

Hoverfly Newsletter

Number 2-April 1983

With contributions from a number of people the Hoverfly Newsletter seems to be going in the correct direction. I hope the contents of this issue will spur others to send in copy for the third issue which I hope to compile and distribute before the next Annual Meeting of the Diptera Recording Scheme which is on 12 November 1983.

In that issue I would like to begin consideration of the immature stages of hoverflies and to present associated biological information - all contributions, however short, will be very welcome. Another suggestion, and I put it forward tentatively since it smacks slightly of the pursuit of hoverflies purely to amass a collection, is the possibility of effecting exchange of specimens via publication of requests in the Newsletter. In due course most recorders will acquire, or could do so, species of local distribution which for comparative purposes others might wish to have. For instance I have quantities (almost!) of Parasyrphus lineola and P. malinellus which are both very common in areas I have worked in recent years but they must be exotic beasts to some recorders.

Philip F Entwistle

Contents

Hoverflies at Wisley Garden, Surrey, by Andrew Halstead
Sphegina in Great Britain - a brief profile
The oviposition site of Volucella inflata F., by Stephen R. Miles
Hoverflies from the forest floor
Appeal for records of hoverflies on particular plants, by R.M. Payne
Immature stages of British hoverflies
Eriozona syrphoides - yet again
A new book on European hoverflies
Brachyopa insensilis in the northern Highlands of Scotland
Syrphids of Siberia - another forthcoming book

Maps

Brachyopa insensilis

Sphegina clunipes, S. kimakowici and S. verecunda

Hoverflies at Wisley Garden, Surrey - by Andrew Halstead

Wisley Garden began in 1878 as a private garden but was taken over in 1904 by the Royal Horticultural Society and developed as a show garden for its members and general public. Its size has greatly increased since its beginnings and it now covers about 250 acres. The garden is 20 miles south west of London and is just off the A3 between Cobham and Ripley. The land around the garden is mainly farmland (arable and pasture) and heathland (Wisley Common).

Recording of syrphids for the mapping scheme has been carried out since 1980 and to date 77 species have been noted. Much of this recording has been done during lunch-hour strolls, particularly along the bank of the River Wey which borders the garden, and along a hedgerow that forms the northern boundary of the new arboretum. These are relatively wild and uncultivated areas where hogweed (Heracleum sphondylium) grows. There is no shortage of cultivated flowers within the garden, but, while these attract the more common types of syrphid, few of them are as productive as hogweed.

One cultivated plant that does attract large numbers of syrphids is Stravaesia davidiana. This is a shrub about 15ft tall with hawthorn-like flowers in early June. Eristalis spp. form the majority of the visitors but Criorhina floccosa and C.berberina also regularly put in an appearance. Near the Laboratory there is a large plant of the flowering form of the common ivy which, in the autumn, attracts Didea fasciata, D.intermedia and Sericomyia silentis. Some other interesting syrphids which have been taken off the foliage of various plants at Wisley are Anasimyia lineata, Criorhina ranunculi, Volucella inanis and Xylota xanthocnema.

Hoverfly Newsletter No 1 urged the use of Malaise traps as a means of recording syrphids. These can give good results but the cost of a commercially made trap (about £45) can be prohibitive. At Wisley Garden there are a number of walk-in horticultural tunnels made of clear polythene or green nylon mesh. During the summer the coverings at the two ends of a tunnel are normally left rolled up and large numbers of diptera and hymenoptera enter and accumulate in the ridges, especially at the ends. These tunnels are therefore effective substitutes for Malaise traps. Recorders are likely to find similar tunnels in garden centres and nurseries, and they could prove to be useful collecting sites once the owner's permission has been obtained. The Wisley tunnels have yielded several species not seen elsewhere in the garden. These include

Xanthandrus comtus, Pipiza lugubris, P.bimaculata, Xanthogramma pedissequam, Pyrophaena granditarsa and Xylotomima lenta.

The most productive tunnel at Wisley, in insect terms, is one made of green nylon mesh. This may be because there is a greater flow of air into and through this tunnel compared with a clear polythene structure, but its colour may have something to do with it. It is noticeable that clear polythene tunnels containing plants trap more insects than those which have been emptied, so the green colour may be significant. Most Malaise traps have white, brown or black netting - perhaps green would be better?

Sphegina in Great Britain - a brief profile

Small and black, the species of Sphegina are amongst the most obscure in the British Isles. They are also mainly to be found in woodland shade though they will visit sunlit flowers.

The genus, which contains over 50 species, is present in both the Old and New Worlds. It appears to be absent from tropical Africa. At least 15 species are known from Europe and adjacent parts of Russia but it is to be doubted if the genus has been fully resolved. Two subgenera are recognised for this region, Asiosphegina containing the single species sibirica whilst Sphegina holds the remainder. Just three species are known from the British Isles, S.clinipes, S.kimakowiczi and S.verecunda of which only the first was known to Verall. It was left to Collin (1937, Ent. mon. Mag., 73, 182-185) to detect the presence of the other two one of which, S.verecunda, was new to science.

