

**Hoverfly  
Newsletter**  
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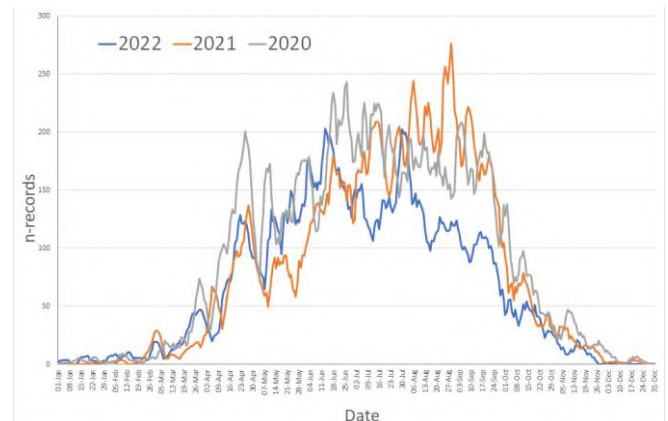
Copy for **Hoverfly Newsletter No. 74** (which is expected to be issued with the Autumn 2023 Dipterists Forum Bulletin) should be sent to me: David Iloff, **Green Willows, Station Road, Woodmancote, Cheltenham, Glos, GL52 9HN, (telephone 01242 674398), email:davidiloff@talk21.com**, to reach me by 20<sup>th</sup> June 2023. 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. My thanks to all contributors, and also to Martin Matthews for his meticulous proof-reading of the text.

The hoverfly illustrated at the top right of this page is a female *Sphaerophoria rueppellii*.

**HOVERFLY RECORDING SCHEME  
UPDATE: Spring 2023**

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

At the time of writing this latest update, autumn is drawing to a close – the days are short and often very wet: much-needed rain after a summer of severe drought in southern England and elsewhere. Some species have been almost absent from the species lists this autumn, foremost of which are *Melanostoma*, which raises very significant questions about the likely abundance of hoverflies this coming spring. Are these absentees simply in diapause waiting for better conditions, or were they knocked out by heat shock and drought? Time may tell, but the most problematic issue is that of recognising the signal in the data and differentiating this from 2023 environmental variables.



**Figure 1** Seven-day running average of records extracted from UK Hoverflies Facebook group between 2020 and 2022. The impact of the August heatwave and drought appears to be substantial and both 2020 and 2022 obviously differ from 2021 where August was the most data-rich period in a year that was arguably closer to the 1980s and 1990s.

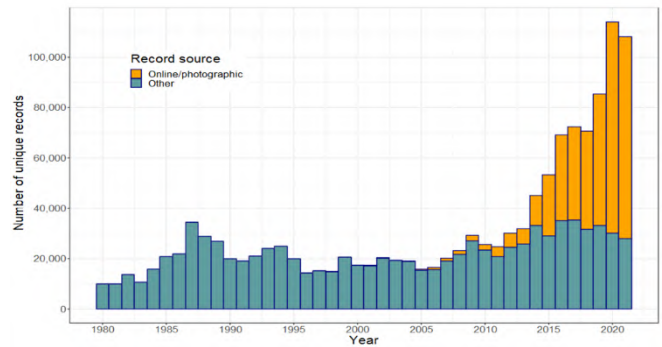
This evolving story tells us a lot about possible pathways for extirpation of insect populations but also highlights how difficult it is to draw conclusions from opportunistic datasets. We simply don't have the data needed to investigate cause and effect. Nevertheless, we can start to think about target species. Interestingly, both of the most frequently recorded *Melanostoma* seem to have been affected so watching for these

species at generic level may also be very useful. Consequently, we urge everybody to record everything that you see. The species that are most likely to give insights are not those that are rare or unusual; widespread and abundant species are far more likely to generate sufficient records to produce a picture that might give a hint about possible insect responses.

Despite the difficult conditions, there has been a lot of recording activity, with the Facebook Group generating almost 36,000 records (28,600 full and 7,200 partial records to genus/Tribe). This total is substantially down on 2020 and 2021 but is partially explained by the arrival of SyrphBoard – the new data entry system for hoverfly recorders that is being developed by Andy Murdock and Ioannis Sofos of MapLoom – a huge thank you to both for a fantastic platform that people have found easy to use. Several very active recorders have switched from posting on Facebook for extraction by our wonderful data team (ongoing thanks go to Adam Kelsey, Mick Chatman, Linda Fenwick & Katie Stanney). That change means that at least some records that would have made up the Facebook dataset are now entering the HRS via SyrphBoard.

### Data in the HRS dataset

At the time of writing (late November) we have a large volume of data to incorporate from spreadsheets (10-15k), over 20k records on SyrphBoard and about a further 20k from iRecord. That is a big job and will absorb a lot of Stuart's time this winter. Stuart spent a long while in mid-summer updating the dataset and at the time it comprised well over 1.66 million records, including substantial numbers from 2022. It looks as though 2022 will not be as data-rich as the previous two, but the dataset is still likely to be in the region of 100k records for 2022.

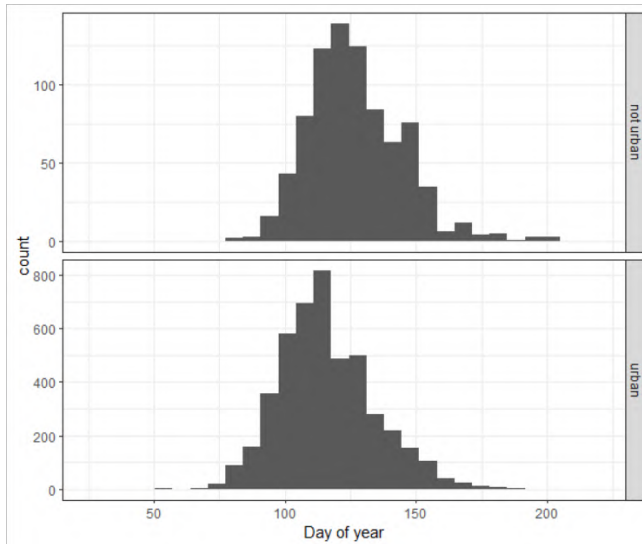


**Figure 2 Numbers of records on the HRS database up until 2021 (as of September 2022). The orange section represents data largely derived from photographic recorders through the Facebook Group and iRecord.**

### Making best use of HRS data

Stuart has spent a lot of time this autumn looking at trends and trying to determine what is happening to some species. For some while it has been suspected that urban heat island (UHI) effects are not only benefitting a few charismatic species such as *Volucella zonaria* and *V. inanis*; there are also indications that a few species are retreating from urban areas. As yet, we cannot prove conclusively that any losses of species from urban areas are necessarily down to heat island effects, but it is interesting to note that one of the potential casualties is *Leucozona lucorum* – an easily recognised species that will not have been under-recorded. Furthermore, it is possible that the larval heat and humidity tolerances of *L. lucorum* are similar to those of *L. glaucia*, which has almost completely disappeared from SE England.

We can be a bit more certain about UHI effects on the phenology of at least a few other species. For example, Stuart looked at the phenology of *Epistrophe eligans* by comparing HRS data with CEH land cover data. The result (Figure 3) was potentially quite interesting but more work is needed to draw any firm conclusions. It certainly appears that *E. eligans* flies somewhat earlier and for a shorter period in urban than in rural areas.



**Figure 3 Phenology of *Epistrophe eligans* – Top – rural (not urban), Bottom – urban. Some of the outliers probably arise because data have been submitted for larvae but have not been flagged as such – these need further investigation.**

These examples of possible UHI effects illustrate how useful full datasets are. So do please keep a record of everything you see. It may just help to unravel the ways in which some hoverflies are responding to our changing world. Whilst we may never resolve climate change, every little bit of evidence may help to change minds and inform decision-making (e.g. in the design of urban areas).

### A new WILDGuide

Stuart & Roger are currently working on a revision of **Britain's Hoverflies**. It will be bigger – with fourteen additional species and a fair amount of additional text. The photographic content will also be revamped so that best use is made of some of the amazing photographs that have emerged in the past ten years.

In past editions we have not included maps of Irish coverage but it is hoped that the new edition will at least include Irish maps as far as we can go. Data for Ireland is a lot sparser than for GB, not least because there is no active recording scheme. Is anybody inclined to rise to that challenge?

The new book will go to press in February and will appear in the bookshops in the spring (?May).

## DEVELOPING A LONGER-TERM LOCAL DATASET

Roger Morris

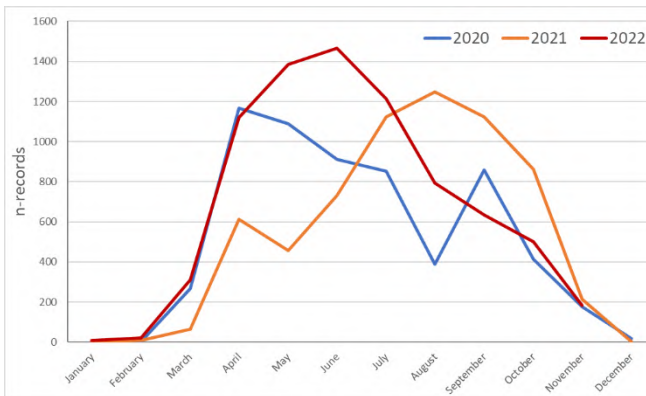
Having moved to Mitcham in 2017 for family reasons, I have not had the same opportunities to travel that I once had. London is too far from Scotland just to jump in the car and be in the borders in a few hours – a battle around the M25 is just the start of what is more like a seven- or eight-hour drive; it is so draining that I have yet to make an attempt. Covid made matters worse, as any sort of travel was prohibited for critical parts of 2020. I have therefore concentrated on recording locally at a scale that I had never previously managed. Each day, I record over a route of about 5 kilometres. Its precise course changes over the season as different places are productive at different times of year. My prime objective is to record all species present on a given day. Where I stop depends entirely upon the locations that are most productive on that day.

The system works like a transect because there is relative consistency in recording: all species recorded at a 1km level but with individual records located to 100m if only one location is occupied by a given species in a given 1km square. So, the data comprise a combination of four-figure and six-figure grid references. In addition, the time spent recording is generally similar. I also add in counts as best as possible, but for some abundant species that require microscopy or at least a hand lens in the field, numbers are inevitably limited or estimated. It seems better to me that one should cover the distance and the fauna present, rather than cover a tiny area in great detail.

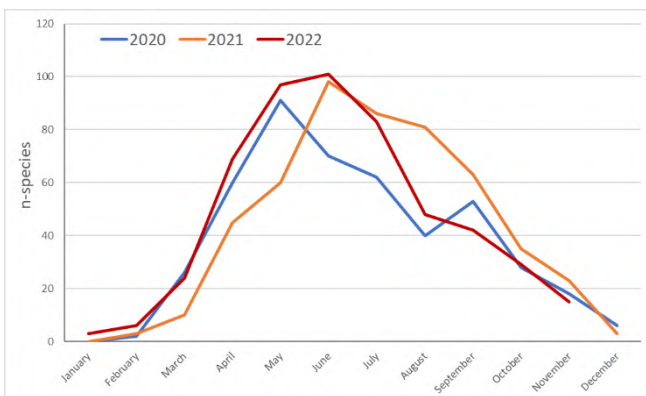
Occasionally I go further afield but adopt a similar approach. Most of my recording is within a 20-mile radius, so it is quite faithful to a small area and therefore to a similar (but not identical) climate. Despite this relatively small radius, it is very apparent that species abundance and composition varies according to altitude (a range of just 300 feet) and distances from urban heat island (UHI) effects.

This approach generates a great deal more data than I managed in the past, and starts to highlight a number of possible differences between the years. So far, I have almost 3 years' data (written in late November 2022 so December 2022 is

missing). The start of 2020 was exceptionally warm and recording got off to a flying start (forgive the pun). It abruptly changed to heatwaves and drought from June to August. Conversely, 2021 started cold but was comfortably warm in mid-summer. It was comparatively damp too. The overall track of records was therefore very different (Figures 1 & 2). In 2022, spring started early and, like 2020, was followed by heatwave and drought. This time the scale of the heat and soil moisture deficit was greater than anything I can recall, apart, perhaps, 1976.



**Figure 4 Numbers of monthly records 2020 to 2022. The similarities between the start of 2020 and 2022 are very clear. 2021 started later and the numbers of records peaked far later in the year, at a time when hoverflies used to be most abundant and coincident with the peak of summer flowers. Interestingly, despite the autumn being very warm in 2022, the numbers of records generated closely mirror those of 2020.**



**Figure 5 Numbers of species recorded on a monthly basis from 2020 to 2022. Again, the similarities between 2020 and 2022 are noticeable at the start and end of the seasons. Differences in the summer months are also**

**clear, probably reflecting differing weather patterns.**

Both 2020 and 2022 have influenced my ongoing thinking about the effects of heat and drought upon insect diversity. The problem is that we have very limited data to link cause and effect, and even fewer detailed point data to compare with local climatic variables. This is the sort of recording that needs to be done, but is anybody interested in doing so?

For younger readers, maybe setting up a standardised walk of your favourite 'patch' would generate research data that you could work on in the distant future? I wonder whether the late (and sadly missed) Aat Barendregt was thinking that way when he started his forest transects in the early 1980s? He was committed to recording for many years but the numbers of visits varied enormously. Aat's work is worth looking at because it serves as an inspiration to others who are prepared to think about long-term data collection and its potential use.

Whether the data I generate will ever be used by me is an unknown. Nevertheless, detailed time-series datasets may be exceptionally useful in decades to come. Many of my typical routes can be reconstructed from my records, should anybody feel the need to repeat them in future.

### Reference

Barendregt, A., Zeegers, T., van Steenis, W. & Jongejans, E., 2022. Forest hoverfly community collapse: Abundance and species richness drop over four decades. *Insect Conservation and Diversity*, 1–12. <https://doi.org/10.1111/icad.12577>

### PIPIZA – don't be frightened, and easy extra species to be found

Alan Stubbs  
(alan.stubbs@buglife.org.uk)

I understand that records of *Pipiza* have been declining, either because confidence in naming them is declining, or because such flies are less frequently encountered than in the past. I am in the process of revising the key, and be reassured



that I am finding ways of identifying them with increased confidence. In looking back to the text in **British Hoverflies**, there has been no substantive revision since the original publication in 1983. I spent a whole year trying to resolve the tangle of difficulties and uncertainties; in the end I just had to jump so as not to hold back publication indefinitely. Since 1983 there have been various publications on the European fauna, though not examining and addressing the forms I segregated under *noctiluca*. The current position is that 12 species are recognised in Europe, including our 6 and 3 others that occur in immediately adjacent countries on mainland Europe (the other 3 are seemingly confined to eastern and southern Europe). Two name changes to our species have already been accepted on the British list: *fasciata* (ex. *fenestrata*) and *notata* (ex. *bimaculata*). The segregation of most British species is not difficult: the most awkward separation remains *noctiluca/notata*: I think I have an easy segregation for females which needs more testing.

