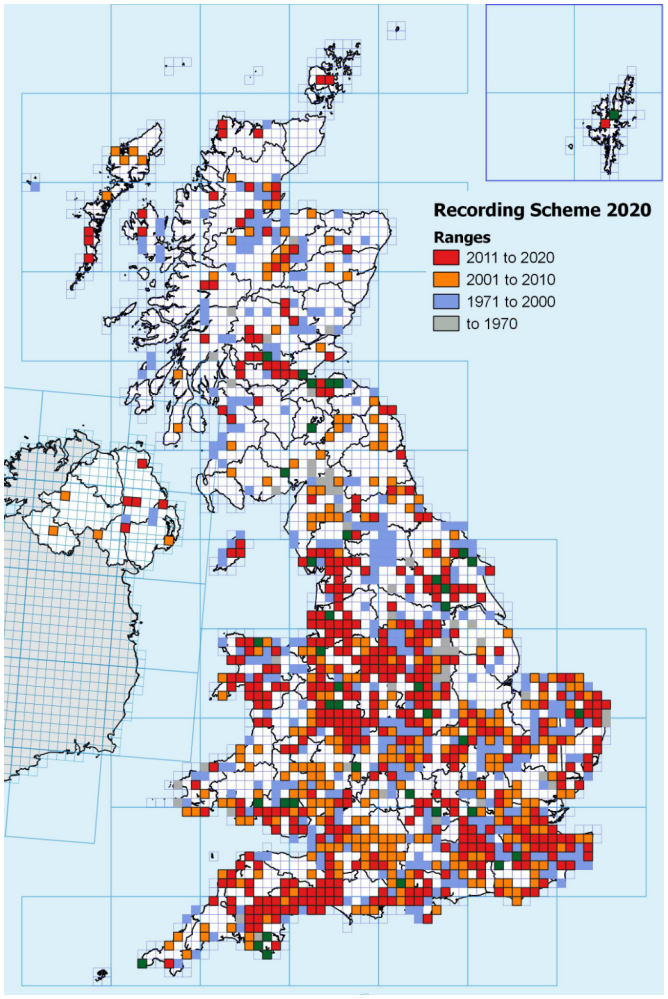
Sumner D.P.. (2021). Biogeography, Status & Phenology of UK Micropezids & Tanypezids (Diptera, Nerioidea & Diopsoidea). Dipterists Forum Report: Stilt & Stalk Fly Recording Scheme, A(11 V1), 48.

https://tinyurl.com/ve2f2wrx

As regards UK status this qualifies as an assessment rather than a full IUCN revision. The analyses revise the status of a number of species, removing *Micropeza lateralis* & *Megamerina dolium* from the threat lists and downgrading the threat status of *Rainieria calceata* whilst indicating that the Scottish specialities *Cnodacophora stylifera* and *Strongylophthalmyia ustulata* are under-recorded.

Current UK distribution maps are to be found on the Scratchpad site.

UK Recording Scheme Open Data 2020

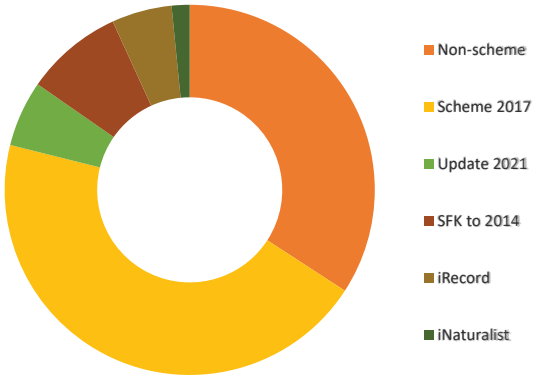


Status of records to 2020. All are publicly accessible through NBN Atlas. Dark green 10km squares are 2021 records (60), mainly through iRecord & iNaturalist. The colour patterns are indicative of changes in recorder effort over the decades, for example the blue and grey regions haven't been investigated (successfully) since last century.

Contact the Recording Scheme if you've any more or simply add them to iRecord.

Recording: UK

Records breakdown



The above shows the source of the records used in this scheme's analyses (distribution maps, phenology etc..) The first four categories were present on NBN Atlas by September 2021. Non-scheme records (3119) are historic datasets added from various sources together with records which have not necessarily passed through this scheme's verification procedures. The scheme's records (4083) were updated in 2021 from records submitted (526) plus a digitisation project (777) as detailed on NBN Atlas. Records from iRecord (480) and iNaturalist (143), all verified by this scheme's organiser, were added later. Despite careful verification, a good deal of editing and removal of invalid data was required in order to achieve satisfactory analyses.

Verification

The different means adopted by recorders in submitting records to this Recording Scheme each have their own benefits and provide different levels of networking.

Traditional: When this Recording Scheme was set up in 1999 it was supported by Dipterists Forum members who communicated by email and spreadsheet data. Most of the initial contributors still use this method and it forms the basis of the scheme's informal network.

iRecord: The shift in recorder's preferences becomes evident when examining the records posted to this online system. Some using this method are the traditional supporters, others casual or those who record across multiple taxa. Over the 2017 to 2020 period some 480 records were posted here, amounting to $^{1}/_{3}^{rd}$ of the UK total during that period. The verification system is terrific, in particular the "plausible" option which I find much better than the yes/no consensus system in iNaturalist. The networking potential is good, recorders can be contacted if further enquiries are needed and some do respond to the verifier's comments.

iNaturalist: UK records are rising and the networking potential here is considerable. In particular, since it was set up as a European project, there has been much communication with contributors from abroad. The automated systems send records directly to GBIF and a mechanism by which UK records are placed on NBN Atlas is currently operational through iRecord.

UK Status revision

The updated dataset above was used to recalculate the status of the UK species. Full details were published (together with distribution maps and phenology) in November and are available as a preprint on ResearchGate at https://tinyurl.com/33fk7aby

New UK species

Roger Thomason added *Chamaepsila pectoralis* to the UK list with his report at https://tinyurl.com/xjrperk on Diptera.info where it was confirmed by Paul Beuk. Tony Irwin commented "*The genus is in need of a thorough overhaul, going back to types where they exist, and probably using genomic characters as well. Having said that, I have no evidence to suggest that* humeralis *and* pectoralis *are not good species, so I would support adding* pectoralis *to the British list.*" So it was. Peter Chandler will be adding it to the revisions and Chris Raper added it to the UKSI. The record itself was added to NBN Atlas last autumn.

Chamaepsila pectoralis Graven, Shetland 2021-06-07 Roger Thomason

A summary of this species may be found at https://micropezids.myspecies.info/taxonomy/term/112 and key papers are listed there, notably the following:

Shatalkin, A. I., & Merz, B. (2010). The Psilidae (Diptera, Acalyptrata) of Switzerland , with description of two new species from Central Europe. Revue Suisse de Zoologie, 117(4), 771–800.

Wang, X. (1988). Determination tables of the Western Palaearctic Chamaepsila species (Diptera: Psilidae). Stuttgart-Based Contributions to the Natural History, 417(Series A), 1–13.

Tony Irwin remarks that "*It does seem odd that the species hasn't been found on the British mainland yet*" so would UK dipterists please check their material just in case.

New European species

More Psilidae have been found in Europe too. Kaj Winqvist is working on a *Chamaepsila* new to Finland (and Europe) whilst Jocelyn Claude, in addition to adding *Psila helvetica* to the French list is working on a number of *Chamaepsila* new to science. This work has focussed the attention of a number of experts on this genus with Jocelyn busying himself figuring genitalia. Maybe the outcome will be a much-needed revision. As Jindřich Roháček summarised recently "*Any precision identification of species of this difficult genus will be great.*"

Recording: Europe

The objective to get records of species occurrences onto ***GBIF*** using data from published papers continues slowly. I have the records extracted into a spreadsheet, the current problem is the absence of a handful of taxa from the GBIF backbone taxonomy, they use Catalogue of Life as their main source. The list of planned work can be found on the Datasets uploaded page of this scheme's research Scratchpad.

Denmark

One example of a country-based online recording website:

https://www.naturbasen.dk/art/14104/neria-cibaria

Identification

Psilidae

Two recent keys are useful to have in your library:

1. Phil Withers & Jocelyn Claude, (2021) Psilidae of France (Diptera: Acalyptrata): checklist and identification keys for genera and species.

https://tinyurl.com/87c34yww

2. Paul Beuk, Key: Psilidae

https://tinyurl.com/2e6szjcr

Loxocerini

There are consequently three keys available with which to identify the Loxocerini. The Sumner 2008 key tried a novel approach based on characters observed on UK specimens, the Withers 2019 key was based on French material and the Beuk 2020 key on other European material. Only the Withers key contains figures, all of them line drawings from previous publications.

Visual Guide to European Loxocerini

The Loxocerini may be identified from some images provided they are of a sufficient quality and cover the necessary aspects. There are several examples on both iRecord and iNaturalist, a good range of species on the gallery of Diptera.info and choice examples on https://micropezids.myspecies.info/

To identify from photographs, which rarely show all the features necessary to work through keys, the approach is to narrow the choices by ruling out each of the species one by one:

1. *Loxocera hoffmanseggi* (not UK)

Black thorax + red abdomen (mostly). Antennae with arista placed anteriorly.

2. *Loxocera aristata* (including the melanic form *L.maculata*)

Pale marking on the lower part of the occiput (below the eye) confined to a small (genal) patch

The remainder have much larger genal patches, more than half of the lower occiput:

3. *Imantimyia albiseta*

Yellow to amber face (fades to black just below the antennae.) Humeri dark + scutellum pale (tan or amber.) **Arista with distinct hairs** (needs a clear photo.) Postgenal stripe present.

4. *Imantimyia fulviventris*

Black face. Humeri dark + scutellum pale. **Arista with shorter hairs**. Postgenal stripe absent.

Differentiating the above two relies either on characters rarely visible in photographs (detail of aristal hairs or face colour below antennae) or on microscopical character on the occiput - a shimmer stripe on the lower occiput (the gena or "cheek")

Consequently it is not safe to identify the above two from most field photographs.

5. *Imantimyia sylvatica*

Humeri pale + scutellum pale (tan/yellow).

Tan/yellow rather than amber in colouration, humeri tan/yellow, more or less pigmented tan/yellow markings on the frons above the antennae and a distinctive long black stripe on the thorax.

6. *Imantimyia nigrifrons*

Small Reed (*Imantimyia nigrifrons*) by Patrick Eckfeldt

Humeri black + scutellum black. Weakly, but clearly infuscated wing ribs. The hind tibia can also often be coloured brown in the middle parts (Hennig 1941). *L. nigrifrons* also has a very dark thorax compared to other *Loxocera*.

Other guides

The FSC Identikit online guide on the Scratchpad site may also prove valuable in narrowing down some of the Psilidae.

Photography

If you are fortunate enough to happen across one of these in the field then the best you might manage is one or two quick shots. Even the very best of these might not be enough to confirm their identity. An effective tactic is that of Malcolm Storey who gets a fresh specimen to his studio and photographs it from all angles. For this group it's the full-frontal head shot which helps greatly, so try to bag this aspect in the field if you can, perhaps netting it then holding it in one hand whilst snapping the face using the other. Then let it go.

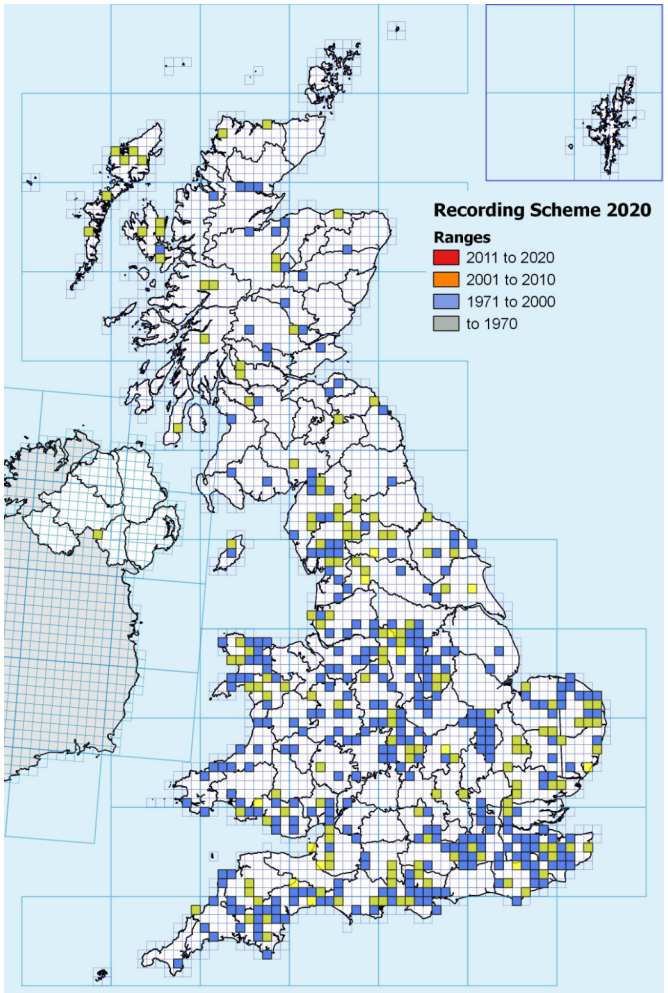
Verification

Very few images posted on iNaturalist can be identified, mostly the best that can be achieved is the Genus *Loxocera* (iNaturalist doesn't recognise *Imantimyia* or the tribe Loxocerini). Some warrant the comment:

> Either Imantimyia albiseta (https://micropezids.myspecies.info/taxonomy/term/75) or I. fulviventris (https://micropezids.myspecies.info/taxonomy/term/76)
>
> To be certain which, the face below the antennae would need to be examined (yellow and black respectively)

Rarely *Loxocera hoffmanseggi* and *Loxocera aristata* get posted there but *Loxocera albiseta* is the main one recorded. iRecord images can be similarly inconclusive but here the verifier can use the "plausible" option and add that same comment. Some then turn out to have been taken as specimens and so may readily be resolved using iRecord's notification system.

UK Loxocerini Map



Fully identified Loxocerini (blue) overlain with 161 records (yellow) which cannot be identified beyond *Loxocera* (Genus) via photographs. Overlaps appear green.

iNaturalist project

This Scheme's iNaturalist project, set up in May 2020 at https://www.inaturalist.org/projects/european-micropezids-tanypezids goes from strength to strength. It now has 13 members, users signed up to keep an eye specifically on this group. By the end of the season the number of observations across Europe had risen from last year's 607 to 1100

Perhaps the project did encourage more recording. Around 20% of UK recording is now through this site. There has also been a good deal of positive feedback occasioned by my habit of providing a link to each taxon on my Scratchpad site when confirming an identity. Hopefully contributors go and read that before confirming my ID.