In the British Isles S.clinipes is by far the most widespread and common, occurring from the south coast to the extreme north of Scotland and I have trapped it in some numbers in a wooded part of Sutherland. Curiously, it appears to be absent from much of West and East Sussex and Kent, an area roughly east of Selsey Bill and south of Sandwich. This area is relatively well worked for hoverflies and contains localities which appear suitable. S.kimakowiczi, however, is present there and otherwise seems to occur diffusely over most of the clinipes range except perhaps the extreme north (I have a report of a Spey Valley record not entered on the maps reproduced here). S.verecunda is little known with only about 10 post-1960 records and fewer before 1960. All these lie on a broad belt across south-central England and Wales and, unlike the others, there are no Irish records. In a couple of spots, one a small wood in

Oxfordshire, all three species occur together - surely a good spot to study the extent of competition for flowers and breeding sites. The scarcity of S.verecunda may be more apparent than real, a comment I make because despite their general obscurity Hartley (1961) nevertheless found larvae of all three.

Existing records suggest the following flight periods:

<u>S.clinipes</u>	April - September 8th
<u>S.kimakowiczi</u>	June 10th - August 11th
<u>S.verecunda</u>	June 14th - August 15th

Thus the recorded flight period of S.clinipes is twice that of the others and it may therefore be possible it is double brooded, at least in the south of its British range. Malaise trapping in Sutherland in 1980 and 1981 indicated peaks in early July though since 95 percent of captures were of males the female peak may be a little later. Possibly by chance my own captures of S.clinipes on flowers have all been females though for S.kimakowiczi and S.verecunda most specimens from flowers were males.

S.clinipes has commonly been found on bramble flowers but also on cow parsnip, Heracleum sphondylium, evening primrose, Oenanthe and flying around Geranium pratense (Speight, Chandler & Nash, 1975). The others have been taken on Anthriscus and Conopodium majus. Probably all three are associated with deciduous woodland but S.clinipes is established in at least some coniferous forests in Wales and no doubt elsewhere. Curiously enough, Bankova (1980) found that in Poland S.verecunda occurred only in upper and lower montane zones where the other two species also occurred. S.clinipes had very wide habitat tolerances being found from the alpine zone to the lowlands and, surprisingly, in grasslands as well as woods from which perhaps it had strayed.

According to Hartley (1961, Proc. Zool. Soc. Lond., 136, 505-573) 'the larvae of all three species have been found under decaying bark and that of S.clinipes in the wet exudate of elms (Ulmus) along with Brachyopa larvae'. Hartley describes the third instar larvae and puparia of all three species and says the larvae overwinter.

The Oviposition site of Volucella inflata F. - by Stephen R. Miles

As leader of a field meeting of the Amateur Entomologists' Society Conservation Group to Odiham Common, North East Hampshire on 7th July, 1979, I directed the party to visit an oak tree (Quercus robur L.) that was known to produce a regular sap flow. A visitor to the meeting, fellow dipterist,

Mr. Graham Glombek drew the attention of the party to the fact that the ♀ Volucella inflata visiting this tree were ovipositing upon it. This occurrence has been observed by myself in all the three years since then with sometimes two ♀ V. inflata ovipositing simultaneously on the tree bole, the optimum period for this activity to be observed being from the beginning of the last week of June to the end of the second week of July. The eggs are laid individually, not in clusters, on the remaining bark of the tree and on a thick ivy stem entwined around the tree. They are usually situated on parts of this tree between 6" and 3ft. from the ground and are most often seen to be laid when the tree receives either full or dappled sunlight between approximately 11.30 a.m. and 2.00 p.m.

The tree concerned is comparatively small, having a circumference of about 4ft. and a height estimated at 20ft; it has suffered serious damage in the past as heartwood is only complete from ground level up to about 3ft. in height and this section is also only partially bark covered; above this lower part of the tree heartwood is present only patchily, causing it to appear quite thickly barked in places, the bark being mainly complete for the next 9ft., finally straight branches of small circumference shoot skyward at various angles from the apex of the bark covering. The tree is surrounded by other deciduous trees of various ages and only receives full sunlight during a small portion of the day. It is growing on alluvial soils where the water table is high and is situated about 25ft. from a small stream. Coincidentally, all the oak trees that I know of having regular sap flows occur in similar situations. There are no large emergence holes signifying the possible presence on this particular tree of the larvae of the moth Cossus cossus Linn.; such trees containing this species were suggested (Allen 1961, Ent. mon. Mag. 97, 64) because of the internal damage to trees caused by the Cossus larvae as likely sources of V. inflata. One further contributing factor, possibly, to the sap release emanating from this tree is the presence of a medium thick stem (approx. 8" circumference) of Ivy (Hedera helix L.) and the rest of its growth twining round the tree bole. The sap flow itself has been regularly observed since 1976 and usually commences in any noticeable quantity about mid-June, dying down by late August; when it is at its most productive a strongly alcoholic smell pervades the immediate area.

