Hoverfly Newsletter
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In **Hoverfly Newsletter No. 61** I wrote (in August 2016) of the exceptional scarcity of hoverflies (and other insects) last year. 2017 seems to be if anything even worse, though there was a hint of a resurgence in July. If however hoverflies may be declining in numbers, the same is emphatically not true for hoverfly recorders, as the recording scheme update (below) eloquently testifies - undoubtedly a success story.

Copy for **Hoverfly Newsletter No. 64** (which is expected to be issued with the Spring 2018 Dipterists Forum Bulletin) should be sent to me: David Iliff, **Green Willows, Station Road, Woodmancote, Cheltenham, Glos, GL52 9HN, (telephone 01242 674398), email:davidiliff@talk21.com**, to reach me by 20 November 2017.

The hoverfly illustrated at the top right of this page is a female *Volucella pellucens*.

Hoverfly Recording Scheme Update July 2017

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HRS approaches 1 million records

All of the data extracted and received for 2016 have now been uploaded into the HRS database. Almost 52,000 records have been added, mostly covering records from 2016, but also a few dating as far back as 2005. This upload included MapMate syncs but not data from iRecord; we have yet to decide what to do with the likely ~12,000 additional records that we don't have from iRecord.

The headline should therefore read HRS reaches 1 million records! As it stands, the database currently holds 994,838 records. There is about 10% duplication within the dataset so the true number of 'unique' records is probably about 900,000. That leaves us a bit short of the million in strict terms but at the current rate 1 million 'unique' records should be achieved within the next two years, and 1 million records in total will be reached very soon.

The most obvious feature of the data is the dramatic rise in the number of records received since 2013. The top four peaks for the most records received fall into the years 2016 (53,669); 2015 (48,708); 2014 (41,917); 1987 (39,442) respectively. We know the 1987 peak was stimulated by a 'call for records' in advance of atlas production that took a further 13 years to materialise! The chart below hopefully explains the evolution of the dataset.

