Hoverfly Newsletter

No. 6 - October 1987

We hope everyone is happy with the 'Local Adviser' system for sending records to BRC which was introduced in the last newsletter. Some Local Advisers organize field meetings to keep local recorders in touch with each other. We hope more recording groups will start up with reports of activities etc to be included in the Newsletter. There have been several interesting responses to articles in the last Newsletter, some of which appear in this issue. Others will appear later. Keep the contributions flowing in - deadline for Newsletter 7 is 1 March 1988.

It's been a good year for some hoverflies. From the south have come reports of migrating E. balteatus and M. corollae including large numbers seen by yachtsmen off the Essex coast in August. Recorders along the south coast might like to keep a lookout for hoverfly 'swarms' this autumn. Can anyone find out where adults spend the winter? As for the north, we've managed a second record (see Newsletter 5) for Metasyrphus lundbecki (David Robertson) and 'rediscovered' the larva of Callicera rufa (see note on p6).

Circulated with this issue is a list of the more important sources of information about hoverflies that Dr Francis Gilbert has kindly supplied. He has organized the contents under a variety of headings and added short summaries of the contents of most of the papers. Francis has been through the literature on a world basis looking for hoverfly publications and has 'opened up' his files for us. The list will be invaluable to those wanting information about hoverflies.

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Hovering in Chrysotoxum spp.

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In "British Hoverflies", Alan Stubbs comments on an apparent lack of hovering activity in species of the genus Chrysotoxum, with the exception of males of arcuatum and bicinctum. On reading that I began

to wonder whether there are in fact any hoverflies that do not hover. I quickly realised of course that it would be impossible to prove conclusively that any particular species does not hover, but only that hovering by that species had not been observed.

Since the publication of the book I have paid special attention to the flight behaviour of any Chrysotoxum I have come across, keeping a sharp eye open for any evidence of hovering. In the case of each of the three fairly frequent species, bicinctum, cautum and festivum I have observed the insects remaining relatively motionless in the air for perhaps a second or so after take-off from a perch - this applies to females as well as males in the case of bicinctum, but these momentary pauses hardly count as 'hovering'.

In 1986, however, I witnessed two instances of sustained hovering activity by C. festivum. The first of these occurred on 9 July. I was walking along a path on the northern shore of the estuary of the Pembroke River, when I came across two C. festivum hovering a few inches above low-growing vegetation. The insects were never more than about ten metres apart, but did not appear to take any notice of each other. They hovered for long periods, and interspersed hovering with rapid flights to new position (often followed soon afterwards by a return to the previous position) and occasional rests on low growing plants. I attempted to photograph them while they were hovering (which proved impossible) and when resting (with success on one occasion). Their flight performance and behaviour reminded me very much of Volucella bombylans, which I have also found very wary of close approach when engaged in this sort of activity. The specimen which I photographed was a male, and I suspect that the other was also.

After watching this performance for half an hour or so I continued to walk. When I came to the same spot some forty minutes later on my return journey the two Chrysotoxum festivum were still hovering.

Having begun to wonder if I had witnessed something rare or even unique, I was somewhat surprised to see the same thing happening about two weeks later, in a different location. This was in Queen's Wood, near Cheltenham, on 22 July. On this occasion at least two, possibly three, Chrysotoxum festivum (sex undetermined) were hovering for prolonged periods about the tops of bracken plants at a height of six or more feet above ground level.

Postscipt: Chrysotoxum cautum seen hovering 27 May 1987, near Cheltenham.

Tropidia scita - a Fenland species takes to the woods?

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On 16 May 1987, whilst watching the antics of several individuals of the hoverfly Chalcosyrphus nemorum basking on a fallen beech trunk, I noted that one specimen - which I took to be a male - had markedly orange flanks to the tergites. It was caught, killed and taken home and briefly examined; at this stage, I still assumed that it was C. nemorum. Unfortunately, the specimen was lost soon after, thus denying critical examination.

Several days later, at the same locality (Stradey Woods, VC44, 22/489017), two more orangy-abdomened "Chalcosyrphus nemorum" were seen, and one was again taken. Soon afterwards, with reference to Stubbs and Falk, it was realised that the hoverflies were actually Tropidia scita, a species usually associated with wetland habitats, "open fens and lush marshes provide the ideal habitat" (Stubbs and Falk).

The area of Stradey Woods where Tropidia was found comprises mixed (mostly planted) deciduous woodland and, apart from two small wet shaded hollows with Caltha palustris and Chrysosplenium oppositifolium, the wood is dry. A pebbly stream flows nearby.

