# **Dipterists Forum**

Readers will recall that **Hoverfly Newsletter No. 69** was included in the Spring 2021 Dipterists Forum Bulletin as an abridged version due to the bulletin's space limitations, but that a full 17 page version was available as a pdf. on the UK Hoverfly Facebook group or could be obtained from Roger Morris or me. If anyone has not seen the full version please contact me. In the case of the present issue the full newsletter is included with the bulletin, but authors should be aware that an 8 page limit still applies and that in future if publishable copy exceeds that there may again have to be an abridgement of the full newsletter.

Copy for Hoverfly Newsletter No. 71 (which is expected to be issued with the Spring 2022 Dipterists Forum Bulletin) should be sent to me: David Iliff, Green Willows, Station Road, Woodmancote, Cheltenham, Glos, GL52 9HN, (telephone 01242 674398), email:davidiliff@talk21.com, to reach me by 20th November 2021. Given the size limitations it may be worthwhile to send your articles in good time to ensure that they are circulated with the bulletin.

The hoverfly illustrated at the top right of this page is a Scaeva pyrastri larva.

## Postponement of the 11th International Symposium on Syrphidae

#### Gabriel Neve (via Jon Heal)

**Hoverfly** 

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Newsletter

We have just held a meeting of the Scientific Committee of the 11<sup>th</sup> International Symposium on Syrphidae. Due to the present restrictions on travel for delegates, the Committee has decided to postpone the Symposium to 2022

We shall assess the situation in Autumn 2021 and then decide how to proceed. In the meantime registration of interest remains open.

## HOVERFLY RECORDING SCHEME UPDATE: Autumn 2021

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

What a strange spring this has been; or is it the new normality? Compared with recent years, spring started a lot later, and yet modern harbingers started to emerge when they might be expected to. For example, *Epistrophe eligans* still featured in the data for early March. April was confusing, with very cold nights that undoubtedly suppressed some hoverfly activity, and yet daytime temperatures in many places were sufficient to promote insect activity.

After excessive rainfall in January there were the makings of a serious drought in March and April, but any such concerns were blown away by a cold, wet May. There were then have been several extremely warm days in early June. These many contradictions meant that the start of 2021 has not seen the flood of interesting records that sometimes happens. Indeed, the over-riding cry from many recorders has been 'where are the hoverflies?'

Can we lay the blame at the door of the weather in 2021 or should we perhaps look back to some of the events in 2020? The wonderful warm sunny spring will have been beneficial to some species, but possibly not to aphidophagous species that depend upon wetter conditions. Furthermore, the heatwave of late July and early August may have had devastating consequences

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for some species, especially those whose larvae develop in damp or humid habitats.

Disentangling the effects of the weather over two years is a minefield and as yet we don't have the tools to do so. This problem has much wider ramifications. If insect numbers are low, then the entire food chain that depends upon them will also be affected. In south-east England the problem seems to be especially acute. RM, for example, has found that visits to good sites in potentially productive conditions has been rewarded with at best fleeting glimpses of an occasional hoverfly!

There have been bright spots, however. Members of the UK Hoverflies Facebook page have been regaled with some excellent depictions of *Microdon devius* from Norfolk (Vanna Bartlett), *Caliprobola speciosa* from the New Forest (Colin Easton) and *Mallota cimbiciformis* at Gamlingay Wood (Vic Brown). There have also been nice finds of *Callicera rufa* at Formby (Pete Kinsella) and *Doros profuges* at Yealand Storrs (Mark Nightingale) and Martin Down (Sharon Towning). There has been a sprinkling of 'regulars' too such as eggs and larvae of *Parasyrphus nigritarsis* and larvae and puparia of *Microdon mutabilis* as well as several of adult *Microdon* that may be *M. myrmicae*. Hopefully, by the time we write the next update there will have been a flush of interesting records to report.