I'm indebted to Sam Rees for showing an interest and helping to raise many to Research grade, a good example of the effectiveness of collaboration. Do participate by joining the project as a member, there are always many unconfirmed ("needs ID") records:

Visual Guide to European Chylizinae

Chylizinae

The European fauna consists of 6 species in the Genus *Chyliza: C. annulipes, C. extenuata, C. leguminicola, C. leptogaster, C. nova* and *C. vittata*. They are all keyed in …

Bygebjerg, R., Munk, T., & Elnif, J. (2011). Chyliza leguminicola Melander, 1920 (Diptera: Psilidae) new to the Palaearctic fauna. Entomologiske Meddelelser, 79(2), 73–84.

… and also in Withers and Beuk where this group ("tailcoats") is arrived at at the start of the key, alongside the Loxocerini.

From photographs they may be narrowed down as follows:

1. *Chyliza leguminicola (*not UK but it is invasive*)*

Legs (femora) **black**.

2. *Chyliza annulipes*

Legs yellow, **Femora with broad black rings**

3. *Chyliza vittata*

Legs yellow. Femora without rings. **Thorax mainly yellow**

4. *Chyliza extenuata*

Legs yellow. Femora without rings. Thorax mainly black. **Arista with dense black pubescence**.

5. *Chyliza leptogaster*

Legs yellow. Femora without rings. Thorax mainly black. Arista pubescence normal. **Frons mainly black, females with second antennal segment partially brown.**

6. *Chyliza nova*

[no reliable photograph known]

Legs yellow. Femora without rings. Thorax mainly black. Arista pubescence normal. **Frons normally much yellowed, females with second antennal segment yellow.**

To reliably differentiate *C. leptogaster* from *C. nova* requires microscopical examination or a very good photograph of the fore tibia of a male.

Other guides

The keys above provide further detail. The FSC Identikit online guide on the Scratchpad site may also prove valuable.

Acknowledgements

Many thanks to the photographers whose work features in the above guides. Many of them post regularly on Diptera.info and on iNaturalist, others provide images as an educational resource on their own websites (e.g. Flickr & Bioimages.)

The Scratchpad research site also has many images kindly licensed by various photographers.

Neria femoralis

There have been a number of misidentification problems arising from this species. The clearest illustration is that of Lithuanian photographer Tomas Tarvainis (who makes it clear that he's not an entomologist) on his site at https://tyt.lt/about.php where two images of *Neria cibaria* are misidentified as *Neria femoralis*.

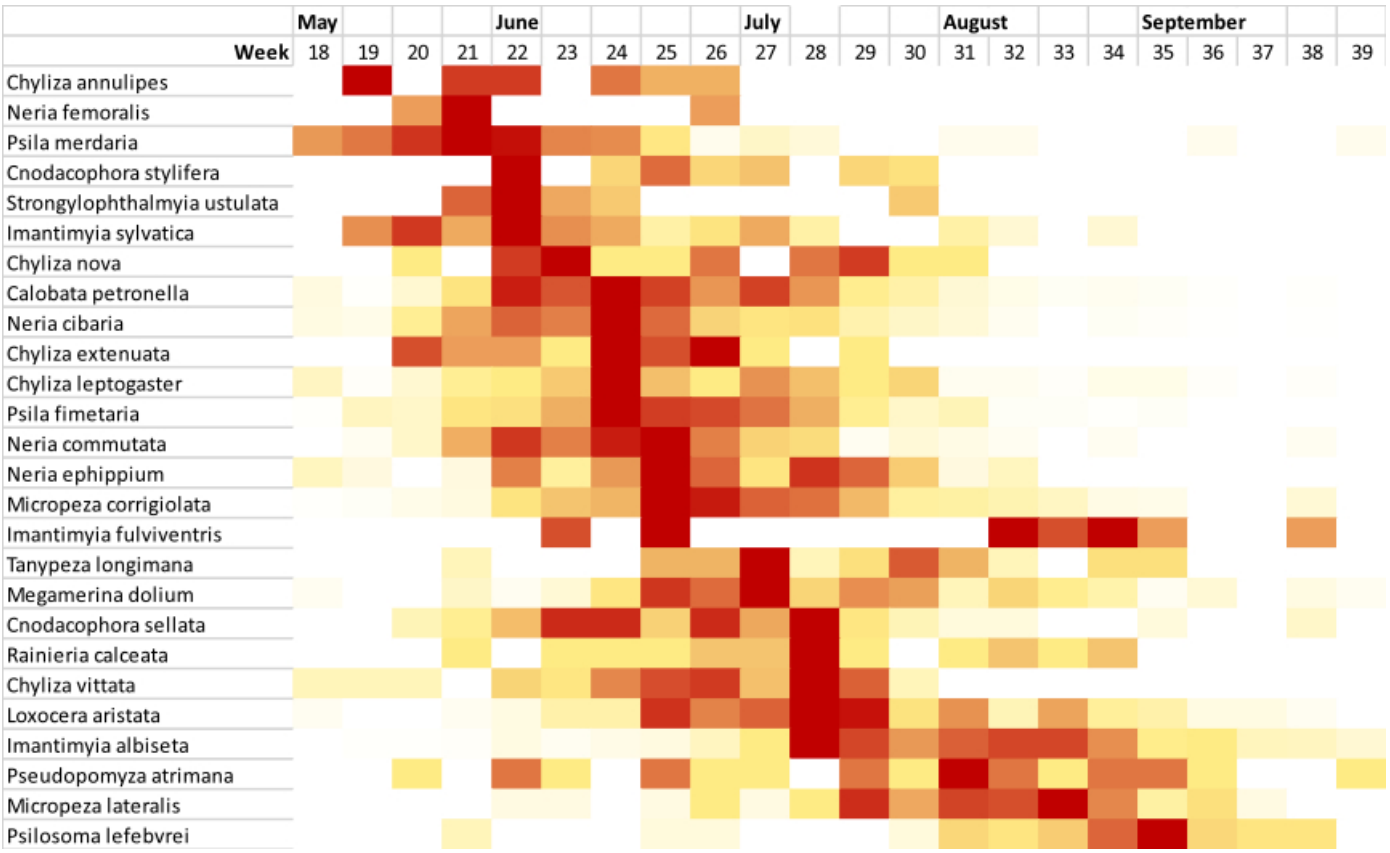
It's a tricky one to resolve so I'm cautious about all reports of *Neria femoralis*. A handful of UK records are being checked - they've been uploaded to NBN Atlas as "unconfirmed" and also some records which were posted on Waarneming.nl to finish up as images on GBIF don't conform fully with Czerny's description (below.)

I discussed this species with Jindřich Roháček who tells me that it is relatively easy to find in the Czech Republic and kindly sent me an image. However the image (opposite) posted by Sokolkov on iNaturalist shows most clearly the head pattern features described by Czerny, 1930: **Male**: *frons narrowed anteriorly, frontal stripe rusty yellow, black around ocelli, in front of ocelli with a pointed whitish dusted triangle, reaching middle of frons. Eye margins whitish dusted anteriorly, lateral eye ridges and occiput black, with white dusting*

A case perhaps of the species not conforming to the published description. Anna Kreffer's sequence of images at https://tinyurl.com/54k69f86 look fine, but no dusted triangle.

I tried again in 2021 to find this at its UK site in Cheshire. The rather cool spring however seems to have delayed its emergence and nothing was found.

Chronology



Timeline of UK flight times of Micropezids & Tanypezids (except *Chamaepsila*) listed in order of earliest peak occurrence (red.) Dates as week number (*sensu* MS Excel.) For fantail phenology charts see Sumner, 2021

Hoverfly Newsletter

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Copy for **HoverflyNewsletterNo.72** (which is expected to be issued with the Autumn 2022 Dipterists Forum Bulletin) should be sent to me: David Iliff, **Green Willows, Station Road, Woodmancote, Cheltenham, Glos, GL52 9HN, (telephone01242 674398), email:davidiliff@talk21.com**, toreach me by 20th June 2022. Given the size limitations it may be worthwhile to send your articles in good time to ensure that they are circulated with the bulletin, in which newsletters are restricted to a maximum of eight pages.

The hoverfly illustrated at the top right of this page is a female *Sericomyialappona*

HOVERFLY RECORDING SCHEME UPDATE: Spring 2022

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

2021 was a strange year! A cold wet spell in April and May meant that there were far fewer records for this important time of year than in previous years. The effects of this cold snap can be seen very clearly in the volumes of data extracted from the UK Hoverflies Facebook group and also in the levels of activity by the group (Figure 1).

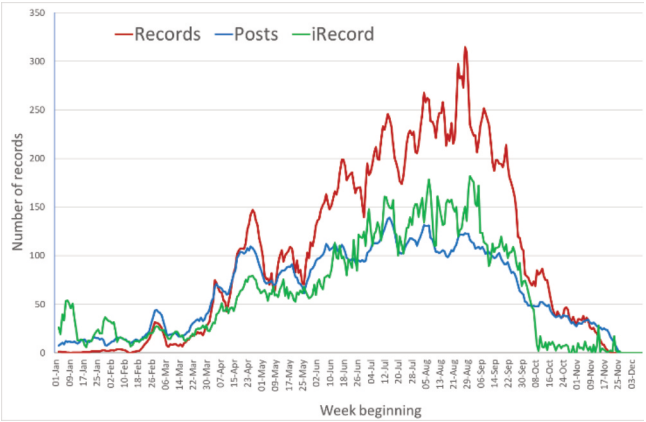

Figure 1. Seven day running average of records extracted from the UK Hoverflies Facebook page in 2021 (Red), the numbers of posts on the page (blue) and the numbers of records verified on iRecord (green). A dramatic dip can be seen between the last week in April and the first week of June.

We may never properly know what impact this inclement weather had on hoverfly populations and the prospects for 2022. Relating experience in subsequent years to a specific event is almost impossible because each new year brings its own weather variables that may have a bearing on the year in question.

Unlike recent years, July and August did not suffer from extreme heatwaves and drought, so with any luck populations will have had a chance to recover a little bit from the ravages of past heatwaves.

At the time of writing, only part of 2021 data had been uploaded to the scheme database but, even so, the numbers of records look to be promising with just under 50,000 records imported up until early November 2021 (Figure 2). What is also very noticeable from the graph is that in 2020 the numbers of records received exceeded 100,000 for the first time!

It is fascinating to see how much coverage has already been achieved in 2021 (Figure 3) but the map also illustrates some of the problems we have in trying to ensure coverage of less populated areas. As always, mid-Wales, the southern uplands of Scotland and the Highlands are very deficient. So, if you are planning your holidays there are some obvious areas that would benefit from a bit of recording!

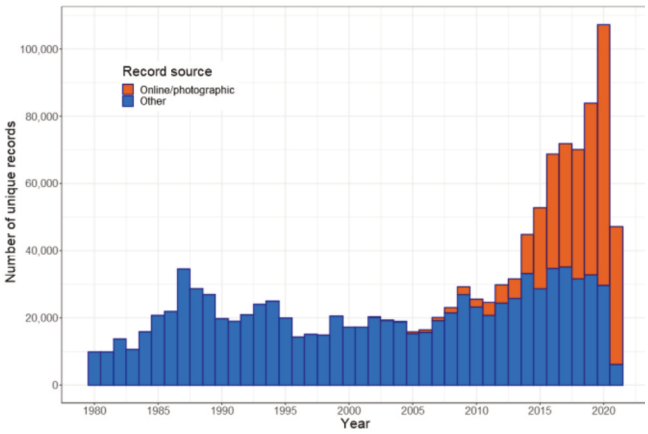

Figure 2. Numbers of unique records on the HRS dataset at the start of November 2021. The orange bars represent records based primarily on photography.

Figure 3. Coverage by records received to November 2021 for the year 2021.

The change in the level of hoverfly recording over the past ten years has been dramatic and has been accompanied by a very encouraging deepening of the capacity to engage with new recorders. We have a fantastic team who provide identification advice and extract records: thanks are especially due to Mick Chatman, Linda Fenwick, Adam Kelsey, David Rayner, Sue Kitt, Katie Stanney and Chris Sellen.

Recent developments

During the summer Roger raised the question of whether it might be possible to develop an online tool to capture 'negative records' i.e. those times when one goes out and find no hoverflies. Part of the rationale for this initiative was that we need to try to get a better handle on what happens during heatwaves, and recording negative returns may help to show what is going on under such circumstances. In addition, it should be possible to look in greater depth at the hourly fluctuations in hoverfly activity using a larger pool of recorders.

Andy Murdock and his colleague Ioannis Sofos responded to the challenge and offered to develop such a tool. Their company, Maploom, specialises in landscape assessment and has a lot of experience creating interactive applications for a wide variety of clients. Andy is also a very keen hoverfly recorder so is ideally placed to understand what will appeal to users of their product. At the time of writing the package is still under development, but it is being designed not only as a data capture tool but also as a way of providing immediate feedback to users. It will also help to simplify data management from the facebook group but is not intended as a replacement for other systems that recorders use (e.g., iRecord). We are hugely indebted to Andy and Ioannis. Do check out the Facebook page for updates and links.

A sad story of decline

The issue of catastrophic insect decline has become increasingly apparent in the high impact literature, with a steady stream of new papers emerging. For hoverflies, Stuart maintains a watch over trends and produces relevant graphs on an intermittent basis. The latest ones, generated in November 2021 paint quite a depressing story with more than 50% of our fauna in significant decline (Figure 4).

As yet, we have no explanation either for the rate of decline or the apparent quickening of the pace of decline. Until recently, most informed observers have placed the blame largely upon habitat loss and pesticides, but we are seeing substantial losses from the southern forest belt, which is largely buffered from both habitat loss and pesticides. So, can these really be the main factors? When you bear in mind that in recent years HRS updates have continually

reported events in which hoverfly recording was seriously disrupted by either heatwaves or cold snaps, some serious thought needs to be given to the possibility that an increasingly extreme climate is having an impact.

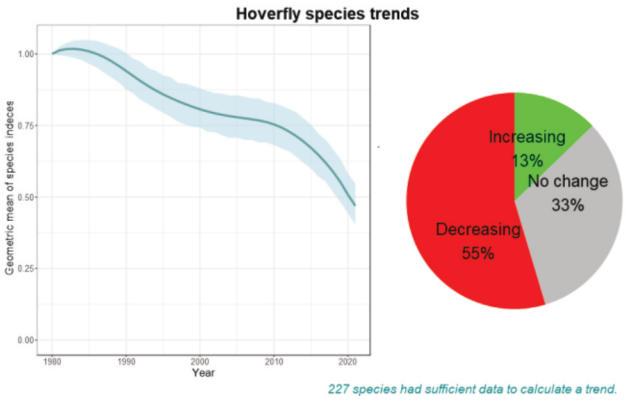

Figure 4. Trends for Britain's hoverflies: left – the overall trend with 95% confidence limits and, right, overall changes – green (increasing) 13%; grey (no change (33%) and red (decreasing) 55% (all numbers rounded up – hence 101%!).