During November, 1979, some sappy debris, heartwood, bark and soil/leaf-litter from the base of the tree was collected. This was superficially examined on arrival home but nothing of exceptional interest was found. When looking over the material again 2 or 3 days later two relatively fat larvae were found near the top surface of this material. Looking like very gnarled oak twigs when first noticed, perhaps the reason why they were

overlooked previously, they were keyed out to be syrphid type larvae and were $\frac{1}{2}$ "- $\frac{3}{4}$ " long by a $\frac{1}{4}$ " at maximum width of a very knobby and spinose appearance similar superficially to that of the Volucella species illustrated in Fraser (1946, Ent. mon. Mag. 82: 55). It had been hoped to rear these larvae through to prove positively that these were or were not Volucella inflata but they succumbed very quickly (just over a week) to mould despite the same method of keeping them having been adopted that successfully produced Brachyopa scutellaris from similar source material taken in 1977 elsewhere on Odiham Common.

Other syrphid visitors to this tree have been Criorhina floccosa, Xylota abiens, Brachyopa scutellaris and Ferdinandea cuprea; the last of these has also frequently been seen ovipositing upon it. The wasp Vespula vulgaris also visits the tree particularly in August and these frequently appear to be imbibing the sap. Lepidoptera in the form of the White Admiral, Comma and Speckled Wood butterflies have been seen frequently on the trunk of the tree during the day and at night many moths must also visit it judging by the numbers of moth wings often to be seen at the trees' foot, the bodies of these moths having been consumed presumably by bats or wasps. Although I do not want to damage this tree any more by removing further material as it appears to me to be very vulnerable to being lost completely as a breeding site and as I have not found an alternative tree in this condition, at this locality; therefore this information is given so that others may be on the lookout for this species in this type of situation in 1983.

I thank Peter Chandler for looking at this article and suggesting corrections and possible improvements in its presentation.

Hoverflies from the forest floor.

One of the main problems with hoverfly behaviour is to identify breeding sites with certainty. Netting and most methods of trapping may give only a general indication of what is likely to be breeding in an area and seldom shows the precise spot at which larvae have been feeding. One method which will give such information for those species which fall to the ground prior to pupation is the common emergence trap - it seems unlikely mature syrphid larvae will walk far prior to pupation. We first began to use simple emergence traps in 1972 to look at emergence patterns of sawflies in Welsh coniferous forests. The traps consisted of a twelve inch diameter cylinder, 7" deep, of sheet aluminium with a gauze top held by an elastic band. The bottom of the trap was dug an inch or two into the forest floor litter and soil. Over the years we often found, mainly in the spring,

larvae of aphidophagous syrphids on top of the gauze covers and as the soil beneath the trees was bare of vegetation assumed they fell from the foliage of Norway and Sitka spruces. Then from June to August adult flies were occasionally found inside the traps and, being teneral, they had clearly emerged from puparia in or on the soil. The incidence of adults was low but over the years we took the following in emergence traps in Hafren, Ystwyth and Coed Sarnau forests:

<u>Syrphus ribesii</u>	3♀♀ 1♂
<u>S.torvus</u>	5♀♀
<u>S.vitripennis</u>	1♂
<u>Scaeva selenitica</u>	1♀
<u>Platycheirus albimains</u>	2♂♂

In addition we bred adults of Parasyrphus lineolus and Metasyrphus lapponicus (sens lato) from larvae collected on spruce foliage and so have fairly good evidence of seven species of probably aphidophagous hoverflies associated with spruces.

In 1980 Emanuel Kula (Cas. Slez. Muz. Opaua, (A), 29, 269-281) published an account of 'The Syrphid' flies (Diptera, Syrphidae) wintering in Spruce forest floor in Moravia! Dr. Kula had sampled flies emerging from the forest floor by use of 100 photoelectors installed in three different forest stands. My Czech being rather minimal, I wrote to Dr. Kula for a description of a photoelector and he kindly provided the following: "It is a device for catching insects from soil. In this case it is a metal box without cover (the size 100 x 100 x 30cm.). On one of the side walls there is an opening with a glass tube containing conservation fluid." (70% ethanol?) in which the insects are trapped. Thus the total ground area covered by the traps was 100m². In seven years just 328 adult hoverflies were caught or about 0.47 flies/m²/year. This low density, viewed subjectively, tallies with our own experiences in Wales where hoverflies were rather rare in emergence traps. It seems very likely that only a proportion of any one species in spruce forest pupates on the forest floor and possibly a majority do so on the trees themselves.

