

Soldierflies and Allies Recording Scheme

Newsletter 8, spring 2021

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

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

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

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

Martin Harvey

Dipterists Forum links and reminders

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

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

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

Adventures in soldierfly raising

by Jane Thomas

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

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



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

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



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

I kept it on the bench in the garage covered with a cloth to keep out the light as it seemed distressed when I left it uncovered, burrowing into the darkest part of the pot. It seemed very happy with its leaves, and I think it ate whatever grew on the surface of the leaves, maybe algae – it certainly seemed to lick at the surface, and I could see small blobs of soft greenish droppings deposited on the

leaf surface. I did try collecting one to look at under the microscope, but couldn't see anything obvious inside. It certainly didn't consume the leaf, so it must have been eating something on the surface.

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

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

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



Success! The freshly emerged adult *Chorisops tibialis*.



A larva of *Chloromyia formosa*.

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

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

More of Jane's larvae photos can be seen on Flickr at [bit.ly/JTsoldierfly](https://www.flickr.com/photos/jtsoldierfly/)

Early stages of soldierflies and allies

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

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

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

by Liam Olds



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

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

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

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



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

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



Potential new species to look out for

***Archicera avarorum* (Rhagionidae – snipeflies)**

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

- The Rhagionidae or Snipeflies of the Botanical Garden Jean Massart (Brussels-Capital Region, Belgium) with notes on the identity of the rare European species *Archicera avarorum* Szilády, 1934 and *Ptiolina obscura* (Fallén, 1814) (Diptera: Rhagionidae). 2020, *Belgian Journal of Entomology*, available from bit.ly/2W0s2SO

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

***Beris hauseri* (Stratiomyidae – soldierflies)**

Theo Zeegers has been in touch regarding *Beris* species in the UK, in preparation for a new book that he and André Schulten are working on.

Six species of *Beris* are known from the UK, but Stubbs and Drake also included a seventh, *B. strobli*, in the keys to this genus as a potential addition. It is now known that the species illustrated as *B. strobli* in Stubbs and Drake is actually *B. hauseri* (true *B. strobli* is found in mountain areas of central Europe and is very unlikely to occur in Britain).

Theo believes that *B. hauseri* could occur in the UK, and asks us to be on the look-out for it. Theo says: “The male of *hauseri* is like *fuscipes*, but the third antennal segment is slightly more elongated and less thickened, making it more like *chalybata*. [The genitalia are distinct and allow confirmation.]

“The female is clearly different from *fuscipes* due to the broad vertex. The femora and tibiae are partially darkened, but can be quite yellow in females. All female metatarsi [= basitarsi, the first segment of the tarsi] of female *hauseri* are predominantly yellow, differing from both *chalybata* and male *fuscipes* [female *fuscipes* can have yellowish metatarsi]. My guess is, if you start searching for *hauseri*, you might find some in between males of *fuscipes* and/or females of *chalybata*.”

Theo also comments that the flight period for *hauseri* starts a week later than *chalybata*, and suggests that specimens from mid-June onwards, at least in lowland areas, would be worth looking at closely.

A specimen will be needed to support any record of *hauseri* in the UK. I'd be pleased to hear from anyone who has a candidate for it! Identification of *Beris* has always required close examination, especially for *fuscipes* and *geniculata*, and the potential for an additional species adds to the challenges. Photos of *B. hauseri* can be seen at waarneming.nl/species/210213/.

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

Highlights from records sent in during 2020

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

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

Females investigating and apparently laying eggs into grass stems were observed in 2020 by Vanna Bartlett at Cranwich Heath, Norfolk, on 15 June 2020 (see image on right – more photos can be seen on iRecord at www.brc.ac.uk/irecord/record-details?occurrence_id=18281678).

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



Photo by Vanna Bartlett



Photo by Mike Averill

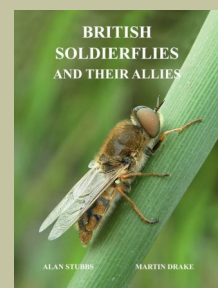
We also have our first record of the non-native *Hermetia illucens* (Black Soldierfly) ‘in the wild’. This was found by Peter Duran in his Wiltshire garden on 16 August 2020, believed to be the result of larvae being fed to hedgehogs and escaping. Black Soldierflies are now reared very widely in the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

***British soldierflies and their allies* by Alan Stubbs and Martin Drake**

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

The price to members of Dipterists Forum or BENHS is £20 (£36 for non-members). Orders can be placed via the BENHS website:

www.benhs.org.uk/publications/british-soldierflies-and-their-allies-second-edition