#### Database update

In March 2020, we hit a major problem - our version of Recorder (Rec 2002) was full. We could not upload some 70k records from iRecord and had to use a new system. Stuart duly installed Recorder 6 and immediately discovered lots of potential problems involved in migrating the data across! It took a very long while to resolve some of them and also to rewrite his routines used to extract and analyse data. The problems were finally resolved in early 2021 and in February Stuart started the gargantuan problem of a backlog of data to import (approaching 100 Excel files plus several Recorder downloads, plus, of course the huge iRecord file that crashed the system). Most of this work was completed by the end of February and we were able to provide some feedback to Facebook group members. The results have been dramatic.



Figure 1. Growth of the HRS dataset since 1991.

The most obvious change has been the numbers of records for 2020 and 2021, both of which have gone beyond 80,000 records. This marks a major stepchange in the level of hoverfly recording in Britain. Up until around 2010, the numbers of records submitted to the HRS each year ranged from the high teens to around 30,000 records, averaging around 20,000 records, despite the huge effort we made to train new recorders. That effort has, of course, paid dividends, because we now have a new cohort of contributors who will tackle difficult taxa, replacing the first generation who did so much to make the HRS a reality. But, as can be seen in figure 2, a shift to interactive media and photography has made it possible to record far more widely but somewhat less comprehensively.



**Figure 2.** The numbers of unique records for each year since 1980, illustrating the change in recorder methods. We cannot be certain that those records listed as 'not photographic' do not originate as photographs, as many of those data do not contain indications of methods used.

This change in recorder activity provides a great opportunity to look at data in new ways, especially to think about some of the reasons why the abundance of insects is changing.

#### Hoverflies and climate change

Are we witnessing a dramatic crash in hoverfly abundance? Incoming data this year suggests that this may indeed be what is happening, especially in southeast England. Many observers (including RM) have found it very difficult to do any meaningful recording and data from the Facebook group tends to support this observation (figure 3).



**Figure 3**. Numbers of species recorded from different regions until the end of week 24 (13 June 2021).

Unfortunately, we cannot place a great deal of confidence on one set of opportunistic data, as there are many possible reasons for the apparent lack of hoverfly diversity. The wet, cool May will not have helped recording, even if there were hoverflies to record! A more detailed picture is needed, but datagathering is time-consuming, costly and unlikely to yield anything meaningful in much less than ten years.

In the absence of systematically collected data, we need to think about monitoring a suite of species that everybody can recognise and that will shine a light on what is going on. We also need to develop a network of people who would be willing to make such observations. The latter is likely to be the big stumbling block. In the past we have tried to get a garden hoverfly scheme off the ground, but, sadly, have never managed to generate enough interest to make it work. We do have a 'de facto' scheme as many members of the UK Hoverflies Facebook group regularly record from their garden or favourite local 'site'. In addition to data, we also need to develop suitable analytical techniques. Occupancy modelling has been the favoured method for as much as a decade. It does highlight some trends but analysis by Stuart has demonstrated that the models are very sensitive to the types of records that are used. Sadly, it has not been possible to publish any of this work as yet.

We suspect that it will be necessary to select a suite of species that meet specific criteria of identifiability and ecological sensitivity to tell the story and highlight possible mechanisms for the losses that are becoming apparent. This process is in hand and could be an exciting line of research. There will be more on this issue in future updates once we have developed the relationships we are exploring with several Universities and research bodies.

#### Turning anecdote into data

At least some of us are having a very hard time this year recording both in gardens and in the wider countryside. I think the most pronounced problems are in south-east England but everywhere is somewhat down on other years. Why? Well, the truth is that we don't know but we can make some informed judgements. Climate change tops the list as far as I am concerned – not overall warming but extreme events. This year we have seen prolonged cold and dry weather in March/April, and extreme rain in May; last year there was a profound heatwave and very low soil moisture in August.

Making links between the data we do have and climate/weather is extremely difficult, not least because we have very poor ways of capturing nil returns. So, what we have to work with is presenceonly. In that analysis we cannot take any account of those people who went round the garden (or patch) and saw absolutely nothing. Somehow, we need to rectify that problem. I am wondering whether it would be possible to create an on-line facility that can capture some very basic data: Date, time of day, location, grid ref, time spent looking, gross numbers of hoverflies seen. We would probably need to retain other data collection mechanisms for full ID but that might also be dealt with in due course.