### Potential extra species: easy ones

*P. accola* is very similar to *luteipennis* which is associated with elm leaf-curl aphids. *P. accola* is associated with Cherry Plum *Prunus padus*, presumably feeding on the leaf-curl aphid *Myzus padellus*. Cherry Plum is mainly a northern and western shrub (also native and widespread in Norfolk) that flowers fairly early in the spring, with very distinctive spikes of white flowers. I doubt anyone has thought of targeting these flowers, which the hoverfly is said to visit. The yellow tarsi of males and some females are an immediate clue as to identity (some females have darker tarsi so are less distinct).

*P. festiva* is associated with poplars and has been bred from spiral leaf-stalk galls on Black Poplar and its variety, Italian Poplar (not the widely planted hybrid Black Poplar). Whilst native Black Poplar is scarce and usually occurs as only 1 or 2 trees, Italian (Lombardy) Poplar is planted quite widely, especially in urban areas. The main

limitation in urban areas can be the lack of flowers in places such as well mown recreation grounds. It has the build of *noctiluca* but has yellow tarsi, and often tergite 2 has the pair of spots fused.

*P. quadrimaculata*. Any *Pipiza* with 4 spots on the abdomen is something special. On the current British list, the male of *fasciata* (ex. *fenestrata*) has 4 large spots (at least the spots on tergite 2 are large) but it has seldom been found in Britain (even in the past when females were common). The only other qualifying European species is *P. festiva*, seldom 4-spotted.

According to European keys, *P. quadrimaculata* uniquely has the front of the frons and antennal base placed half way down the head (side view), higher up than in other *Pipiza*. However, in Britain a 4-spotted male (collected by Roger Morris) thus qualified as *quadrimaculata* but otherwise did not fit; my conclusion is that it must be *fasciata*.

Both in the field and in collections, *quadrimaculata* is fairly distinctive, small and rather dumpy, the sides of the abdomen somewhat convex, more so in females, giving a shorter oval shape compared with other species. Also, both sexes normally have spots (males only in *fasciata*). In mainland Europe, *quadrimaculata* has some affinity with conifer and mixed woodland; should that be a relevant lead, then conifer plantations may be the place for this species to colonise Britain.

### Observations sought

*Pipiza fasciata*. Once a common species in south-east England, as females, it seems to have vanished. True, or are records not being submitted?

**General.** There may be a backlog of snips of observations and experience that add to the very limited knowledge given in **British Hoverflies**, including flower preferences among other ecological information. Hopefully those who rear hoverfly larvae have new information.

## *Callicera rufa* at RSPB Dovestone – a brief update

Ken Gartside

The nationally scarce Hoverfly, *Callicera rufa* was first discovered locally at RSPB Dovestone, near Oldham but in the Peak District, in August 2017 in artificial rot holes we had created - but only in larval form. That was the first ever Yorkshire record to add to many others nationally, so not just in Caledonian Pinewoods anymore.

Further to my articles about this – the findings and methodology used - in this newsletter and in both Sorby and YNU natural history society publications [1], artificial rot holes were also successfully created at the National Trust Longshaw estate in the Peak District too, with adults being reared by Rob Foster. Both these sites used upland plantation woodland of commercially planted Pine and Larch to cut the holes in stumps with chain saws. The excellent New Naturalist book on the Peak District by Penny Anderson (pub. 2022) briefly mentions these efforts.

This is a short update on further developments and some potentially useful lessons from here at Dovestone. The site proved difficult to manage and control consistently. It became rapidly encroached by natural birch regeneration and bramble thickets, making even locating the original twelve cut stumps difficult. Although this has provided a far better set of habitats for invertebrates and vertebrates in general than a plantation wood - which was a desired outcome - it has made access hard, and only four stumps were able to be found and inspected.

Since 2017 these have lived up to their name and have rotted down to an extent easily, do not hold water well, only retaining some dampness, and are thus more prone to dessication in summer. Last year's prolonged heat wave was not helpful,

even though we tried to maintain some water in the rot holes, garnered from both reservoir and streams.

The upshot was that we found no larvae in dried holes, but in recognition of the issues, wardens at Dovestone cut fresh rot holes. We changed the methodology a little, using bigger stumps to cut out bigger inverted pyramids. Also, this time we used blown down larch tree trunks which lay horizontal, to cut lengthways with a V notch and create lagoons with a length of between 2 to 4 ft and depth of 6 to 8 inches. These lost water initially through seepage/absorption, but as the wood became more soaked, started to hold water better.

Eventually, after a few months, thanks to surveys by Steve Suttill, it was revealed that the V notches in particular were holding good numbers of (probably) *Myathropa florea* rat-tailed maggot larvae. So at least we know it all works.

With the hope that *Callicera rufa* is still around, we will be surveying these artificial lagoons in spring to see if we can again find the larvae. Plus of course any trunk sunbathing or ovipositing adults. We live in hope!

I think the lessons are to manage scrub better on a regular basis, cut holes as big as possible in the biggest stumps, to avoid full sun siting and to go equipped with secateurs.....

[1] YNU, The Naturalist, December 2017, Vol 142, No 1096 refers.



Tree rot hole (Photo: Ken Gartside)



*Callicera rufa* larvae (Photo: Ken Gartside)

## WHAT CAN BE IDENTIFIED FROM PHOTOGRAPHS?

Roger Morris

Whilst working on the updated and expanded version of the **WILDGuide** 'Britain's Hoverflies' a challenging conundrum emerged: can we identify what can be done from photographs? It is a problem that I have grappled with for a decade or more, with the overriding question 'by whom'? If we provide guidance then it might be taken that we are saying x or y is doable from photographs, but then the subsequent question arises: what about photographic quality?

It is an entirely different matter contrasting the abilities of a long-established specialist who has spent years in the field and who has a mental picture of many/most of the regularly encountered species, with those of a novice who has very little experience to draw upon.

For this reason, I try to avoid the use of 'jizz' when offering identifications on the Facebook

group. The big question is 'can I see enough of the critical characters to make an acceptable identification?' If I can, then I may offer my thoughts and they may be taken as an identification that can be used for recording purposes. I am, however, not infallible and like anybody else I will make mistakes. That is why I do not like the term 'expert' which is so often taken to suggest infallibility.

I caution against 'jizz' because statements like 'bigger than', 'broader than' etc are highly subjective and can be affected by the angle of a photograph as well as the light source and depth of field. Moreover, such statements are really only applicable by the specialist whose jizz characters are being used. Those I might use will differ from those of others, as nobody's eyes and brain work in identical ways. Moreover, a novice using jizz is like the novice trying to find their way through the morass that is Joy's key to beetles! The only way of reliably building a knowledge of hoverfly identification is to work patiently through keys and to check against voucher specimens.

Thus, it must be concluded that whatever is said about the capacity of specialists or beginners to identify hoverflies from photographs is highly subjective and particular to the person in question. Nevertheless, some guidance is needed because there is a growing reliance upon photography to create biological records. For the purist, this paradigm may be anathema but we simply don't have the luxury of a huge pool of specialists scouring the country for hoverflies or whichever other taxa are under consideration. Therefore, we must work with what we have, and we must set parameters to define the limits of what can and cannot be identified from photographs. I have therefore concluded that there are two possible ways of assessing the potential for identification from photographs:

1. Species that are likely to be recognised if the photographer produces good, sharp images at high resolution and from several angles (top-down, side view and face-on), and the person providing the identification has wide-ranging experience of the British fauna.
2. Species that are likely to be recognised by a person who has wide-ranging experience of the British fauna and the photograph is a simple top-down photograph of variable quality.

In both cases, we have additional problems. There are several species that once were considered to be a single species and which now comprise a complex that can only be more precisely identified from microscopic and often obscured features such as tarsal pits or characters within the male genitalia. My list therefore included several such complexes as well as the segregates. Using this highly subjective approach I concluded that the differences between the two scenarios was substantial, as shown in Table 1.

	Ideal photos	Conventional photos
Not possible	86	130
Sometimes possible	105	63
Possible	98	96

**Table 1.** Subjective analysis of species that might be identified by an experienced specialist from an ideal suite of photographs and from a top-down photograph of indeterminate quality.

This exercise does not solve the basic question of what can, and cannot be identified from photographs, but hopefully it helps to set a few parameters that explain what is possible and also sets the boundaries of what should not be considered a reliable field record. So, for example, unless there are reliable and easily depicted features that will be picked up in high-quality photographs, we must consider a species unlikely to be reliably identified from photographs. This cohort includes all species in which only males can be identified and in which internal genital features are an essential part of the identification process. It also includes some species that can only be identified from larvae or pupae, such as *Microdon mutabilis* and *M. myrmicae*. This particular separation raises another question: to what degree should we assume that identification can be made on habitat alone? The problem of habitat association is complex because it is quite possible for two very similar species to be juxtaposed with the potential to stray from their preferred habitat (as in adjacent limestone pavements and acid mires).

Out of caution I have always assumed that it is not wise to rely on habitat features to make an identification. My thinking arose because it might be assumed that, in the absence of Butterbur *Petasites hybridus*, *Neoascia* with clouded wings and a completely black 4<sup>th</sup> tergite will be *N. podagrica*. Yet, I have found *N. obliqua* in a small

number of places (mainly Scotland) where Butterbur is missing.

As yet, there is no protocol for determining the species that can be reliably identified from photographs, so the approach adopted in the **WILDGuide** is experimental and must not be regarded as definitive. It is a guide that is open to adjustment and debate. Some further guidance can be gained from the frequency with which species are misidentified on platforms such as iRecord and iNaturalist. I have undertaken some analysis of the iRecord identification issues but there is a lot of scope for further analysis. Importantly, in most cases the identification problems are by relative novices from generally low-resolution photographs. In my analysis it has become clear that the most frequent problems lie in some of the commonest/most abundant genera, especially in *Eristalis* and in *Syrphus* where it seems that insufficient information is processed by the recorder on account of not reading the guide book or by using a guide that covers a representative sample of species but does not list the other possible species (e.g. *Syrphus ribesii* in general field guides to insects).

There is now a wealth of experience with identifying hoverflies from photographs but it is further complicated because some species are rarely recorded in this way: finding species such as *Brachyopa* is an art and the animals concerned do not lend themselves well to detailed photography. Similarly, there are numerous *Platycheirus*, *Cheilosia* and Pipizines that are difficult to find and even more tricky to identify. However what we perhaps do not yet understand is how we might use features depicted by live animals that become less pronounced or missing in a long-dead specimen. We must remember that all of the keys we use are based on museum specimens and that the concept of 'live animal taxonomy' is still in its infancy.

If any academic is interested in developing a classification of what is and is not possible using photographs and a group of student volunteers, I would be keen to help to develop a system that separated species into different levels of identification challenge.





# Cranefly News

## The Dipterists Forum Cranefly Recording Scheme

For Superfamily Tipuloidea & Families Ptychopteridae & Trichoceridae

Newsletter No 40

Spring 2023

Editor: John Kramer



Ctenophora flaveolata Photo: Alan Watson Featherstone

### Cranefly training and 'Craneflies to Light' - Pete Boardman & Rachel Davies

During 2022, the Cranefly Recording Scheme (CRS) worked with the Field Studies Council (FSC) BioLinks project (2018 - 2022) to run a number of training days for BioLinks participants. These followed the standard BioLinks format of 'Learn to Love' events, field days, and microscope days. Events were run at the FSC's centres in Bishop's Wood, Worcestershire, and Bushy Park, London. Also, a residential course was added in the autumn of 2022 and run at the Preston Montford FSC centre. All cranefly, fold-wing cranefly, and winter gnat records made during the above events were added on i-Record by the secondary author and comprised a good range of common or local species.

The relationship between CRS and FSC was enhanced further by the 'Craneflies to Light' project, targeting moth trappers which was trialled for a six-month period, between 1<sup>st</sup> June to 1<sup>st</sup> December 2022. BioLinks asked participants and others to send in any records of craneflies that they had found attracted to light, or collect specimens if people were unable to identify them. These were identified at extra BioLinks volunteer days with the author overseeing identifications.

Over the 6 months, 50 cranefly samples were received from 5 different recorders, mostly based in Worcestershire. At the same time the Moth Trap Intruders Group were also asked for cranefly bycatch and during the same period of time and collected 156 samples. Between both groups of participants, a total of 24 species of cranefly, and a single winter gnat, were recorded as listed below. It is likely some of these species are new to light, but it is difficult to know fully as no comprehensive up to date list of species is known.

<b><u>Tipulidae - long-palped craneflies</u></b>	<i>Tipula maxima</i> - a long-palped cranefly
<i>Nephrotoma appendiculata</i> - a tiger cranefly	<i>Tipula obsoleta</i> - a long-palped cranefly
<i>Nephrotoma cornicina</i> - a tiger cranefly	<i>Tipula oleracea</i> - a long-palped cranefly
<i>Nephrotoma flavescens</i> - a tiger cranefly	<i>Tipula paludosa</i> - a long-palped cranefly
<i>Nephrotoma flavipalpis</i> - a tiger cranefly	<i>Tipula pagana</i> - a long-palped cranefly
<i>Nephrotoma guestfalica</i> - a tiger cranefly	<i>Tipula pierrei</i> - a long-palped cranefly
<i>Nephrotoma quadrifaria</i> - a tiger cranefly	<i>Tipula scripta</i> - a long-palped cranefly
<i>Nephrotoma scurra</i> - a tiger cranefly	
<i>Tipula confusa</i> - a long-palped cranefly	<b><u>Limoniidae - short-palped craneflies</u></b>
<i>Tipula fascipennis</i> - a long-palped cranefly	<i>Austrolimnophila ochracea</i> - a short-palped cranefly
<i>Tipula flavolineata</i> - a long-palped cranefly	<i>Dicranomyia chorea</i> - a short-palped cranefly
<i>Tipula fulvipennis</i> - a long-palped cranefly	<i>Rhipidia maculata</i> - a short-palped cranefly
<i>Tipula lateralis</i> - a long-palped cranefly	
<i>Tipula luna</i> - a long-palped cranefly	<b><u>Trichoceridae - winter gnats</u></b>
<i>Tipula lunata</i> - a long-palped cranefly	<i>Trichocera annulata</i> - a winter-gnat

We would like to thank staff and participants within the FSC BioLinks project, FSC Field Centres, and the Moth Trap Intruders group, including; Keiron Derek Brown, Gino Brignoli, Jean Young, Carol and John Taylor, Simon Dyer, and Mike Southall.

