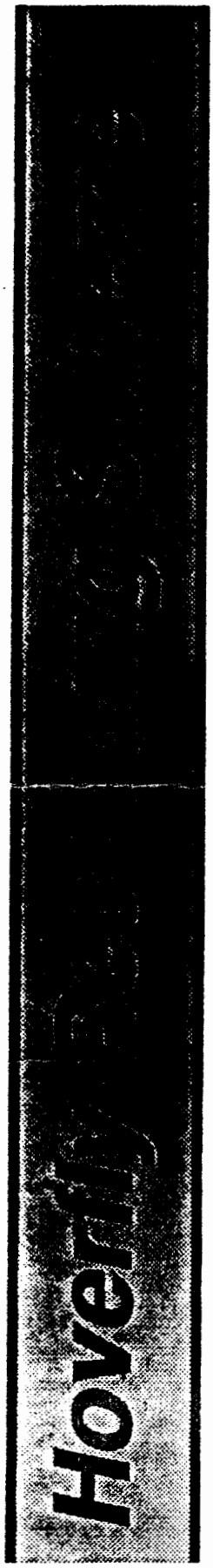
HOVERFLY NEWSLETTER NUMBER 14



Progress report 1, March 1992

Stuart Ball & Roger Morris

The recording scheme passes 100,000 records on computer

Nearly 56,000 computerised records were received from BRC and an estimated 42,000 more on paper. Of those on file, a disturbingly high proportion turned out to contain errors and it has been a slow job checking them. All the records from hoverfly cards (RA33) have now been checked, but around 19,000 from single species cards (GEN7/GEN13) still need checking. In addition, computerised records from other sources have been trawled including 12,000 from the Invertebrate Site Register and NCC survey projects; 9,500 from Roger Morris; 2,800 from Stuart Ball; 3,400 from the last five years of Dipterists' summer field meetings; 11,000 from Darwyn Sumner of the North West Hoverfly Recording Group and a further 8,400 new records entered by Roger Morris from RA33 cards received since we took over the scheme. This gives a total of 102,000 records on computer file. The main backlog that remains is the large numbers of records on single species cards and "non-standard" forms received from BRC.

The computerised records are held on RECORDER by Stuart Ball on his own machine and he has been responsible for converting records received in a variety of other formats. The records will be copied back to BRC (who now have a copy of RECORDER) once we have finished checking the records originally received from them.

Map 1 shows the coverage so far. Note that this map includes the 19,000 unchecked BRC records (shown as open symbols) which explains the scatter of marine hoverflies! Irish records are not included because there are so few of them (only 138). There are records from 1,871 10km squares (out of about 2,800 10km squares containing land in England, Scotland and Wales). Map 2 gives a more realistic impression of coverage - the circles plotted for each 10km square in this case have been scaled so that their area is proportional to the number of species recorded. Map 2 shows that the scheme's coverage is extensive but patchy. Whilst we can expect to fill some of the gaps as existing data is incorporated (eg. there is good coverage of Essex and a published local atlas, but these records are not yet on the computer), but some others will need attention. Is anyone out there working in Lincolnshire?