It strikes me that this might be a project that somebody might like to take on? Maybe there is someone needing a project for their degree? Doing some design work for improving data capture to try to pick up the signals of climate change could be very important and instructive. Alternatively, maybe there is somebody who has already done such work and would have ideas. Or, perhaps this is something that we should be pushing with BRC? RM is currently exploring ways of raising this profile with several research bodies so we may make progress there, but in the meantime perhaps this is something that we could start to discuss? I think there are two separate issues:

- Design of the platform AFTER some consideration by our statistically minded members.
- The degree to which this approach might appeal to active members, especially those who would like to be doing something towards finding answers to the biggest question we currently face:

How do we translate anecdotal observations into hard data?

## My journal of the pandemic year : the biology of two *Eristalis* species made clearer in 2020

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At least when I was persuaded by a global pandemic to spend several months in Spring and Summer 2020 sitting in my garden there was some good fortune in it as well. The weather stayed fine for weeks on end, and the very welcome reduction in car traffic on nearby roads meant that a more than usual diversity of insects reached my garden. In particular my specialist genus of *Eristalis* had a field day and gave me a chance to continue observations on their mate-locating behaviour. My article in Hoverfly Newsletter No. 67 (Spring 2020) compared *Eristalis tenax* with *E. nemorum*.

My garden is a conventional one at the back of a Victorian terraced house with a south-facing lawn surrounded by various flower beds, with a *Buddleia* dominating one end and a declining *Forsythia* bush getting smothered with holly and ivy at the other end. It is a "wildlife garden" and my main contribution is pruning when the bushes get too dense.

The observations on *Eristalis pertinax* were mostly for the two months from 21 March to 21 May. On most days I observed one or more males, frequently hovering but not always. Females were seen less often until May when they often found something to attract them in my kitchen drains.

These were a spring generation of adults developed from overwintering larvae which had pupated as the months get warmer. Summer generations follow until autumn females lay eggs that are destined to produce diapausing larvae.

Males are not early starters. Male hovering was most often noted from 10.30am to 2.30pm BST. Hovering is a high energy activity which mostly waited for the morning to warm up before it began. The first males to be seen were sitting on leafy bushes and basking in the sun. They are then seen darting out at passing insects, which can then lead to a perch-dart-hover strategy, before males moved out from the bushes to hover over the lawn. The advantage of hovering is that the male is more likely to catch a passing insect than if it flies out from a standing start.

First, the fallacies. Males are not hovering motionless" in space. Daily observations made it clear that they never are in one spot for more than a few seconds. They usually changed position before I could count to ten, in any case tending to drift away from the first location, although males are still quite able to hold one position while changing direction by 180 degrees. Changes of position are often caused by the distraction of other insects' movement, but not always, as it can also be spontaneous.

There are no territories. The hovering position is a lookout-point. I could have up to three males hovering at the same time over quite a small lawn, as long as they were facing away from each other. Although I did have single males who kept up their hovering for an hour or so, it seemed they were just using a good spot to see passing insects, which naturally changed as the direction of the sun moved round during the day.

As for success, I saw none. Frequently a hovering male would chase after another insect, but mostly the one whose thorax he grabbed was another male. Somebody with a slow motion camera might put me right, but it seemed as if the victim stopped beating its wings at which point the pursuer let go.

Fewer female *E. pertinax* were seen in the garden at first. On 10 April, and then more frequently into May, I started to record a very noticeable low buzzing flight in the back yard around the kitchen drain. The buzz got louder as they inspected the drain. Often nothing further happened, but on a few occasions eggs were laid around the top of the drain, the eggs scattered about and not in one pile. Two lots of eggs were collected, the first failed; the second lot from 19 May were reared and produced a dozen adults. The larvae are rat-tailed maggots that feed on decaying muddy vegetation.