It may be worth noting that the soldier-fly Stratiomys potamida, another species associated with wet situations, was recorded here in June 1986.

Cheilosia mutabilis and carbonaria - key characters confused

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A number of Cheilosia which I collected during 1986 in the south of France, keyed out nicely using Stubbs and Falk, but since my material was of non-British origin, I asked Steven Falk if he would like to check my identifications.

I was subsequently surprised to discover that a specimen which I ran to carbonaria was returned by Steven as mutabilis. Following the subsequent discussion it became apparent that the complete key to Cheilosia on page 76 of the hoverfly book contains an error. Couplet 3 separates the albitarsis group, (albitarsis and mutabilis) on the basis of legs entirely black apart from tarsal segments 2, 3 and 4 of the front legs. This is not the case, however, in mutabilis, which, in my specimen at least, has the basal 1/4 to 1/3 of the front and mid pair of tibiae pale, (as pale as the tarsal segments but darkening after death), as well as the extreme tips of the front tibiae faintly pale. Thus, if one follows the key strictly, (which of course one should), mutabilis will not key out. C. carbonaria does, of course, usually have a hint of paleness about the bases of the tibiae, though it lacks the distinctive front tarsi which had darkened after death in my specimen (that's my excuse, anyway!).

Couplet 3, p 76 in the hoverfly book should be amended acordingly, and earlier determinations of carbonaria checked just in case they are mutabilis!

Leg colour - a clearer field recognition character for E. tenax v E. pertinax?

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I was interested in the notes by Normal Frankel and David Iliff on the identification of E. tenax and E. pertinax in the last newsletter, but was surprised that neither stressed what I have found to be the best field recognition character. In E. pertinax one can readily see that the basal third or so of the hind tibiae are straw coloured, with its thinner legs as a secondary character as N Frankel points out. This is clearly illustrated in Stubbs & Falk Plate 11 figure 2. The different size of both these species separates them from other Eristalines and, as D Iliff suggests, you can regularly tell E. pertinax from E. tenax by its abdominal shape and markings; but I find some individuals need a glance at the legs to be sure.

Finding larvae of Cheilosia variabilis

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For several years I tried to find larvae of C. variabilis in figwort. There was a near miss a few years ago at Burnham Beeches, Bucks, when the root tubers of Scrophularia nodosa were found hollowed out - this was in October, after the larvae had departed.

If one thing can be said for the Peterborough area, it's that there is plenty of figwort, and plenty of C. variabilis. The Cheilosia seem to be double brooded in this area, since adults are abundant in the spring (May/June) and there is a smaller second peak in late July/August. That being the case, it ought to be possible to get larvae even in the autumn.

On 15 September 1985 I went to Bedford Purlieus where figwort was known to be common. Success was immediate: a plant of S. nodosa had one root tuber completely hollowed out, with a well grown larva burrowing up the centre of the stem. Then a large robust clump of S. nodosa was investigated. In minutes six well-grown larvae were located burrowing through tubers. The tubers were so dense that it was possible to trace burrows across from one tuber to the next, three or four tubers being attacked by individual larvae. These larvae stayed in tubers and did not go up into the stems.

In the same locality, there is also water figwort, S. auriculata (aquatica of old books). This plant lacks tubers. Two half-grown larvae were located in the stems, a few inches from the base.

The host plant material (stem or tuber), with larvae, was inserted into the surface of moist peat in a flower pot. The pot, inside a polythene bag, was placed within a plant propagator as an emergence cage. This breeding stock was placed in a garden shed, the peat freezing solid in the worst of the winter weather. In March the pot was brought indoors and in late April/mid May Cheilosia variabilis adults emerged - there was 100% success!

My conclusion is that the larvae prefer to eat the tubers but will go into the stem if tubers are insufficient or absent. Perhaps the stem is less nutritious; the less advanced development of larvae in stems of S. auriculata could be for this reason or because the eggs had, by chance, been laid much later. It seems probable that eggs are laid at the base of the stem, the larvae investigating whether tubers are available but this has yet to be clarified.

The larva/puparium is distinctive in that the spiracles have a marginal circlet of six (three each side) small triangular spine-like projections. The 'tubers' are rather dumpy small potato-like swellings close to the stem base which are at or just below ground level.

The fly must have a major impact on S. nodosa since larvae are destroying the food reserves in the tuber, hence possibly resulting in weaker plants the following year which are likely to be less able to support the fly in the future. However, plant and fly seem to get by in low numbers even where the plant is scarce. The benefit of this association to the plant by way of pollination seems small, only applying to the summer brood of the fly (and the regularity and numbers of this generation is questionable). Scrophularia has brown flowers which are generally thought to be wasp-pollinated (usually Vespula spp.); but both sexes of C. variabilis have been observed feeding at these flowers on rare occasions.