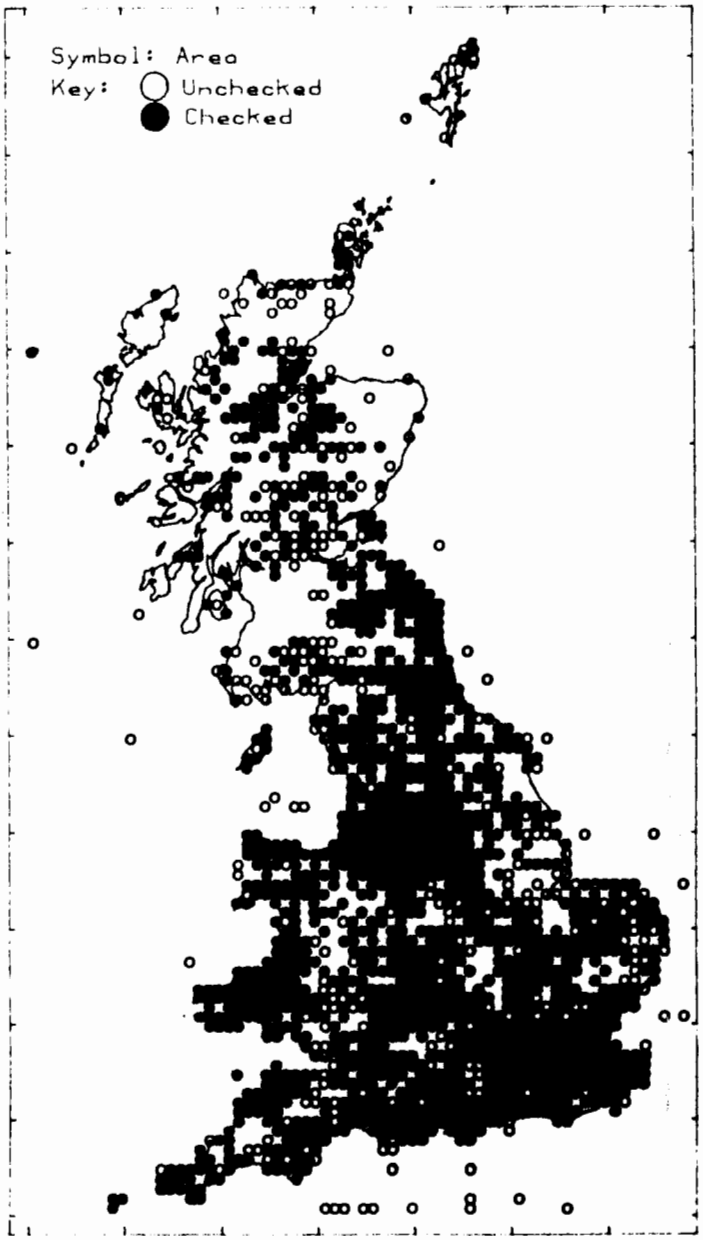
At Dipterists' Day in November 1991 we announced a timetable to work towards a preliminary atlas. This runs as follows:

1992	Start on the backlog of data not on computer. Liaise with BRC over a new recording card to replace RA33.
Nov 1992	Dipterists' Day. Launch a new call-in of records, preferably using the new recording card.

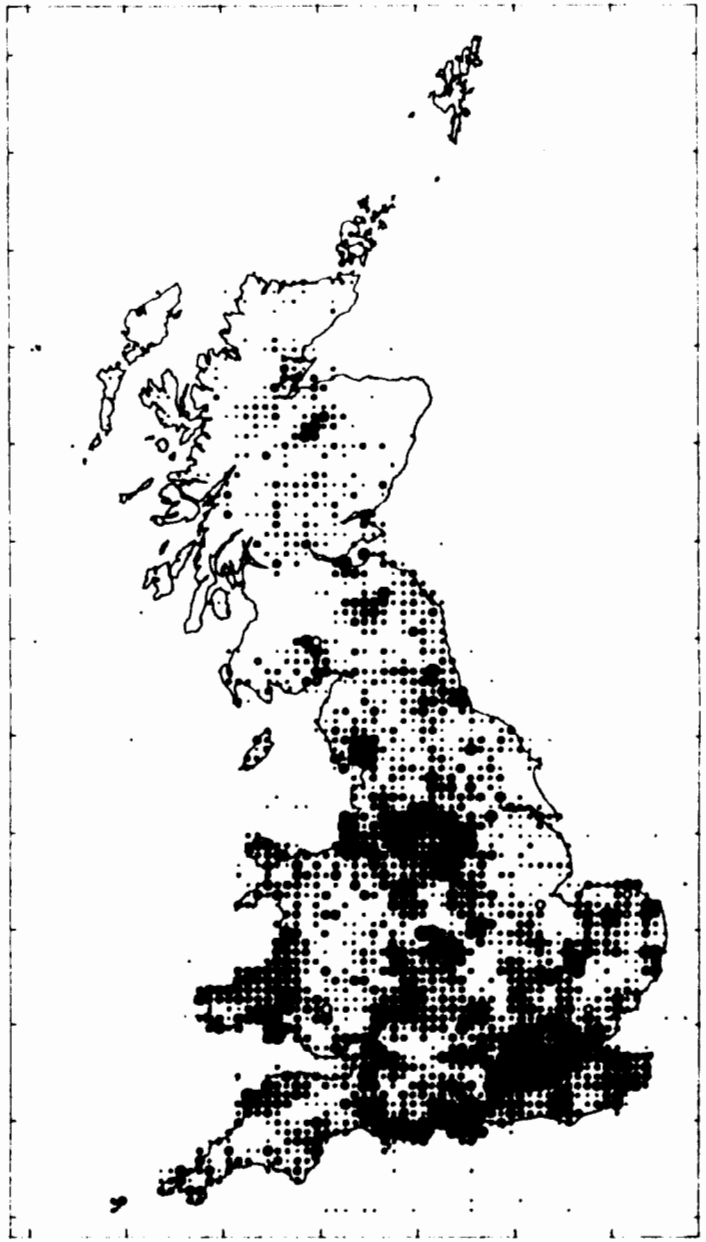
Please submit records by 31 December 1992

Winter 1992/3	Deal with the new information which will hopefully result from the call-in.
March 1993	Examine the gaps in coverage and report back to local representatives and recorders. Encourage field work to fill in some of the gaps.
Winter 1993/4	Entry of data from 1993 fieldwork.
1994	Produce a preliminary atlas, hopefully in time for Dipterists' Day.