Dr. Kula's catches fell out as follows:

<u>Parasyrphus annulatus</u>	35.1%
<u>Dasysyrphus lunulatus</u>	19.2%
<u>Syrphus torvus</u>	12.2%
<u>Episyrphus</u> (presumably <u>Melangyna</u>) <u>cinctellus</u>	7.0%

* <u>Parasyrphus vittiger</u>	6.1%
<u>Dasysyrphus friuliensis</u>	6.1%
<u>Syrphus ribesii</u>	4.0%

Other species were present in lesser numbers:

* <u>Dasysyrphus venustus</u>
* <u>Didea intermedia</u>
<u>Eristatus</u> sp.
<u>Episyrphus balteatus</u>
<u>E.</u> (presumably <u>Melangyna</u>) <u>auricollis</u>
* <u>E.</u> (presumably <u>Epistrophe</u>) <u>nitidicollis</u>
<u>Megasyrphus annulipes</u>
<u>Melanostoma melinum</u>
<u>Metasyrphus lapponicus</u>
* <u>Neocnemodon pubescens</u>
<u>Parasyrphus lineolus</u>
* <u>Pipiza quadrimaculata</u>
<u>Scaeva selenitica</u>

Of these 20 species all except six are known from spruce dominated Welsh coniferous forests (those species marked * above) but for most of these we have generic equivalents, e.g. Didea fasciata, Neocnemodon latitarsis and Pipiza bimaculata.

Probably the majority of species on Dr. Kula's list have naturally spent the winter as larvae or puparia in the forest floor but he considered both male and female Scaeva selenitica hibernate there and not only females fertilized in the previous autumn as mentioned, for instance, by Goeldlin de Tiefenau (1976). Goeldlin considered fertilized females of Scaeva pyrastris, Melangyna auricollis, Episyrphus balticus and Metasyrphus lapponicus share this habit.

Of course, by no means all the species listed by Dr. Kula are obligatorily associated with coniferous forests but some certainly can claim very strong, if not absolute, association, e.g. Dasysyrphus friuliensis (see last Hoverfly Newsletter), Megasyrphus annulipes, Metasyrphus lapponicus, Parasyrphus lineolus and Scaeva selenitica. Neocnemodon species may be associated with gall forming Adelges as coniferous trees but it is probably not yet known if for any of the species this is an obligatory association.

Appeal for records of Hoverflies on particular plants

I am compiling a list of the insects that feed at the flowers of two local plants, Dipsacus pilosus (Small Teazel) and Cirsium eriophorum (Woolly Thistle). It seems likely that both these plants are more attractive to long-tongued bees than to typical hoverflies, because of their tubular flowers, but I have already observed six species of Syrphidae at flowers of the Small Teazel and two at the Woolly Thistle, as well as flies of other families.

I should be grateful for any records that members may be able to send me.

R.M.Payne, Beech Cottage, Orchard End, East Harptree, Bristol, BS18 6AT.

Immature Stages of British Hoverflies

In a future issue of the Hoverfly Newsletter, an article reviewing the current state of knowledge on the juvenile stages of British syrphids might well be of interest to readers.

In order to make this as comprehensive as possible, it would be most useful if members could send in references to any publications, foreign included, which deal with species on the British list. By this means, it may be possible to compile a bibliography rather rapidly.

For those interested in beating spruces for hoverfly larvae (a fairly productive process in areas with high spruce aphid numbers - a common conditions of spruce) it may be of interest to know the larvae of many of the species mentioned here on 'Hoverflies from the forest floor' have been described. This includes that subject of current interest D.friuliensis which Goeldin de Tiefenau (1974) described as D.postclaviger which van der Goot says is the boreal form of D.friuliensis.

At present, though, I estimate less than 40 percent of British species are known and have been described in juvenile stages. Cheilosia and Chrysotoxum are especially badly known. Whilst the morphology of puparia, larvae and eggs has a fascination of its own, my view is that its main value is as a key to unravelling the biology and ecology of hoverflies for without clear species recognition at all life stages there is likely to be confusion.

Eriozona syrphoides - yet again

In a recent note in the Entomologists' Monthly Magazine (1982, vol. 118, p.248) V.S. van der Goot points out that whilst the eight Belgian localities known for E.syrphoides are not inconsistent with the idea of an association with conifers of the 12 specimens known in the Netherlands only two come from areas with coniferous forests, the others being from deciduous woodlands. The situation for other areas in Europe seems equally diverse. Thus Lundbeck (1916, Diptera Danica Vol. 5, p.244) says it occurs in fens and meadows in Denmark, Seguy (1961, Diptères Syrphides de l'Europe Occidentale, p.92) that it is found in 'praeries'. In Poland (Bankova) classifies it as associated with alpine and maritime zones but also with Pomeranian beech forests. A montane association has also been mentioned by Sack (1930) and by Bankova (1980) who notes its presence in beech woods, presumably at low altitudes. In Holland van den Goot records it below sea level near Rotterdam. Thus, on the European mainland, E.syrphoides emerges as occupying very varied habitats as adult: in Great Britain though there is no clear preference for high altitudes, nevertheless a preference for coniferous woodland remains. Perhaps in due course we shall see this species established in deciduous woodland.