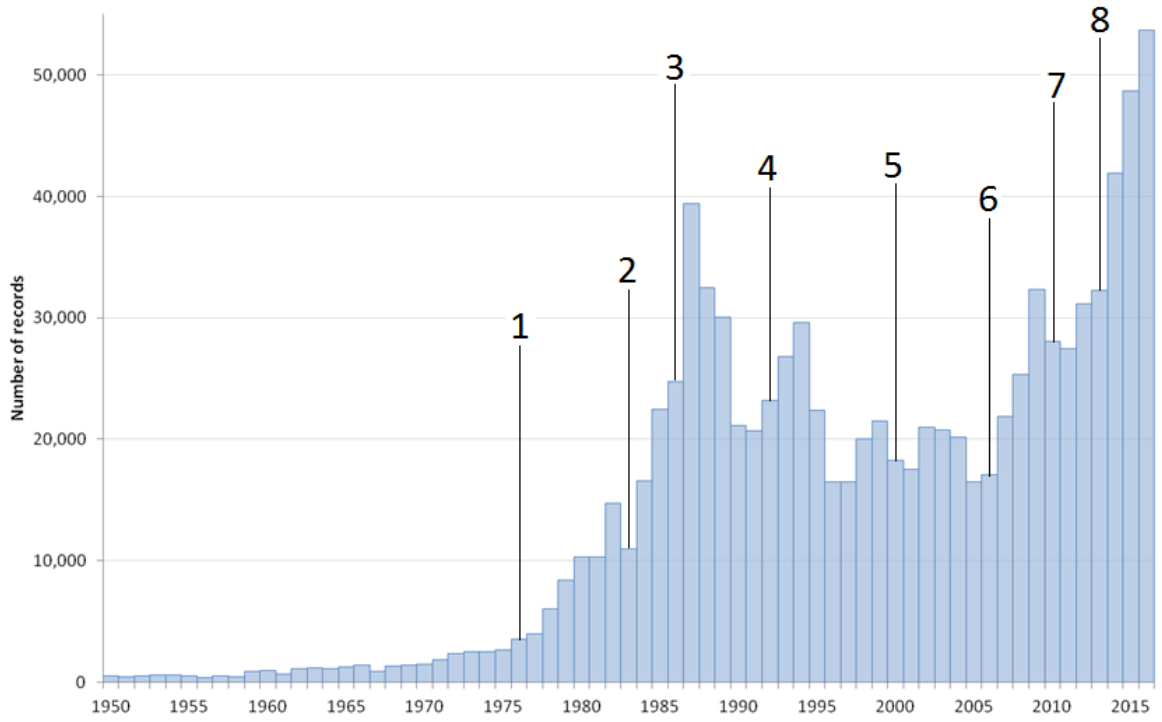

Figure 1. Key points in the evolution of the HRS dataset

1. The HRS was established in 1976 with Dr John Ismay (now specialist in Chloropidae) as its organiser. Dr Philip Entwistle replaced John some while later and ran the scheme until he retired from the Institute of Virology in 1987. When the scheme was launched, the only key was the RES key by Ralph Coe, which was very difficult to use, and highly out of date. Any serious student of the family had to use this in conjunction with numerous papers describing additional species.
2. British Hoverflies: an illustrated identification guide by Alan Stubbs & Steven Falk was published in 1983. It resolved many of the critical problems with the literature and set the scene for a new approach to keys including thumbnail sketches for critical features. It was a game-changer in many ways and has become the model for most modern keys. In doing so, it opened up hoverflies to a much wider audience and interest in them grew substantially. The original print run was 1,000 copies: that rapidly sold out and a second print run was produced that incorporated a supplement detailing new species and new information.
3. Around 1986 there was a 'call for records' in anticipation of production of a 'provisional atlas'. This led to a major push to improve coverage and resulted in a big spike in recording in 1987. However, Philip Entwistle retired and also stopped running the scheme at around the same time. Graham Rotheray took over as Newsletter editor but there was nobody at the helm of the scheme and interest rapidly waned.
4. In 1991 Alan Stubbs persuaded Stuart Ball (SB) and Roger Morris (RM) to take on the scheme. The task was daunting because some 2 cubic metres of record cards had been amassed but there was no chance of their being computerised in the foreseeable future by BRC Monks Wood - they simply did not have the resources and there was ongoing austerity in funding for natural sciences. SB & RM therefore took the job on knowing that they would have to do the computerisation themselves. It took 5 years. Some renewal of interest in hoverflies was stimulated but many of the most capable dipterists had become interested in other families and there was only a small blossoming of effort.
5. By 1997 the data were in order and it was possible to draft a 'provisional atlas'. Once drafted it took two years to get to the printers and was finally published in 2000. Between 1998 and about 2005, SB and RM were not terribly active in promoting the HRS but did completely revise Stubbs & Falk into the 2002 version that is available today.
6. Around 2005, SB and RM realised that there was a need to reinvigorate the scheme and, to give it impetus. Early indications of a proposed revised provisional atlas were circulated amongst scheme

members. At this time, nearly all communication with recorders was via the Hoverfly Newsletter that was issued twice-yearly. Around the same time, it was also realised that the 'old guard' of recorders was becoming aged and a new generation was needed. More emphasis on training was therefore part of the initiative. At this point we did not have the capacity to provide microscopes so courses could only be run at venues where they were available. Around 2008-2009 the OPAL project was launched. It provided small grants to assist schemes and the HRS applied for funds to buy microscopes and to print teaching material. In two tranches, 13 teaching microscopes and a camera microscope were purchased. This package has been the key to SB and RM running courses the length and breadth of the country. No count has been kept of courses or students, so the absolute numbers are uncertain.

7. The second 'provisional atlas' was published in 2011. Originally planned for 2010 it finally emerged in conjunction with the 7th International Conference on the Syrphidae held in Glasgow. Work on this atlas stimulated some additional effort, but the big improvement in data arose when Kenn Watt's Scottish data was incorporated into the dataset and Kenn became a joint author of the atlas. Since 2011 the HRS has been comparatively more active. Apart from training courses, SB and RM have spent a fair amount of time 'square bashing' in remote places. We started doing this from around 2004, with a major expedition to Harris and Lewis in 2006. RM has also done a significant number of trips alone.
8. In 2013, two events completely changed the way hoverflies were perceived amongst natural historians. Firstly, SB and RM produced a new introductory guide in the WILDGuides series. The UK Hoverflies Facebook group launched a few months later. Membership of the FB group has grown exponentially and now stands at around 3,150. This initiative has seen the numbers of records entering the scheme grow substantially, but only because RM has made a serious effort to ensure that data are extracted from the FB page. This growth in interest and effort has also led to changes in the organisation of the HRS. The scheme is now run by a group of eight: Ian Andrews, Stuart Ball, Joan Childs, David Iliff (Newsletter editor), Judy McKay (FB group manager), Roger Morris, Ellie Rotheray and Geoff Wilkinson. We anticipate that the suite of organisers will have to grow yet more because there is so much to do.