COVERAGE MAPS



1. ALL RECORDS



2. NUMBER OF SPECIES RECORDED FROM EACH 10K SQUARE

Request for fuller information.

We have been disappointed to find how many records submitted to the scheme contain incomplete information. Early BRC schemes were designed as mapping exercises and asked only for a list of species for a 10km square for a year or year class, but biological records can be used for a great many more purposes providing that more complete information is supplied. Apart from the obvious use for making distribution maps and assessing the statuses of species, records can also be used for research on the biology of species; for research on biogeography; and, if records can be related to particular sites, for conservation purposes. Since around 1981 the minimum information requested by BRC national recording scheme has been:

Species
Full date
Detailed grid reference
Location name
Vice-county
Recorder
Determiner

The full date allows for investigation of flight periods and phenomena like mass movements and migration. Over extended periods of time, if there are repeated visits to particular locations, it may help in assessing changes. If a detailed grid reference (4 or 6 figures) is available then records can be mapped at resolutions other than 10km squares. For example, 2km squares (tetrads) are more appropriate for local atlases. The combination of a location name and a detailed grid reference allows records to be used for site conservation purposes. The vice-county and location names are useful in checking the validity of grid references. Even the most experienced recorders get grid references wrong sometimes. Most frequently the eastings and northings are reversed or the wrong 100km square letters are given. Generally, these mistakes shift the grid reference sufficiently so that it is no longer in the vice-county quoted and the inconsistency can be spotted.

A significant proportion of the cards submitted to the hoverfly scheme consist of a list of species for a 10km square, or a list for a site over a period of one or more years. Please don't do this, but submit a separate card for each site visit with a full date and location details. A particular problem arises for recorders who visit the same site very frequently, eg. their garden. Here we suggest that a recording card is used for a period of a week and then replaced by the next card. Please do not combine information in this way for longer periods, since this will make the information difficult to use for investigation of flight periods.

Full species lists, including all common species recorded, are very important both to ensure that common species are adequately covered in distribution maps and in assessing species richness and identifying species assemblages for conservation purposes. For very rare species much more detailed records would be useful. In these cases the pink single records cards produced by BRC are appropriate. These have fields for lots of additional information such as sex and abundance of specimens and behaviourial observations.

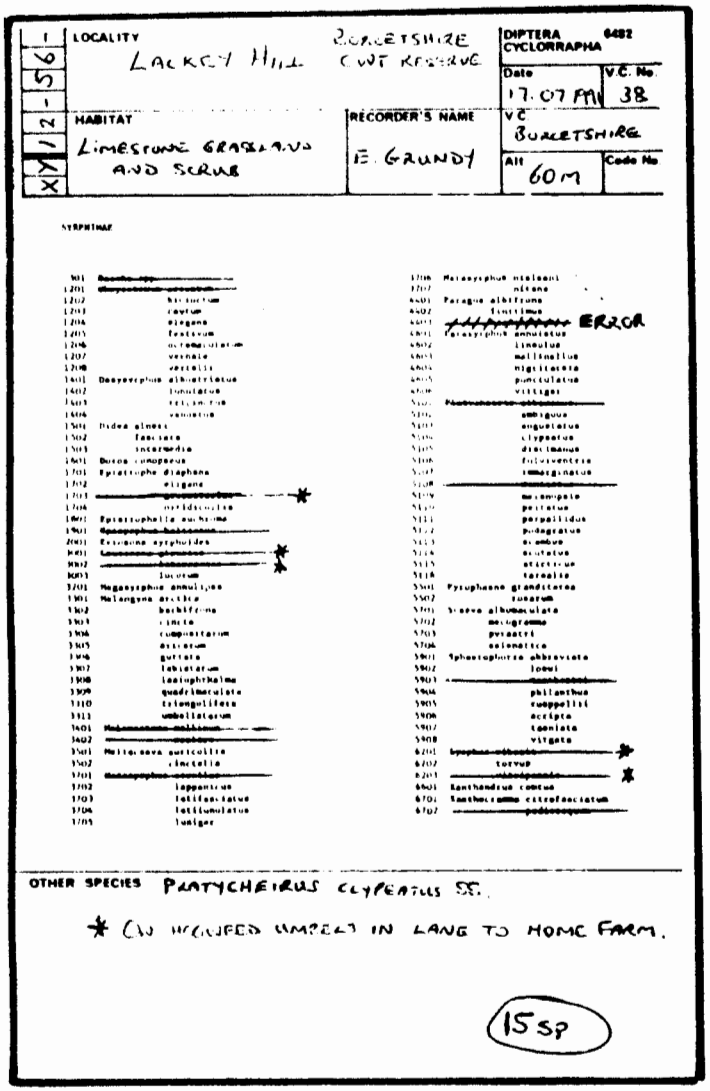
Filling in the hoverfly record card.