**Pete Boardman & Rachel Davies**

## Light-trapping in Leicestershire – VC 55. John Kramer

Following Pete Boardman’s initiative, I pulled the ‘at light’ records from the Leicestershire crane-fly database of about 5,000 records. The first specimen recorded from light was in 1975, a specimen of *Pedicia rivosa* recorded by Peter Gamble in Grace Dieu Wood, the rest being recorded during this millenium. Moth-ers in VC55 are very active and have recorded a number of ‘firsts’ for the County from their light traps. It is evident that many crane-flies are nocturnal or crepuscular, but are they all ?? This behaviour probably reduces dessication as well as avoiding some predators. But they are predated by bats and so a nocturnal habit may also be a seriously hazardous one.

### List of Crane-flies from Leicestershire light-traps.

Unless otherwise stated, specimens were trapped in gardens.

Tipulidae	Pediciidae
<i>Nephrotoma appendiculata</i> (W)	<i>Pedicia rivosa</i> (W)
<i>Nephrotoma flavescens</i>	<i>Tricyphona immaculata</i> (W)
<i>Nephrotoma quadrifaria</i>	
<i>Nigrotipula nigra</i>	Limoniidae
<i>Tipula maxima</i>	<i>Ormosia lineata</i>
<i>Tipula livida</i>	<i>Ormosia nodulosa</i> (W)
<i>Tipula lunata</i>	<i>Symplecta stictica</i>
<i>Tipula vernalis</i>	<i>Trimicra pilipes</i>
<i>Tipula luteipennis</i>	<i>Epiphragma ocellare</i> (W)
<i>Tipula confusa</i>	<i>Euphylidorea lineola</i>
<i>Tipula pagana</i>	<i>Euphylidorea dispar</i> (W)
<i>Tipula rufina</i>	<i>Dicranomyia chorea</i> (W)
<i>Tipula oleracea</i> (W)	<i>Limonia nubeculosa</i> (W)
	<i>Limonia phragmitidis</i> (W)
(W) Trapped in woodland	<i>Rhipidia maculata</i> (W)

### Discussion.

Are all crane-flies attracted to light or only a suite of nocturnal specialists? One factor influencing the results above must be where traps are located. Most of the results from Leicestershire are in gardens. and so I have separated the relatively few woodland records to show that it is not only garden species that are attracted to light. This means that results from traps set up in more natural biotopes are especially interesting. (See John Showers’ records below.) Another factor is the trapping date related to crane-fly emergence. More work needs to be done to account for the absence of many common species, but more trapping at the right times and the right habitats would probably trap the missing species. The Leicestershire data above is probably an under-estimate of crane-fly species light-trapped since the mode of capture is not always recorded especially if recorded in gardens. Also specimens are photographed on house or garage walls after a light trapping session, so, although they are attracted to light, they are not actually in the trap.

### New VC 55 Species Recorded in garden Light traps

*Nigrotipula nigra* Leicester & Rutland Entomological Soc. (LRES) Newsletter #49, Sept. 2013  
*Tipula livida* LRES Newsletter #61 Sept. 2019

### Acknowledgements

Thanks to Leicestershire Moth-ers Graham Calow, Alan Cann, Andrew Dejardin, Peter Gamble, Ted Gatan, Andrew Godfrey, Mike Higgott, Craig Mabbett, Dave Nicholls, Adrian Russell, Mark Skevington, Alan Semper and Sue Timms for their crane-fly records.

The Leicestershire & Rutland Entomological Society is produced a series of Status Reviews of the Diptera of VC55 up to 2020 to act as a baseline for future recording effort.

These, and the Newsletters, are available at: [www.naturespot.org.uk/content/leicestershire-rutland-entomological-society](http://www.naturespot.org.uk/content/leicestershire-rutland-entomological-society)

## Light-trapping in Northants. VC 32. John Showers

Nearly all the results below come from Pitsford Water Nature Reserve except where otherwise stated. There are 2 MV traps. Trap 1 is on the shore line, close to reeds, bare margins, some grassland rides and mixed woodland. Trap 2 is set in a glade in the same stand of mixed woodland but further from the water.

[The Rothwell trap is actinic and on the patio in my garden, which has shrubs, herbaceous plants, an apple tree and a conifer tree but no lawn. The trap at Farthinghoe (F) is in a former railway cutting, then a landfill site and now a nature reserve with woodland and some grassland.]

### List of Species trapped

<b>Tipulidae</b>	<b>Limoniidae</b>
<i>Nephrotoma appendiculata</i>	<i>Erioptera nielseni</i>
<i>Nephrotoma cornicina</i>	<i>Molophilus griseus</i>
<i>Nephrotoma flavescens</i>	<i>Molophilus ochraceus</i>
<i>Nephrotoma quadrifaria</i>	<i>Ormosia nodulosa</i>
<i>Nephrotoma scurra</i>	<i>Symplacta stictica</i>
<i>Tipula vittata</i>	<i>Symplecta hybrida</i>
<i>Tipula fascipennis</i>	<i>Trimicra pilipes</i>
<i>Tipula helvola</i>	<i>Austrolimnophyla ochracea</i>
<i>Tipula lunata</i>	<i>Euphylidorealineola</i>
<i>Tipula vernalis</i>	<i>Dicranophragma adjunctum</i>
<i>Tipula submarmorata</i>	<i>Dicranophragma nemorale</i>
<i>Tipula varipennis</i>	<i>Phylidorea ferruginea</i>
<i>Tipula confusa</i>	<i>Phylidorea fulvonervosa</i>
<i>Tipula obsoleta</i>	<i>Pilaria discicollis</i>
<i>Tipula pagana</i>	<i>Pilaria fuscipennis</i>
<i>Tipula staegeri</i> (G)	<i>Dicranomyia didyma</i>
<i>Tipula oleracea</i>	<i>Dicranomyia modesta</i>
<i>Tipula paludosa</i>	<i>Helius pallirostris</i>
<i>Tipula subcunctans</i>	<i>Limonia nubeculosa</i>
<i>Tipula scripta</i>	<i>Limonia phragmitidis</i>
<i>Tipula lateralis</i>	<i>Rhipidia maculata</i>
<i>Tipula montium</i>	
<i>Tipula pieriei</i>	<b>Trichoceridae</b>
	<i>Trichocera annulata</i>
<b>Pediciidae</b>	<i>Trichocera regelationis</i>
<i>Tricyphona immaculata</i>	<i>Trichocera saltator</i>
	<i>Trichocera hiemalis</i>
(G) Garden only	<i>Trichocera major</i>

### Acknowledgements

Thanks to light-trappers and Recorders Mischa Crass and Dave Francis. See also Crane-fly News #29, Spring 2015, and Crane-fly News #32, Spring 2017.

John Showers

### Conclusions

Although many genera are missing, this can be explained by the absence of light-trapping in their habitats. The three sets of results above, support the hypothesis that all of the Infra-order Tipulomorpha - Craneflies (Tipuloidea) and the Winter Gnats (Trichoceroidea) are attracted to light. Attempts could be made to light trap the missing species in their known locations. Ed.

## Some suggested amendments to ‘British Craneflies’ Alan Stubbs and John Kramer

Suggestions would be welcomed and useful in the event of the publication of the second edition. Some suggestions from readers are as follows:

### Part A (p198) *Ctenophora flaveolata* has now been confirmed from Scotland !



The first occurrence of this species in Glen Affric NNR, Eastern Ross, in the Highlands a little north of Loch Ness was recorded by Alan Watson Featherstone on 26<sup>th</sup> May 2018 when a male specimen crawling on a road was captured and sent to Peter Chandler to confirm the identification. (See the detailed note in Dipterists Digest 2018, Vol 25 No. 1). The second record by Alan Watson Featherstone, on 5 May 2022 (the third Scottish record) was of a male resting on the westernmost of a row of 20 or so mature oaks. (See photo of specimen by A.W.F.) The sites where they were found were about 2km apart in a major stand of ancient Caledonian forest, famed for its native Scots pine. There is no beech on site hence the fly must be breeding in the very small population of surviving mature oak. Although not assessed, it seems unlikely that all these trees provide a viable larval habitat, with the inference that long term survival is unlikely at this site. Early May is before the most active period of recording takes place in Scotland, (boosted by visits from southern dipterists) so the crane fly may be more widespread than realised. This is a very elusive species unless you are in the right spot on the right day.

Alan Watson Featherstone also located another Scottish record on the NBN Atlas ([www.nbnatlas.org](http://www.nbnatlas.org)) from Fife, in 2021. The specimen was photographed on 9 June 2021 in the garden of Kim Worthington in Cubar, then posted on her Facebook

page from where it was recorded by Wendy Irons. [Thanks to Peter Chandler for information and Alan’s photo.]

### Part B. *Nephrotoma appendiculata* v. *N. quadrifaria*.



*Nephrotoma quadrifaria*



*Nephrotoma appendiculata*

There has been a suggestion that there is a problem with the separation between *Nephrotoma appendiculata* and *N. quadrifaria*. There seems to me to be no problem, neither with the key nor the text, although I am willing to be persuaded otherwise if someone wishes to take up the debate. For example, there may be parts of the country where *N. quadrifaria* lacks the dark seam across the wings. Newly emerged (teneral) specimens of all species will always be faintly marked and often it helps to tip the wing and view it a narrow angle. In the key the species are separated by the pale or dark stigma together with the ‘dark seam’ on the wings of *N. quadrifaria*, features which are usually clearly visible. The ‘inverted U shaped mark’ is used in conjunction with the pale stigma spot. *N. quadrifaria* does not usually have a pale stigma spot in nature, but bleaching can happen where malaise trap material in spirit has been placed in strong sunlight. In such cases of doubt, genitalia structures must be used and support is provided for this. (See Plates D & F). In the text (p203) an inverted U-mark above the haltere of *Nephrotoma appendiculata* is said to be the confirming (not a diagnostic) character; ie it is the only pale stigma’d British species which has this ‘inverted U’ character. In fact *N. quadrifaria* (with dark stigma and dark seam) also has this mark.

Female *appendiculata* have a uniformly broad dark stripe along the dorsal median axis of the abdomen. In addition to the dark seam, specimens of *N. quadrifaria* have a row of triangular dark markings although there is not a sharp discontinuity between these abdominal markings.



Part C. **Tipula Key, Couplet 11 - Prescutal (dorsal thoracic) patterns (Key. Page 81)**

Those used to using the test key for *Tipula* will be aware that Couplet 11 is a new and, with 4 choices, a rather unusual approach to this group of *Tipula*. We are directed first to the subgenera where species separation then occurs.

Subgenera *Acutipula*, *Schummelia*, *Vestiplex*, *Dendrotipula* *Odonatisca*, *Mediotipula*, *T. (Lunatipula) vernalis*, and part of *Pterelachisus* are first removed to be keyed to species in the appropriate sections. This latter part of *Pterelachisus* comprises *T. mutila* (with R<sub>2</sub> absent) and *T. luridorostris* (with short R<sub>2</sub>, not reaching the margin.)

The key at Couplet 11 refers to prescutal (dorsal thoracic) patterns which are difficult illustrate by means of the thumb-nail sketches. Hence, plate 32 provides some photos and perhaps more are needed, cross-referenced in the key.

**Couplet 11** offers 4 choices, in sequence designated a to d below.



*T unca*

11a) ‘*Prescutum with a pale median line clearly separating the subdorsal stripes, at least in the front three-quarters.*’ There is no photograph in the book to illustrate this pattern. Perhaps *T. unca* or *T.melanoceros* could be used as an example.

Presence of a pale median line sends us to **Couplet 12** where plain- and patterned-winged species are separated.

Plain winged species (*Platytipula*) at 13, are *T. luteipennis* and *T. melanoceros* . and the genera *Savtshenkia* (part)), and *Lunatipula* at 14, Patterned-winged species at Couplet 15 are: *Beringotipula* (Couplet 16) *Lindnerina* (couplet 17) *Pterelachisus* and *Savtshenkia* (Couplet 18).



*T. melanoceros*



*T. pabulina.*

11b) ‘*Prescutum with five distinct dark stripes, the median one thin. The grey colour around these stripes is equally pale.*’ (Plate 32c)

This leads to *Pterelachisus* (part) on p 90, which identifies *T. pabulina* and *T. truncorum*, and it is illustrated in the book by *Tipula pabulina*.



*T. truncorum,*



*T.lateralis*

11c) ‘*Prescutum with dark median stripe resulting from fusion of subdorsal stripes, which, with lateral stripes are pale within dark margins.*’ (Plate 32 a)

This leads to subgenus *Tipula (Yamatotipula)* and it is illustrated by *Tipula lateralis*. Confusion might be possible with the *Vestiplex* pattern but this has been previously removed and the terminalia are very different.



*T.luteipennis*

11d) ‘*Prescutum with a very dark median stripe, of almost uniform colour although it may have an even darker thin median stripe.*’ (Plate 32d)

This again leads to Couplet 12 where plain- and patterned-winged species are separated. *T. (Platytipula) luteipennis* is keyed out here with plain wings and it is illustrated by Plate 32d. Those with a pale median stripe and patterned wings (15) are *T. (Beringotipula) unca*, *T. (Lindnerina) bistilata*, and some of the genera in subgenera *Pterelachisus* and *Savtshenkia*.

## Cranefly People: Osten Sacken's remarkable work on Craneflies. John Kramer



Charles Robert Osten Sacken (OS) was born in St. Petersburg in 1828 and by the time that he wrote his first paper in 1854, the study of Craneflies was well underway. In 1758 Linnaeus had introduced the only 2 genera, *Culex* and *Tipula* for those 'Nemocera' (Nematocera) with and without piercing mouthparts ('Bities' and 'non-bities'.) Latreille (1802) had established the family Tipulidae and separated them into those with long-palps and those with short palps (*Tipula longipalpi*, and *Tipula brevipalpi*); between 1803 and 1838 Johann Meigen had named many more cranefly genera (eg *Erioptera*, *Limonia*, *Tipula*, *Nephrotoma*, *Ctenophora* etc) describing their differing venations but but without attempting any key or system of classification.

Another French dipterists, Macquart in 1834, separated *Limnophila* from the genus *Limonia* ('Limnobia') by virtue of the differing venation, and the presence in *Limnophila* of a 'petiolate areolet', ie a stem vein ( $R_2 + R_3$ ) from which branches veins  $R_2$  and  $R_3$ . In *Limonia*  $R_2$  and  $R_3$  are fused and so there is no fork here.