Making sense of what is happening is hugely dependent upon good data, and there are very limited levels of monitoring other than compilation of opportunistic data by schemes such as the HRS. So the challenge we face is how to generate data that will take us closer to understanding what is happening. All records count, and, if you feel so inclined, do please make sure you record as often as possible from your local 'patch' or from your garden. Hopefully, the new data management system Andy and Ioannis are developing will make it more rewarding for people to conduct regular garden walks or walks around their 'patch'.

Unusual records in 2021

Although 2021 will not go down as a 'vintage' year, there have been a number of highlights, including the first British Record of *Chalcosyrphuspiger* at West Stow Country Park (Suffolk) by Alan Thornhill (paper in press in Dipterists Digest at the time of writing). This species is associated with decaying conifer sap and might well turn up elsewhere in East Anglian conifer plantations. Keep your eyes peeled for a somewhat squatter version of *Brachypalpoideslentus*in which all tergites apart from T1 are red and the hind femora are somewhat shorter and fatter.

Other highlights include a new location for *Callicera spinolae* found by Vic Brown at ivy in Gamlingay; several records for *Callicera aurata* and a further record of *Dorosprofuges*from Martin Down by Sharon Towning. Possibly the most exciting one, however, was that of *Chrysotoxumvernale*from Hartland Moor by Damian Money. Records of *C. vernale* are exceptional and this one, together with the others reported here goes to show the value of a small army of photographic recorders.

iRecord & iNaturalist

Data from iRecord up until February 2021 have been uploaded to the HRS dataset. All records for the summer 2021 have been verified and will have been uploaded to the HRS dataset by the time this newsletter lands on people's doormats. In addition, BRC has resumed downloads from iNaturalist to iRecord. This process meant that some 15,500 records were streamed into iRecord over late September and the end of October. They have all been verified and will also be uploaded to the HRS.

Initial perusal of the records from iNaturalist suggest that they are largely occasional records rather than attempts to compile detailed local lists. As such, they are far more dominated by a few very widespread and abundant species: *Episyrphus balteatus* figures strongly, as do bigger Eristalines and *Volucella*species. Overall, species diversity is far lower. Coupled with this lower species diversity, the numbers of misidentifications are considerably lower than data in iRecord (~2% as opposed to ~6.5%) but there are far more cases where at least two species figure in the post. It is very unclear, therefore, whether the peer-review process of iNaturalist is terribly effective.

When verification of iRecord first started, it was found that around 10% of submissions with photographs were either over-ambitiously identified or misidentified. This rate has declined markedly in the following years. The main reason for this decline seems to be that a high proportion of submissions now come from people who post on the UK Hoverflies Facebook page before submitting to iRecord. The vast majority of problems now arise from recorders who don't use the Facebook group (in a few cases the misidentification rate approaches 30-40%).

Analysis of common misidentifications within iRecord was produced some while ago [Morris, R.K.A., 2019. Understanding common misidentifications of British hoverflies (Diptera, Syrphidae). *British Journal of Entomology & Natural History*, **32**: 351-363]. An update is probably needed, as these sorts of analyses may help to explain oddities in the HRS dataset from previous decades.

Hoverfly conference2022

It had been intended to run the 11th International Conference on the Syrphidae in 2021 but Covid put paid to those plans. The conference will now take place at Barcelonette (Alpes de Haute Provence,

France) from Monday 6th to Saturday 11th September 2022. Stuart and Roger have been asked to present (try stopping them) and they hope to provide a great stimulus to delegates. These conferences are a fantastic gathering of people interested in hoverflies and may well appeal to readers of this newsletter. Don't be overawed; everyone is very friendly. It would be great to see a substantial British contingent. (Editor's note: fuller details of the symposium appear in the bulletin).

An encounter with *Sericomyia superbiens*

Martin Matthews

On 4 August 2021 I enjoyed a warm, sunny day visiting Ysgyryd Fawr (aka The Skirrid) a small but shapely mountain (summit: 486m) located about 2 miles north-east of Y Fenni/Abergavenny in Gwent. In spite of its modest dimensions, the mountain is a conspicuous landscape feature which forms a narrow, mile long ridge rising clear of its surroundings along a north-south axis. Woodland extends from the southern tip of the ridge around the lower slopes of its western side, but from the east it appears quite bald and most of the ridge is exposed to the elements with a low-growing, dry upland vegetation of grass, ferns, bilberry etc. A path from the south follows the top of the ridge up to the highest point which is close to the northern end of the mountain.

It was while descending the path I became aware that I was being 'buzzed' by a flying insect of some kind. Initially it seemed to be just behind me at about head height and, of course, I immediately suspected the usual pain-inflicting culprit, *Haematapotapluvialis*, so I prepared to deter it in any way I could. The creature then flew across in front of me and I had a baffling glimpse of something unexpectedly orange and alarmingly bulkier than I was expecting. The noise stopped suddenly and I realised that the fly had settled somewhere out of sight on my back. Instinctively, I swept an arm to dislodge it but, fortunately perhaps, it was not to be easily discouraged and it immediately settled again; this time it was in clear sight on my left arm. My mind, fuddled no doubt by the heat, was still thinking about horseflies and I failed completely to realise that I was looking at a hoverfly. Because I did not immediately recognise the species I needed either to photograph or capture the specimen. My camera was inside my back pack so I doubted whether I could retrieve it without risking departure of the fly, but I was able to reach into one of the side pockets with my free hand and pull out a specimen tube. The fly seemed content to rest on my arm and I had no difficulty capturing it for closer examination.

As I continued to walk, I puzzled over what sort of fly it might be. It soon occurred to me that it could be some sort of hoverfly, possibly a *Criorhina*, but I couldn't pin it down to any particular species. It wasn't until I got home and had a trawl through Stubbs and Falk that I realised it was a female of *Sericomyiasuperbiens*, a species which I have only seen occasionally in my home county of Gloucestershire and which I would not have expected to encounter at an open, hilltop site. As this hoverfly would usually be found in woodland clearings it may have strayed from suitable habitat on the lower slopes nearby, although I am not clear why it would have done so unless it was on a longer dispersal flight. Why it found my mobile form on the ridge so attractive is also a puzzle; was it the camouflage provided by my pale brown shirt, or the sweat I was producing in the heat of the day, or was I just a convenient perch in an otherwise poorly furnished environment?

Sericomyiasuperbiens (Photo: Martin Matthews)

Hunting for hoverfly larvae in winter leaf litter

Stephen Suttill

Last winter (2020/21) was my first venture into actively searching for hoverfly larvae at various sites within Greater Manchester. Prior to that I had found larvae opportunistically whilst looking for adults, and I had joined the UK Hoverflies Larval Group on Facebook in order to discover their identity. Posts by the group's helpful administrators, Geoff Wilkinson and Nicola Garnham, and other enthusiasts, regularly

provided an indication of when and where different species of larvae could be found.

Towards the end of October I started by examining the underside of sycamore leaves that were still on the tree and I soon found quite a few *Syrphus*larvae. By the beginning of December there were no leaves left on the sycamores, so I started to explore the leaf litter below. Most aphid predatory hoverflies remain dormant throughout the winter with most pupating the following spring or summer. I know that many folk will collect bags of leaves and take them home for careful examination on a white tray and under a strong light, but I have restricted myself to searching on site (I don't think the former approach would be welcomed in our household!). The process was very simple: pick a spot and turn over leaves making sure to unfurl any folds or curls.

I soon discovered that the best places to find larvae were in the deeper accumulations of leaf litter. In the slightly drier upper layers I would find many *Syrphus* (mostly, by now, in dormancy until adult emergence in the spring). In the deeper layers where the leaves were moister and more compacted I would find *Melanostoma* larvae. These are predators of cohabiting fly larvae, such as Lauxaniidae, Fanniidae and Lonchopteridae that feed on micro-organisms that thrive on moist, decaying leaves. On Boxing Day I found my first larvae of *Epistrophe grossulariae* in sycamore litter at what was my most productive site.

It was at this point that I discovered my first serious mistake. I was finding so many *Syrphus*larvae at one site that it was questioned whether I might be double-counting (or even treble-counting) the same larvae! I had thought this through beforehand and had taken all the leaves with larvae to one particular spot. I returned to that spot and sifted through the leaves to find that all the *E. grossulariae*were still there, but all the *Syrphus* had gone! *E. grossulariae* is known to enter a very deep dormancy which can sometimes last for several years whereas *Syrphus* remains more responsive to changes in temperature and moisture, and move around accordingly.

I widened my daily searches to other local areas with sycamore litter (I very rarely found hoverfly larvae on leaves of other trees) and, along with the usual suspects, found *Dasysyrphus albostriatus* and *Leucozonaglaucia*. I also checked out the roots of older beech trees and found the long-tailed larvae of *Myathropa florea* in water-filled cavities with accumulations of leaf litter. Whilst searching through frozen and snow-covered leaves was uncomfortable it was still possible to find hoverfly larvae; though some were encrusted with frost!

Typical *Epistrophe grossulariae*, *Leucozonaglaucia* and *Dasysyrphusalbostriatus* can be readily identified in the field and from good photographs from the dorsal aspect. *Syrphus*and *Melanostoma* cannot be reliably identified to species and I took a few to rear to adulthood. Unfortunately all my *Syrphus*failed at the pupal stage. I do still have an *Epistrophegrossulariae* larva in diapause which might not develop further for another year or more.

I can heartily recommend searching leaf litter as a winter activity for hoverfly aficionados but, beware, it can be addictive and you'll find yourself looking for larvae even when the adults are in action.

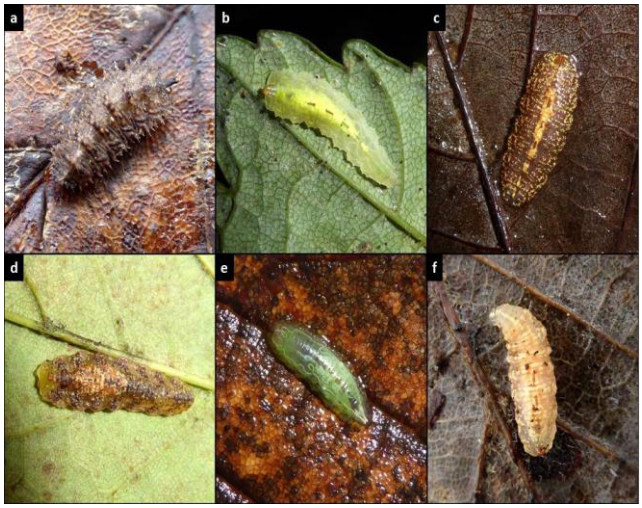

Figure 1. a) *Dasysyrphus albostriatus*; b, c) *Epistriophe grossulariae*; d) *Leucozona glaucia*; e) *Melanostoma sp.*; f) *Syrphus sp.*

Note: *Epistrophe grossulariae* are green coloured when actively feeding which is great camouflage on living sycamore leaves. When they have finished feeding their colour changes to autumnal hues better suited for hiding in leaf litter.

Hunting for hoverfly larvae before they hit the leaf litter

Geoff Wilkinson

There is a sweet spot between finding larvae on sycamore leaves and in the leaf litter. As the leaves fall

and autumn winds shake the trees, many larvae find themselves prematurely on the ground. Those that have finished feeding will remain there to enter dormancy for the winter but those that still hunger for aphids will climb up any nearby structure (if by fortune they haven't fallen on such a place). Fallen aphids appear to do likewise so any fence line, wall or gravestones beneath a line of sycamore or where sycamore leaves drift can be a happy hunting ground for Syrphines.

Local to me is a wooden post and rail fence about 345m in length that runs beneath a line of trees mostly composed of sycamore on the shores of the Montrose Basin in Angus. From 2nd November to present I recorded 3 – 85 *Syrphus*sp. and 1 – 8 *E. grossulariae*on twelve dates. Undoubtedly I recorded the same individuals on subsequent days but there was certainly considerable turnover among *E. grossulariae*(e.g. larvae of different sizes, difference in colour patterns and hues, position along fence, etc.). Over the last month – in addition to the almost usual *Syrphus* and *E. grossulariae* - I have also found *Dasysyrphusalbostriatus* and *D. tricinctus* on grave stones and walls under sycamore. Fences and walls under solitary trees in urban settings can often yield some larvae. The trees can even be some distance away and fences with accumulations of windblown leaf litter at their bases are also worth checking. The species count may not seem especially impressive but the technique can be used whilst searching for adults and on those days when the weather is poor it is more productive than looking for adults!

Figure 2. a, b) *Syrphus*sp. on various structures c) *Epistrophegrossulariae*on fence post under sycamore

Hoverfly Lagoons2021 – semi-aquatic hoverfly species

Ellen Rotheray

This year I asked our Hoverfly Lagoons volunteers to help me find an effective alternative lagoon container to our single-use plastic milk bottles. We use milk bottles because they are free and available to most people, they are safe and easy to use, and they are a standard size which is important for experimental replication. However, there is evidence that as the single-use plastic degrades it could leach chemicals into the environment, and over time the plastic will shatter. I asked volunteers to compare alternatives (see hoverflylagoons.co.uk/the-lagoon-container/) with single-use milk bottles in their gardens (see images in Figure 1).

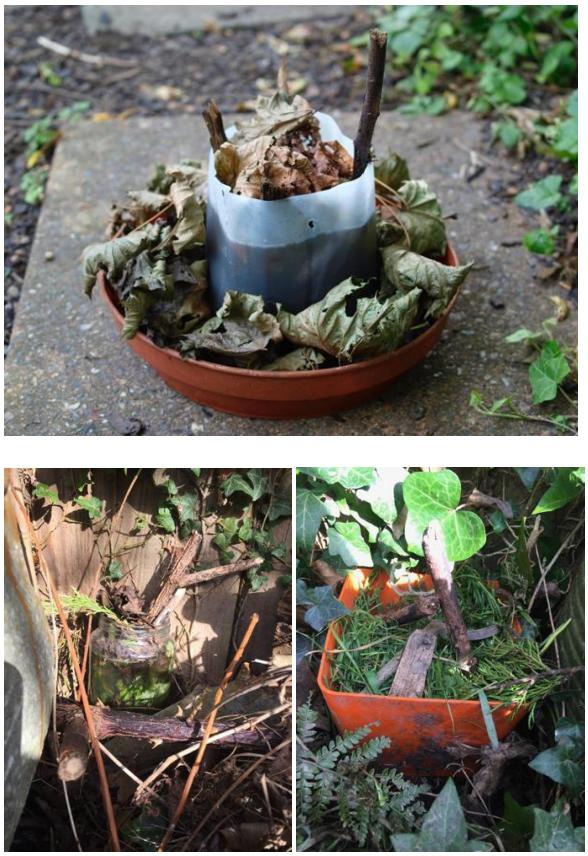

Figure 1. Hoverfly Lagoon containers, including the original single-use plastic (far left), glass jar (centre) and durable plastic (far right). Other trialled containers included cartons, ceramic pots and steel saucepans.