The last male of the spring generation in the garden was recorded on 17 May, and at this time not only was I getting females regularly buzzing about the back yard, but many females were getting trapped indoors if the back door was left open, although they lacked any ability to find their way out again!

That was really the end of my observations of *E. pertinax* in 2020. Whatever this species was doing in the rest of the year, I never saw a male hovering after 17 May. (Information on autumn hovering would be welcome). This species was only an occasional visitor afterwards. Checking back on some notes made years ago I found that most of the observations of hovering males were also in the spring, the peak month being May.

As *E. pertinax* disappeared, *E. tenax* took its place as my most regular hoverfly visitor. The first male came on 21 May, earlier than that were 8 separate records of females (25 March to 21 April) which I took to be the spring generation of overwintered females. In this species mated females spend several months in hibernation, laying eggs in the spring, so that males will not normally be seen until mid-May.

E. tenax was the main species studied in my Ph.D. thesis of 1977, but sadly as a student I did not realise the value of being an early riser. On a good sunny day in summer 2020 the first sunshine reached one corner of my garden soon after 7 a.m. and in June and July the first male E. tenax turned up almost at once. The early behaviour is quite clear: males do a very wasplike flight, going from leaf to leaf in the sunshine, presumably searching for females that have emerged overnight and then come out to bask on foliage. I will call this the "Search Flight". However this behaviour ends within a couple of hours. Other strategies, less conspicuous ones, replace the detailed search flight, including a "perch-dart and hover" strategy that is similar to one phase of E. pertinax. They rarely do extended hovering and usually the hovering is directed towards another insect, and not out in open space. There is less opportunity to feed in the morning. In the afternoon males don't bother much with sexual strategy and tend to feed alongside females without interactions.

A characteristic behaviour in *E. tenax* courtship is a "following flight" (described in my earlier article) where the male orients to a female by flying slightly behind and below the female, who responds with a slower than usual flight. When I have seen this, there was never any suggestion that a mating ensued. The females seem to be particularly selective, and all the evidence suggests they only need to mate on one occasion. In 2020 I saw this "following flight" on a few occasions from 23 June to 23 August, but never later in the day than 1 p.m. BST. (In earlier years I also recorded this behaviour from September to November). The search flight I observed regularly early in the morning from 21 June for several weeks. In this particular year *E. tenax* continued to be frequent in

the garden through September, in October a few noisily buzzing females came indoors in search of hibernation sites, and the last males were active in the garden on a bright day in November.

The pandemic year of 2020 turned out to be a rare occasion of serendipity, when things turned up without planning. The mixed weather of spring 2021 has made it impossible to assemble such detailed observations. Four female *E. tenax* were in the garden on a warm early day on 27 February, but then the species vanished again. In fact, emerging from hibernation early when some cold weather was to follow was probably a bad choice. However hoverflies will have no more ability to see into the future than we do.

Some *E. pertinax* appeared for a few weeks in 2021 but there were few days warm enough to encourage the lengthy periods of hovering by males that I watched a year earlier. Though I have records of at least a little hovering on most days from 3 April to 6 May, mostly the strategy was the perch-dart and hover of less warm periods. The next few weeks had frequent rain and *E. pertinax* disappeared from my garden as well.

I am left with a few real puzzles, so if anybody can help me I would be delighted to receive information. What do *E. pertinax* do in the autumn? Do they need a different location to locate mates? Do they really not hover much at all after the spring months? With *E. tenax* I still puzzle over why mating pairs are seen so infrequently. Is it just that the best time to find them is the very early morning through the summer, and I am just not up and active soon enough? When I had numerous breeding cages for my Ph. D. research, rarely was there a sign of sexual interactions during the daytime.

No two years are the same. I now realise 2020 was a rare chance to study the behaviour of these two hoverflies in real detail. I may never have the opportunity again!