Macquart followed Latreille in subdividing the '*Tipula terricolae*' into the Tipulidae longipalpi and the Tipulidae brevipalpi and separated the genus *Pachyrhina* from *Tipula* on the difference in numbers of antennal flagellar segments. By 1854 most of the key features of 'Tipulidae' had been observed and recorded.

Between 1854 and 1869 Osten Sacken, working in America, published a number of papers on craneflies, leading to his major work, his Monograph *On the North American Diptera – Vol IV, Tipulidae* with 345 pages, published by the Smithsonian Institute in 1869. This dealt only with the short-palped craneflies, Tipulidae brevipalpi. His stated intention was to cover the long-palped craneflies in another volume, but this never happened, although in 1886 he published a Review of the Tipulidae longipalpi. In this Monograph on the short-palped craneflies he published a history of the subject, descriptions of all the then known species and keys to identify them. If you were beginning the study of craneflies, this Monograph would make an excellent introduction to the subject. It was just what the Rev. William John Wingate was praying for in 1906, (See DF Bulletin 66, 2008) but alas, there was no internet and no Catalogue of Craneflies of the World (CCW) at that time, and books from overseas were hard for most people to obtain. (OS's 1869 book is now available to download from CCW. See Oosterbroek, P. at <http://ccw.naturalis.nl> below.)

OS identified the '**Tipulidae longipalpi**' as follows: Last joint of the palpi very long, whiplash-shaped, much longer than the three preceding joints taken together ; the auxiliary vein (subcosta) ends in the first longitudinal vein ; no cross-vein between it and either of the two veins running alongside of it

Regarding the '**Tipulidae brevipalpi**', he noted that The bulk of the tribe, may be divided into two large sections:

- A. One radial area. Antennae, 14-jointed. No distinct pulvilli. Ungues (claws), with distinct teeth on the underside. No spurs at the tip of the tibiae. *Limnobia* (*Limonia*)
- B. Two radial areas. (ie Antennae, 16-jointed. Pulvilli distinct. Ungues (claws) smooth on the under Side:  
Tibiae, with spurs. *Limnophila*  
Tibiae, without spurs *Erioptera* etc

He allocated the 'Tipulidae brevipalpi' to 6 sections based on a combination of characters taken from: the number of submarginal cells, the number of antennal joints, the presence or absence of spurs at the tip of the tibiae, and the position of the subcostal cross-vein. The first submarginal cell is now called cell r2 between veins  $R_{2+3}$  and  $R_{4+5}$  and the second submarginal cell is now called cell r3, between veins  $R_3$  and  $R_{4+5}$ . We now describe the Radial veins and their divisions, instead of the spaces between, ie the cells.

NB. Some non-European genera are included in the lists below. These sections were:

**Section I. Limnobina** - A single submarginal cell (cell r2 between veins  $R_{2+3}$  and  $R_{4+5}$ ) ie vein Rs forked once to separate veins  $R_{2+3}$  and  $R_{4+5}$ . Antennae 14-jointed. - *Dicranomyia*, *Geranomyia*, *Rhipidia*, *Limnobia*, *Trochobola*. (Now Limoniinae)

**Section II. Limnobina anomala** - A single submarginal cell, Antennae 16-jointed. The first longitudinal vein ends in the costa ; tibiae without spurs at the tip – *Rhamphidia*, *Elephantomyia*, *Toxorrhina*, *Dicranoptycha*, *Orimarga*, *Elliptera*, *Antocha*, *Atarba*, *Teucholabis*, *Thaumastoptera*.

**Section III. Eriopterina** – Two submarginal cells. (cell  $r_2$  between veins  $R_{2+3}$  and  $R_{4+5}$ , and cell  $r_3$  between veins  $R_3$  and  $R_{4+5}$ ) ie **Vein  $R_2$  and  $R_3$  forked to give a second marginal cell.** Tibiae without spurs at the tip. *Rhypholophus, Erioptera, Trimicra, Chionea, Symplecta, Gnophomyia, Psiloconopa, Goniomyia, Empeda, Cryptolabis, Cladura.* (Now Chioneinae)

**Section IV. Limnophilina** - Two submarginal cells. Antennae 16-jointed. Subcostal cross-vein posterior to the origin of the second longitudinal vein. Tibiae with spurs at the tip. – *Epiphragma, Limnophila, Ulomorpha, Trichocera* (Winter Gnats). (Now Limnophilinae)

**Section V. Anisomerina** - Two submarginal cells. Antennae from 6- to 10-jointed. Subcostal cross-vein posterior to the origin of the second longitudinal vein. Tibiae with spurs at the tip. – *Anisomera, Cladolipes, Eriocera, Penthoptera.*

**Section VI. Amalopina** - Two submarginal cells. Subcostal cross-vein anterior to the origin of the second longitudinal vein, tibiae always with spurs at the tip. **Eyes pubescent.** - *Amalopsis, Pedicia, Ula, Dicranota, Plectromia, Rhabdrolabis.* (Now Pediciidae)

The ‘hairy eyes of the current family Pediciidae were observed by Latreille in 1809 but the pediciids remained a Section (Amalopina) in the short-palped crane flies until it was made a first a tribe within Limoniidae and then a sub-family, Pediciinae. It was finally elevated to family status (Pediciidae) by Starý in 1992.

**Section VII. Cyldrotomina** - Antennae 16-jointed. The first longitudinal vein is incurved towards the second and usually ends in it ; tibiae always with spurs at the tip.- *Cylindrotoma, Triogma, Phalacrocer*

#### Table (Key) for determining the Sections

4. Antennae 14- (sometimes apparently 15-) jointed.	<b>Section I. Limnobina</b>	
5. Antennae 16-jointed. The first longitudinal vein ends in the costa ; tibiae without spurs at I the tip.	<b>Section II. Limnobiua anomala</b>	
The first longitudinal vein is usually incurved towards the second and ends in it ; tibiae always with spurs at the tip.	<b>Section VII. L Cyldrotomina</b>	
6. Tibiae without spurs at the tip.	<b>Section III. Eriopterina</b>	
Tibiae with spurs at the tip.		- 7
7. Subcostal cross-vein posterior to the origin of the second longitudinal crossvein		- 8
Subcostal cross-vein anterior to the origin of the second longitudinal, vein	<b>Section VI. Amalopina</b>	
8. Antennae 16-jointed	<b>Section IV. Limnophilina</b>	
Antennae from 6- to 10-jointed	<b>Section V. Anisomerina</b>	

Osten Sacken then continues the Monograph with a key to the genera and species in each section. Darwin published his ‘Origin of Species’ in 1858 and some ten years later Osten Sacken wrote:

*The aim of all classification is to increase our knowledge of the structure of organic beings by illustrating their natural relationship. If the natural relationship of some organic form be obscure, we may, for the sake of convenience, locate it provisionally on account of some artificial character ; but this provisional state has to cease, as soon as the true relationship is found out.*

He designated the Limnobina anomala as one such artificial group.

#### Some more Biography

[ A detailed and very interesting biography by C.P. Alexander, available to download from Catalogue of Crane flies of the World (CCW. Oosterbroek, P.) and is highly recommended.]

Born in 1828 into a family of Russian aristocrats, Baron Osten Sacken went as a Consular official to Washington, USA in 1856 and from then onwards, the crane flies of North America occupied much of his attention. He had a clear vision and was evidently a very effective project manager, organising collectors from across the USA, and working closely with Hermann Loew in Germany, then the foremost expert on Diptera, from 1850 until Loew’s death in 1879. He was supported by the newly-formed Smithsonian Institute who published the first 3 volumes of Monographs of North American Diptera authored by Loew, and then in 1869, Vol. IV, authored by Osten Sacken, which dealt with the crane flies. He returned permanently to Europe in 1877. He published a total of 179 papers in total during his lifetime. Apart from autobiographies, the last paper that I know of was in 1897. He died in Heidelberg in 1906.

George Verrall (1848-1911) made a major contribution to the study of British crane flies, (Kramer 2022. Pont 2011) but as we follow in his footsteps so he followed in the footsteps of predecessors. Perhaps the most important of these was Baron R. J. Osten Sacken.

George Verrall, who had clearly studied his work, wrote as follows in an obituary to Osten Sacken, (Verrall, 1906):

*"Probably no entomologist was ever more 'thorough' in his work. His bibliographical collection on Dipterology was unrivalled, and his was not merely a Library but notes were made by him from every work, so that he practically never missed a record of what had been previously written ... (He was an) absolute master of almost every European language; possessor of adequate means to associate in any company; of noble birth, which would give him admission to any rank of society; of diplomatic training which produced the most polished manners; all these qualities combined with an exceedingly retentive memory which he helped by detailed notes and exact observations, produced such a Master of Dipterology as we shall probably never see again.*

Coming from George Verrall that was praise indeed.

From the eulogy above it would be surprising if Verrall did not have a copy of the 'Monograph' in his own library. Collin gave some items from this library to the Oxford Museum but when checked by Adrian Pont, the OUM copy of the 'Monograph' did not have the Verrall book plate in it. (Interestingly, there were 2 small annotations which seemed to be written by OS). The vast majority of the the Verrall-Collin library was purchased by E.C. Zimmerman and ended up in the library of CSIRO Canberra. (Adrian Pont. Pers. Com.)

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**John Kramer**

## AGM Genitalia Preparation Workshop - NHM November 2022

**Kit & Chemicals.** It seems quite difficult to obtain the chemicals need to carry out genitalia preparations and a suggestion was made by Jenni Wilding that a 'starter pack' for the preparation of Diptera genitalia could be provided. Some of you may remember the very useful service that David Henshaw provided us before his retirement when he bought chemicals such as ethanol, ethyl acetate and potassium hydroxide pellets from suppliers, and sold them in small amounts to DF members. In these days of the internet it may not now be necessary, but if you would find this useful can you please let me know via email.



### **Cranefly Storebox.**

Following the workshop, Martin Grenland from Norfolk sent me this solution to the problem of storage of large tipulid specimens. He writes: 'The specimens are carded on pieces 50mm wide x 55mm high and then stored vertically in a wooden 35mm slide box bought on e-bay. Martin writes, 'it leaves plenty of room for the specimen. So far it is working well and saving a lot of space.'

Like the storage of microscope slides, it makes a very compact way of storing a reference collection and it is easy to wrap and put into a domestic freezer to keep it pest-free.

**Thanks to all who contributed articles or ideas. The next copy date for Issue #41 is June 21<sup>st</sup>, 2023.**



# Small Acalypterate Families

## Recording Scheme & Projects

Newsletter 2

Spring 2023

Founded June 1999 by Darwyn Sumner



*Dryomyza anilis* photo ©Darwyn Sumner (prefers dung to the fungi shown)

### A brief history

A little late for a newsletter of a scheme formed 24 years ago but activity has been on hold until the time was ripe.

A few things occurred within the last couple of years to make the reanimation of this scheme feasible. Firstly the publication by Nigel Jones of a guide to one of those Families in the Bulletin: Piophilidae in Bulletin 89. Secondly the transfer of Steve Falk's historic records from BRC to Dipterists Forum whereupon several teams began to extract records for use in their Recording Schemes and upload to NBN Atlas as Open Data. Thirdly the opportunities offered by iNaturalist to help gather records from photographs.

Why is this the second newsletter? Simply because the pages of the last couple of Bulletins have been packed with a number of background articles as we began to revive this Recording Scheme in the form of a number of projects. To get our chronology correct those will be bundled together into Newsletter 1, not reprinted, just as an online version, and not compiled with any degree of urgency.

### Recording Scheme - News

A fourth project has now been added, Steve Falk having given the thumbs-up to the Dryomyzidae. Pictures are gradually accumulating on our [iNaturalist](#) site and records are beginning to appear on the [NBN Atlas](#) due to the work of the team organising these projects. Finally we've done some research tracking down published keys and guides as Open Access downloads to most of these little Families. A few clicks on the hyperlinks in this newsletter and you've got a nice library.

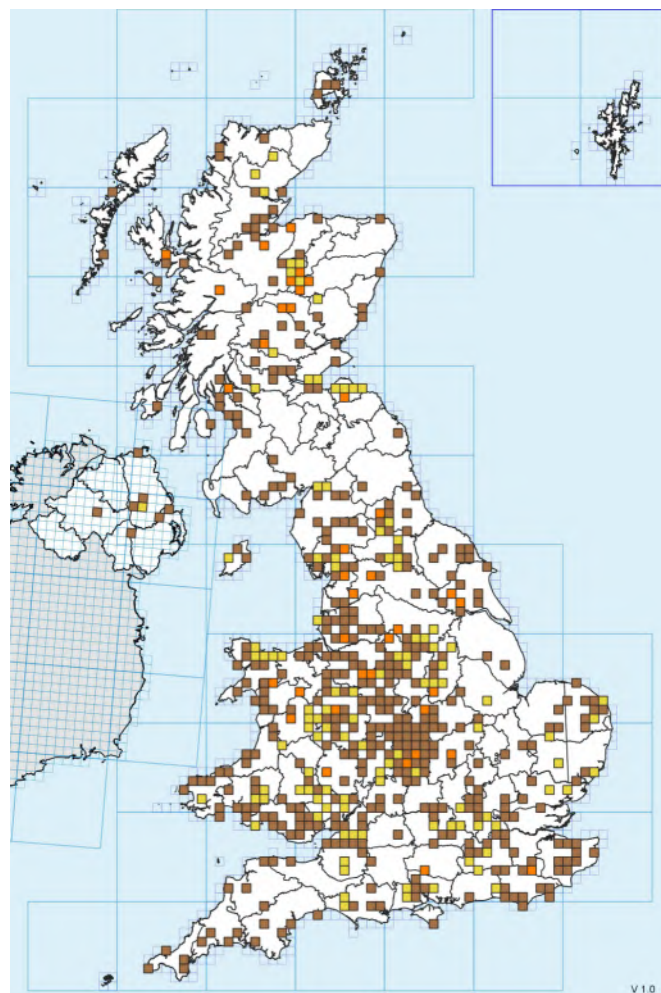
#### Adding more projects to the scheme

Expertise in each of these families is only to be found in the hands of a variety of different dipterists. As each expert comes forward to volunteer to deal with that family **plus** someone prepared to act as verifier so then a further project will be added to the current 4. Hopefully this initiative will stimulate more to come forward but it may well take decades before they're all addressed fully.

### Bones, birds & bees

A very odd bunch when bundled all together. They vary from the big obvious *Dryomyza* which is attracted to fungi as they melt away in the autumn through to some quite tiny pretty flies such as *Amoena*. Some avoid the regular techniques that dipterists employ to catch flies by hanging around bones (Piophilidae) sap runs (Aulacigastriidae, Periscelididae) or birds (Carnidae) and bees (Braulidae) and as a result may be considerably under-recorded.