We had 195 volunteers sign up to the project this year, however only 14% submitted data, which totalled 179 submissions over the seven months. Those that submitted data set up Lagoons using six different types of container; the most trialled containers were ceramic pots followed by glass jars.

All trialled lagoon containers were successful in attracting gravid female hoverflies, and providing enough resources for larvae to develop to the pupal stage. Glass jars had the greatest average number of larvae and subsequent pupae reported across all container types, followed by metal saucepans and then plastic milk bottles (see Figure 2) though it's worth noting that plastic milk bottle had almost the

same maximum larval number (260 larvae) compared to glass jar (261 larvae).

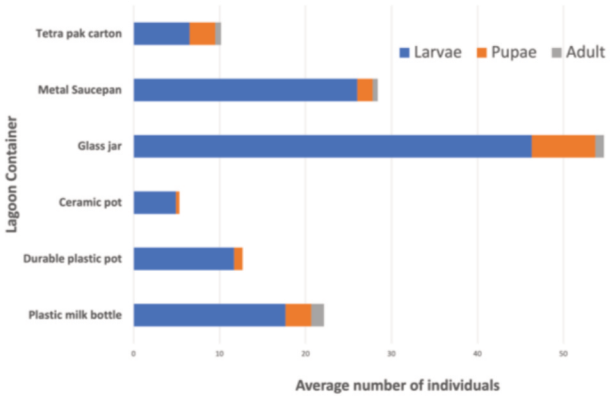

Figure 2. Stacked bar plot illustrating average number of larvae (blue bar), pupae (orange bar), and adult (grey bar) recorded from each type of container; carton, saucepan, glass jar, ceramic pot, durable plastic pot, and single-use plastic milk carton.

These containers were filled with grass only, grass + leaf litter, or leaf litter only, and a smaller number of lagoons were filled with nettles or sawdust. While grass + leaf litter, and grass only had comparable maximum numbers of larvae (260 and 261 respectively), the greatest number of larvae on average were recorded from grass + leaf litter and sawdust lagoons, followed by grass-only lagoons.

As in previous years, there was a recorded peak in larval abundance in lagoons in June and July, with a peak in pupal records in August (see Figure 3). Adult hoverfly species this year were identified as the Batman Hoverfly, *Myathropa florea*, and *Syritta pipiens* only. We expect that larvae in lagoons recorded in October will likely overwinter, begin feeding again in spring and pupate in March/April next year.

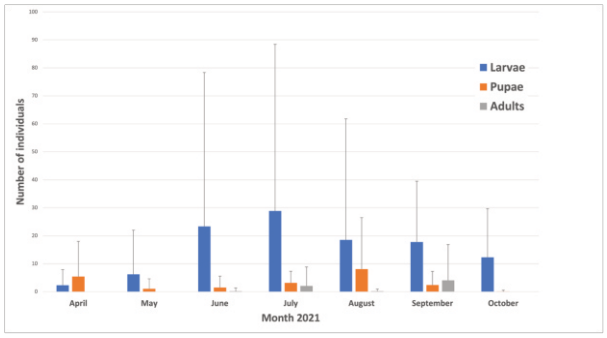

Figure 3. Bar plot illustrating average numbers of larvae, pupae and adults recorded over seven months, April until October 2021, with positive standard deviation error bars (to illustrate the range of the data).

Our results suggest glass jars are as effective as plastic milk bottles, but I look forward to digging a little deeper into these data, to determine what line of enquiry is next for the project.

A new speciesfound in Hoverfly lagoons!

Now published in *Dipterist Digest*, we describe the pupal stage of *Rhingia rostrata* which was recorded from a densely-filled, cut-grass lagoon in June 2020 (see: hoverflylagoons.co.uk/rhingia-rostrata/). Adult oviposition preference and larval requirements for this species continues to be uncertain, and the pupal stage had never been described, so this was a very exciting find. What's more, adult *Rhingia* are known for their long mouthparts which enable them to feed from flowers with deep corollas such as red campion and ground ivy, whereas most hoverflies generally feed on open, more accessible flowers such as cherry, buttercups or umbellifers. This means hoverflies utilising lagoon habitat in gardens may also be contributing to the pollination of a larger range of wild flowering plants. Continued research into lagoon design to attract a greater number of hoverfly species is required, across a range of habitats including gardens; anyone keen to get involved in such an experiment please get in touch!

Rotheray E & Rotheray GE (2021) The puparium and development site of *Rhingia rostrata* (Linnaeus) and comparison with *R. campestris* Meigen (Diptera, Syrphidae) Dipterist Digest, 28:127-134, Dipterists Forum

Chysotoxumarcuatum in Gloucestershire

David Iliff

On 11 September 2021 the Gloucestershire Invertebrate Group (GIG) held a field meeting at The Park, Tidenham Chase ST5599, during which Tony Taylor, the county Hymenoptera recorder spotted what appeared at first to be a social wasp. When he approached it he realised it was a hoverfly, and caught it in a tube which he handed to me. It was a *Chrysotoxum*– one of the "difficult five" – and noticing its rotund appearance I was immediately confident that it was *Chrysotoxum arcuatum*, which was confirmed once I had examined its antennae. It was a female and I was able to place it on a leaf and photograph it.

Page 100 of **Britain's Hoverflies** features maps showing the distribution in Great Britain of *C. arcuatum* and *C. cautum* and graphically illustrates the geographical separation of the two species. Some doubt was expressed about the validity of this Tidenham record. However the species was first recorded in the county in 1993, also at a GIG meeting, when Keith Alexander and I found two examples (a male and a female) at nearby Poor's Allotment. Since that date there have been seven more county records, all from the Forest of Dean area.

Chrysotoxumcautum occurs throughout the county (including in my garden near Cheltenham in each of the last six summers). The map below shows that *Chysotoxum arcuatum* is confined within the county to the Forest of Dean area, which must represent the extreme south-eastern boundary of its range.

(Note: I record hoverflies throughout "Greater Gloucestershire", which I define as the whole of the present counties of Gloucestershire and South Gloucestershire plus the whole of VC33 (East Gloucestershire) and VC34 (West Gloucestershire)).

Chrysotoxumarcuatum female (Photo: David Iliff)

Chrysotoxumcautum female (Photo: David Iliff)

The county boundary and river data are OS OpenData https://osdatahub.os.uk/downloads/open) and the VC boundaries are from Biological Records Centre (https://github.com/BiologicalRecordsCentre/vice-counties).

Cranefly News

The Dipterists Forum **Cranefly Recording**

For Superfamily Tipuloidea & Families Ptychopteridae & Trichoceridae

Newsletter No 38 **Spring 2022**

Editor: John Kramer

Larva of Tipula confusa with friends. Photo. EGH

Another interpretation of the hypopygiumof *Paradelphomyia neilseni* (Kuntze) (Limoniidae) - C. Martin Drake

*Paradelphomyia*aredistinctive craneflies quickly recognised to genus but can be awkward to identify to species. The smallest British species is *P.neilseni*whose identification seems easier to me if the genitalia characters in Stubbs (2021) are ignored. Its narrow wing with scarcely any anal lobe and very sparse microtrichia confined to the outer halves of the cells are enough to place it (Fig.1). The reason for ignoring the genitalia is that the figure of the hypopygium, reproduced from Edwards (1938) and perpetuated by Coe *et al*. (1950) and others, shows two features that are not apparent in specimens that I recently collected. These features are the very long backwardly pointing aedeagus and the tiny 'H'-shaped apodeme at the base of the aedeagus.

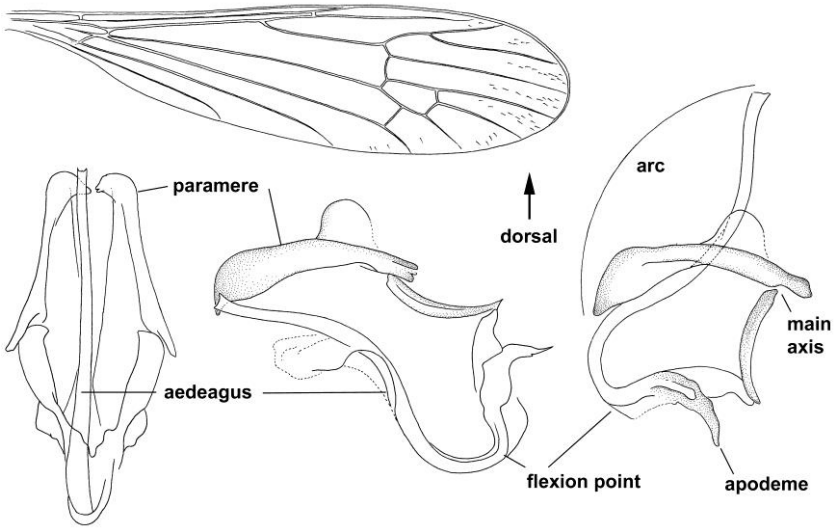

Fig.1. *Paradelphomyianeilseni*wing (flattened under cover-slip) and aedeagus and parameres in ventral and lateral views showing the aedeagus in its retracted (mid fig.) and extended positions (right fig.), with the arc followed by the tip of the aedeagus. The lateral views show the parameres in their natural position with the dorsal side uppermost.

The apodeme is the easiest to deal with. It is a tiny scrap of chitin that is not easy to make out; in dorso-ventral view, it is nearly rectangular and has no projections, in contrast to other British species in which the apodeme is conspicuous and usually diagnostic. Tjeder (1952) illustrated the apodeme of *P.nielseni*as small polygon with a slightly expanded tip but with no projections, agreeing roughly with my specimens.

The aedeagus is a more interesting structure. It clearly can change position from retracted to extended, as John Kramer (2015) noted. My sample of many males showed all states (Fig 1). In the retracted position, the tip of the aedeagus is level with the tips of the parameres, in a different orientation to that in Edward's (1938) figure, but which looks superficially similar to that of the non-British *P.nigrina* (Lackschewitz), as illustrated by Tjeder (1952) as *Oxyrhizaseptentrionalis*and reproduced by John Kramer (2015) and Alan Stubbs (2021). Hence there is a good chance of getting temporarily excited in finding this species, only to be disappointed when the key is followed more carefully. When the aedeagus is extended, it usually points upwards or diagonally backards (dorsally or postero-dorsally) between the parameres, and in dorsal view it does not extend far beyond the paramere tips. In only one example in my sample did it point backwards as Edwards

illustrated. To check how the aedeagus moved, I gently manipulated a dissected example in viscous warm glycerine jelly (Ackland 2015). The aedeagus can be made to bend at two points, one being a main articulation where its stout forked base it meets the two parameres, and a second less clearly defined axis just distal to the apodeme where the single duct will bend but quickly spring back to its original position. If this more distal joint is just a weak flexion point and not a true articulation, except perhaps when the whole complex is under some strain during copulation, then movement of the aedeagus is usually limited between the two extreme positions that I illustrate, and the extent of its movement is shown by the arc made by the tip of the aedeagus around the single main axis with the parameres (Fig. 1). John Kramer (2015) suggested that retraction of the aedeagus caused the hair-pin bend but the whole 'hair-pin' is rigid apart from the weak flexion point. So although it is possible to force the aedeagus to point backwards, and thus extend far beyond the parameres, I feel that Edwards often-reproduced figure almost certainly shows an extreme example or even an artefact of his preparation in which he did force it back beyond its normal position. Care is therefore needed when interpreting the hypopygium of *P.nielseni*.However, a protruding aedeagus does seem to be characteristic of this species only, although what happens is *nigrina* remains to be discovered.

*Paradelphomyianeilseni*hasonly rarely been recorded in Devon so the 2021 find was particularly interesting because the population was large, with this species being one of the most frequent craneflies in a small patch of possibly slightly acidic hillside seepage under sparse sallow (*Salixcinerea*)woodland.Some of the less common craneflies at this seepage were *Dicranotaclaripennis*(Verrall), *Lipsothrixremota* (Walker) and *Paradelphomyiafuscula*(Loew). (Devon: Knapp Copse, SY156953, 11 Oct 2021).

I thank East Devon District Council for permission to collect on their local nature reserve, and John Kramer for reminding me of his paper.

References

Ackland, D.M. 2015. Using glycerine jelly to hold dissections on a microscope slide. *Bulletinof the DipteristsForum*80, 15-17.
Coe, R.L., Freeman, P. & Mattingly, P.F. 1950. Diptera 2. Nematocera: families Tipulidae to Chironomidae. *Handbooksforthe Identification of British Insects*9 (2), 1-216.
Edwards, F.W. 1938. British short-palped craneflies. Taxonomy of adults. *Transactionsofthe Societyfor British Entomology*5, 1-168.
Kramer, J. 2015. A review of the genus *Paradelphomyia*Alexander (Diptera, Limoniidae) in Britain. *DipteristsDigest(Second Series)*22, 43-57.
Stubbs, A.E. 2021. *Britishcraneflies*.British Entomological and Natural History Society, Reading. 434pp + plates.
Tjeder, B. 1952. A new *Oxyrhiza*(Dipt. Tipulidae). *Opusculaentomologica*17, 125-127.

***Paradelphomyia dalei* found in France.**

In a well-presented paper by Pierre Tillier and Clovis Quindroit specimens of *P.dalei* have been reported from five sites in France. This species had been previously recorded only from sites in the UK and was prreviously thought to be endemic here. The habitats reported conform to the 'calcareous wet woodland' described in 'British Craneflies' as typical in Britain.

Reference

Tillier, P. and Qunindroit, C. 2021. Découverte en France d'une espèce de Limoniidae supposée endémique de Grande-Bretagne : *Paradelphomyiadalei*(Edwards, 1939) (Diptera). Bulletin de la Société entomologique de France 2022

Ed.

Vertical movement of *Tipula (Savtshenkia) confusa*van der Wulp, 1883 larvae in responseto flooding.

E.G. Hancock,

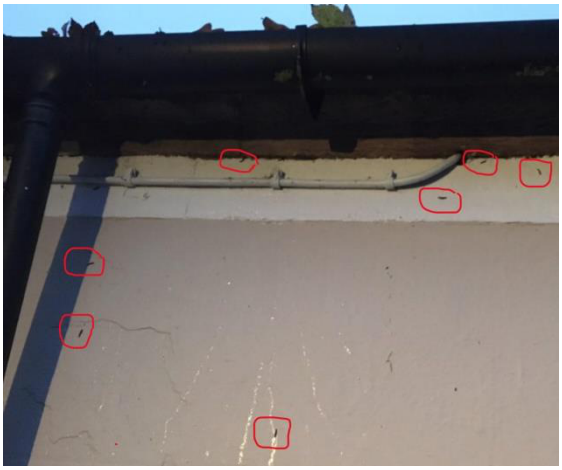

Fig.1 Position of larvae high up on the house wall.