A new book on European Hoverflies

V.S. van der Goot (1981). De zweefvliegen van Noordwest - Europa en Europees Rusland, in het bijzonder van der Benelux. Koninklyke Nederlandse Naturhistorische Vereniging. 275pp., 496 figures and 12 colour photographs. Card covers. Price about £5.00, including postage (repeat £5.00).

This valuable work takes the form of detailed adult keys to genera and species. Biological details at specific levels are not included but for each species general distribution is given with regional distribution and period of flight in the Netherlands together with synonymy. The large number of line drawings cover a representative selection of whole flies (over 40 species) and of many parts to aid identification, the latter drawings being both original and from various published sources. Morphological explanations, a glossary of morphological and other terms and very useful bibliographies organised on a regional geographic basis and a good index are included. In addition, a brief but helpful translation into English of some important terms is provided. With the use of a dictionary, the figures and a little practice, no doubt the English speaker

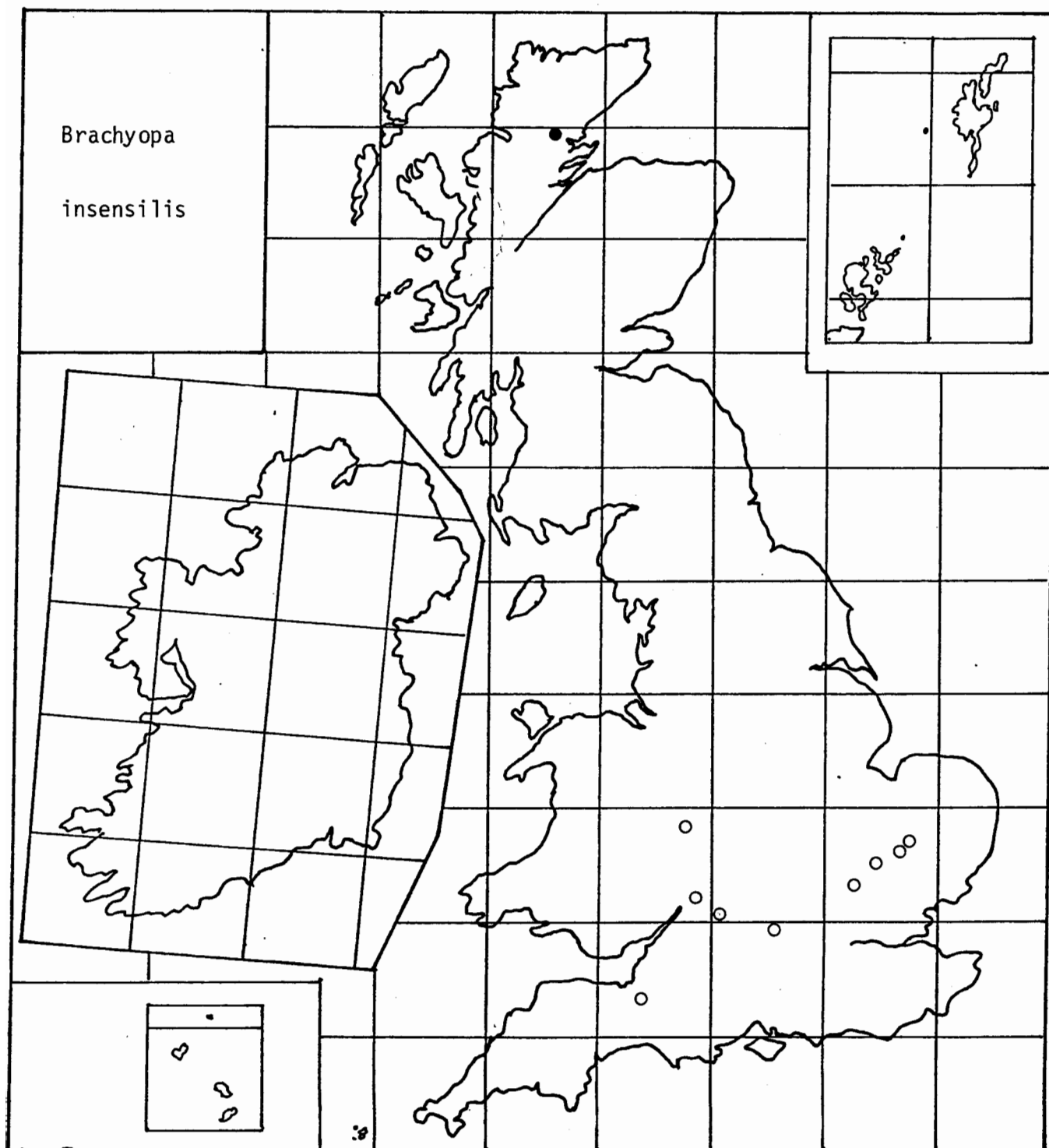
could use this book for identification of the north west European hoverfly fauna. This book clearly seems to have been composed to permit identification of Dutch hoverflies, probably as an aid to the thriving Netherlands part of the European Invertebrate Survey. A very favourable review of this book appeared in the Entomologists' Monthly Magazine (M. Speight, 1982, vol.118 pp.205-6) and there is no doubt it will be a useful and attractive part of the library of my British dipterist and totally unbeatable at the price.