In checking through several thousand hoverfly record cards (RA33) we have come across practises which help or hinder the data inputter. The following tips are designed to help you fill in cards to make our job of data entry and checking easier and will, therefore, allow us to give you a better service:

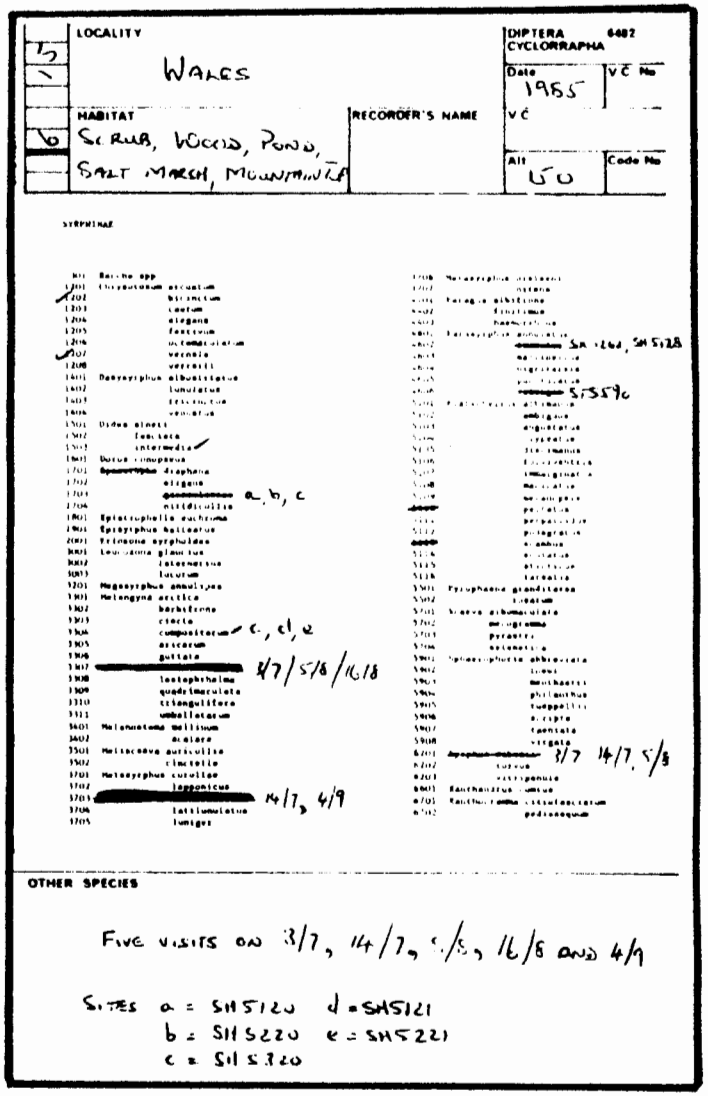
Cards: please use the hoverfly card (RA33) whenever possible (or its updated replacement when available) - even if you only recorded one hoverfly species! We can process these far more efficiently than single species cards (GEN7/GEN13). The latter are appropriate when extracting information from sources like museum collections where the specimens are arranged taxonomically. Use pink single record cards to record particularly interesting observations where you want to include more detail. Please do not duplicate the record by including the same species on an RA33 card for the site visit.

Grid reference: BRC's guidance notes ask for grid references in all-numeric format (eg. 45/12-65-) rather than alphanumeric form (eg. NZ1265). We do not mind. The computer software we use converts between these forms as needed and our experience suggests that people make fewer mistakes with the alphanumeric format. Ideally a 6 figure grid reference (eg. NZ123456) should be given whenever possible, but don't be tempted into spurious accuracy. If you have wandered round a patch of woodland collecting as you go, then it is probably more appropriate to give a 4 figure reference for the general area. Note that we have no way of dealing with grid reference ranges or lists (eg. NZ1265-1465). Either submit a separate card for each square, or if that is not possible, estimate a central grid reference for the area you covered.