### Dryomyzidae Open Data 2022



*Dryomyza anilis* {dark brown}, *Dryope luteola* {tan} and *Dryope decrepita* {orange} (overlapping). One possible pattern is altitude for the latter two.

Map generated in QGIS using Rich Burkmar's FSC tools

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

Small Acalypterate Families (UK) at <https://www.inaturalist.org/projects/smaller-acalypterate-families>

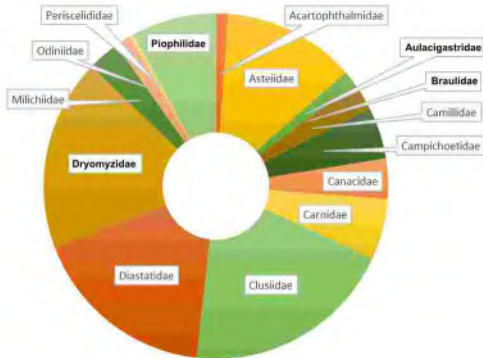
Online version (with hyperlinks) on [Newsletters](#) page at <http://micropezids.myspecies.info/>

Darwyn Sumner, Steve Falk & Nigel Jones

DIPTERA: Acartophthalmidae, Asteiidae, Aulacigastriidae, Braulidae, Camillidae, Campichoetidae, Canacidae, Carnidae, Clusiidae, Diastatidae, Dryomyzidae, Milichiidae, Odiniidae, Opomyzidae, Periscelididae, Piophilidae

# Small Acalypterate Families

## Open Data: UK



NBN Atlas holdings for each Family ~6,500 records

### Verification

The BRC uploaded a dataset to the NBN Atlas consisting of unverified records. It's a mixed bag of all sorts of records from a wide variety of Families not covered by Recording Schemes. Titled "Diptera records from iRecord for families not covered by a recording scheme" it contains some 70,512 records from 39 Families at <https://registry.nbnatlas.org/public/show/dr2046> Our projects aim to verify the Small Acalypterate Families, our NBN dataset is at <https://registry.nbnatlas.org/public/show/dr2704> and verified records from this scheme began to show up on that Open Data silo in December.

In addition there are numerous other datasets, both historic trawls and uploads of Dipterists Forum Field weeks which contain records of these Families and thus appear in any NBN Atlas search.

### Flex your skills

Both iRecord and iNaturalist will provide an opportunity for you to attempt verification. The latter is a free-for-all, just join and try your hand. iRecord is more demanding but if you've expertise apply through BRC (+this scheme), it'll cope with multiple verifiers for the one group.

### Up for grabs

The following list shows our progress, Families highlighted in dark green are up and running:

Family	spp	iNat	SJF	BRC	NBN	Scheme
Acartophthalmidae	2	0	0	11	74	Project
Asteiidae	8	6	131	132	655	Project
Aulacigastridae	1	1	1	1	47	Project - Darwyn Sumner
Braulidae	2	1	0	4	6	Project - Darwyn Sumner
Camillidae	5	1	141	20	151	Project
Campichoetidae	2	0	1	98	407	Project
Canacidae	11	1	19	20	238	Project
Carnidae	13	0	0	23	364	Project
Clusiidae	10	23	201	177	1267	Project
Diastatidae	6	2	262	233	1115	Project
Dryomyzidae	3	118	235	465	1284	Project - Steve Falk + DS
Milchiidae	19	6	0	23	192	Project
Odiniidae	9	1	0	13	97	Project
Perisicelididae	4	0	0	1	21	Project
Piophilidae	16	8	154	94	520	Project - Nigel Jones

Columns show number of species in the Family (spp), iNaturalist records as images (iNat), Steve Falk's pre-2014 records (SJF), BRC's "not necessarily verified" records already added to NBN Atlas (BRC) and NBN Atlas totals (NBN).

Numbers on pale red give some indication as to the volume of records awaiting attention, those on pale green are already Open Data.

Opomyzidae, though they don't strictly qualify as small in terms of number of species are included in the iNaturalist project.

The expertise of European workers would be most welcome

## Project Dryomyzidae NEW

Steve Falk joined us in Autumn 2022, it was his original idea to treat each Family as a "project" allowing us to explore the situation regarding the availability of keys and data before adding them to the Recording Scheme.

Steve is currently active on iRecord, uploading his more recent material. His historic records have been the subject of a Dipterists Forum project to digitise his pre-2014 records from scans of hand-written folders (Recording Scheme teams have been working on a variety of other Families from these, including Sciomyzidae, Conopidae & Anthomyidae). The extracted records of some 235 Dryomyzidae were submitted to NBN in October.

"All those dryomyzid records should be accurate and ready to upload.. Had no idea I'd generated so many and I have more decrepita records from the Scottish Highlands to add but I've got a big Scottish dataset to submit this winter based on the trip Nigel Jones and I made last year so they will get into the system soon"

Steve also directs us to images on his [Flickr site](https://www.flickr.com/photos/stevefalk/) at <https://tinyurl.com/2ejf7sxb> where you will find his key and links to a range of additional resources as well as images of all three of our UK species (with the correct names.)



Dryope decrepita female [Steve Falk on Flickr]



Dryope flaveola [Rui Andrade on iNaturalist]

### Contacts:

Technical and identification topics only to Steve Falk, records enquiries (iRecord, iNaturalist etc.) to Darwyn Sumner

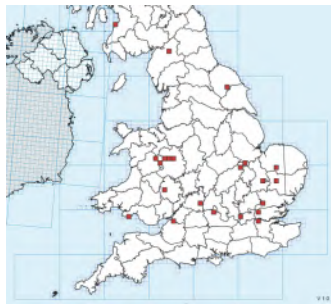


## Nomenclature

For this holarctic Family with only 3 UK members, there have been a surprising number of name changes. Expect to find (some of) the following used on various systems, accepted names are highlighted in green.

UKSI	NBN	GBIF	iNaturalist
	<i>Neuroctena anilis</i>		<i>Dryomyza anilis</i>
	<i>Dryomyza decrepita</i>		<i>Dryope decrepita</i>
	<i>Dryomyza flaveola</i>		<i>Dryope flaveola</i>

## Project Aulacigastridae



### *Aulacigaster leucopeza*

All records, regardless of verification status or imprecise grid references.

Clearly it is very rarely encountered. Get up close to any sap runs you find for a chance at this one. Worth a "eureka!" and a note for Dipterists Digest if you get lucky.

After you've popped it on iRecord and/or iNaturalist of course.

## Project Braulidae

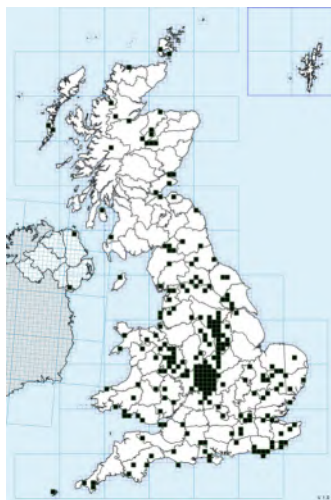
The specimen of *Braula coeca* recently posted on iNaturalist occasioned Murdo MacDonald to research and submit an article to Dipterists Digest. He kindly sent me a preview:

MacDonald, M. (2023). The Bee-louse *Braula* (Diptera, Braulidae) in Scotland. Dipterists Digest, (submitted), 1–9.

A thorough and extensive treatment of the subject. Tasks remaining now are researching historic records for the rest of the UK from the beekeeping community and other literature and flagging any new records infrequently submitted. Specifically, the NBU database referenced in Dobson, 1999 is sought, though it is anticipated that difficulties regarding precise locations (and consequently production of a UK distribution map) will be encountered due to the methods used to monitor their widely dispersing hosts.

## Project Piophilidae

Nigel Jones began this project in Bulletin 89 (p14) as a guide



### Recording effort

The entire records of all the UK Piophilidae on file.

This map shows the regions where recording is most focussed due to the activities of certain recorders notably Steve Falk in Warwickshire. To the west Nigel Jones and to the north through Leicestershire and Nottinghamshire and into the Sorby region the efforts of others. Scattered patches elsewhere may be from expeditions, either those of Dipterists Forum during their field weeks or to favourite spots such as the Spey, Breck or south east coastal regions.

Nigel continues to work on these 16 species, for maps of individual ones consult the NBN Atlas Open Data, for new records just put them on iRecord or iNaturalist and for identification issues have a word with Nigel.

## Keys & resources

Some of these can be found in Dipterists Digest and thus available on the [Dipterists Forum website](https://dipterists.org.uk) at <https://dipterists.org.uk> others from elsewhere as detailed below. They are all Open Access, use the hyperlinks to obtain them directly.

### Diptera Families

Ball & Ismay: Available to Dipterists Forum members on DF website.

[Unwin, 1981](#)

### Aulacigastridae

[Roháček, J. \(2013\)](#). The fauna of the Acalyprate families Micropezidae, Psilidae, Clusiidae, Acartophthalmidae, Anthomyzidae, Aulacigastridae, Perisclididae and Asteiidae (Diptera) in the Gemer area (Central Slovakia): supplement 1. Časopis Slezského Zemského Muzea Opava (A), 62, 125–136. <https://doi.org/10.2478/czma-2013-0014>

[Hagenlund, L. K. \(2017\)](#). First record of *Aulacigaster pappi* Kassebeer, 2001 from Norway (Diptera, Aulacigastridae). Norwegian Journal of Entomology, (December), 2013–2016. <https://tinyurl.com/bddw37ns>

[Rung, A., & Mathis, W. N. \(2011\)](#). Revision of the Genus *Aulacigaster* Macquart (Diptera: Aulacigastridae). (July 2015). <https://doi.org/10.5479/si.00810282.633>

### Braulidae

[Dobson, J. R. \(1999\)](#). A "Bee-louse" *Braula schmitzi* (Diptera: Braulidae) New to the British Isles, and the Status of *Braula* spp. in England and Wales. British Journal of Entomology and Natural History, 11, 139–148. <https://tinyurl.com/bdfzsubt>

[Parmentier, T. \(2020\)](#). Guests of Social Insects. (December 2019). <https://doi.org/10.1007/978-3-319-90306-4>

### Dryomyzidae

[Falk, S. \(2005\)](#). The identification and status of *Dryomyza decrepita* Zetterstedt (Diptera, Dryomyzidae). Dipterists Digest, 12, 7–12. <https://tinyurl.com/262vbw8a>

### Piophilidae

[Stubbs, A. and Chandler, C. 2001](#). A provisional key to British Piophilidae (Diptera) and Parapiophila flavipes (Zetterstedt, 1847) new to Britain. Dipterists Digest 2001, 8, 71-78 <https://tinyurl.com/3t5452xc>

One of the tasks for organisers of this Scheme is to hunt down identification keys, the following may be of value to those interested: [full references & links tbd]

### Acartophthalmidae

Ozerov, A. L. (1986). "Review of the family Acartophthalmidae (Diptera) with description of a new species". Zoologicheskii Zhurnal. 65: 807–809 [Russian] [\[unavailable as Open Access\]](#)

### Asteiidae

[Online Key to Asteiidae](#)

[Chandler, P. J. \(1978\)](#). A revision of the British Asteiidae (Diptera) including two additions to the British list. Proceedings of the British Entomological and Natural History Society, 11, 23–34. <https://tinyurl.com/3d9wpt73>

Gibbs, D., & L. Papp, 2007. A review of the Holarctic species of *Leiomyza* Macquart, 1835 (Diptera: Asteiidae) with descriptions of two new species. - Studia Dipterologica 13(2)(2006): 241-248. [\[unavailable as Open Access\]](#)



*Asteia amoena* [Marie Lou Legrand, France on iNaturalist]

### Camillidae

[Beuk, P., & de Jong, H. \(2015\)](#). De Nederlandse soorten van de Camillidae (Diptera). Entomologische Berichten, 54(1), 1–6. Retrieved from <https://tinyurl.com/4rv3vuu5> [Dutch]

All western European species are keyed

# Small Acalypterate Families

## Campichoetidae

Chandler, 1986. The families Diastatidae and Campichoetidae (Diptera, Drosophiloidea) with a revision of Palaearctic and Nepalese species of Diastata Meigen [[unavailable as Open Access](#)]

## Canacidae (beach-flies)

Collin 1966, Irwin et al 2001

[Munari, L. \(2011\)](#). The Euro-Mediterranean Canacidae s.l. (Including Tethinidae): Keys and Remarks to Genera and Species (Insecta, Diptera). Bollettino Del Museo Di Storia Naturale Di Venezia, 62, 55–86.

## Carnidae (bird-flies)

Collin 1930, 1937

Jens-Hermann Stuke knows this group

## Clusiidae

[Stubbs, A. E. \(1982\)](#). An Identification Guide to the British Clusiidae. Proceedings of the British Entomological and Natural History Society, 15, 89–93. <https://tinyurl.com/yexvujfv>

[Withers, P. \(1985\)](#). Notes on some British Clusiidae and reduction of Clusiodes facialis (Coll.) to synonymy. Proceedings of the British Entomological and Natural History Society, 18, 63–64. <https://tinyurl.com/wae55u7w>

## Diastatidae

Chandler, P. J. (1987). The families Diastatidae and Campichoetidae (Diptera, Drosophiloidea) with a revision of Palaearctic and Nepalese species of Diastata Meigen, Insect Systematics & Evolution, 18(1), 1–50. doi: <https://doi.org/10.1163/187631287X00016> [[unavailable as Open Access](#)]

## Milichiidae

MS key by Chandler - on request

## Odiiniidae

Collin 1952;

Cogan 1969;

[MacGowan, I., & Rotheray, G. E. \(2002\)](#). A new species of Odiinia (Diptera, Odiiniidae) from Scotland. Dipterists Digest Second Series, 9, 67–69. <https://tinyurl.com/53d8y9j6>

MacGowan et al, 2004

## Opomyzidae

[Drake, C. M. \(1993\)](#). A Review of the British Opomyzidae (Diptera). British Journal of Entomology and Natural History, 6, 159–176. Retrieved from <https://tinyurl.com/4bee4z9k>

Two further publications on Opomyzidae by Martin are to be found on ResearchGate

## Periscelididae

Duda 1934

[Mathis, W. N., & Rung, A. \(2011\)](#). World Catalog and Conspectus on the Family Periscelididae (Diptera: Schizophora). MYIA, 12(February 2014), 341–377. Retrieved from <https://tinyurl.com/yep953up>

Good background reading; try sap runs

Irwin, A. G. 1982. A new species of Stenomicroa Coquillett (Diptera, Aulacigastridae) from Anglesey, North Wales. Ent. Mon. Mag. 119(1420-1423): 235-238

Thanks to Peter Chandler for providing an outline of the above keys, Tony Irwin, Alan Stubbs and Martin Drake for advice and encouragement. BENHS papers were downloaded from BHL and stored on a Scratchpad site for ease of download.