Brachyopa insensilis in the Northern Highlands of Scotland.

A small number of insects which occur in the north of Scotland also occur disjunctly in England, often being restricted to the Southern counties. The Chequered skipper butterfly, Carterocephalus palaemon, (now sadly extinct in England) and the dragonfly Somatochlora metallica and the syrphid Microden eggeri (see last Hoverfly Newsletter) are notable examples. The Scottish domicile of all these species is the Spey Valley area. Bierne in his 'Origin and history of British fauna' (1952) inclined to the view that the northern populations of such species are northern Celtic land survivors of the previous glaciation whilst English populations represent recolonisation from the European mainland. On the 28.5.82 one of my colleagues collected a single male of Brachyopa insensilis off a birch leaf at Achany near Lairg, Sutherland. As far as I can ascertain the previous most northerly record for this apparently rare species is in Worcestershire. There appear to be no other post-1960 records (see map). Achany is not exactly in the Spey Valley but the locality seems potentially of considerable interest. Its most stable element is the deep cut steep sided valley of the River Shin with apparently undisturbed woods of birch, aspen, rowan, wild cherry, etc. and the area is given shelter from the east by low hills and from the west by planted coniferous forest. The interesting Migdale wood (Chamaesyrrhus scaevoides, Xylota nemorum and even greater hopes!) lies a short distance to the south near Bonar Bridge and contains areas of mature aspen, Scots' pine and juniper. This is clearly in general a high quality area.

Disjunct distributions and the imputations of long isolation of the Scottish component raise the interesting possibility of progressive deviation of populations. As far as I know, there has been no attempt to make careful comparisons in insects other than lepidoptera between

Scottish and more southerly representatives but we should be aware of the possibility that the Scottish population of M.eggeri may now be distinct from that anywhere else and that the same may prove to be true for B.insensilis.



Syrphids of Siberia - another forthcoming book

Tore R Nielsen
 Juvelveien 19 D
 N-4300 SANDNES
 Norway

Sandnes, March 1983

Dear Mr Entwistle

From a dear colleague of ours in Novosibirsk, USSR: Dr Nikolai A Violovitsh, I have been asked the question of spreading information about a book of his which will be printed this spring. The book will be titled "SYRPHIDS OF SIBERIA", and will be available only by order to the publishing houses below within a very short period. After the end of printing, the book could not be sold, neither from the publishing house, nor from the author. So all orders must be in advance, that is before June.

As you will know, Dr Violovitsh is the leading Soviet Russian research worker on Syrphids today. His publications on this group of Diptera are numerous and of highest quality, and the present book will be a weighty contribution to the knowledge of the Palaearctic hoverfly fauna.

Dr Violovitsh has sent the following information on his book:

"Early in 1983 it will appear the monography by Dr N A Violovitsh "SYRPHIDS OF SIBERIA" - Identification book (in Russian).

The monography gives the identification tables for 8 subfamilies, 88 genera and about 600 species of syrphids (Flower flies or Hover flies), inhabiting Siberia and the Far East with adjacent islands of the Pacific ocean. The tables are based on material being collected by the author for 30 years, and on the collections of the Biological Institute Siberian Branch, Acad. Sci. USSR (Novosibirsk), and of Zoological Institute (Leningrad), and on flies sent from Japan, USA, Canada, Norway, Denmark, Holland, Roumania, Chechoslovakia, Poland, Bulgaria and some other countries.

The tables are followed by a number of pictures, including original ones (mainly male genitalia), that facilitates much of the identification process.

The book involves the information on the life and trophic bonds of larvae of some genera of this family (including predators, feeding on aphids, pests of onions, etc.

Every species is characterized by area of distribution, landscape requirements and the most favourable (pollinated) flowers.

This monography is the first identification book on Syrphids from the Asian part of USSR, involving all fly species known in Siberia up to now. The book will be interesting for entomologists and lecturers of Universities and Colleges of agricultural trend.

For the book one can address:

USSR, Moscow 121200

Smolenskaja-Sennaja 12

Vsesojuznoe Objedinenie "Mezhdunarodnaja Kniga"

Kindly note the short period for ordering this book!

Please also give the information on this book to other research workers, or to libraries concerned.

Thank you very much in advance!