Coverage in 2016

Coverage in 2016 shows that there is much more to do, with most recording concentrated in England. To a great extent this reflects the inevitable concentration of recording effort around centres of population. A lot of Central Wales is both sparsely populated and difficult to work because easily accessible sites are more scattered and the geology is unhelpful (with very poor acid conditions that limit species diversity). The same holds for much of Scotland, but it is surprising just how few records we get, comparatively speaking; there is a lot of scope for new additions if anybody feels inclined to take a look at poorly recorded areas.

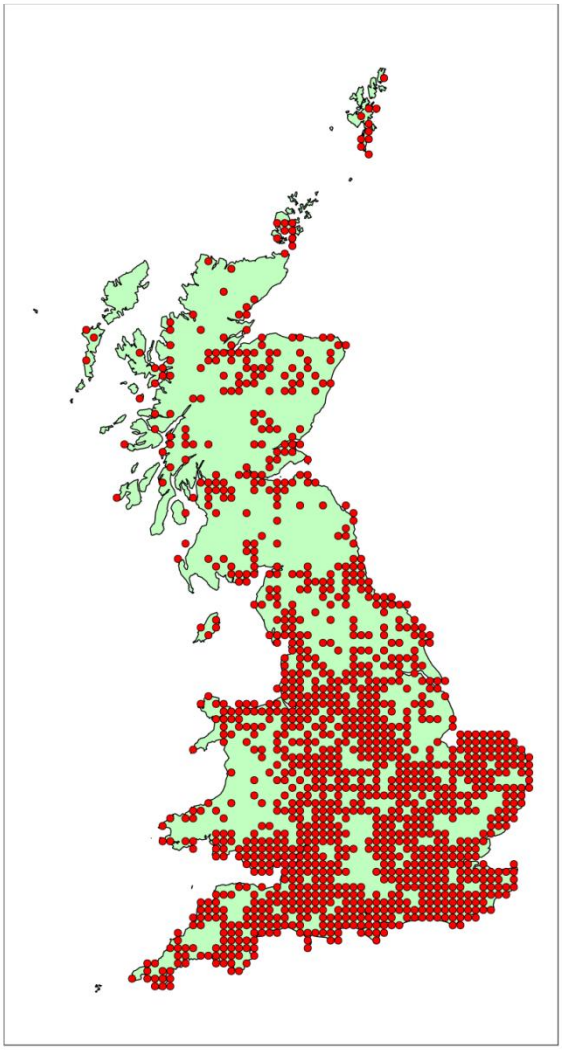

Figure 2. Coverage in 2016 at 10km resolution.