Guelder-rose - an overlooked hoverfly lure?

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Very little mention appears to have been made previously about the attraction of Guelder-rose, Viburnum opulus L., flowers for hoverflies. During the Spring of 1987, following the discovery of a Brachypalpoides lenta at these flowers, I started systematically searching Guelder-rose trees. Subsequent observations included four B. lenta on the same bush in the space of a few minutes! Other noteworthy species taken from Guelder-rose flowers were Brachyopa scutellaris, Criorhina asilica, C. berberina, Neocnemodon vitripennis and Xylota abiens.

Unfortunately, I only realised the value of Guelder-rose flowers well into their flowering season, so perhaps they will yield further species in future years. Guelder-rose is not common locally and all of the above sightings came from two local woods (one containing five Guelder-rose trees; the other only two).

Food-plant switching and site fidelity in hoverflies

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During a University field trip to Mid-Wales (6-15 July 1987) a number of studies were made of the behaviour of certain species of hoverfly. Two such studies are reported here.

Food-plant switching and time and day.

A study was made of choice of food-plant by several species of hoverfly. The results were similar and quite clear cut for Syrphus spp., Epistrophe grossulariae and Eristalis pertinax. The proportion of each species on bramble was highest in the morning, dropped through the day and peaked again in the late afternoon. The proportions on field rose adopted the opposite pattern; lowest in the morning, peaking midday and dropping away again during late afternoon. The proportions of each species on bramble and field rose were negatively correlated. This suggests that bramble yielded the highest

return early in the day and was favoured. Maybe as nectar supplies in the bramble depleted it became relatively more profitable to switch to field rose. However, many insects switched back to bramble as the afternoon progressed, perhaps because field rose nectar depleted or bramble became more productive.

A similar negative correlation was noted between field rose and rose-bay willow-herb in Syrphus spp. and E. grossulariae, although numbers on the latter plant were small.

Site fidelity in Eristalis spp.

The study site was a railway embankment about 120 m long, dominated by meadowsweet. Along the front edge of the site ran a muddy ditch.

Captured flies were sexed and marked with a series of coloured spots of enamel paint so that each insect could be individually recognised. Marked flies were released at point of capture. All of the results reported here are statistically significant.

Most of the flies marked were Eristalis pertinax. (63 , 17). A larger proportion of marked female E. pertinax were recaptured than males (27%, 6%).

Also a larger proportion of E. pertinax overall was recaptured than E. arbustorum (22.5% versus 6.25%). The results suggest that E. pertinax females had a lower turnover rate at the site than either E. pertinax males or E. arbustorum. Perhaps females had a lower mortality rate or the ditch served as a suitable oviposition site for E. pertinax but not for E. arbustorum. Male E. pertinax and E. arbustorum may then have been using the site only as a feeding station.

The mean capture time of E. pertinax (15.12 hrs) was earlier than E. arbustorum (15.56 hrs), E. horticola (16.00 hrs) and E. nemorum (16.12 hrs). The capture times of the last three species were not significantly different. It is possible that the larger, darker, E. pertinax was least affected by cool conditions. The smaller, more brightly-coloured species were more reliant on warmth and solar radiation, hence were seen more during the hottest part of the day.

Most recaptures of E. pertinax were made on the day of and the day after marking. The mean distances moved from the point of capture and release were 28.4 m and 11 m respectively. This suggests that the insects dispersed following the disturbance of handling and marking, but gradually migrated back to their site of capture.

We accept that many possible pitfalls need to be thoroughly examined before embarking on a full scale study (such as the resilience of the paint spots). However, the pilot study raised some interesting questions concerning certain aspects of the behaviour of Eristalis species, which we hope to examine in more detail at a later date.

Rediscovered - the larva of Calilicera rufa

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The larva of this magnificent Caledonian Forest rarity was first reported by Coe (1938: '39. Entomologist. 71: 97-102; 72: 228-31) from rot holes in pines near Ballater, Deeside. So far as we know this is the only record of the larva of this species.