A female *Eristalis pertinax* reared from an egg laid around the edge of a drain cover on 19 May 2020 (Photo: Jon Heal)

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A scarce photo of a mating pair of *E. tenax*, taken in 1997, the female is clinging on to an old stem of purple toadflax (Photo: Jon Heal)

## Brachyopa bicolor (Fallén, 1817) a startling northern expansion record

#### Ken Gartside

The Hoverfly *Brachyopa bicolor* is normally recorded in the southern part of the UK, up to the Midlands, so wasn't a species I had in mind when seeking *Brachyopa* out in May 2021 around sycamore bases (as they all use sap runs to breed). This was in Saddleworth, now part of Oldham, Greater Manchester and in the South Pennines, but also within historical West Yorkshire – VC63.

The background to this is that on 29<sup>th</sup> April 2017 in Greenfield, Saddleworth I found *Brachyopa pilosa* males here, sunbathing and being territorial around sycamores – basking on emergent Himalayan balsam seedlings, but the species could not be confirmed from initial photography. So the following day and on  $2^{nd}$  May 2017 I returned and managed to find some again – and get macro shots of the antennae to look at the pits, which were indeed small and round, so identified as *B. pilosa*. I also took a specimen and Ian Andrews kindly confirmed my macro photography identification from that. This was a new record for the local area and rare for NW England and Yorkshire.

I tried to find these again in spring in the same area on sunny days in both 2018 and 2019, to no avail. This was within 10 minutes walk from home and on my usual patch, so I was able to visit many times, but without success. However, on 28 May 2020 I found some *Brachyopa* - a delight to see with their orange bodies and the fact that they are not spooked too easily and like to pose - though they were not *pilosa*, but *scutellaris*. This is usually more frequent in the UK. Antennal pits are more kidney shaped than the small round ones in *pilosa*. It was pleasing to be able to put both records as text and images in my little book 'Hoverflies of Saddleworth' in June 2020.

So this odyssey to find Brachyopa continued in April and May 2021, and once again, despite frequent visits, there were no sightings until on 18 May 2021 I saw one sunbathing on a tree trunk, in a new spot, only around 100 yards from the previous location, across a small feeder channel from Greenfield Brook. I took one shot quickly, but it flew off, not to be seen again. Camera settings were all wrong from a previous non macro shot I had been taking, so it was a pretty poor blurred image. Clearly a Brachyopa however, so I posted it on the UK Hoverflies (HRS) Facebook group to be recorded as such, just at genus level. A comment on that photo by renowned European expert Frank van de Muetter that this blurred image looked very likely to be B bicolor was met with some raised eyebrows and no little excitement on my part - but he turned out to be absolutely right.

I returned when the weather improved to sunny and warm on 28 May to find four or five flies settling on grass stalks and another two basking on tree trunks. This time macro photography was easier and images clearly showed that the grass resters were B pilosa and the trunk resters were quite different : Brachyopa bicolor - the grey scutellum, bare arista and swollen hind femora were clear to see on those. Frank had also told us that bicolor was mainly a trunk bather whilst the others like grass stalks to perch on , as borne out by my few observations too. This record was accepted by the UK Hoverflies Recording Scheme on Facebook, by Roger Morris and Chris Sellen. This new northern and Yorkshire record represents a range expansion of around 75 miles from previous midlands sightings I believe.

The trees here are a mixture in acidic moorland valleys, but the ones around which the flies were congregating are large, mature American Red Oaks (*Quercus rubra*). Two of these have Turkeytail bracket fungus, *Trametes versicolor*, some up a rotting old bough and some on a big trunk breakage which has healed but has allowed in fungal breakdown and wood borers such as beetles where there is no bark, and there is a big sap run, with other minor sap runs on boughs too. These will most likely be the larval origin. Other trees close by are Wych Elm, Hawthorn, Lime, Black Poplar, Beech, Oak, Birch and Ash, but no Aspen.

Further to the above records, a visit by myself and Steve Suttill was also successful, with Steve first spotting a lone *B bicolor* on the same Red Oak trunk on 30 May – also accepted on UK Hoverflies.