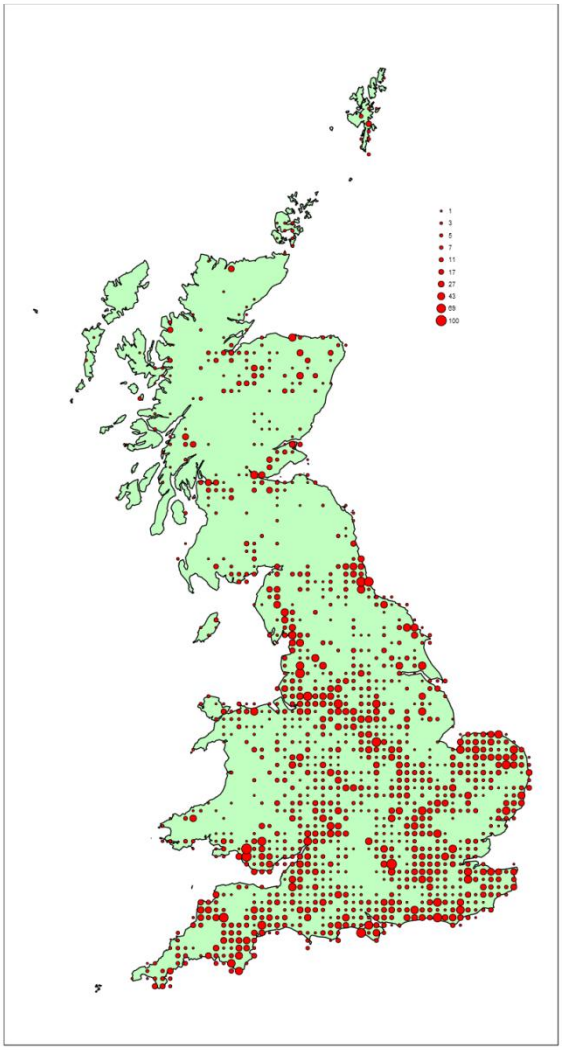

Figure 3. Number of species recorded in each 10km square in 2016.

The coverage maps are, however, simply a snap-shot of one year's effort and over a series of years the gaps do get filled in to a large extent. Nevertheless, there will be parts of the country where there will always be a shortfall in coverage without deliberate 'square-bashing'. Are you located in a place where more coverage is needed? If so, maybe a few forays into uncharted territory would yield interesting results?

Do you have records?

We are pretty sure there are some substantial datasets that we have not received in recent years. If you have records, we would be very pleased to receive them. Stuart is in the process of developing a new website to replace the existing one that no longer works properly. A full set of revised maps will be available through this new site which we will hopefully have on-line by Christmas.

Basking behaviour of *Melangyna lasiophthalma*

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On 28 April 2017, I ventured into the wood on the east-facing side of Oliver's Mount in Scarborough, North Yorkshire, grid reference TA0486. The woodland is open mixed broadleaved, dominated by sycamore, with some mature beech, and a mix of holly, horse chestnut, whitebeam, rowan and silver birch. It was a warm, sunny day, and there was quite a lot of hoverfly activity particularly around patches of ramsons. I noticed a number of hoverflies basking on the trunks of trees. I have seen this behaviour in species such as *Cheilosia pagana* and *Orthonevra geniculata** but on inspection, I realised these were *Melangyna lasiophthalma*. Most of the pale, smooth-barked trees had one or two of these hoverflies on, which must have reflected a sizeable population. The flies stood out obviously on these trees; I searched on the rougher barked tree trunks, and there did not seem to be any, though it is possible that I missed them as they would have been more cryptic in this setting. All those low down enough on the trees for me to see clearly were males. I know that both males and females had already emerged as my garden backs onto this woodland, and I had been recording both sexes visiting flowers there since 24 March 2017. The sex of the hoverflies, and the apparent preference of pale, smooth trees, led me to wonder if there was also a lekking aspect to this behaviour. One male was observed engaging in repeated wing-flicking.

Melangyna lasiophthalma, Oliver's Mount Woodland

Melangyna lasiophthalma basking on the sunny side of a tree

Typical pale, smooth-barked tree used by basking *Melangyna lasiophthalma* (two on this particularly tree) (Photos: Joan Childs)

* Basking and mating habits of *Orthonevra geniculata* at Wicken Fen, Bulletin of the Dipterists Forum Hoverfly Newsletter **61**, Autumn 2016

Hovering behaviour of male *Leucozona lucorum*

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Foremost among the reasons why we find hoverflies interesting are the attractive coloured patterns of many of them and their remarkable hovering abilities. Not all species employ their hovering power in the same way and it is fascinating to observe the differences of hovering behaviour between species. Perhaps the best known of these is the courtship flight of *Eristalis nemorum*, the subject of an article by John Bridges in the last newsletter, where the male hovers above a perched female. *Eristalis tenax* does a similar thing except that the male hovers alongside, at the same altitude, as the female, while *Anasimyia lineata* acts like *E. nemorum* but with the hovering male also periodically rotating its body in a manner graphically described by R C Bradley, quoted by Verrall, as "shaking like a dog just out of water". Males of *Epistrophe eligans* and *Eristalis pertinax* hover at about a metre above the ground well away from vegetation while those of *Volucella pellucens* and *Eristalis intricaria* often hover overhead (more than 2 metres above ground level). Several members of the Syrphinae hover for sustained periods in dappled light under trees and both sexes of *Epistrophe grossulariae* take nectar from flowers while hovering, in the manner of the Hummingbird Hawkmoth.