This behaviour is described in order to ask if any similar observations have been made elsewhere. After some persistent rain *Tipula*larvae (identified as *confusa*from specimens collected) were seen on the wall of my house possibly moving to a drier place to avoid drowning. They had developed in moss covering part of the surface of the concrete yard; samples of which contained many larvae. The yard concrete comes right up to base of the wall, which is rendered and painted, so there is no refuge on the horizontal plane for the larvae if threatened or disturbed. A considerable number of larvae were first noticed on 12th November 2021 (Fig. 1) after two days of rain.

The next day I was cleaning moss and slippery algae from stone steps at the back of the house using a hose pipe and stiff brush. Having soaked the steps and partially completed the job upon returning to finish an hour or so later three larvae were seen crawling up the adjacent wall. Clearly, they had been disturbed by this activity; it was not raining at the time. Having become aware of this 'migration' it has been seen several

times since. The temperature was about 10 degrees C., quite mild compared to sub-zero temperature during intervening clear nights. On all the dates it had been raining or drizzling for several hours prior to seeing the larvae. Another sighting on 11th December was in the evening when five larvae were performing this feat in darkness.

I have not seen this behaviour before which may be due to my lack of attention or have been too diligent in previous years in sweeping the yard free of moss earlier in the season. At a natural site it would be difficult to witness such an event, if there is a situation which required such movement, as tree trunks or rank vegetation would conceal any larval activity from view. There are a number of questions to consider. Do they go back down again, and if so when and how soon after it stops raining? The walls get wet from the rain but on drying the larvae would be less able to grip the vertical surface with reduced surface tension. I have not witnessed an entire journey but seen them stop, move sideways or just sit on a windowsill that provides a horizontal ledge as a resting place (Fig. 2). Obviously, there is opportunity for experimentation here. The hypothesis is they avoid temporary flooding by equally temporary vertical movement. The larvae lack abdominal prolegs but appear to move by peristaltic contractions of the body which remains in contact with the wall. The head seems to act as a forward anchorage point, lifting off the substrate to reach out to a suitable part of the surface for gripping. The last segment has lobes ventrally about the anus which in contact with the surface may provide sufficient purchase to assist forward progression during the wriggling (Fig. 3). Video close-up imaging on a glass plate may help with defining movements. Any comments are welcome.

E.G. Hancock, Hunterian Museum, University of Glasgow.

Fig. 1 Habitat of *D. radegasti*. Photo K.M Olsen

More on *Dicranomyia radegasti*

In Cranefly News #37 there was a description of a specimen of *Dicranomyia radegasti* Starý 1993, caught and identified in Scotland by Kjell Magne Olsen. All of the male diagnostic characters described by Starý in his 1993 paper. were were shown as photographs, apart from the hind tarsal claw. This is shown in Starý's specimens as slightly longer than in *D. chorea*, and slightly undulating, something to look out for in future British specimens.

Kjell Magne sent some more details of the habitat in the Glen Nant NNR, which is shown in the adjacent photo, and which is very similar to that described by Jaroslav Starý.

Observations on the phenology and sex ratios of craneflies (Limoniidae) and a few other Diptera found in emergence traps. Robert Wolton

In 2020, I ran four emergence traps in a wet woodland on our farm in Devon between the beginning of May and early October (excepting the month of August), as detailed in Wolton and Field (2021). In addition, the following year I ran a couple of traps in the latter half of April to get some early season data. For those taxa I was able to identify to species or genus level, I recorded the numbers of each sex caught. This information has enabled me to explore both flight times (phenology) and sex ratios, with the outcomes explained below.

The traps captured 30 or more individuals from 15 taxa – I reckon 30 to be the minimum necessary for meaningful analysis. Eight of these taxa are craneflies: *Austrolimnophila ochracea* (30 individuals in 2020), *Dicranophragma adjunctum* (31), *D. nemorale* (37), *Euphylidorea dispar* (46), *Paradelphomyia senilis* (63), *Phylidorea fulvonervosa* (69), The *Erioptera* species emerging into the traps were *fuscipennis* (6 males) and *lutea* (57 males), while the *Molphilus* species were *appendiculatus* (3 males), *bifidus* (6 males), *flavus* (13 males), *griseus* (34 males), *medius* (13 males), *obscurus* (2 males) and *ochraceus* (58 males). *Erioptera* (76) and *Molophilus* (209) (females of the last two genera cannot be identified confidently to species level). (The names of the other seven taxa are given in Figure 2.)

Figure 1 presents phenology charts, using 2020 data. Assuming generations do not overlap seamlessly, three species have one generation (*A. ochracea*, *E. dispar* and *P. fulvonervosa*), four taxa two generations (*D. adjunctum*, *D. nemorale*, *P. senilis* and *Erioptera* spp.), while together the seven *Molophilus* spp. have three, possibly four, generations.
Males emerged earlier than females in each generation for most species In *E. dispar* six males and no females emerged in April 2021., a frequently observed phenomenon in flies (e.g. Buck 2001, Hadley 1969), so no surprise there. However, *A. ochracea* is an exception, the females emerging earlier than the males, as they do in *P. senilis*, at least in the autumn generation. I caught no males of *D. adjunctum* at all in the spring generation, but the probable explanation for this is that trapping in 2020, commencing on 1 May, did not cover the beginning of their season: in 2021 a single male was caught on 19 April (no females were caught that month). Why should females ever emerge before males? Are my results for *A. ochracea* and *P. senilis* anomalous, or is this a real phenomenon in these species? Earlier emergence of females is said to be a rare occurrence in Diptera and insects in general (Buck 2001).

The sex ratios of these craneflies are given in **Figure 2**, again just based on the 2020 data. While those for three cranefly taxa are not significantly different from that expected from a 1:1 ratio of males to females, for *Erioptera* and *Molophilus* significantly more males than females were caught, the converse being true for *A. ochracea* and *E. dispar*.

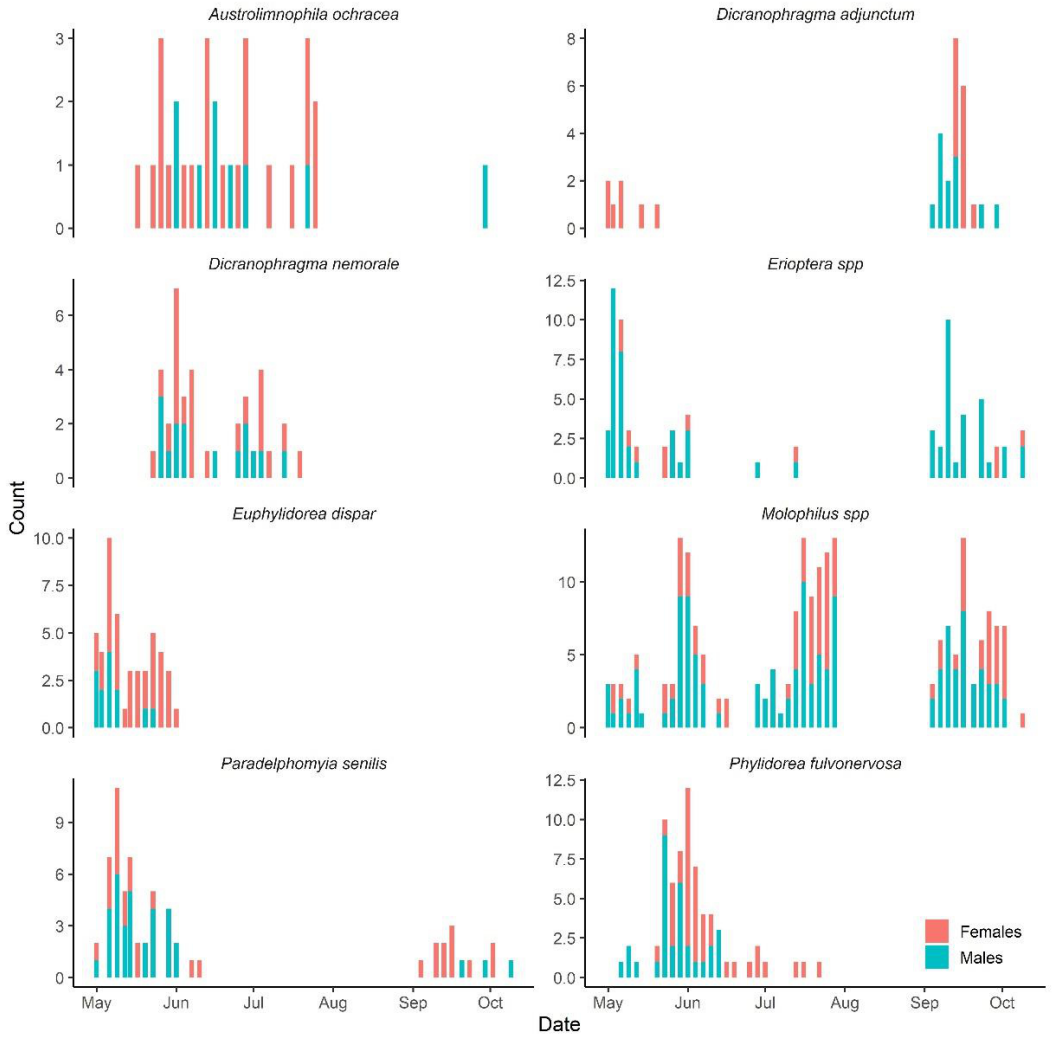

Figure 1. Phenology charts for the eight most numerous cranefly taxa caught in emergence traps in 2020 in a wet woodland at Locks Park Farm, Devon. The traps were operational between 1 May and 9 October, excepting the month of August.

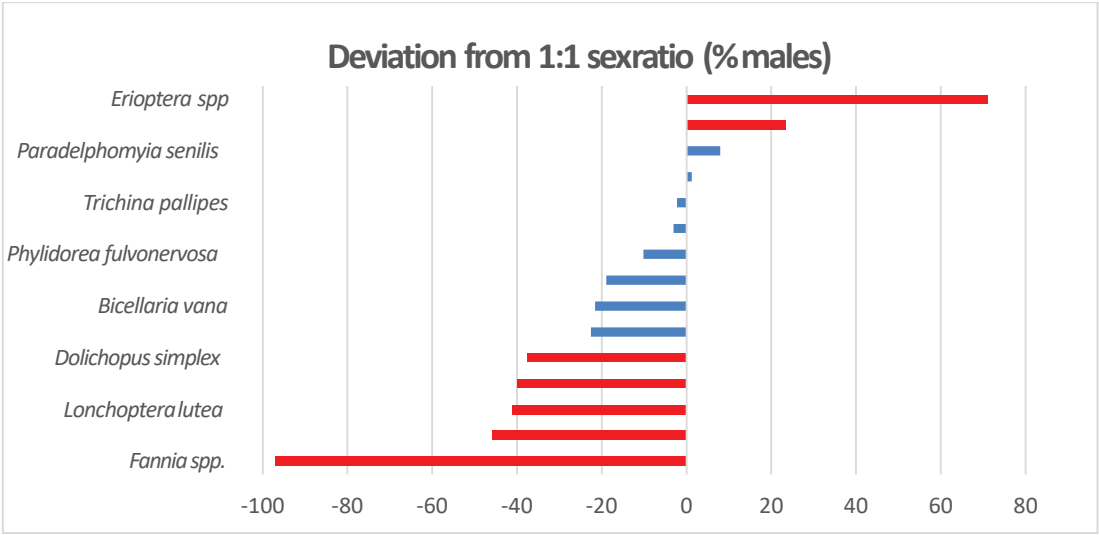

Figure 2. Sex ratios of the 15 taxa identified to species or genus level where 30 or more individuals caught in emergence traps in 2020. Central vertical line is 1:1 male:female ratio. Extreme left line indicates 100% female, extreme right 100% male. Red bars show significant differences from 1:1 at 5% level (χ^2 test).

Some of these variations away from a 1:1 M:F ratio could be explained by trapping taking place only between early May and early October: if more of one sex than the other emerged earlier or later in the season this would skew the results. Examination of the phenology charts suggests that this might be true for *E.dispar*, especially since between 10 April and 1 May 2021 six males of that species were caught, but no females. The strong bias towards females in *A.ochracea* cannot easily be explained in this way and continues to baffle me.

I also remain perplexed as to why more male *Molophilus* and many more male *Erioptera* emerged than females. It is unlikely to be an artefact of the trapping season not starting early enough, since in April 2021 all 18 *Erioptera*(*lutea*) caught were male bar one, and the three *Molophilus*(*griseus*) were all male too. The bias could perhaps be explained by the majority females never flying or crawling up the sides of the emergence traps, so avoiding capture. They may be mated soon after emergence, perhaps even while still teneral, and, finding the surrounding medium suitable for oviposition, never move more than a few centimetres. However, as Alan Stubbs has pointed out to me, in *Erioptera* the males form swarms to attract females, so presumably here the females must usually fly to find mates; at least some *Molophilus* also swarm. Another possible explanation is that the females are more crepuscular or nocturnal than the males, being inactive when I visited the traps. That this too may not be the answer is suggested by an extraordinarily detailed study of *Molophilusater*, a flightless species, conducted by Malcolm Hadley (1969). He also found a strong male bias: 65% of newly emerged individuals and 55% of those which pupated in the laboratory were males. Perhaps it is a characteristic of the genus that more male than female eggs are laid, or, more likely, that mortality rates differ between the two sexes at larval or pupal stages. Hadley himself was unable to account for the preponderance of males in *M. ater*.

To stray briefly from craneflies, every one of the 69 *FanniaF.aequilineata* (1 individual), *F.genualis*(3), *F.lustrator* (1), *F.serena*(35), *F.similis* (22), *F.umbrosa*(7) (Fanniidae) appearing in the emergence traps was female, the sole exception being the single *F.lustrator*. What happened to the males? If anyone can cast any light on this, I should be pleased to hear from you. Perhaps the most likely explanation is infection by male-killing parasitic microbes. The common bacteria *Wolbachia*, for example, are known to result in extreme female sex biases in some insects and have been found to occur in wild *Fannia*, including *F.serena* (Martin *et al*. 2012). Perhaps they also infect *Austrolimnophilaochracea*!

My thanks to Alan Stubbs for insights and especially to Ben Field for producing Figure 1 using R software.

References

Buck, M. 2001. Protogyny, protandry, and bimodal emergence patterns in necrophagous Diptera. *TheCanadianEntomologist* **133**, 521-531.

Hadley, M. 1969. The adult biology of the Crane-fly *Molophilusater* Meigen. *Journalof AnimalEcology***38**, 765-790.

Martin, O.Y., Gubler, A., Wimmer, C., Germann, C. and Bernasconi, M.V. 2012. Infections with *Wolbachia* and *Spiroplasma* in the Scathophagidae and other Muscoidea. *Infection, GeneticsandEvolution***12**, 315-323.

Wolton, R.J. and Field, B. 2021.The impact of cattle on the Diptera and other insect fauna of a temperate wet woodland. *Dipterists Digest***28**, 201-220.