Yours sincerely

Tore R Neilsen

Alternative addresses for ordering:

Les Livres Etrangers
10 rue Armand Moi sant
PARIS 15
France

Libraire du Globe
2 rue de Buci
PARIS 6
France

Kubon und Sagner
D-8000 MÜNCHEN 34
Postfach 68
West Germany

Brücken-Verlag
4 DÜSSELDORF 1
Postfach 1928
West Germany

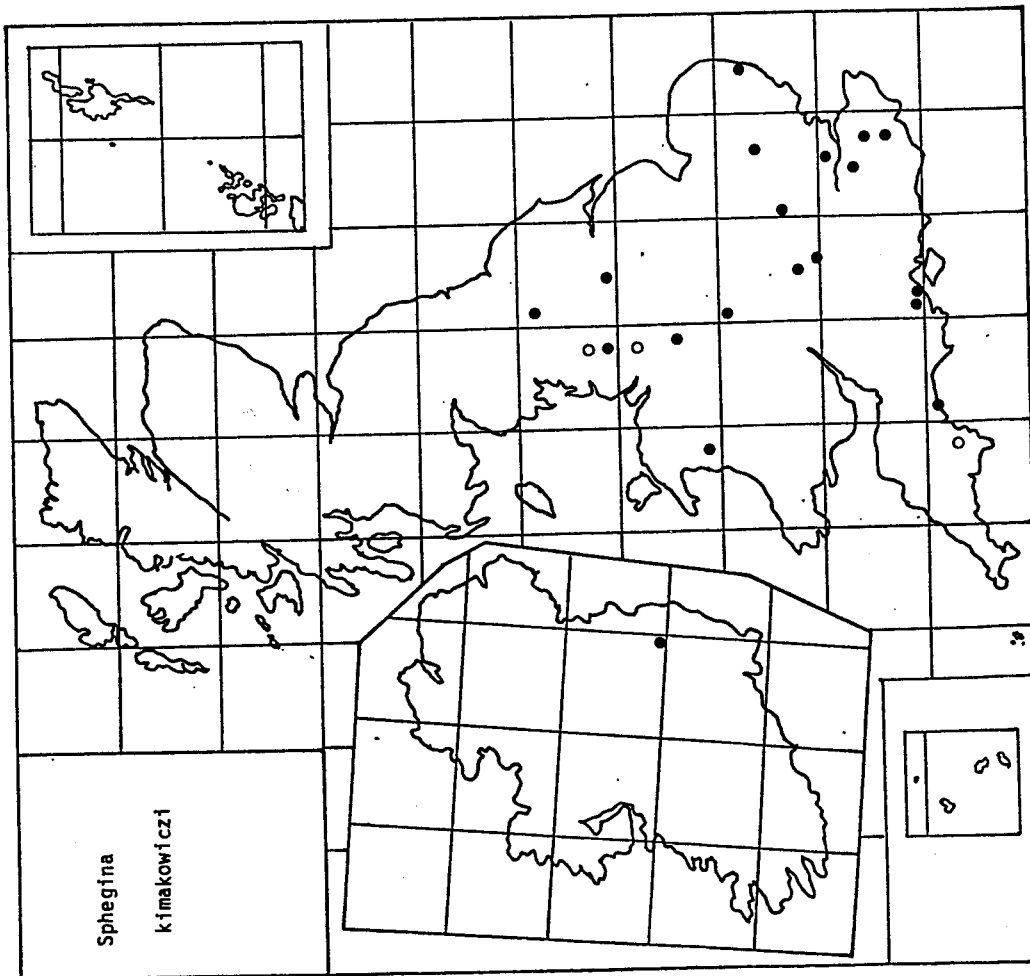
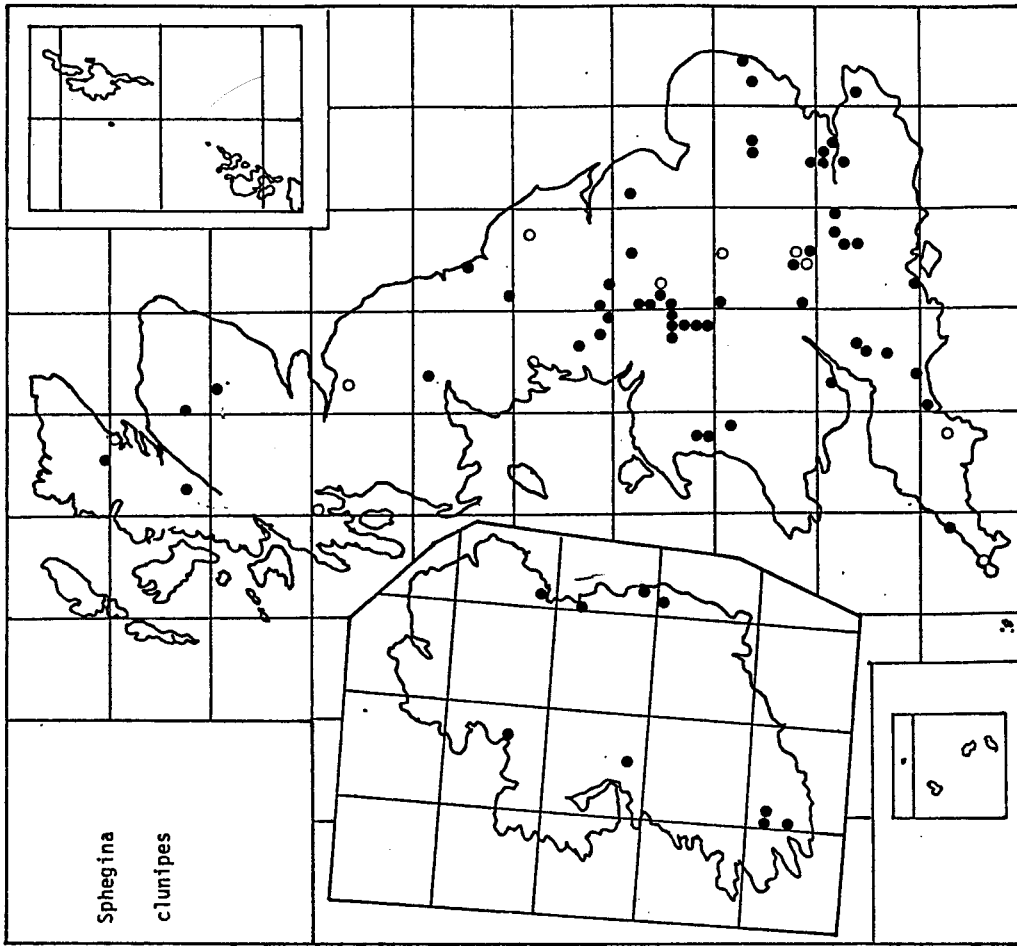
Four Continent Book Corp
149 Fifth Avenue
NEW YORK, NY 10010
USA