HOW TO HELP THE DATA IN-PUTTER, RIGHT AND WRONG WAYS TO FILL IN YOUR RA33



The **RIGHT** way



Some examples of how **NOT** to fill the card in

Location name: try to be as specific as possible. If you know that the area is a nature reserve, National Trust land, NNR, SSSI, etc. please indicate this (eg. "Ouse Washes, RSPB reserve").

Date: Please give a full date (6 June 1992) as requested above, rather than combining information over a period of time. Some people who visit the same site repeatedly give the year in the "Date" box and them annotate full dates after each species on the card. This is actually quite difficult and time-consuming to deal with, given our current data entry methods. Ideally we would prefer a separate card for each visit, but will accept a card annotated with several dates rather than not receiving the information at all! For records from traps (eg. Malaise traps) record the period for which the trap was set (eg. 6-13 June 1992).

Habitat: information on the habitat adds considerably to the value of a record, but is often used for a general description. For example "Woodland, heath and ponds" is really very little help is deciding on the habitat affinities of the species recorded! If you are going to record habitat, be as specific as possible (eg. "From Typha in ditch along wide ride in conifer plantation") and submit a separate card for the list of species from each component.

Altitude: BRC ask for altitude to be specified in metres, but recorders often give it in feet. We are happy with either, but would like people to indicate which they are using (eg write "150m" or "210ft").

Species list: BRC asks that species are indicated by drawing a line through the name and **NOT** the number. The following dos and don'ts might help:

DON'T put ticks next to species names or numbers since this is often ambiguous.

DON'T use a thick felt tipped pen to obliterate the whole name and/or number. This slows down data entry since we have to examine a blank card to work out which name is underneath. Mark the names so that they are still readable.

DON'T fill in cards in pencil. When packs of cards are kept together for longer periods of time pencil tends to rub off on the back of the adjacent card. Eventually pencil lines get very faint and difficult to spot.

DON'T mark or ring the species number. We work mainly from the name, so it is quicker and easier for us if you mark the name. BRC work mainly from the number and obscuring it is a major cause of data entry errors.

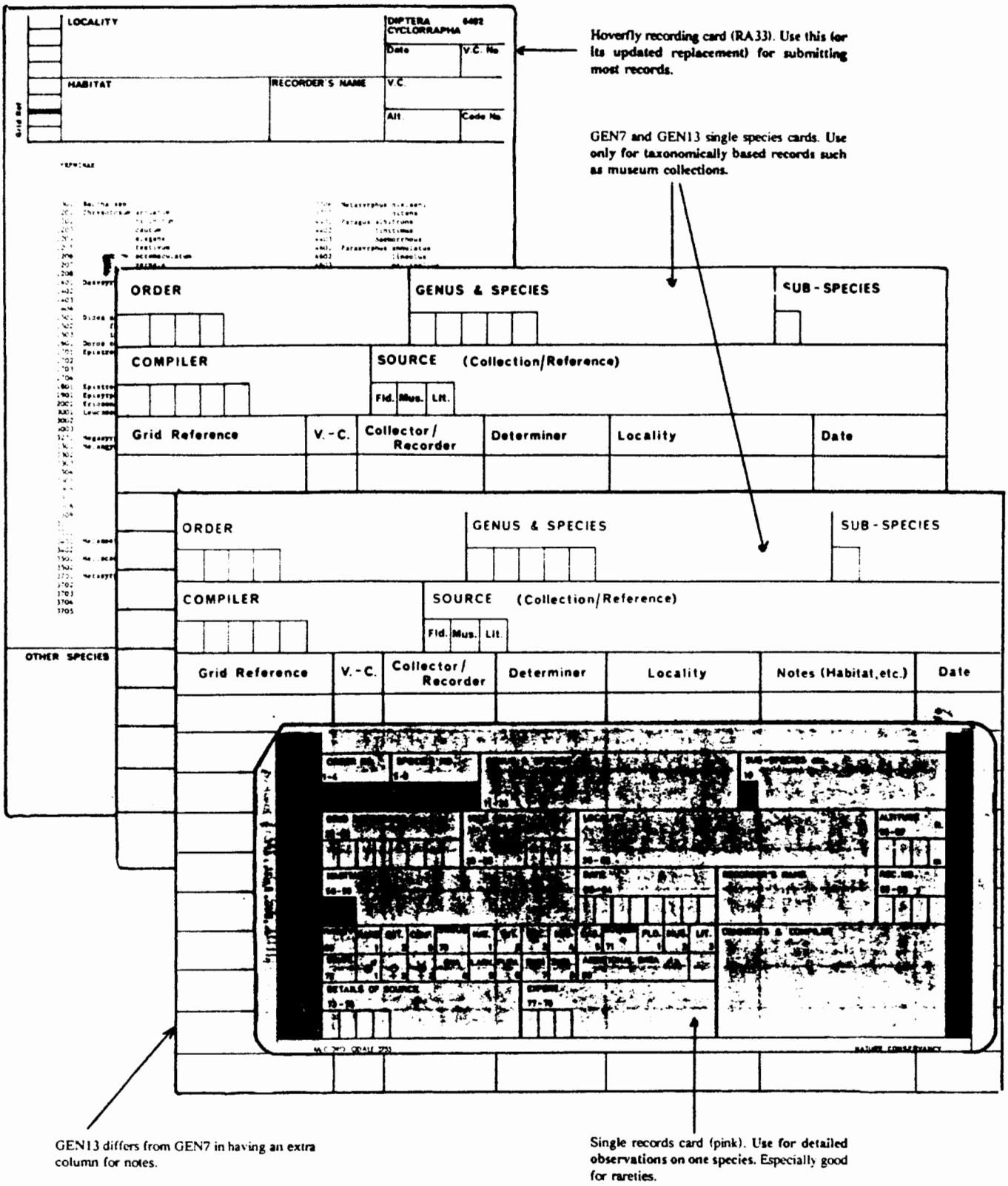
Ideally - use a ruler and thin black biro or mapping pen to rule a line through the name or to underline it. Some recorders use a narrow transparent highlighter pen - this is also very effective, but could eventually fade.