Bee-fly Watch 2020

by Martin Harvey

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

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

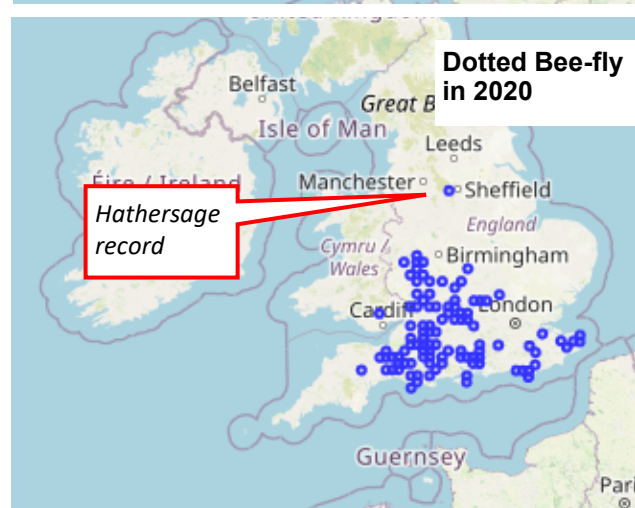
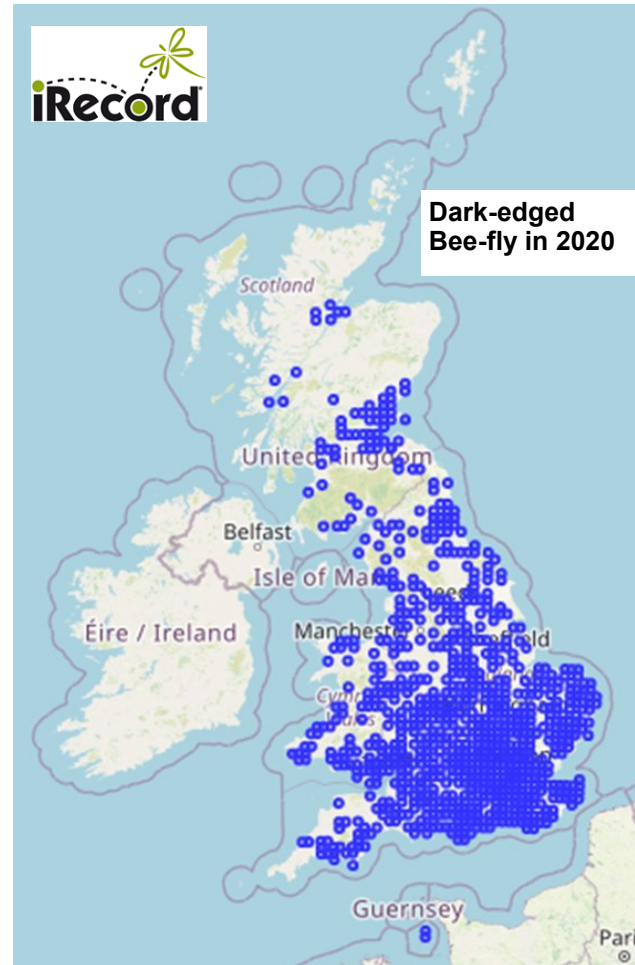
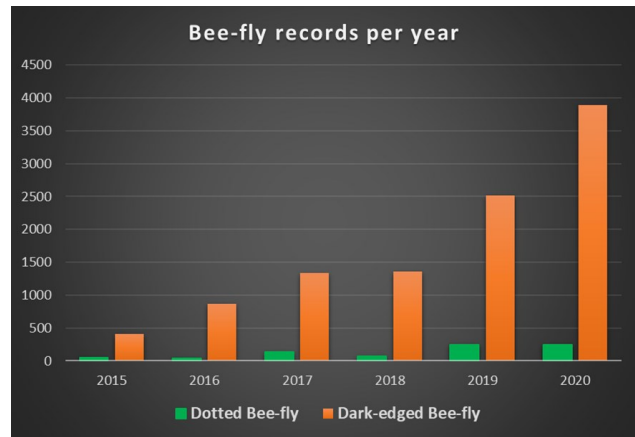
After the very early emergence of bee-flies in February 2019, it was back to a more normal March date for the first records in 2020. Unsurprisingly there is a strong correlation between high temperatures in February and March and early bee-fly emergence.

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

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

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

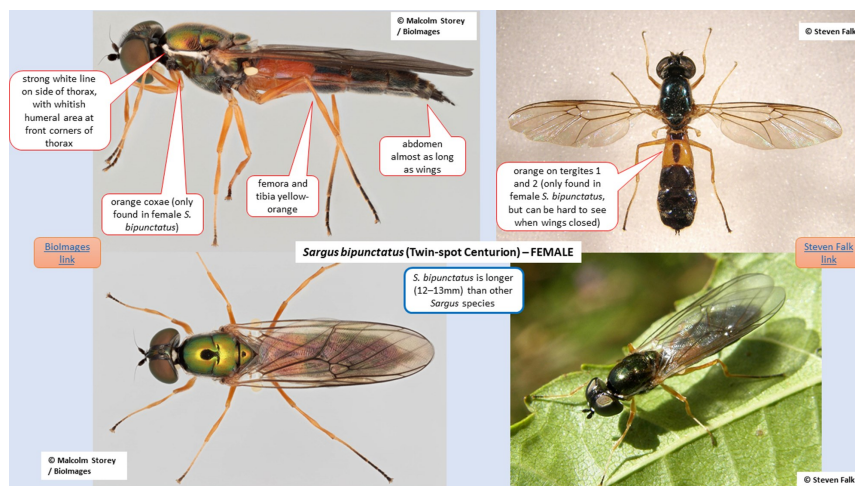
The Hathersage Dotted Bee-fly (photo by Claire Miles).



Recording scheme updates

New identification guides

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



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

Recording scheme webinar

Thanks to the Tanyptera Trust for hosting a webinar on soldierflies and allies in December 2020. This was recorded and can be seen via YouTube at youtu.be/kc7U9XJqr8

Soldierflies and allies in Dipterists Digest

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

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

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

Social media

Don't forget that you can join in with discussion and identification assistance on Twitter and Facebook: Twitter: [@SoldierfliesRS](https://twitter.com/SoldierfliesRS) – Facebook: [British Soldierflies and Allies](https://www.facebook.com/BritishSoldierfliesandAllies)

Records welcome

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

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

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