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Idiocera sexguttata in the New Forest – Paul D. Brock

As a keen photographer, I like to set myself a challenge and survey insect species new to me each year. Having been asked for a photograph of the globally endangered cranefly *Idiocerasexguttata* to use for conservation purposes, also seen the report by Lovegrove et al (2018) referring to the last known record in the New Forest (2000), this species fitted the bill, with distinctive wing spots enabling identification in the field. Contact with Jack Potter (Natural England) established that he had found them at Stony Moors (approx. SZ2199) on 8 June 2018, but only recorded one in June 2019, indicating they may be elusive. As stated in *BritishCraneflies* by Stubbs (2021), the Forest site is an outcrop of marl (a very calcareous clay). The species also occurs in Wales and there are old records in Dorset c. 1860 and Cornwall in 1912. Recent records from a few areas of Dorset and Wales are listed in Howe (2016).

My first visit to the site was a brief recce of the site on 12 June 2021, when a male *I.sexguttata* was swept. Colin Easton and I visited on the morning of 16 June 2021 and after an hour of methodical searching had found several specimens of both sexes by sweeping and searching vegetation. Although difficult to find at rest, they were observed on bog myrtle *Myricagale* and bramble, on leaves (including upperside) or branches. If disturbed, the slow ghost-like flight can be carefully followed, the specimen landing on nearby vegetation. Some were photographed in situ, one was brought home for more detailed photos and released on site next day. In order to minimise disturbance of the habitat, this brief survey was concluded on 16 June.

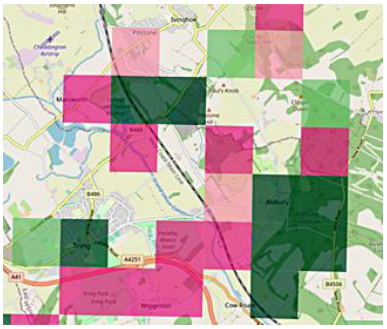
The New Forest site mentioned above is small but supports good populations of craneflies in general. If looking for this species, other boggy areas and seepages in the Forest and elsewhere should be surveyed in about mid-June (a permit from Forestry England is required for the New Forest), as there is every probability they will be more widespread but overlooked, due to their small size and short flight period.

Howe, M. 2016. A new Welsh locality for the cranefly *Idiocerasexguttata* (Dale) (Diptera, Limoniidae) in 2015. *Dipterists Digest* 23(1): 47-48.

Lovegrove A., Gillingham P. and Harrison A. (2018). New Forest HLS Scheme Specialist Habitat and Species Surveys: Survey and assessment of Six-spotted cranefly. BU Global Environmental Solutions (BUG) report (BUG2772) to Forestry Commission. Higher Level Stewardship Agreement, The Verderers of the New Forest AG00300016. 19 pp. www.hlsnewforest.org.uk/app/uploads/sites/3/2018/03/Six_spotted_cranefly_survey.pdf

Can you help us with targeting revisit maps for craneflies?

Our friends over at the UK Centre for Ecology and Hydrology (UK CEH) have added craneflies (via the UK Cranefly Recording Scheme) to the list of groups they are collecting data upon under the target revisit mapping project. This is an online mapping tool that is helping to model trend analysis in insect populations but will double as a way of helping us gather more cranefly data for the Recording Scheme. It is also being used by our colleagues over at the Orthoptera Recording Scheme, the Ground Beetle Recording Scheme and the Soldierfly and Allies Recording Scheme.
Here is how it works.
Step1 – visit the website at https://shiny-apps.ceh.ac.uk/targeting_revisits_craneflies/ or Google 'targeting revisits craneflies'
Step2 – Decide where you want to survey and zoom in on an area on the UK Map.



Step3 – You will see a number of differently coloured 1km x 1km squares (monads). Any that are blank are classed as 'unrecorded' as far as the model goes and if you can add any records for here this would be great!
Bright pink squares = targets for revisits. They have records from only one year in the past so if any records can be made in these monads, they can be included in our trend analysis.
Pale pink squares = new this year. These squares have the most recent records and will become targets for revisits next year.
Dark green squares = considered well recorded. These are already being used in the trend analysis as they have records from multiple years so are less important for the model but welcome for the Recording Scheme.
Pale green squares = successful revisits. They used to only have records from a single year but have had records added due to the targeting revisit scheme.
Step4 – Go out and survey craneflies as you normally would considering access permissions.
Step5 – Add your records on to iRecord.
Step6 – Records get verified.
Step7 – Targeting revisit maps get updated automatically and you should see bright pink squares change colour to pale green, blank squares go pale pink, and more dark green squares.
Step8 – Sit back knowing you've done a great job and repeat next year!!!
It would be wonderful to get as many recorders adding cranefly records via iRecord to help with the trend analysis models and add new records for us here at the Recording Scheme.
Many thanks!
Pete Boardman

Can you help with the Cranefly Recording Scheme?

Now 'British Craneflies' has been published we anticipate the volume of records to increase that comes into the recording scheme. Our friends over in the Hoverfly Recording Scheme found this and have produced some interesting graphs that demonstrate how the availability of identification resources boost recording and we expect that to be the case with this scheme too.
In the last few years, we've had around 4000 records annually through this scheme. Most come through iRecord, the safest way to submit data, as if one of the current scheme members goes under a bus the data remains and can be picked up by someone else acting on behalf of the scheme. We still do get Excel spreadsheets though, which we have to process and add onto iRecord anyway so that all our cranefly data goes through iRecord one way or another eventually.
About two thirds of our data that comes through iRecord is submitted alongside a photo. Each of these has to be looked at individual to check ID and can be really time consuming, but ultimately really interesting as the quality of digital photography and camera technology has improved.
There are a number of ways people could help with the scheme in a technical or non-technical way – could you help?
1 – Social Media–could you advocate for us? Help spread the news that there is a Cranefly Recording Scheme and that we have a Twitter account (@CRStipula) currently with just over 2000 followers Could you help generate content? We have a Facebook page too with 714 members and always need people to help identify photos on there. Would anyone be prepared to set up and monitor an Instagram page? Maybe put content together for TikTok and get craneflies viral?
2 – Websites-do you have website building skills? We currently have a small presence on the Dipterists Forum website https://dipterists.org.uk/cranefly-scheme/home but it would be great to get more information on here as place for inexperienced cranefly recorders to visit. Maybe species profiles,
3 – Data Handling-Could you commit to convert Excel spreadsheets into iRecord friendly Excel imports?

4 – Cranefly Identification - Are you able to identify craneflies? Could you help with verifying for iRecord – even just common species?
5 – Cranefly training events – are you able to help run events or run events yourself with support from us? Could you host an event? Do you have a venue that we could use? We anticipate the need for more training events over the next few years with the availability of British Craneflies.
If you are able to help with any of these areas (or have other suggestions as to how you could help – please contact Pete or John.
Pete Boardman

The verification of biological records. - JohnKramer

In response to an increase in recording we need to be careful in our enthusiasm, not to go for quantity over quality. It is much easier to make a record than it is to check and confirm it . The late Trevor James of the National Biodiversity Network, in his paper 'Improving wildlife data quality' (James, 2006) discussed the process and the purpose of records. He also discusses the need for data verification – 'ensuring the accuracy of the identification of the thing being recorded'. He wrote: *Recordingschemesor organisations setting up a surveyhave a responsibility to take the lead with setting standards for identification. Theyshould define agreedlevelsof 'difficulty' over the identification of the speciesbeingrecorded.*

Entomology is a science, and science is an evidence-based activity. We use visual evidence in identification. The level of evidence needed to verify a species record varies from species to species, from common to rare, and from simple characters to complex ones, but sometimes it is reasonable to say 'there is not sufficient evidence on which to base a conclusion.'

We usually accept records of common easily identified species in their usual habitat but if the recorder is a novice or the habitat abnormal we may ask them for the diagnostic character that they observed. However, any claim for a record of a 'difficult', rare or a new species needs the presentation of supporting evidence. This may be for a County (or Vice-County) Recorder, or for the National Recorder. The evidence may be the specimen itself, or it may be a drawing or photograph of the diagnostic features. Important reasons for this are that structures can be missed or misinterpreted by the original observer, or the taxonomy may change and if the evidence is there, the misidentification can be corrected. It goes without saying that any recorder should be able to describe the diagnostic character which led them to their identification, in a similar process to the way that the ornithologists' British Birds Rarities Committee operates. What should we, as a recording community, accept as sufficient evidence? This paper is offered as a contribution to that debate.

Guidancefor Validation

The levels of difficulty shown below can be used to sort species into groups. The statements below refer chiefly to males. For many genera a satisfactory key to females has yet to be published and in those cases, where a voucher specimen is female, it should be noted and the site searched further for confirmatory males.

Levelsof identification difficulty - Criteria

Level5. Microdissection of male genitalia necessary to display apodeme or other character. Eg. *Tasiocera,Paradephomyia, Ula mixta.*
Level4. Some genitalia dissection needed and/or genitalia complicated and/or difficult to see. Eg. *Gonomyia,Idiopyga. Rhabdomastix.*
Level3. Binocular microscope needed to see small features such as male styles. Eg. *Erioptera,Ormosia.*
Level2. Diagnostic characters distinct with hand-lens. Eg. *Male Lunatipula, Limonia.*
Level1. Diagnostic characters distinct with naked eye. Eg. *Acutipula, Limonianubeculosa*.

SpeciesinGroup5. Voucher specimens, drawings or photos of diagnostic characters necessary to confirm the record. Eg. *Tasiocera jenkinsoni, Paradelphomyia fuscula, P. dalei, Rhabdomastixlaeta*

SpeciesinGroup4. Voucher specimens, drawings or photos of diagnostic characters necessary to confirm the record. The genus *Gonomyia*have complex genitalia which can be difficult to make out. Parts change shape or are concealed according to the viewing angle. This means that evidence such as is demonstrated by photomicroscopy is hard-won, and difficult to present.

SpeciesinGroup3. A description of the diagnostic features observed may be requested, especially if the species is rare or in an atypical habitat.

How common or rare a species is another criteria relevant to the evidence required for identification and this can be measured by the National Rarity Indices. If a species is common and widespread (NRI 1 or 2) the record is usually accepted without any anxiety. If however it has only previously been found in a few hectads then it would be necessary to present the full evidence with the record.

The National Rarity Indices

NRI 1	Species found in > 100 hectads
NRI 2	Species found in 30 – 100 hectads
NRI 3	Species found in 16 – 30 hectads
NRI 4	Species found in 6 -15 hectads
NRI 5	Species found in 2 – 5 hectads
NRI 6	Species found in 1 hectad only.

List available from the author.

Some examples of Verification Levels (VL) with the National Rarity Indices (NRI)

	VL	NRI	
Gonomyia bifida	4	4	Voucher
Gonomyia conoviensis	4	4	Voucher
Gonomyia dentata	4	2	
Gonomyia hippocampi	4	6	Voucher
Gonomyia lucidula	4	2	
Gonomyia recta	4	2	
Gonomyia simplex	4	2	
Gonomyia tenella	4	4	Voucher
Gonomyia abbreviata	4	5	Voucher
Gonomyia edwardsi	4	4	Voucher
Hoplolabis areolata	4	4	Voucher
Hoplolabis vicina	4	4	Voucher
Hoplolabis yezoana	4	6	Voucher

There are no hard and fast rules. A species like *Ctenophoraornata* is very distinctive and it appears to be spreading northwards. When it appeared in Sherwood Forest at light, fortunately the Pembertons were able to photograph it and remove any shadow of doubt as to the validity of their record. (CN **26**. 2013). There is a specimen of this species in the Wingate collection in Newcastle, from a site in the north east. The specimen looks authentic and has a layer of soot characteristic of specimens from that time and place. It is simply labelled 'Bishop Aukland, --07, Wingate.' and there are no other details with the specimen. (CN **24** 2012) Did it come from imported timber, or was it a gift from one dipterist in the south of England to one in the north ? So the locality is as important as the species name and despite the presence of a labelled specimen, the presence of *Ctenophoraornata* in Bishop Aukland has not been accepted.

References

James, T. 2006 'Improving Wildlife data quality: guidance on data verification, validation and their application in biological recording. National Biodiversity Network

John Kramer

British Craneflies by Alan Stubbs

Buy yours now, while stocks last !!!

Any suggestions for amendments to the book can be made to the author, Alan Stubbs, Pete Boardman or to John Kramer.

The next copy deadline for Issue#39 is June 21st 2022. john.kramer@btinternet.com
If you are not on the list to receive an extended e-copy please send your email address to the editor.

Anthomyiidae Newsletter No 13

Spring 2022

David Michael Ackland (1927-2021)

You will have read the reminiscences and tributes in the last Bulletin (Issue 92) and they very much reflect my own few years of working with him on the Anthomyiid data. Michael is seen above collecting in some alpine location in France at a date unknown to me, but perhaps someone can supply the details. We had an extensive e-mail correspondence from which I learnt much not only about the entomology but also useful IT resources such as new file transfer sites. He also supplied me with a reference set of specimens in which every British genus was represented. In March 2019 I had the opportunity to visit him at his home in Bridport and see his well-equipped workroom with the shelves of boxes from around the world.

Sadly, the many species new to science in these boxes may have to remain unidentified for a while Michael had also hoped to develop the keys to the British species into an RES handbook (though he also said that it would have been better to base it all on the genitalia). The DF Committee has agreed that it should be a priority to get these keys into a publishable form.

Anthomyiidae Recording

Although we have suspended verification on IRECORD and so been demoted from the status of a Recording Scheme, records are continuing to come in both from dedicated dipterists and from a wider range of digital photographers and leaf-mine enthusiasts. IRECORD has nice facilities for filtering and displaying records and also you can generate a species list for a family in a given period of time and geographical region. The last Newsletter (No 12 in Bulletin 89) summarised the Anthomyiidae data up to early December 2019 when over 17,000 records had accumulated.

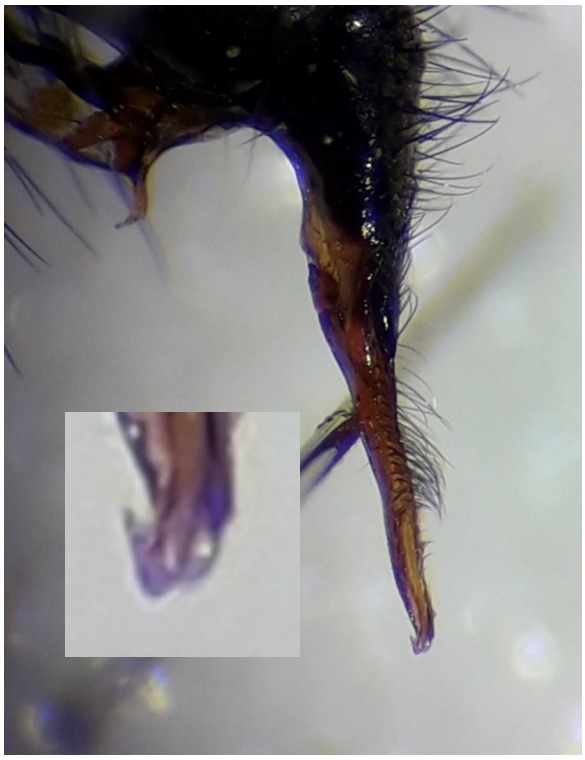
Over the last two years just over 4,700 further records have been entered covering 156 species of which 32 are nationally scarce or rare. Just two of these are discussed below. Meanwhile, please continue to send in records. If you have extensive spreadsheets you may prefer to send them to me at helophilus@hotmail.co.uk and I will upload them to IRECORD on your behalf.