A few recorders have a very strange habit of crossing out the generic name at the start of the list of names of species in the genus they are recording. For example, when recording *Platycheirus scutatus*, the word "Platycheirus", next to 5101 would be crossed out and then the word "scutatus" next to 5114. This has caused innumerable data entry errors because BRC recorded both *P. albimanus* (species 5101) and *P. scutatus* (species 5114). **Please don't do this!**

These points may sound a little petty, but bear in mind that we deal with thousands of cards, so a small saving of time and frustration on each one, adds up to a considerable saving in our time and also leads to greater accuracy.

IMPORTANT: ***Platycheirus clypeatus*** **and** ***P. peltatus*****, which have recently been split, will be treated as follows:**

If you cross out "clypeatus" (5104) or "peltatus" (5110) on the card, we will assume that you mean "*sensu* Stubbs (1983)" - ie. that the specimens HAVE NOT been checked for the new species, and will record them as "*P. clypeatus agg.*" or "*P. peltatus agg.*". If you HAVE checked whether specimens belong to the newly segregated species then write the names in the "Other species" box at the bottom of the recording card (eg. "P. clypeatus s.s.") rather than crossing them off in the list. Obviously the newly recognised species, *P. occulatus*, *P. europeaus* and *P. neilseni* will have to be noted in the "Other species" box. It is hopped that a new recording card will soon be available which will include the recent additions to the British list.



Recording cards used by the Hoverfly Recording Scheme (reduced images)

Some examples of how the recording scheme can be used.

Maps 3, 4, 5 and 6 show species distributions - the most obvious use for information from the recording scheme. Maps 3 and 5 are conventional 10km square dot-maps for *Sericomyia silentis* and *Tropida scita* in which open and closed symbols have been used to indicate how recently it has been recorded from a square (before or after 1980 in these examples). However, this sort of map does not always give a terribly clear picture of the distribution pattern because a single observation of the species in a square is given the same weight as a large population. Such maps can be improved by quantifying the frequency of the species.

Maps 4 and 6 attempt to do this by showing the percentage of all the records made for a 10km square represented by that particular species. The symbols are scaled so that 1% is represented with the same size symbol as those in maps 3 and 5. To construct these maps, a minimum number of records were accumulated before a percentage was calculated. If less than 200 records fell within a given 10km square, then the records for the adjacent squares were included (ie within a 3 X 3 block of 10km squares), if there were still less than 200 records the next row of adjacent squares was included (ie. a 5 X 5 block) and so on until 200 records had been accumulated (technically, a centred moving average). Finally the percentage of the accumulated records represented by the species under investigation was calculated and plotted.

S. silentis is a species of acid habitats breeding in "peat cuttings, ditches and tiny pools among *Molinia*" according to Stubbs (1983). It is therefore especially frequent in the uplands of the north and west where such habitat abounds, but scarce in the south and east except in a few localities on wet, acid heath. Whilst map 3 does show a tendency for a northern and western distribution, map 4 shows this far more clearly and indicates that the species is less frequently recorded in the south-east and also on lower ground in the north. It also picks out the interesting area at the base of the Wash (including Dersingham Bog for example) which is well known for its unusual faunal associations with the uplands of northern England.