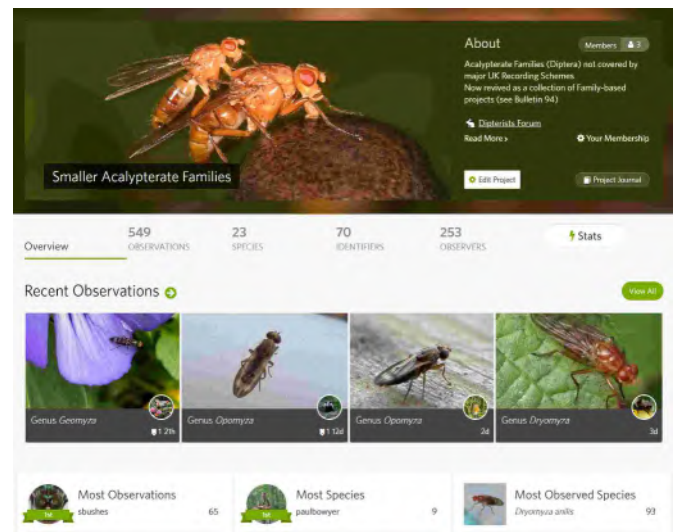
Authors of papers from journals not typically making their material available as Open Access may consider uploading to ResearchGate, though do follow their guidelines on copyright.

## Potential progress

A number of keys have been compiled on [Online-Keys.net](#) following the traditional couplet pattern, allowing for prints to be made of them. For researchers interested in developing their own, Field Studies Council's [Identikit](#) system will facilitate the development of online keys using spreadsheet tables of characters ([example](#))

For the development of comprehensive research sites (taxonomy, bibliography etc.) the NHM's [Scratchpad](#) system is used by several Dipterists Forum Recording Schemes, some covering Europe and further afield. Setting one up for the above would be feasible / desirable but quite demanding for a single person; expressions of interest would therefore be welcome.

## iNaturalist project



For the photographers, be they casual or dedicated, this Scheme has an iNaturalist project. Simply a filter on the photographs that naturalists have uploaded onto the site.

At its simplest level it acts as a gallery of the most popular flies but it also serves to indicate which of our dipterists are the most keen on looking out for these Families whilst armed with a camera.

If you've any expertise at identification then it's a simple matter to sign up and identify them. So far 78 of those 549 have been confirmed.

<https://www.inaturalist.org/projects/smaller-acalypterate-families>

Those submitting images would be glad of the identification, as I was with my first *Dryomyza anilis*. I keep trying to find a Piophilid to get one of mine on that site, so far without success but one day I'll find an attractive pile of bones.

## iNaturalist to iRecord to NBN Atlas

The records on iNaturalist drift in to iRecord of course. Anyone set up with BRC to verify a specific Family will see the ResearchGrade (confirmed) ones lined up for expert scrutiny after which they'll sail through iRecord's more scrupulous verification system to end up as quality Open Data on the NBN Atlas.

**Verifiers:** So far on iRecord we've Nigel Jones verifying the Piophilidae, me doing the Aulacigastridae & Braulidae and Dryomyzidae (under supervision.)

If you've an interest or expertise in any of the other Families (see the above list) then drop a line to me and Martin Harvey to set you up as an iRecord verifier.

My [quick video guide](#) at <https://tinyurl.com/5cen23b4> shows how and there's a whole batch of detailed instructions on the iRecord site.

## [Dipterists Forum Recording Schemes](#)



# Soldierflies and Allies Recording Scheme

## Newsletter 9, spring 2023

Edited by Martin C. Harvey  
ISSN 2053-471X (print)  
ISSN 2053-4728 (online)



*Orange-horned Green Colonel, Odontomyia angulata, one of several individuals seen during the Dipterists Forum summer field meeting in Norfolk, July 2022. Photo by Martin Harvey.*

Welcome to another recording scheme newsletter. Unfortunately it was not possible to produce a newsletter in 2022, but having skipped a year we are back for 2023. Included in this issue are some natural history notes for various species, updates on recent records, and a longer article describing some taxonomic detective work within the snipefly family, Rhagionidae.

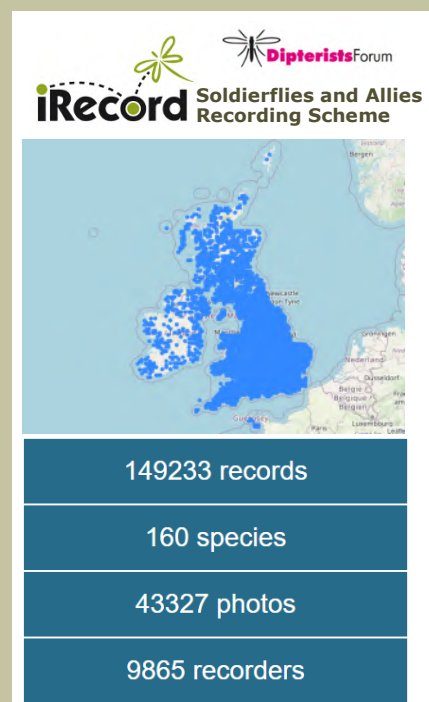
Many thanks to the authors, photographers and recorders who have contributed to this issue.

### Sending in records (with some notes for iNaturalist users)

The recording scheme welcomes records for any of the species included in our eleven families, whether just one records or thousands, for one species or many, new or old. The preferred route for sending in records to the scheme is via [iRecord](#) or by sending in spreadsheets. iNaturalist is not a preferred option, because it doesn't link well to UK species names and grid references, and we are not able to provide feedback in the same way we can on iRecord. However, if you do use [iNaturalist](#) your records will reach the scheme, and you can help us by following these guidelines where possible:

- Choose an open licence for your records: CC0 or CC BY will enable your records to be used as widely as possible; CC BY-NC (non-commercial) can prevent records being used by some schemes and records centres. Other licence choices (such as SA and ND) are difficult to interpret for individual records, and cannot be used in iRecord or the NBN Atlas (nor on GBIF). (Note that the choice of licence for your photos is up to you and is separate to the record licence.)
- Provide your real name if possible; this can be added as the "Display name" in your iNaturalist profile, and will then be used as the recorder name on iRecord.
- Avoid obscuring locations unless absolutely necessary, as this can prevent them being linked to grid references of suitable precision for recording scheme use.
- Records on iNaturalist are imported into iRecord, so it is helpful if you can avoid adding the same record to both iNaturalist and iRecord, to avoid duplication of both records and of verifiers' time.

Further details are available on the [recording scheme website](#).



## Red-legged Robberfly *Dioctria rufipes* (Asilidae) courtship

by Martin Drake



*Dioctria rufipes* mating. Photo Andy Brown.

The courtship described by Parmenter (1952) for *Dioctria* (no species named) was similar to his later description for *D. baumhaueri* Meigen and Melin's (1923) for both *D. rufipes* (De Geer) and *D. hyalipennis* (Fabricius), but different from Parker's (1995) for *D. cothurnata* Meigen. It is unclear what species formed the basis of Parmenter's 1952 account but I saw exactly this behaviour by *D. rufipes* in my Devon garden.

At 9:00 in the morning on 14 June 2020, when the sun was coming and going after an overcast and drizzly start to the day, a male was swinging back-and-forth in an arc of about 120°, some 10-15cm in front of a female that was sitting on a leaf of meadowsweet (*Filipendula ulmaria*), and always facing her. After about 10 swings, he quickly flew to her and coupled, but I was not paying enough attention at the final moment so cannot say what happened after that as I was distracted by a potential mating of *Chrysopilus cristatus* (Fabricius). *Dioctria rufipes* is a frequent fly in this damp part of the garden that resembles a wet meadow.

### References

- Melin, D. 1923. *Contributions to the knowledge of the biology, metamorphosis and distribution of the Swedish asilids in relation to the whole family of asilids*. Almqvist & Wiksells Boktryckeri-A.-B, Uppsala. 317pp.
- Parker, J. 1995. Observations on *Dioctria cothurnata* Meigen (Diptera, Asilidae) in Cumberland. *Larger Brachycera Recording Scheme Newsletter* 16: 5–6.
- Parmenter, L. 1952. Notes on the Asilidae (robberflies). *Entomologist's Record and Journal of Variation* 64: 229–234.
- Parmenter, L. 1954. The courtship of Diptera. *Proceedings and Transactions of the British Entomological and Natural History Society* 1952-1953: 104–109.

## Flowers visited by Western Bee-fly *Bombylius canescens* (Bombyliidae)

by Martin Drake

Stubbs & Drake (2014) mention a few flowers visited by *Bombylius canescens* Mikan but there appears to be little published information on the range that it uses. This spring I watched several individuals on 7 days between 26 May and 16 June in my East Devon garden and neighbouring countryside, the first I'd seen here for a few years. An unfortunate individual that died in the house allowed its identity to be confirmed. Germander Speedwell (*Veronica chamaedrys*) was a favourite (Stubbs & Drake mention Heath Speedwell), with visits to this plant on five of the seven days. One fly spent many minutes going systematically from flower to flower in a patch with about 100 flowers. A large area of Common Chickweed (*Stellaria media*) was also searched systematically for many minutes, and this fly showed no preference for diverting to the speedwell that was mixed in with the chickweed. This fly did approach and quickly reject several Red Deadnettle (*Lamium purpureum*), which is normal behaviour as flies don't like closed flowers, so seeing a bee-fly at Bush Vetch (*Vicia sepium*) was unexpected; this was not just a single accidental probing but several flowers were visited. Also unexpected was Common Daisy (*Bellis perennis*) in the lawn, a flower



*Bombylius canescens* visiting a *Veronica* flower. Photo John Lyden.

used relatively seldom by flies considering its ubiquity. Stubbs & Drake mention Herb-Robert (*Geranium robertianum*) being visited, and I can confirm this and add Shining Crane's-bill (*G. lucidum*) of which several flowers were visited. A quick dash to Red Campion (*Silene dioica*) was probably a mistake in one fly's search for Herb-Robert growing with it.

As usual with bee-flies, this behaviour suggested a wide diet but also a degree of selectivity at a time when there is an abundance of flowers to choose from. It is possible that feeding while hovering allows them to use a resource of tiny flowers that is under-used by flies and bees of the same size as *B. canescens*, since landing on these small flowers was clearly a cumbersome activity for, say, *Platycheirus* hoverflies.

### References

- Stubbs, A.E. & Drake, C.M. 2014. *British soldierflies and their allies*. British Entomological and Natural History Society. Second Edition. 528pp.

## Black-legged Water-Snipefly *Ibisia marginata* (Athericidae) found in Perthshire

by Robert Wolton

On 12 June 2021, while sweeping vegetation around a large shingle bank beside the River Earn, near Comrie in Perthshire (NN790216), I caught two individuals of this species. The NBN Atlas (and Soldierflies and Allies Recording Scheme) does not show any records further north in Scotland than Dumfries and Galloway, so this record near Comrie extends the known range considerably northwards, by some 130km. I also caught two Northern Silver-stiletto flies *Spiriverpa lunulata* on the same day on the site. To add further interest, there were signs of recent beaver activity.



*Ibisia marginata* from Comrie. Photo Rob Wolton.

## House Windowfly *Scenopinus fenestralis* (Scenopinidae) reared from Jackdaw nest

by Robert Wolton

In February 2021 I cleaned out a barn owl box in a farm shed that had been used by Jackdaws the previous season, and after removing all the twigs almost filled a 15 litre white feed bucket with the debris. I covered this with netting and waited. Over the course of the summer quite staggeringly large numbers of White-shouldered House-moths *Endrosis sarcitrella*, Brown House-moths *Hofmannophila pseudospretella* and clothes moths *Tineola* spp emerged, and a few Skin Moths *Monopis laevigella*.

On 14 July four *Scenopinus fenestralis* appeared, followed over the next few days by a further six. Over more than ten years of being interested in flies, I have previously only seen two individuals on the farm, both on the internal surfaces of windows in our house (the fly in well named). Otherwise, in Devon it has been recorded only from Martin Drake's house on the other side of the county!

The association with a Jackdaw's nest is not unexpected since in the wild the natural home of the house windowfly includes birds' nests in hollow trees – among them those of Jackdaws as well as sparrows, swallows, starlings and pigeons (Stubbs and Drake 2014, *British soldierflies and their allies*). The larvae are thought normally to feed upon the larvae of "clothes" moths as well as those of carpet beetles and perhaps even of fleas. The only other flies to emerge from the bucket's contents were two *Hydrotaea*

*armipes* (a muscid) and one each of the helemomyzids *Tephrochlamys rufiventris* and *Heteromyza rotundicornis*.

If you have not come across windowflies, you might like to try collecting disused birds' nests from buildings, to see what emerges from the detritus.

My thanks to Andrew Cunningham for his excellent photo of one of the specimens from the Jackdaw nest.



## An antennal enigma – are the snipe flies *Spania nigra* and *Archicera avarorum* (Rhagionidae) the same species?

by Robert Wolton

Male and female *Spania nigra* Meigen, 1830, have differently shaped antennae. I noticed this when looking at two females and a male reared from liverwort mats (see separate note in this newsletter) and confirmed it by looking at further specimens I have collected, both from our farm in Devon and from coastal cliffs in Norfolk near Cromer. This difference has been overlooked by some authors and researchers with the unfortunate consequence that the female may, in continental Europe, have been described as a separate species and even placed in different genus – *Archicera avarorum* Szilády, 1934! It's an intrigue that stretches back more than a hundred years and across seven European countries.

At the start of the last century Verrall (1909) recognised the difference in antennal shape between male and female *S. nigra* antenna, providing illustrations, as much more recently have Nagatomi and Saigusa (1982) (based on Japanese material and a female examined in the Natural History Museum in London). These works appear to have gone unnoticed by recent European workers. Even Alan Stubbs and Martin Drake's superb handbook *British soldierflies and their allies* (Stubbs and Drake 2014) does not remark on the difference, rather giving a description of antennal shape that fits the male better than it does the female. Something for a third edition to address, perhaps?