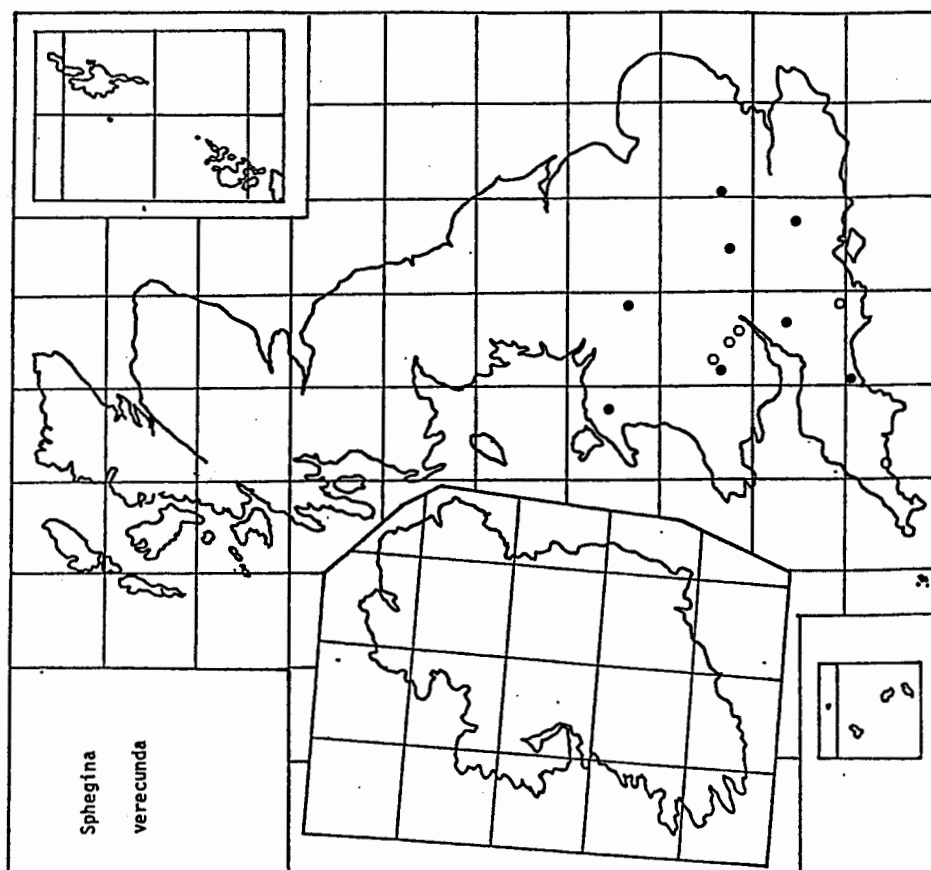
Victor Kamkin Inc
12224 Parklawn Drive
ROCKVILLE, Md 20852
USA

People's Publishing House
(P) Ltd
Rani Ihansi Road
NEW DEHLI 55
India

Hisso Tosko Ltd
co Masumoto Bldg
1-5-16 Suido Bunkyo-ka
TOKYO
Japan

Collet's Holdings Ltd
Dennington Estate
Wellingborough
NORTHANTS NN8 2QT
England





POSTSCRIPT

A Preliminary Atlas of British Hoverflies: this will contain provisional maps of the distribution of over 30 species concentrating on Calicera, Chrysotoxum, Volucella and members of other genera, all selected to illustrate different types of distribution.

It is hoped the m.s. will soon be sent to the Biological Records Centre and the Atlas should be available in the autumn of 1983.