T. scita is a wetland species whose ideal habitat is "Open fens and lush marshes" according to Stubbs (1983). Again, compared to map 5, map 6 gives a much clearer picture of the distribution and picks out the main wetland areas of southern Britain, like the East Anglian fens and the Thames marshes, where it is recorded frequently.

Distribution of an assemblage

Maps can be drawn to represent assemblages as well as individual species and this technique has been used to good effect in assessing the most important sites for particular types of invertebrates. For example, Harding and Rose (1986) published a list of species of beetles which are thought to be restricted to sites were there has been long continuity of ancient deciduous trees. This fauna, which is particularly associated with dead wood, contains many scarce and threatened species and is considered a conservation priority. Lists have been drawn up for the most important sites for this assemblage of species ranked by the number of such species recorded from them. These "league tables" can be used to good effect when attempting to conserve such sites.

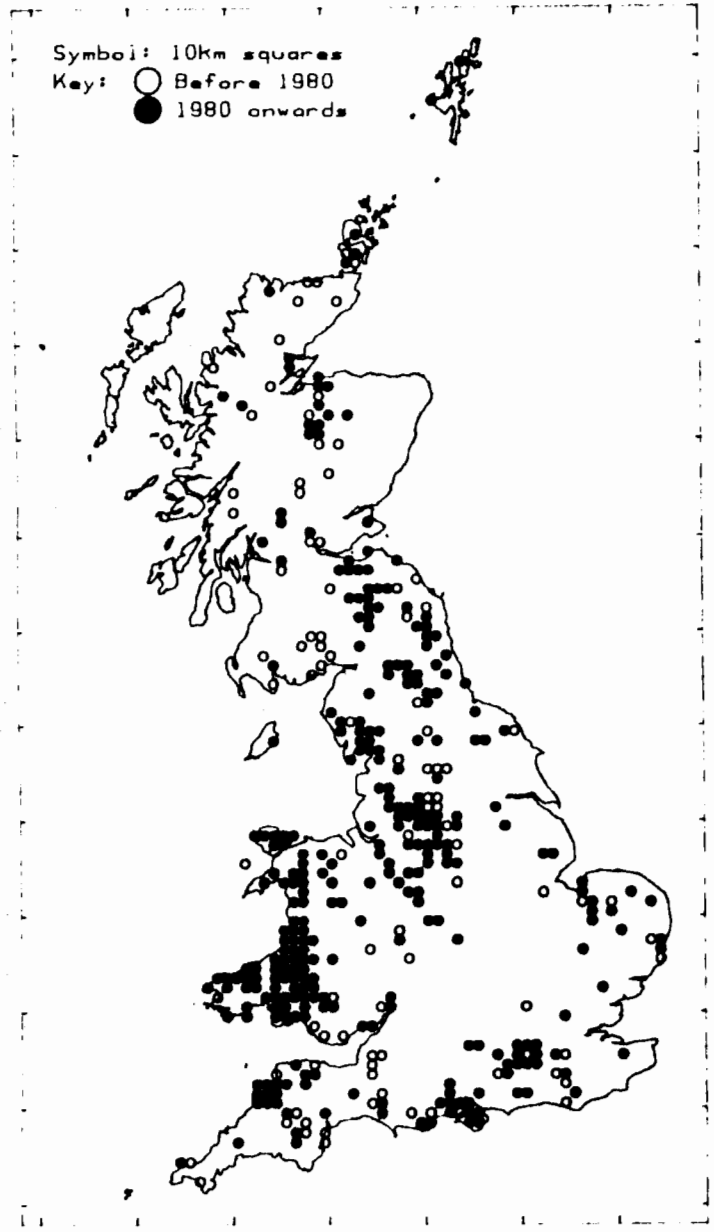
Stubbs (1982) and Stubbs & Falk (1987) attempted a similar list for hoverflies associated with sites with a long continuity of deciduous woodland and map 7 shows the distribution of this assemblage of species. The size of the symbols on the map represents the number of Stubbs & Falks' "indicators" recorded from each 10km square.

Comparison of map 7 (number of "ancient woodland indicators") with map 2 (total number of species) shows an extremely similar pattern of distribution and does not obviously pick out the areas known to be important representatives of this habitat from the background of the well wooded lowlands. This suggests to us that the list of species presented by Stubbs & Falk is not sufficiently selective for this purpose and requires further refinement.