On 19 July 1987 we found several Calilicera-like larvae in rot-holes on Pinus sylvestris trees in Rothiemurchus Forest, Speyside. These holes were completely hidden from view, being roofed over with accumulated pine needles and other debris. On one old, but very productive tree, J C Hartley found two empty puparia and one nearly-ready-to-pupate larva in this debris. Further digging revealed a very pungent-smelling rot hole with several pale larvae floating in the water. On 24 July 1987 a female Calilicera rufa was obtained confirming the suspected identity of these larvae. We wait with interest to see how long the remaining larvae take to develop, hoping for less than the 5+ years Coe reported!

What to record - larva or adult?

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Our current understanding of the status and distribution of hoverflies depends almost entirely on evaluating the frequency with which adults are captured. But, as most recorders know, hoverflies vary hugely in their 'catchability'. Criorhina species, for example, apparently fly high in the canopy. In contrast, Platycheirus and Sphaerophoria species fly close to the ground. A few pipizines and Melangyna species are seemingly active only at certain times of day. Others habitually fly very fast (Helophilus trivittatus, some Chelosia) or fly short distances in restricted habitats (Melanostoma dubium, Platycheirus fluviventris, and perhaps Brachyopa spp.). Some species may even be short-lived as adults.

Factors such as these clearly influence the rate at which adults are encountered in the field and this raises the possibility that some of our supposedly rare and uncommon hoverflies are, in fact, more common and could be shown to be so if only the means of encountering them was properly understood. The problem of finding out how to encounter little-known species is very difficult because, obviously, few adults have been observed!

An alternative strategy is available, however, which might help to investigate the status of supposedly rare and uncommon hoverflies. In many insect groups such as gall midges, agromyzids, nepticuild moths and many aquatic orders, the problems of recording adults are such that greater reliance is given to larval stages. At the risk of being accused of riding a hobby horse, some hoverflies should, I suggest, be similarly treated. For example, I have encoutered two species whose status has probably been misinterpreted because adults are difficult to find. These are Meligramma triangulifera, and Pipiza luteitarsis, both rare species according to several authorities (Coe, Stubbs and Falk, Torp) and sometimes considered indicators of ancient woodland.

Consistently over the past three years, I have found the very distinctive larva of M. triangulifera (see Rotheray, 1986 zoo. J. Linn. Soc. 88: 201-16) commonly (50+) in suburban gardens, hedgerows and other sites, usually feeding on fruit-tree aphids. It is very common on a 2 m length of Prunus hedge in my garden in the middle of a suburban housing development, for example. But only one adult has been recorded during this period.

P. luteitarsis is very abundant each year in leaf curl galls on elms caused by Schizoneura aphids (Rotheray 1987. Entomologist's mon. Mag. 123: 121-25). Again I have found it in urban and suburban situations and in hedgerows all over southern Scotland. It is common on isolated elms in amenity grasslands just off Princes Street in the middle of Edinburgh! I have found adults, however, on only four occasions. In Scotland, at least these two species are easily found as larvae and could hardly be considered rare.

How many other 'rare' hoverflies are like these two species? Hartley had few problems in finding dozens of larvae of rare and unusual milesiine species for his beautiful 1961 paper (Proc. Zool. Soc. Lond. 136: 505-73) but few have followed his lead. Brachyopa larvae seem to be hugely abundant at sap flows and more common than adult records suggest (F Gilbert, pers. comm.). My guess is that there are lots of species more easily found as larvae than as adults.

Hoverfly recorders should take up the challenge of searching for larval stages more vigorously than in the past if advances are to be made in understanding the status and distribution of hoverflies. After all, breeding records reveal a lot more about a species than adults captures tend to do, and larvae are fascinating in their own right. A reference collection with reared material is of much greater scientific value. Hints on rearing and studying larvae can be found in the Dipterists' Handbook, Hartley (1961) and Hoverfly Newsletter 4.

Local lists: - London area and Ceredigion

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(a) Plant, C W, 1986. A working list of hoverflies (Diptera: Syrphidae) of the London area. London Naturalist no 65: 109-117.

A twenty mile radius of St Pauls constitutes the LNHS definition of the London area, thus including some very good urban fringe countryside. The list includes 195 species, of which 47 have not been recorded since 1970, leaving a recent total of 148 species. There is a fairly long bibliography. This is no more than a starting point and Colin Plant will welcome liaison with those who are recording in and around London.

(b) Fowles, A P, 1986. Hoverfly recording in Ceredigion in 1986. Nature Conservancy Council, Dyfed-Powys Region.