As a member of Sorby Natural History Society, I also contacted Derek Whitely about my Saddleworth finds

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so that they could be accepted into the society's invertebrate database .It seems that this new Yorkshire and northern record provoked some delving around sap runs by Derek at Haddon in Derbyshire - and amazingly he found a *Brachyopa bicolor* there too on 9<sup>th</sup> June. Like buses then.....or *Callicera rufa*......

Once again, this all seems to underline what can be found with consistent diligent watching of suitable habitat. Global warming is also probably part of the equation in this northern shift, as with other species of insects generally.

It also shows that if you can take decent macro photographs many species can be identified if you know which salient features are crucial. The thing is though, that entomologists need to take specimens if we are to build up such knowledge and expertise to cascade to others what to look for, to enable us photographers with such information. So, like it or not, it is still essential to take specimens in many cases of the less common species to be absolutely scientifically accurate with ID. If an expert, Frank van de Muetter had not spotted the first blurry shot of mine and had the ability to recognise it, this record may never have happened – although I like to think with due diligence on my local patch it might have......



Brachyopa pilosa male (photo: Ken Gartside)



Brachyopa pilosa showing round antennal pits (photo: Ken Gartside)



Brachyopa bicolor male (photo: Ken Gartside)



Steve Suttill looking for *Brachyopa* on red oak (photo: Ken Gartside)

## How does our garden grow?

#### **Caroline Phillips**

I have enjoyed gardening for more than three decades. Whilst working full time it was a way of relaxing at the weekends and in the evenings during late spring/summer. When I retired, I had time to develop it and maintain it better, including getting rid of pesky aphids spoiling the roses and other flowers. Little did I know I was also getting rid of the beneficial insects that live and visit the garden! How did I get so old and know so little about the diverse range of species that together help control what I considered as 'pests'?

Wanting to create an inventory of all creatures that could be found in our garden I made an effort to take more photos, join more specialist groups on social media and enhance my limited knowledge by buying useful field guides. I did know that ladybirds ate aphids but had no idea that hoverfly larvae will also consume vast quantities, and the more larvae the more adults and the cycle continues, no more spraying insecticides (3 years without using sprays), no more squashing aphids as I will also be squashing anything that is feasting on them. By mid-summer the plants are almost cleared, but more will arrive but so will more hoverflies.

I have also changed what plants I grow to include more open, simple structured flowers, single dahlias and roses, leucanthemums & lots of Yarrow (*Achillea*) and umbellifers like *Anthriscus*, *Pimpinella major rosea*. A helpful tip from a member of the HRS was to plant a carrot and let it grow and flower; cheap and very well-visited by hoverflies and other pollinators.

# Recent garden observations of hoverflies; history repeating itself?

#### David Iliff

In **Hoverfly Newsletter No. 65** (Spring 2019) I wrote a piece describing how two hoverfly species, *Myathropa florea* and *Syritta pipiens*, had seemingly been unaffected by the 2018 heatwave and had remained active during that period, especially on *Euonymus* flowers, in my garden when scarcely any other hoverflies were to be seen. That *Euonymus* shrub had been a productive source of nectar for hoverflies and other Diptera, including the soldierfly *Stratiomys potamida*, which I had found there in three separate years despite my garden not really being typical habitat for the species. This year the *Euonymus* came into flower on 22 July during a prolonged dry spell, and almost the first insect I noticed was a *Stratiomys*,

which to my astonishment turned out to be *S. singularior*. The hoverflies soon appeared and as in 2018 both *M. florea* and *S. pipiens* were present in numbers with only occasional visits by other hoverfly species. Before that date I had seen scarcely any *S. pipiens* in 2021.

## Some 2021 hoverfly photographs from Gloucestershire



Eupeodes luniger in Woodmancote July 2021 (photo: David Iliff)



Brachypalpoides lentus, Pope's Hill, June 2021 (photo: Martin Matthews)



Cheilosia illustrata, Painswick Beacon, July 2021 (photo: Martin Matthews)

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