The Anthomyiidae Study Group continues in existence as a list of e-mail addresses for the exchange of interesting observations and queries, and pre-publication copies of these Newsletters. Just e-mail me at the above address if you would like to be added.

Hydrophoria diabata in Scotland

Until last year, there was one record of this species *Hydrophoria diabata* (Pandellé 1899) on IRECORD, from Michael Ackland's own 1965 record from Wytham Woods, the University's ecological laboratory just west of Oxford. Now it has turned up in Scotland twice. On 6 June 2020 Ali Shuttleworth found the species at NT17868348 in the Braefoot Plantation near Dalgety Bay on the north side of the Firth of Forth. The IRECORD comments state that the identification was confirmed by Michael Ackland by email. It was swept among low vegetation in mixed woodland around abandoned WWII buildings in a sunny patch comprising mostly

Dog's Mercury but also nettles and *Dryopteris.* Here is the crucial photograph showing the sharp upturn of the surstylus with a sharp point, differentiating the species from the familiar *H. lancifer.*



This summer on 22 June Sam Thomas found the species in woodland by a river in the hills near Pitlochry in Perthshire (NN881699), with an equally convincing photograph on IRECORD

Hydrophoria diabata was added to Peter Chandler's British checklist only as recently as 2017 (see *Dipterists Digest* **24**, 210) following the addition of Michael's record to the database. Peter gave a reference to Collin (1953) as the first British record of the species. The current checklist notes that it was synonymised with *lancifer* by a no less eminent a dipterist than Hennig in 1969. Michael's previously unpublished details of the differences between the two species are as follows:

"*Hydrophoria lancifer*: Surstyli shorter, apical half in caudal view wider, lateral setae longer. In lateral view tip of surstylus bluntly upturned. Epandrium shorter in lateral view than *diabata*. Sternite 5 processes in basal half with shorter setulae, which are in more than one row.

"*Hydrophoria diabata*: Surstyli longer, apical half narrower in caudal view, lateral setae shorter. In lateral view tip of surstylus sharply upturned into a sharp point. Epandrium longer in lateral view than lancifer. Sternite 5 processes in basal half with a single row of longer, inwardly inclined setulae.

"There may be differences in the chaetotaxy of the legs or thorax, and differences in colour, but I only have 2 males of diabata in my collection. This is not enough to be able to separate normal variation from any differences between the two species.

"Hydrophoria diabata appears to be present in very small numbers compared to the very common *lancifer*. I have seen specimens of *diabata* from Switzerland, and there are specimens in the Hope Dept. in Oxford (Verrall-Collin Coll.). No doubt more males remain to be discovered in other collections mixed up with *lancifer*. They can generally be recognised by the longer epandrium which is often visible even if the genitalia have not been pulled out when pinned."

Komzáková and Michelsen (2015) added the species to the fauna of the Czech Republic and stated that it was previously known from Austria, France, Germany, Great Britain, Greece, and Switzerland.

References

Collin, J.E. 1953. Some additional British Anthomyiidae (Diptera). *J. Soc. Brit. Ent.* **4,** 169-177.

Komzáková, O. and Michelsen, V. 2015. New records of Anthomyiidae (Diptera) from the Czech Republic and Slovakia. *Acta Mus. Siles. Sci. Natur*. **64**, 151-154.

Botanophila bicilaris locally abundant in Lancashire and Cheshire

Many of us no doubt embarked on special projects as COVID struck in March 2020. I was fortunate in being 20 minutes' walk from a site I've visited occasionally over the years. It is Houghton Green Pool (SJ6292) in VC59 (South Lancashire), which you may have unwittingly passed by as it is adjacent to the M6/M62 interchange. It is a saucer-shaped depression formed by the excavation of stone for the motorway construction and ten years ago it was a lake several hundred metres in extent. Progressive ground-water abstraction has reduced its level over the recent years, so that in dry summers it almost disappears. There are now successive rings of willow which have germinated on the contours that the water level reached in successive years: even in a wet winter the pool reaches only a small fraction of its former size – the photo overleaf shows it in February 2021.

My plan was to undertake weekly 15-minute sweep-net surveys at 6 locations spaced over the willow scrub area to see if one could obtain replicable and comprehensive data on the diptera fauna of a relatively simple habitat

in an early stage of succession. I did indeed manage to carry this through right to the end of September, amassing 3113 records (ie occurrence at a sample location in a particular week) of 381 diptera species. Details of the statistical analysis of this data will appear in a forthcoming paper in the *Dipterists Digest*.

The list of Anthomyiidae with numbers of records was as follows:

Adia cinerella(1), *Anthomyia liturata*(1), *Anthomyia procellaris*(3), **Botanophila biciliaris*(24), *Botanophila discreta*(14), *Botanophila fugax*(7), *Botanophila jacobaeae*(4), *Botanophila sericea*(23), *Botanophila sonchi*(1), *Botanophila striolata*(6), *Delia coarctata*(1), **Delia diluta*(1), *Delia florilega*(25), *Delia platura*(21), *Delia radicum*(1), *Egle ciliata*(3), *Egle lyneborgi*(6), *Egle minuta*(7), *Egle rhinotmeta*(18), **Egle subarctica*(4), *Hydrophoria lancifer*(5), *Hydrophoria ruralis*(1), *Hylemya urbica*(22), *Hylemyza partita*(1*), Lasiomma seminitidum*(3), *Paradelia intersecta*(4), *Paregle audacula(*6), *Pegomya caesia*(1), **Pegomya* ?*sociella*(1), *Pegomya winthemi*(2), *Pegoplata aestiva*(9), *Pegoplata annulata*(41), *Pegoplata infirma*(17), *Pegoplata nigroscutellata*(5), *Phorbia fumigata*(4), *Zaphne ambigua*(1), *Zaphne divisa*(6).

Although this list includes 17 of the top twenty species nationally (Ackland *et al*, 2017), there were also many surprises. The asterisks indicate four species included in the recent Natural England species status review (Falk and Pont 2017). One of these, *Botanophila biciliaris* was the third most frequently encountered, just behind *Pegoplata annulata* and *Delia florilega.* Falk and Pont (2017) classed this as "provisionally data deficient" based on four widely scattered locations, three in Scotland and one in Surrey between 1964 and 1994. The NBN Atlas has two more recent records, from Mike Pugh in the West Midlands in 2012 and from Nigel Jones in Shropshire in 2017. The habitat for the earliest record by Parmenter in Mitcham in 1964 is unknown, but all the others are from waterside locations.

The species has been recorded from several central European countries (Komzáková and Rozkošný, 2009), Finland (Michelsen, 2014) and Denmark (Skipper *et al.*, 2020). In a survey of the Anthomyiidae of six peat bogs in the Czech Republic (Komzáková *et al.*, 2011), it was one of the scarcer species, being found only at one site at just an altitude of just over 1000m. This distribution is reflected in this GBIF map with the intriguing addition of one record in Alaska.

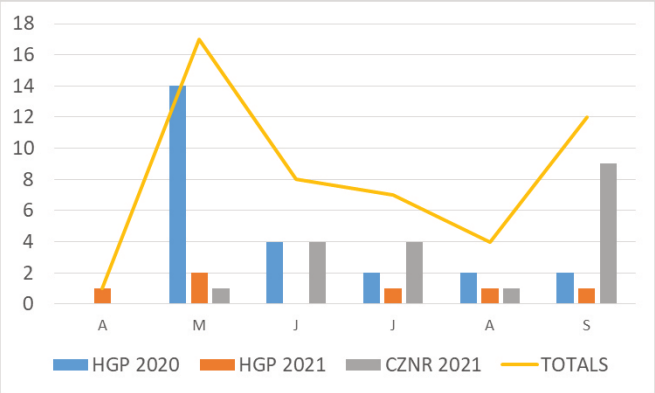
The larval life history of *B. biciliaris* is not known, but curiously the phylogenetic analysis by Leuchtmann and Michelsen (2015) places it next to the globeflower (*Trollius*) parasite genus *Chiastocheta* Pokorny 1889. *Trollius* is a genus in the buttercup family Ranunculaceae, which was well-represented at the site by both *Ranunculus repens* and *R. sceleratus*. Incidentally, Leuchtmann and Michelsen (2015) also list *B. discreta* and *B. striolata* as associated with *Ranunculus* species.

In 2021, I continued with the same survey pattern at Houghton Green Pool, but only once a fortnight to allow more time for recording elsewhere. I have not yet analysed the overall results, but *Botanophila biciliaris* was again present, albeit with only 6 records, a 50% decrease on the previous year after allowing for the halved sampling effort. I also made fortnightly visits to Chester Zoo Nature Reserve in VC58 (SJ4070) where I

took sweep-net samples at 12 locations. The centrepiece of this reserve is a meadow of about 4 hectares in extent, converted from a pasture about 5 years ago by scraping the topsoil and reseeding with native wild flowers. 4 of my sample locations were located in the meadow. Another 4 were in an adjoining marshy strip of land about 80m wide and extending alongside a canal. The other 4 locations were in varied habitats at the periphery of these two main zones, including an area planted with a wide range of native trees, hedgerows and ponds. Remarkably *Botanophila biciliaris* was abundant here as well, a total of 19 records with 10 in the meadow, 4 in the wetland area and 5 in the peripheral sampling locations.

The overall result is that I have obtained 49 records in 2020-1 for a species with only 6 previous records nationally. They are split between two locations 30 km apart. The habitats in the two locations have developed only in the last five years or so, and apart from being relatively open with still water features they are not particularly alike. Buttercups are certainly a common feature.

A chart of the monthly number of records shows a long season with peaks in May and September. Interestingly the May peak is dominated by the 2020 results at Houghton Green Pool while in 2021 there was a late surge of both males and females in September at Chester Zoo.



Amongst *Botanophila* species, *B. ciliaris* is one of the few with an anteroventral bristle on the middle tibia. It is a medium-sized species distinguished by the backward curve of the surstyli, reminiscent of *Hylemya variata* though without plumose antennae. The surstyli with their small projections near the tip in rear view are quite different from any other British *Botanophila.* The species is not covered by the female *Botanophila*/*Delia* key in Ackland *et al* (2017) but my samples included females keying out to couplet 16 for *D. linearis*/*nigrescens* though clearly not either of those.

So it is unlikely that this species would be overlooked by recorders of Anthomyiidae. It seems to be a species with a good dispersive capability which has increased over the last half-century and favours early-succession sites. But whether this has been a steady progression under the radar or a recent population explosion in North-west England remains to be seen. If you do record this species, please include a good description of the habitat in the comments section of IRECORD.

References

Ackland, M., Bentley, H. and Brighton, P. 2017. *The British Anthomyiidae*. Dipterists Forum, unpublished.

Falk, S.J. and Pont, A.C. 2017. A provisional assessment of the status of Calypterate flies in the UK. *Natural England Commissioned Reports* **234**, 265pp.

Komzáková, O. and Rozkošný, R. 2009. Identification of central European species of Botanophila Lioy, 1864, based on the female terminalia (Diptera: Anthomyiidae). *Acta Zoologica Academiae Scientiarum Hungaricae* **55**, 321–337.

Komzáková, O., Barták, M., Bartáková, D. and Kubík, Š. 2011. Community structure of Anthomyiidae (Diptera) of six peat-bogs in the Šumava Mts (Czech Republic). *Biologia* **66**, 518-527.

Leuchtmann, A. and Michelsen, V. 2016. Biology and evolution of the *Epichloë*-associated *Botanophila* species found in Europe (Diptera: Anthomyiidae). *Insect Systematics and Evolution* **47**, 1-14.

Michelsen V. 2014. Checklist of the family Anthomyiidae (Diptera) of Finland. *ZooKeys* **441**, 369–382.

Skipper L., Calabuig I., Møller J., Wenøe Breddam D. and Skovgaard Mathorne J. 2020. *National checklist of all species occurring in Denmark.* Version 9.3. Miljøstyrelsen / The Danish Environmental Protection Agency.

Swarming in *Paradelia intersecta*

By Martin Drake, martindrake2@gmail.com

My observations that I report here surely cannot be original but a quick search through the Anthomyiidae Newsletters and elsewhere revealed few observations on swarming in this family. In the autumn of 2020 and 2021 I watched several species of flies swarming high up or close to trees in my rural Devon garden. These included the muscids *Hydrotaea armipes* (Fallén), *H. cyrtoneurina* (Zetterstedt), *Hebecnema umbratica* (Meigen) and *H. vespertina* (Fallén), but the fly most frequently seen swarming was *Paradelia intersecta*. This is moderately common species, particularly in the

Table 1. Dates, weather and position of swarms of *Paradelia intersecta*.

Date	Time	Temp. °C	Weather	Position of swarm
30 Oct 2020	10:00	14	overcast, windy	not noted
1 Nov 2020		14		by tall *Salix'alba'*, at 4-6m
4 Nov 2020	14:30	11.1	bright, sunny	by small horse-chestnut *Aesculus hippocastanum*, to one side and slightly below branches, in sunlight, at 1.5m
8 Nov 2020	8:50 and 10:25	12.8	misty, still	by tall *Salix 'alba'*, usually just below now leafless branches, at 4-6m
8 Nov 2020	9:30	12.6	misty, still	by small sallow *Salix cinerea* at 2-3m
11 Nov 2020	8:50	not recorded	warm, overcast, windy	by apple *Malus*, at 1-1.5m
14 Nov 2021	12:15	11.8	¾ cloud, slight wind	by tall birch *Betula* at 2-3m, about 8 flies
14 Nov 2021	13.35	12.0	¾ cloud, slight wind	by ornamental cherry *Prunus cerasifera*, at 1.5-2m, about 12 flies

south and west of Britain (Ackland *et al.*, 2017).

I checked the identity of a representative of each swarm caught using a sweep-net, and released those that were obviously one of previously collected species (examined under a microscope – not in the field). All these individuals were males. It was difficult to estimate the number of flies in any group, particularly against a dull grey autumn sky, so this useful information was not often collected. I have summarised the conditions when these swarms were seen (Table 1).