It is the sign of the times that a county list with initial distribution maps should appear for even such a previously neglected area for hoverflies. Ceredigion, for those who are baffled by all these new county names, is the old county of Cardiganshire in west Wales. There are 117 species recorded, of which all but two were seen in 1986 - and there are some very nice beasties. Highlights include Rhingia rostrata, Microdon mutabilis and Chellosia cynocephala, plus other goodies such as Eriozona syrpholdes, Eristalis rupium and Megasyrphus annulipes. It is reported that the combined total for Dyfed (including Carmarthern and Pembrokeshire) stands at 136 species - nearly all by very recent recording.

Book Review: Hoverflies of the Sheffield area and North Derbyshire by Derek Whiteley. Sorby Record Special Series No 6, 1987. Price £1.25 (£1.50 by post) from Sheffield City Museum, Weston Park, Sheffield, S10 2TP

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Local lists of hoverflies are probably destined to become as populous as local lists of butterflies, so it is rewarding to discover that this pioneer work on the Sheffield area is both of good quality in its content and of high standard in its presentation.

169 species are listed in the standard manner of an annotated systematic list, which is in itself impressive; but Derek has taken things a welcome stage further by including no fewer than thirteen "site profiles" by various contributors - certainly of far more interest than mere lists of flies. There is also a short section on recent history of hoverfly surveys in the area, and a list of twenty different ways in which hoverflies can be sampled - including the examination of the inside of open railway signalboxes! However, not content with this, Derek has also broken new ground by producing a provisional list of hoverflies which may be useful for assessment of wetland habitats, along similar lines to Alan Stubbs' earlier work on woodland indicators. This alone makes the book worth buying, for although the list is provisional, it provides those involved in site assessment with yet another tool to use.

Let us hope that Derek will have the benefit of feedback from other hoverfly workers. There are only two small criticisms: first, personally I would prefer to see more maps, particularly for an area such as this, since the effects of altitude upon distribution are more readily noticed in this manner, and second, I would have preferred the records for the two Baccha species to have been separated, since "lumping" does not allow future workers to sort out one from the other should the need arise. It may not be possible to detect any ecological differences if authors continue to treat all records as Baccha spp.

In spite of these exceedingly minor criticisms this excellent booklet is well worth £1.25 of anyone's money.

Recent Publications on Hoverflies

ANDERSON, R. 1987. Rare Hoverflies (Diptera: Syrphidae) in South Down, including Brachypalpoides lenta (Meigen). Ir. Nat. J. 22: 210.

ANDERSON, R. 1987. Neoascia obliqua Coe, a hoverfly (Diptera: Syrphidae) new to Ireland. Ir. Nat. J. 22: 211.

ANDERSON, R. 1987. Some local woodland hoverflies (Diptera: Syrphidae) including Parasyrphus lineolus (Zett.) from the Lagan Valley, Belfast. Ir. Nat. J. 22: 258.

APPLETON, D. 1987. Eriozona syrphoides (Fallén) (Diptera: Syrphidae) new to Hampshire. Entomologist's mon. Mag. 123: 14.

BRIAN, M C. 1987. Xanthandrus comtus (Harris) (Diptera: Syrphidae) new to Staffordshire (VC 39). Entomologist's Rec. J. Var. 99: 131.

CLEMENTS, D.K. 1987. Eristalis rupium F. (Diptera: Syrphidae) in Derbyshire. Entomologist's mon. Mag. 123: 68.

CLEMENTS, D.K. 1987. Criorhina asilica (Fallén) (Dipt., Syrphidae) new to Wales. Entomologist's mon. Mag. 123: 96.

CLEMENTS, D.K. 1987 An unusual aberration of leg structure in Chelosia albitarsis Meigen (Dipt., Syrphidae). Entomologist's mon. Mag. 123: 107.

CROW, P. 1987. Didea alneti (Fallén) (Dipt., Syrphidae) in Wales and its colour change after death. Entomologist's mon. Mag. 123: 34.

FOSTER, A.P. 1987. Xanthogramma pedissequum (Harris) (Dipt., Syrphidae) bred from a Lasius niger L. (Hym. Formicidae) nest. Entomologist's Rec. J. Var. 99: 44-45.

ROTHERAY, G.E. 1987. More on attachment - Saliva sticks syrphids to plants. Antenna 11: 5-7.

ROTHERAY, G.E. 1987. The larvae and puparia of 5 species of aphidophagous Syrphidae (Dipt.). Entomologist's mon. Mag. 123: 121-125.

ROTHERAY, G.E. 1987. The ever-so-helpful hooverfly. BBC Wildlife Magazine. 5: 340-345.

ZIMINA, L.V. 1986. A review of Palaearctic hoverflies of the genus Callicera Panzer (Diptera, Syrphidae). Entomol. Obozr. 65: 633-638.