I'll start with a description of the antennae in *S. nigra* (see photos opposite and on Steven Falk's excellent [Flickr site](#)). The male antenna has a nearly rectangular third segment with rounded corners, the "arista"<sup>1</sup> arising from the lower front corner, its base occupying no more than half the distal end of the third segment. Unlike the first two segments, both arista and third segment are densely covered in short hairs, and the arista is 1.5 to 2 times the length of the third antennal segment: it is round in cross section. In marked contrast, in the female the third antennal segment is more rounded than in the male and the arista proportionally longer, 2.5 to 3 times as long. The arista is also laterally flattened, and in the specimens I have its base occupies two thirds, sometimes all, of the end of the third segment – indeed in several specimens it is difficult to see where the antennal segment ends and the arista starts (see the photo opposite). As in the male both third segment and arista are covered by short, but slightly longer, hairs. The flattened female arista tapers fairly evenly from its broad base to a fine tip. There is some variation in antennal shape, especially in the extent to which there is a step between third antennal segment and arista, but there remains a clear difference in arista between sexes in all the specimens I have to hand (5 males, 6 females). There is also a difference in palp shape between males and females,

<sup>1</sup> The "arista" should probably be called an arista-like stylus since in both males and females it appears separated from the third antennal segment (the first flagellomere or postpedical) and shows signs of annulation (i.e. division into several segments or further flagellomeres): some authors refer to it as a prolongation of the third segment. Together all the flagellomeres constitute the flagellum (Cumming and Wood 2017).



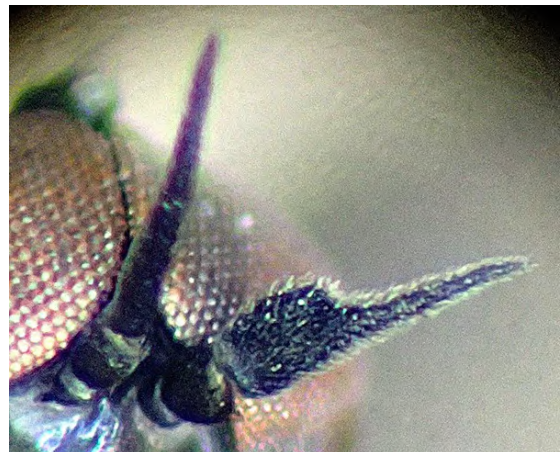
the females being broader and flatter and lacking long hairs at the tip, but that is of less relevance to the story in hand.

In 1934 Szilády described *Archicera avarorum* based on two females, one from Austria and the other from Croatia, held in the Természettudományi Museum in Budapest, Hungary. It is presumed they were collected before the First World War. In his brief account Szilády recognised the similarity to *Spania* but placed the specimens in a different genus on the basis of “their lancet-shaped antennae, the third segment of which showed incipient segmentation”. I am grateful to Papp (2018) for providing this information and for reporting that the generic name reflects Szilády’s view that the antennal form is a primitive feature, *Archicera* meaning ancient horn in Greek. The specific epithet refers to the Avars, ancient inhabitants of the Carpathian Basin prior to its invasion by the Hungarian tribes at the end of the 9th century. Unfortunately, the museum in Budapest burnt down in the 1956 Hungarian Revolution and the two syntypes were lost.

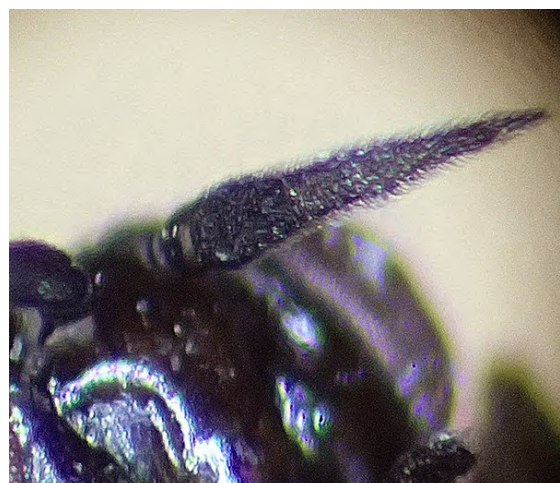
To this day, *avarorum* remains the only species in the genus *Archicera*. It appears to be very rare since it was not until 2017 that the next specimen was found, in Transylvania, Romania. László Papp at the new Hungarian Natural History Museum took the opportunity to describe it as the neotype (Papp 2018). It too was a female. Papp compared it with a male *Spania nigra* from Romania, apparently the only specimen of that species he had to hand. He does not remark upon any specific differences from *S. nigra*, noting that the wing venation is the same. However, he does provide a photograph of one of the antennae which clearly shows the arista to be similar in length and shape to that of female *S. nigra* as I describe above, if rather thinner than in any of my specimens. In his description of the “flagellomere” (encompassing my third antennal segment and arista) he notes that the longest, mid-part is subcylindrical, so flattened to some extent (the terminal part being a minute tip to the arista). If Papp had had a female *S. nigra* to hand or been aware of Verrall’s (1909) or Nagatomi and Saigusa’s (1982) descriptions and illustrations, would he have considered the specimen he described to belong to that species? I believe he may have. Sadly, László Papp died in 2021.

The next reported encounter with *A. avarorum* is from Brussels, Belgium. Here, Patrick Grootaert, Hugo Raemdonck and Alain Drumont caught 13 in Malaise traps set in the Botanical Garden Jean Massart in 2015 and 2017 (Grootaert *et al.* 2020). These were all females. Like Szilády and Papp before them, they infer that *A. avarorum* can be distinguished from *S. nigra* solely on antennal shape: all make the understandable but as it turns out false assumption that female *S. nigra* have similar antennae to the males of that species. Grootaert and his co-authors provide excellent illustrations of the left and right antennae of a single female from among their specimens, showing that variation can occur even within the same specimen: the shape of both is, however, well within the range of variation seen in the female *S. nigra* I have in my collection. It does seem probable to me that the specimens collected in Brussels are in fact female *S. nigra*.

Curiously, neither Papp’s photograph nor Patrick, Hugo and Alain’s illustrations show the segmentation in the



*Spania nigra* antennae, male above, female below. Both emerged 4 June 2021 from *Pellia* liverwort taken from wet woodland on Locks Park Farm, Hatherleigh, Devon. Photos Rob Wolton.



“arista” which I believe I can just see in my specimens and which Szilády originally reported. Perhaps this is an artefact of preservation means – my specimens were pinned and air dried from fresh material, those from the botanic garden preserved in alcohol.

The next part of the story completes the cycle of probable confusion. In Spain, Miguel Carles-Tolrá recently examined 1995 and 1996 Malaise trap catches from a forest in the north of the country (Carles-Tolrá 2021). Searching for rhagionids, he found not just a female conforming to *A. avarorum* but also two males which he took to be of the same species. Since these were apparently the first male *A. avarorum* known to science, he describes them in detail. His paper includes photographs of both male and female antennae – but they look identical to those of male and female *S. nigra* as far as I can judge. He also provides photos of the male genitalia, noting that the male surstyli appear identical to those of *S. nigra* illustrated by Kerr (2010). Carles-Tolrá does not make any further direct comparisons between the two species. His photo of the male genitalia does, however, reflect very closely the illustrations of *S. nigra* male genitalia provided by both Rozkošný and Spitzer (1965) and Nagatomi and Saigusa (1982). Carles-Tolrá notes that there is sexual dimorphism in the palps: the descriptions and photos reflect my own observations for *S. nigra*. Surely, all this confirms that *A. avarorum* is indeed the same species as *S. nigra*?

I am no taxonomist and may be quite wrong about this. Further close examination of male and female genitalia may help, but, as Patrick Grootaert has remarked to me, the only sure way we are likely to be able to tell if they are distinct species is by DNA sequencing. Do the bar codes differ?

Whether one species or two, should the flies be placed in the genus *Archicera* or *Spania*? Like László Papp, Patrick Grootaert and Miguel Carles-Tolrá I would not wish to comment on this – I am hardly qualified to do so! Papp (2018) quotes Akira Nagatomi and Toyohi Saigusa (in prep.) saying that the variation in antennal shape in *Archicera* is similar to that observed in *Spania* species (of which in addition to *nigra* there are a further three found in Japan), so *Archicera* is probably a junior synonym of *Spania*. The paper does not yet appear to have been published.

My thanks to Martin Drake, who had already noticed the difference in antennal shape between the sexes in *S. nigra*, for helpful discussions, references and comments on this note.

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## Liverwort Snipefly *Spania nigra* (Rhagionidae) reared from the liverwort *Pellia epiphylla*

by Robert Wolton

On 9 May 2020, to my surprise, a male of the tiny (2mm) rhagionid *Spania nigra* appeared in an emergence trap set in wet willow/alder woodland on our farm in Devon (SS517014). Verrall (1909) and Stubbs and Drake (2014) refer to an 1896 account from mainland Europe, probably France, of a female being reared from a thallus of *P. neesiana*. After reading this, I examined the ground beneath the emergence trap and duly found a small mat of *P. epiphylla*, a very similar species to *P. neesiana*. A further two *S. nigra* were present in the trap when I next checked it, on 12 May.

To try and confirm the association with *Pellia*, in spring 2021 I scraped some mats of the liverwort's thalli off the woodland floor and placed them in a small bucket with a net covering. On 4 June three adult *S. nigra* emerged, a male and two females.



Female *Spania nigra*. Photo Rob Wolton.

Thus, the association of the snipefly with *Pellia* in Britain is confirmed, and as conjectured by Alan Stubbs and Martin Drake, damp or wet woodland provides suitable larval habitat, in addition to coastal landslips and cliff runnels, and doubtless other habitats where the liverworts occur. The ground in our wet woodland is kept open by cattle grazing, providing plenty of bare soil suitable for colonisation by the liverwort.

My thanks to John Day for identifying the *Pellia*.

## Recording scheme updates

### *Soldierflies and allies in the entomological journals*

The following articles and notes have appeared in recent journal issues.

- Chandler, P.J. 2021. The two-winged flies (Diptera) of Windsor Forest and Great Park. *Dipterists Digest* 28 Supplement: 1–126. [Peter Chandler's masterful summary of the habitats and fauna covers all Diptera families, including soldierflies and allies.]
- Crowley, L. 2021. *Pandivirilia melaleuca* (Loew) (Diptera, Therevidae) recorded from Wytham Woods, Oxfordshire. *Dipterists Digest* 28: 250–251.
- Drake, C.M. 2022. Swarming behaviour of male *Chrysopilus cristatus* (Fabricius) and *C. asiliformis* (Preyssler) (Diptera, Rhagionidae). *Dipterists Digest* 29: 19–34.
- Edwards, B., and Foster, A.P. 2021. Further records of *Villa cingulata* (Meigen) (Diptera, Bombyliidae) from Dorset. *Dipterists Digest* 28: 163–164.
- Gabriel, R., and Sherwood, D. 2020. *Bombylius major* L. (Diptera: Bombyliidae) as prey of *Metellina mengei* (Blackwall) (Araneae: Tetragnathidae). *British Journal of Entomology and Natural History* 33: 244.
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- Rotheray, G.E. 2021. *Atylotus fulvus* (Meigen) (Diptera, Tabanidae) in southern Scotland. *Dipterists Digest* 28: 125–126.
- Smith, D., Baird, K., Horsfield, D., Bland, K.P. and Harvey, M. 2021. *Pachygaster atra* (Panzer) (Diptera, Stratiomyidae) in south-east Scotland. *Dipterists Digest* 28: 94.



## Recording scheme updates

During 2021 the number of records sent in to the recording scheme was the highest ever, at just over 10,000 records, and for 2022 we have over 8,000 records so far, with more to come as further spreadsheets arrive and records are entered. One big job that was more-or-less completed in 2021 was the transfer of the bulk of the older recording scheme records into the iRecord database, so that nearly all of the recording scheme data is now available in one place for ease of use and checking. From iRecord the records are [shared with the NBN Atlas](#) (and updated monthly) for wider accessibility. Data from the recording scheme has been downloaded from the NBN Atlas over 5,000 times.

The combination of increased recording effort and range expansions for some species resulted in over 50 new vice-county records in 2021, and astonishingly another 50+ new VC records in 2022. Even Broad Centurion *Chloromyia formosa* was new to South Aberdeenshire, recorded by Graeme Reid in 2021.

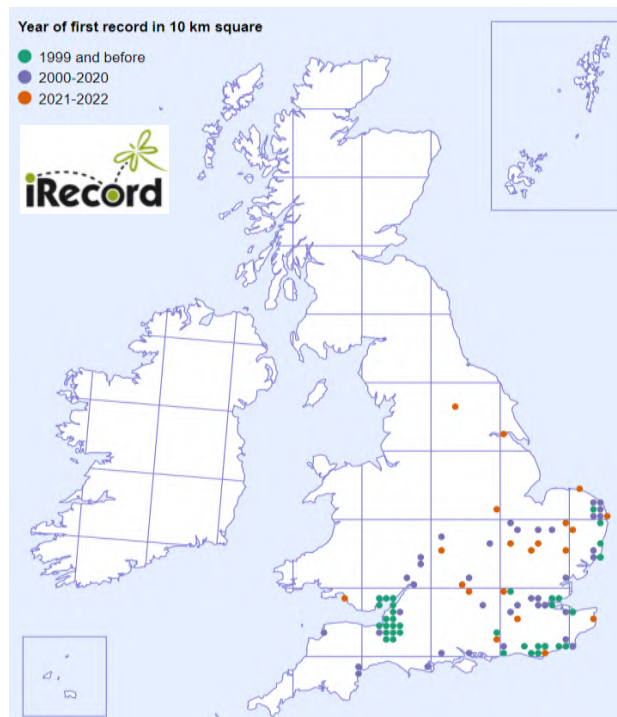
Bee-fly Watch ran again in spring 2021 and 2022, continuing to attract a wide range of people who clearly get a lot of enjoyment from watching and recording bee-flies. Probably the most significant records in 2022 were of Dotted Bee-fly, *Bombylius discolor*, when Nick Bowles and Ian Carle made the first ever Hertfordshire records, and then Matthew Garnham recorded it in both East and West Suffolk, a new VC record for the former county, and the first records anywhere in East Anglia for about 100 years.

A number of other species have continued to expand their range, perhaps most dramatically in the case of the Ornate Brigadier soldierfly, *Odontomyia ornata*. During 2022 there were new vice-county records in Berkshire (Brian Walker and John Bloomfield), West Norfolk (Gill Judd), North Lincolnshire (Darren Matthews), Leicestershire (Matthew Berriman) and Mid-west Yorkshire (Calum Paterson).

The related Silver Colonel, *Odontomyia argentata*, also spread in 2022 with new VC records in Worcestershire (John & Denise Bingham) and Shropshire (Nigel Jones).