Leucozona lucorum is a bright and conspicuous hoverfly - "colourful" is probably the wrong description as it is predominantly black and white. Although common it is usually seen singly. Its chief characteristics are its "typical fly" body shape (i.e. more like, for example, that of a Muscid than most other hoverflies, especially the other two British members of its genus) and its striking resemblance in both its abdominal colour pattern and its wing cloud to another hoverfly, *Volucella pellucens* (see illustration at the top of this newsletter), which is not closely related: (do they both mimic some long-extinct Hymenoptera species?). I cannot recall before this year having noticed anything especially unusual about the hovering behaviour of *L. lucorum*, but during a four-day period in May of this year I was able to witness an extensive display of this in my garden. The activity all took place in an approximately 4 cubic meter space on and near a rose bush and a hornbeam hedge. On 4th May I noticed a male *L.lucorum* hovering about 1.3 meters above ground level then resting on the rose bush (at the same approximate height); after resting it resumed hovering and periodically returned to rest on the rose bush (usually on the same leaf). I made several visits to the area during the course of the day and as far as I could tell this alternate hovering and resting continued throughout most of the daylight period. A female of the species was occasionally present on the hornbeam hedge, but I observed no interaction between the male and the female. This activity continued during the sunny periods of the following three days.

Initially I assumed that this hovering behaviour by the male was probably territorial, but as I continued to watch this activity it became apparent that, intriguingly, at least two males were involved - one of them was a typical male with characteristic broad white markings on tergite 2 and the other was the dark form of the male, in which these markings are all but absent. Both hovered in the same space and perched on the same bush, but until the fourth day I did not see them present simultaneously. On that occasion while the dark male was performing its usual hover and rest routine, the typical male was perched on the hedge close by as if awaiting its turn to take over.

The typical male

The dark form

The typical male hovering

The female

The *Dramatis Personae*: *Leucozona lucorum* photographed between 4th and 7th May (Photos: David Iliff)

A possible flower association of *Ferdinandea cuprea*

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On 19 August 2017 I visited a large woodland site in the Cotswolds. The weather was cool and there had been rain during the night; the grass was still wet in the lower and more shaded rides. As there was very little insect activity I decided that I would spend some time photographing the Naked Ladies which were a conspicuous and colourful feature of the scenery. By Naked Ladies, of course, I mean the flowers of *Colchicum autumnale*, also known as Meadow Saffron.

My eye was soon caught by an unusually downward facing flower within which there seemed to be some activity going on. I found that there was a female *Ferdinandea cuprea* moving around inside the base of the inverted flower. The hoverfly may have been foraging for nectar or pollen but as the surroundings were devoid of flying insects, and because of the hesitant way it began to emerge from the flower on my approach, I formed the impression that it might have been sheltering under the tent of petals for some time.

The day warmed up later, but not very much, and the few flowering plants in the woodland continued to attract almost no hoverflies. I had walked some distance from my first sighting of *F. cuprea* when I spotted a particularly shapely group of Naked Ladies and decided to take their photograph. While I was getting into position I became aware that a fly of some kind was coming into view and was clearly moving towards the same flowers. I quickly took my shot, hoping that the fly might add some interest to the image. Fortunately, the fly came out almost as well-focused as the flowers, and is clearly again a female *F. cuprea*. On this

occasion the hoverfly did not land on the flower; it apparently detected my presence, changed course and flew away.

These two separate sightings of *F. cuprea* with *C. autumnale* may be a random coincidence. However, as I am not aware of any reported association between this flower and any species of hoverfly, the observation may be of some interest. In Hoverflies of Surrey (Surrey Wildlife Trust, 1998) Roger Morris does not include *C. autumnale* either in the extensive list of flowers visited by hoverflies (Appendix 2) or among those mentioned in his account of *F. cuprea*,.

F. cuprea emerging from a hanging flower of *C, autumnale.*
(Photos: Martin Matthews)

F. cuprea flying towards one of a group of *C. autumnale* flowers.