While there was some variation in the flies' behaviour, a generalised description of the swarming behaviour is given here, based on these separate swarms. Swarms varied in size from about five to perhaps 30 flies. They were found between 1-4m above ground, and only occasionally higher. The flies occupied a sausage-shaped volume about 30-80cm across and up to 4m long for large swarms, positioned just 20-50cm away from the outermost twigs of the tree, so that flies were close to twigs on which they landed but still had a large arena. The volume occupied seemed proportional to the number of flies. The whole swarm sometimes shifted position slightly but the flies showed a strong affinity for just a few twigs on which they landed, and this appeared to fix the position of the swarm.

The flight pattern of individual flies consisted of brief fairly steady motion but almost never true hovering, followed by more rapid darting away, before resuming the steady flight. These two phases lasted only fractions of a second so that, without looking carefully, the flight appeared to be a chaotic zigzagging. The flight path was usually about 30-50cm long although sometimes up to about 100cm. When in flight, the flies rarely got closer than about 5cm to each other, although would often briefly fly on parallel paths before moving apart. When they converged closely, they started a very brief 'dogfight' before separating. The overall effect of the zigzag flight and rapid 'repulsions' was of a chaotic affair but which seemed to involve considerable interaction between flies.

Unlike some swarming flies which remain aloft for a very long time, *Paradelia* showed an alternating swarm-then-rest pattern. The flies took off more or less in synchrony, swarmed for perhaps 30-60 seconds then settled together, although in a rather undisciplined manner so that some flies remained 'swarming' by themselves while others settled well before the majority. After about another 30-60 seconds, they took off again. When the flies settled on the outermost twigs (leafless by mid-November), often two or three alighted within 1-2cm of each other, which suggested deliberate behaviour in view of the huge number of similar twigs available. So their behaviour in flight could be interpreted as more aggressive than when they settled. Their behaviour when they settled could be interpreted as either each fly independently selecting a preferred set of just a few leaves or twigs or, since they often sat close together, they contrived to remain in close visual contact with each other. More likely is a combination of

these, with the initial selection being based on features obscure to a human, then communal behaviour reinforcing their return to the preferred site.

The swarm 'marker' appeared to comprise a vertical surface - a moderately tall twiggy tree - next to open ground - lawn. No *Paradelia* swarms were found where branches formed a more enclosed air-space. Few swarms were found altogether so the population of the garden was highly aggregated despite numerous apparently suitable sites. This strongly suggests that the flies collectively sought their preferred location rather than merely responded to physical cues.

Once the pattern of flight of a species had been recognised, it was possible to distinguish *Paradelia* from the muscids *Hydrotaea* and *Hebecnema* whose flight was less chaotic and included very brief periods of hovering, the swarms lasted for longer between settling, and were positioned further from the tips of branches. In the case of *Hydrotaea cyrtoneurina*, swarming took place in a large but sparsely populated swarm over open lawn. A single male of the anthomyiid *Hydrophoria ruralis* (Meigen) was collected from the lowest part of a swarm but it was not clear whether the higher-flying individuals were this species too or whether this individual was a passer-by among other flies far too high for my net. I am inclined to think that this very common species does not swarm. A small swarm of *Delia platura* (Meigen) was seen on 31 October 2020 beside the roof gutter of the house where I caught a specimen from an upstairs window (8:15 a.m., 14.5°C).

Anthomyiids have been recorded swarming before. Michael Ackland (1997) wrote that *Egle* swarm at sallow blossom in spring on warm days, sometimes at a great height, and later (1998) he reported *Delia cardui* (Meigen) flying rather rapidly around fruit trees. On another occasion a single male of this species was flying rapidly and erratically around a hazel bush on which it landed, selecting the same branch on several evenings, and later several males competed for position of dominating this branch, which was preferred to any other possible perching sites on the bush. These observations are similar to mine and also for the muscid *Hebecnema nigricolor* (Fallén) (Drake 2022). Reid (1940) described flight behaviour of *Delia platura* (as *Hylemya cilicrura* (Rondani)) in North America and his observations suggest swarming similar to that described here.

These few observations suggest that swarming calyptrates have complex behaviour showing considerable interaction between individuals, including synchronised swarming and settling, homing on the same tiny area of twigs, and apparently changing their behaviour from aggressive when in flight to communal when settling. Swarming behaviour is assumed to be linked to mate attraction but to prove this would require considerable effort and diligence.

References

Ackland, D.M. 1997. Early spring Anthomyiidae. *Anthomyiidae Newsletter* No. 3, 1.

Ackland, D.M. 1998. A note on *Delia cardui* (Meigen). *Anthomyiidae Newsletter* No. 5, 1-2.

Ackland, M., Bentley, H. and Brighton, P. 2017. *The British Anthomyiidae*. Dipterists Forum, unpublished.

Drake, C.M. 2022. Swarming behaviour of male *Chrysopilus cristatus* (Fabricius) and *C. asiliformis* (Preyssler) (Diptera, Rhagionidae). *Dipterists Digest (Second Series)* **29** in press.

Reid, W.J. 1940. Biology of the seed-corn maggot in the coastal plain of the south Atlantic states. *United States Department of Agriculture Technical Bulletin* **723**, 1-43.

Wing-waving display in *Fucellia*

On 1 July, Pete Boardman sent me a video of some curious behaviour in *Fucellia* seaweed flies near Conwy in North Wales. I circulated this to the Anthomyiidae Study Group and lively speculation and debate ensued. It turned out that this phenomenon had been the subject of a study by Memmott and Briffa (2015) at Plymouth University. It still seems curious to find such behaviour in a species without wing markings and with relatively small eyes.

In August, we received another such video from Alan Watson Featherstone, this time at |a Scottish beach. It can be viewed on YouTube at

https://youtu.be/ISvJZLCm3Qw

Reference

Memmott, R. and Briffa, M. 2015. Exaggerated displays do not improve mounting success in male seaweed flies *Fucellia tergina* (Diptera: Anthomyiidae). *Behavioural Processes* **120**, 73-79.

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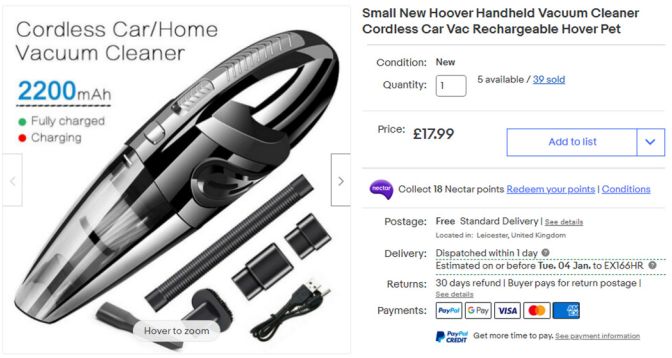
Lesser Dung Fly Study Group - Newsletter 2

Suction sampling with a hand-vac

Andrew Cunningham

Suction sampling is an effective means of collecting sphaeroceridae from dung piles, tidewrack seaweed, compost bins, carrion, etc. but carrying a large petrol or battery-operated cordless leaf vacuum is not always ideal. For example, if you were out for a walk or using public transport. One solution is to modify a cordless hand vacuum that can be carried in a backpack. There are various models at a wide price range available on the internet. The market is evolving rapidly with some becoming very cheap as I made mine, but one must be wary of buying too cheaply. You get what you pay for. The majority follow the same basic design of a hand-held motor being attached to a dust housing with a filter in between. My modification involves removing the filter and sealing the motor to the housing with duct tape such as Gorilla Tape to maximise suction power. The shortest nozzle is then selected to wedge in a piece of fine net curtain mesh fabric into the suction hole to trap insects. The vacuum is then used to extract insects from their habitat before switching the motor off and tapping them out into a net, bowl or tray for selection. Hopefully, the three images attached explain this. There is also a video available on the DF YouTube channel at https://www.youtube.com/watch?v=aHJySnGrljw



A high proportion of lesser dung flies are very small and useless at flying. Standard sweep netting will not find these – hence, the advantage of suction sampling. A few interesting examples caught with the modified hand vacuum are *Trachyopella bovilla* and *Spelobia cambrica* (pNationally Scarce) from cattle dung and *Telomerina pseudoleucoptera* from a mature pile of grass cuttings.

Sphaeroceridae recorded in Devon during 2021 (Andrew Cunningham)

Various field methods were deployed in the pursuit of sphaeroceridae specimens including a modified hand vacuum cleaner, a malaise trap, a battery-operated cordless leaf vacuum, tussocking, potting individual specimens manually, sweep netting, rearing from fungi, water pan trapping and baited traps. Due to a higher degree of caution as a result of Covid, my sampling was mainly close to home or on Devon Fly Group field meetings. I did not visit the coast as much as I would have liked. A large number of samples were placed in 2ml tubes of alcohol and have not yet been looked at, and so this is a provisional review and will reflect easily recognised species.

As things stand, 58 different species have been recorded of which the commonest five were *Spelobia clunipes* (74 records), *Chaetopodella scutellaris* (59), *Pseudocollinella humida* (55), *Lotophila atra* (47) and *Leptocera nigra* (32). The Devon Fly Group's own database does not hold a lot of Sphaeroceridae records, with this family having received little attention previously. Anyone taking a keen interest in this family will undoubtedly find species that are new for Devon and this proved the case in my second(ish) year of study. The following were recorded with no previous records according to our database; *Spelobia palmata*, *Trachyopella lineafrons*, *Elachisoma pilosum*, *Opalimosina simplex*, *Coproica hirticula*, *Rachispoda cryptochaeta*, *Terrilimosina schmitzi* and *Trachyopella bovilla*. The highlight, however, had previously been recorded in Devon twice prior, by myself at Watersmeet and this was *Spelobia cambrica* (photo), which is classed provisionally Nationally Scarce (pNS). Hopefully, what remains of the winter will be inclement enough to stay indoors and work on the remaining specimens. If anyone reading this has any records of sphaeroceridae from Devon, we would be grateful if we could add them to our database. (Email me at ajc321@hotmail.com).

The pNS species *Spelobia cambrica* (female)

PHOTO: Andrew Cunningham

Tales from the Dung Heap: Going Small Mark Welch

Horse-dung heaps provide an important food and heat resource for insectivorous birds such as pied wagtails and meadow pipits, particularly during the winter months. The heaps are noticeably warmer than the surrounding land due to decomposition of the dung and straw, and this heat promotes rapid development of fly immatures.

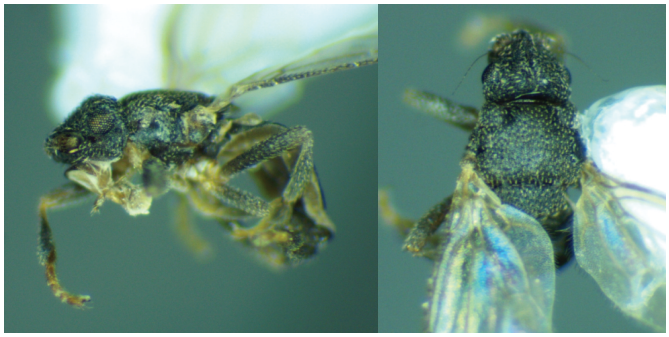
From January to July 2021, I made fortnightly visits to a local horse-dung heap near Ely in Cambridgeshire. The heap was completely removed in mid-July and the site refreshed in November, after which I started sampling again. This heap, about half the size of a tennis court, receives a mixture of horse dung and bedding straw from a stable 0.5 km away, with small increments made every month or so. On each visit 7-10 white water pan traps were laid and run for 8 to 30 hours. Total yields per visit were typically 300-500 sphaerocerid specimens. From Jan-July, 30 species were recorded – not bad for a single small heap.

Two rarely recorded tiny lesser dung flies (~1mm), *Ischiolepta scabricula* and *Trachyopella atomus*, were taken in small numbers (6 and 18 specimens, respectively) from the heap during May and June 2021. Although tiny, they are distinctive once your "eye is in" sifting the multitudes of more common larger species. *Trachyopella* are very smart pied flies, typically 1-2 mm long. *T. atomus* and the more frequently recorded sibling species *T. lineafrons* are very small (1-1.5 mm) but share a distinctive wing venation that separates them from other *Trachyopella* (vein R_{2+3} is very short). Females of these two species are easily separated by the presence (*T. atomus*) or absence (*T. lineafrons*) of an obvious median sternal keel (photo). Males are very similar, but their surstyli are distinctive.

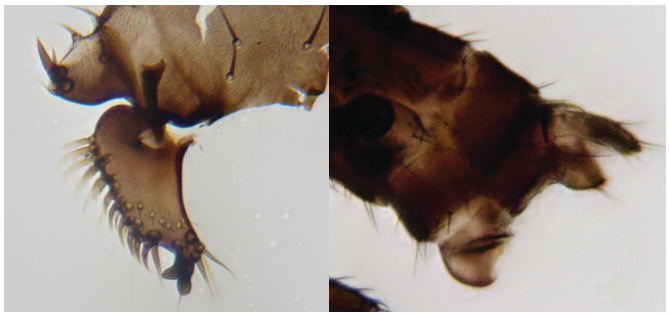
Ischiolepta scabricula (sub-family Sphaerocerinae) is the smallest of the six British *Ischiolepta*. It has a typical *Ischiolepta* head profile with sloping frons (photo), a small eye and a distinctive uniform scutum ornamentation that lacks the bare longitudinal stripes of other *Ischiolepta* (photo).

Other distinctive small (1-2 mm) sphaerocerids to look out for at horse-dung heaps are *Elachisoma aterrimum*, *E. pilosum* and *Telomerina pseudoleucoptera* (rarely recorded). Interestingly, *E. pilosum* (an infrequently recorded species) was much more common at the heap than *E. aterrimum*, with over 70 specimens taken.

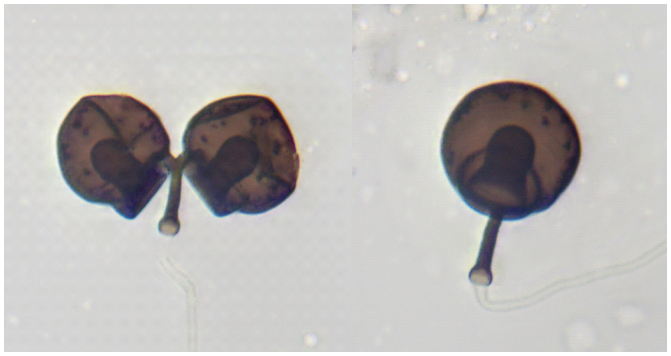
Dung and silage heaps are convenient small-scale targets for following the changes in the fly fauna over several months, really getting to know their phenologies and those of associated invertebrates, many of which will be predators or parasites of Diptera. So, if you are at a loose end, even in the bleak mid-winter, you could do worse than explore a local dung or silage heap. The Lesser Dung Fly Study Group would welcome your records! Please send any records or enquiries to both Andrew (ajc321@hotmail.com) and Mark (m.welch@nhm.ac.uk)



Ischiolepta scabricula male, Ely 12 May 2021



Left: *T. atomus* surstylus Right: *T. atomus* female S7 sternal keel



T. atomus paired and unpaired spermathecae

PHOTOS: Mark Welch