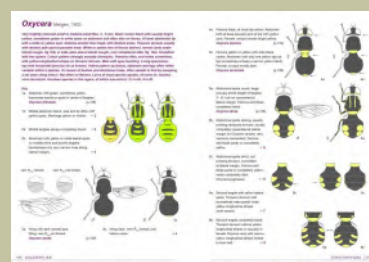
The Dipterists Forum field meetings produced some significant records in 2022. It was good to see Wood Snipefly, *Rhagio annulatus*, in numbers at Wytham Woods during the spring meeting, making this the strongest known UK population for this widely-scattered but very rare species. And the summer field trip to Norfolk resulted in numerous records for rarer species including Orange-horned Green Colonel, *Odontomyia angulata*, Levels Yellow-horned Horsefly, *Hybomitra ciureai*, Big-spotted Cleg, *Haematopota bigoti*, and Levels Cleg, *Haematopota subcylindrica*.

Distribution of *Odontomyia ornata*, with orange dots showing the 10 km squares where this species has been recorded for the first time in 2021 and 2022.



### Field guide to flies with three pulvilli by Theo Zeegers & André Schulten

A fantastic new guide to seven of the soldierflies and allies families, with well-illustrated keys and species accounts. See the full review in the Dipterists Forum *Bulletin*. [Available from NHBS](#) (£14.99 + postage).







## Striking it lucky twice in Norfolk

Mark Welch

### (1) *Thompson Common*

From mid-August to early September 2022 I made 3 visits to Thompson Common SSSI, the well-known pingo pools site in the middle of Norfolk. Its most famous denizen is Northern Pool Frog. Twenty years or so ago Ivan Perry was involved in a site assessment of Thompson Common for which he provided many records of Diptera. As the Diptera of this site have been little studied over the past decade I decided to pay a visit, particularly with a view to sampling smaller flies such as Sphaeroceridae and Phoridae. The warden informed me that seven Konik ponies had been on Compartment 7 for most of the summer and were still there - this info' provided a good focus for my efforts.

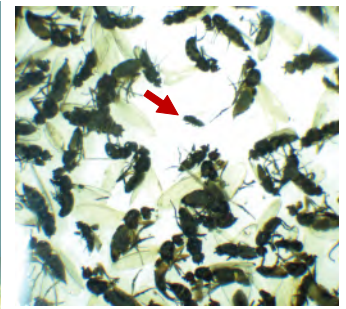
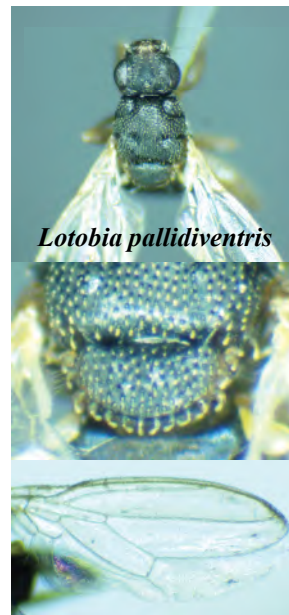


At Thompson Common short-sward, calcareous ramparts form a network between pingo pools. Photo MW.

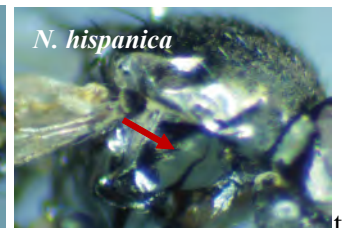
My visit on 17<sup>th</sup> August coincided with a recent mass emergence of *Lotobia pallidiventris*, a seldom-recorded species in the UK. This distinctive fly (photos on right) looks like a large *Ischiolepta*, but has 14-16 thick curved peg-like spines along the scutellar margin and a very different wing venation (the M vein curves up sharply to join the costa. In contrast to the many (200+) *L. pallidiventris* found, my three visits to Thompson Common produced only two *Ischiolepta* specimens - males of *I. pusilla* and *I. vaporariorum*, both usually common species.

Twenty-five species of LDF were recorded over the three visits, which included the minute *Philocoprella quadrispina* (17 specimens) and three species of *Norrbonia* (*costalis*, *sordida* and *hispanica*) which were found in numbers at pony dung. *N. hispanica* is a rarely recorded species in the UK. It is easily distinguished from *N. sordida* by having a very shiny undusted anepisternum, whereas in *sordida* it is heavily dusted (photos right). Both species are distinguished from *N. costalis* by having one pair of dorso-central setae, not three pairs. *N. costalis* also has a dusted anepisternum.

By far most common LDF collected at pony dung during the visits was *Coproica acutangula* (abundant). The six species of *Coproica* recorded included small numbers of the less frequent *C. lugubris* and *C. pusio*.



**Left:** *Lotobia pallidiventris* from TC. **Upper right:** Sifting a LDF catch from Thompson Common. The larger (3 mm) flies are mostly *Norrbonia* and *Alloborborus*. The very small (1mm) fly in the centre is *Philocoprella quadrispina*. **Lower right:** *P. quadrispina* with an AA pin for scale. Photos: MW



The anepisterna of *N. sordida* and *N. hispanica*. Photos: MW



The bonanza of *L. pallidiventris* at Thompson Common remains to be understood. Dave Brice and I will be studying the LDF fauna of Thompson Common further in 2023 and 2024 to try to tease out what makes it so attractive for these uncommon species. We thank Ivan Perry for making available much useful documentation relating to the site assessment he was involved in.



(2) *Watermill Broad, Cranwich* (TL777958)

My hymenopterist chum Nick Owens and I were invited to take a look around a privately owned nature reserve at Watermill Broad, near Cranwich, with a view to making follow-up visits to evaluate the potential for improving its value for invertebrates. This reserve (52 ha) is privately owned and its habitat management and monitoring are overseen by a board of trustees and undertaken by volunteers. Most of it comprises six large lakes fringed by willows and tall-herb borders. The underlying bedrock is Cretaceous chalk. There is a small field (2 ha) containing three shallow ponds with well-developed *Chara* Stonewort mats and patches of *Juncus* (photo below). With careful management this field could develop into a valuable calcareous fen.

We visited the reserve on 26.viii.2022 and were shown around by Tony Leech, a stalwart of the Norfolk & Norwich Naturalists Society and an expert on fungi. Towards the end of the visit I spent 30 minutes sweeping the muddy edges of one of the small ponds. In front of me a mature *Stratiomys* larva inched its way out of the pool into the bordering vegetation. Sweeping the margins produced many LDFs and several impressive males of the ephydrid *Ochthera mantis*.



The mud-fringed drawn-down pool at Watermill Broad where *Phthitia spinosa* was collected on 26<sup>th</sup> August 2022.

Sorting through the LDFs at home I found a very small (1.5 mm) female that, after dissection (abdomen only), keyed to *Phthitia spinosa*, a very rarely recorded species I had not met before. I sent photos of the head and dissected abdomen to Dave Brice, who tentatively agreed with the identification but asked if I could send him the specimen just to be sure it wasn't anything even more unusual. Dave contacted Ivan Perry who had found a male and a female *P. spinosa* at Chippenham Fen near Cambridge in 2016. The comparison was close, but more photos of the heads of both females and the dissected abdomen of Ivan's female were taken and sent to Jindrich Roháček for his opinion. He checked the few specimens in the Silesian Museum in Prague and confirmed that both specimens were *P. spinosa*. Apart from the original 1910 record of Collin (Burwell Fen, Cambs) and Ivan's pair, this is the only other UK record. The Welsh Peatlands

Invertebrate Survey did not record *P. spinosa*, although *P. longisetosa* was found to be common. *P. spinosa* may, therefore, be a genuinely rare species in the UK. On 11.ix-14.ix.2022 I returned to the pond where *P. spinosa* was collected and deployed four white bowls of soapy water along the muddy fringe, but no further specimens were found. This summer I shall set some pitfall traps in the vegetation adjacent to the pool, as well as water traps, to see if more specimens are forthcoming.



What is there not to like? Minute, dark and cryptic. *Phthitia spinosa* from Watermill Broad, 26/08/22. Photos: Left (under alcohol): MW. Right: Dave Brice.

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Papers on LDFs in press with *Dipterists Digest*:

*Thoracochaeta lanx* Roháček and Marshall 2000 (Diptera, Sphaeroceridae); the first new records for the UK since holotypes were collected in 1999. David Brice, Simon Hodge, Mark Welch & Andrew Cunningham.

This paper reports significant new records of a rarely recorded species of maritime LDF as part of an effort to understand the distribution and ecology of *Thoracochaeta* in the UK and Ireland.

The lesser dung fly *Phthitia (Collimosina) spinosa* (Diptera, Sphaeroceridae) in East Anglia. Mark Welch & Dave Brice.



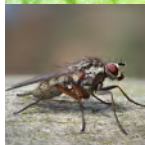
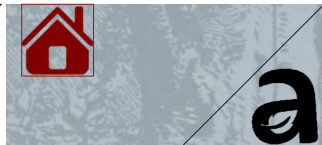
Dave Brice and Andrew Cunningham discussing, hands in pockets, the attractions of studying *Thoracochaeta* at Weston Mouth, S. Devon in May 2022. *T. lanx* was found there on the day by AC. Photo MW.





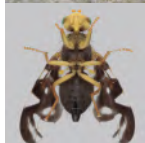
### Soldierflies & Allies Recording Scheme

Martin Harvey kitenetter@googlemail.com



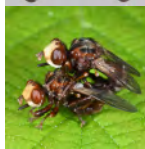
### Anthomyiids Anthomyiidae Study Group

Phil Brighton  
helophilus@hotmail.co.uk



### Tephritids Tephritid flies Recording Scheme

Laurence Clemons  
laurenceclemons56@gmail.com



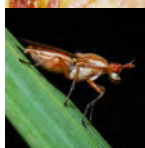
### Conopids Conopid Recording Scheme

with Lonchoceridae, Uliidiidae, Pallopteridae & Platystomatidae  
David Clements dave.clements@ntlworld.com



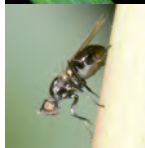
### Agromyzidae Leaf-miner Recording Scheme

Barry Warrington agromyzidaeRS@gmail.com



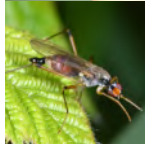
### Sciomyzids Snail-killing flies Recording Scheme

Ian McLean ianmclean@waitrose.com  
Darwyn Sumner darwyn.sumner@ntlworld.com



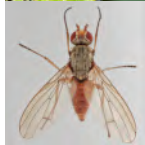
### Sepsids Sepsidae Recording Scheme

Steve Crellin steve\_crellin1@hotmail.co.uk



### Micropezids & Tanypezids Stilt & stalk-fly Recording Scheme

Darwyn Sumner darwyn.sumner@ntlworld.com



### Heleomyzids Heleomyzid Recording Scheme

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### Lance-flies Lonchaeidae Study Group

Nigel Jones nipajones@talktalk.net



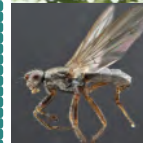
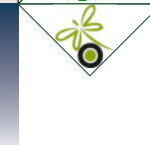
### Hoverflies Hoverfly Recording Scheme

Stuart Ball stuart.ball@dsl.pipex.com  
Roger Morris syrphid58@gmail.com  
David Liff davidliff@talk21.com



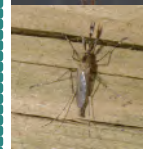
### Rhinophorids Rhinophoridae Recording Scheme

Ryan Mitchell ryanmitchell1994@live.com



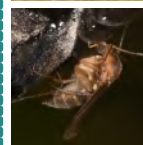
### Coelopidae, Heterocheilidae, Helcomyzidae

Kelp-fly Recording Scheme  
Donald Smith KelpflyRS@gmail.com



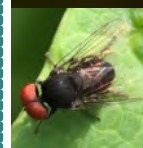
### Culicidae Mosquitoes Recording Scheme

Jolyon Medlock jolyonmedlock@hpa.org.uk



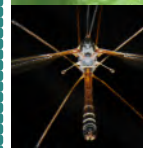
### Fungus Gnats Recording Scheme

Mycetophilidae & allies  
Peter Chandler chandgnats@aol.com



### Flat-footed flies Recording Scheme

Platypzeidae  
Peter Chandler chandgnats@aol.com



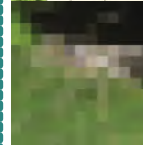
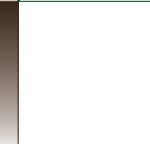
### Craneflies Crane fly Recording Scheme

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John Kramer john.kramer@btinternet.com



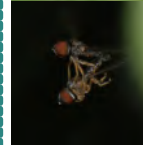
### Dixidae & Thaumaleidae Recording Scheme

Julian Small  
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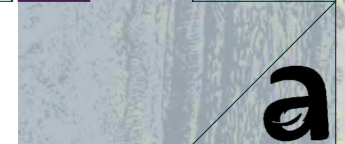
### Chironomids Chironomid Study Group

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### Pipunculidae Study Group

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# Dipterists Forum

## Recording Schemes

## & Study Groups



**Tachinids**  
Tachinidae Recording Scheme  
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Scathophagid Recording Scheme  
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**Calliphorids**  
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**Hippoboscids & Nycteribiids**  
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Icons: Excel, fly, house, calendar, bird, EU flag, letter 'a'.

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**Collating & Managing**  
Methods available to the schemes are limited, for example there are presently no suitable image management tools. Current tools are: Recorder 6, MapMate, Excel & Access. Both BRC and Dipterists Forum may help Schemes with this task.

**Chloropidae**  
Chloropidae Study Group  
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**Oestrids**  
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Recording Scheme  
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Icons: Excel, house, letter 'a'.

Icons: Excel, fly, house, calendar, letter 'a'.

Icons: Excel, fly, house, calendar, letter 'a', letter 'F'.

Icons: Excel, fly, house, calendar, letter 'a'.

**Homes and keys**  
All of the Recording Schemes have a home on the Dipterists Forum website. Some of these are quite substantial and may be where you will find **identification keys**. Others have additional homes (red home symbols) which they might prefer (check both).

Design D. Sumner (ADS)



### Collecting

Icons: iRecord, Spreadsheet, Social media, iNaturalist, letter 'F'.

### Disseminating

Own website iNaturalist project   
Scratchpad Overseas interest   
Look for Newsletters on these sites and in the Dipterists Forum Bulletin (<https://tinyurl.com/y3pqcajh>)

Dipterists Forum [www.dipterists.org.uk](http://www.dipterists.org.uk)

### Publishing

**Open Data** publishing to publicly accessible sites is our contribution to conservation & education. Many schemes achieve this through NBN Atlas and GBIF. In 2020 our UK total was 341,353 with an additional four times that figure planned.

Icons: speech bubbles, GBIF logo, house with fly icon.

Download as interactive pdf from <https://tinyurl.com/y3pqcajh>