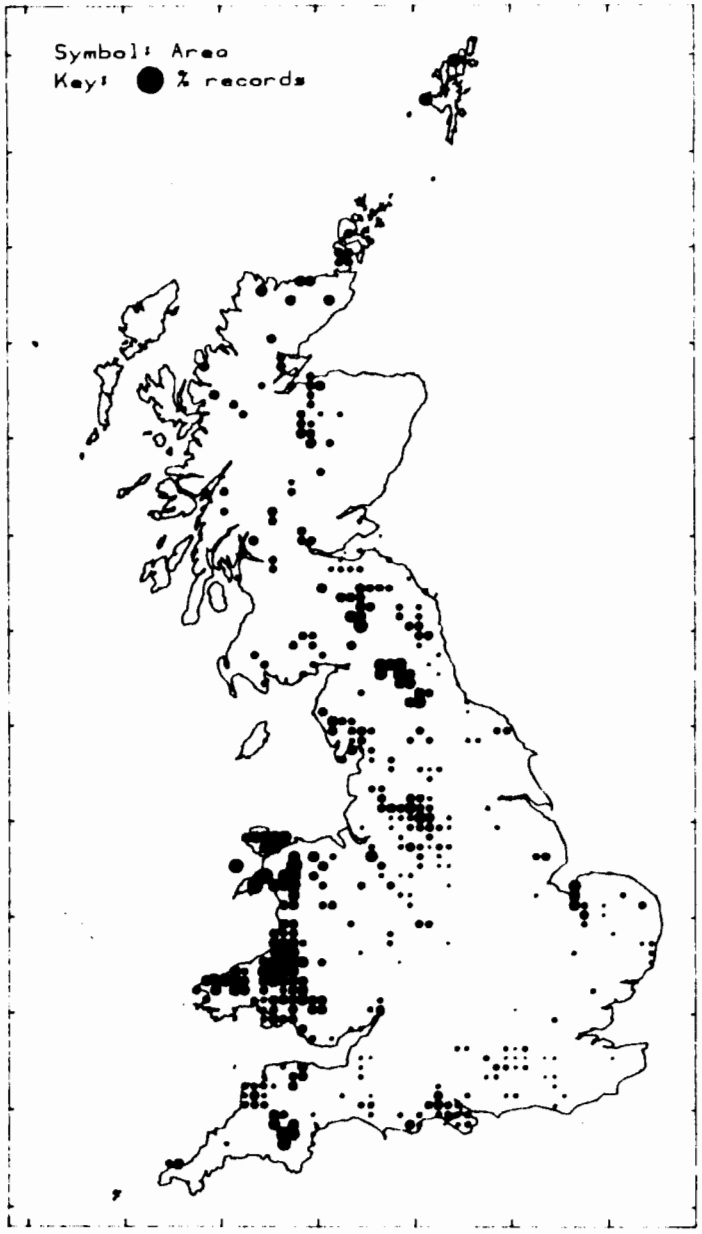
Variation in flight period of Epistrophe eligans.

The recording scheme can be used for purposes other than mapping. The Butterfly Monitoring Scheme has produced much interesting information on the phenology (ie. the annual pattern of life) of species and has shown that the flight period changes quite markedly between northern and southern parts of Britain in some species. In extreme case (eg. Common Blue and Holly Blue) a species which is bivoltine (ie. has two generations per year) in southern Britain, becomes univoltine (ie. has only one generation per year) in the

THE DISTRIBUTION OF *SERICOMYIA SILENTIS*



3. ALL RECORDS



4. AS A PERCENTAGE OF RECORDS FOR A GIVEN 10K SQUARE

Table I Average date of observations of 10 spring species (*Dasysyrphus albostriatus, D. tricinctus, D. venustus, Epistrophe eligans, Leucozona lucorum, Melangyna lasiophthalma, Parasyrphus punctulatus, Cheilosia albipila, C. grossa and Portevinia maculata*) in years from 1982 - 1991.

Year	Number of observations	Mean day number
1991	153	134 (13 May)
1990	195	128 (08 May)
1989	315	137 (16 May)
1988	157	133 (12 May)
1987	298	141 (20 May)
1986	283	150 (29 May)
1985	228	146 (25 May)
1984	309	138 (17 May)
1983	124	147 (26 May)
1982	132	134 (13 May)
Total	2194	139 (18 May)

Table II Analysis of the flight period of *Epistrophe eligans* in six areas of the National grid.

Area	Number of observations	Mean deviation from average date	Standard deviation (days)
South west	72	-1.17 (17 May)	16.52
South east	235	-2.72 (15 May)	16.07
Midlands west	57	5.05 (23 May)	25.41
Midlands east	83	3.09 (21 May)	14.75
North west	20	0.00 (18 May)	12.91
North east	25	8.20 (26 May)	15.68
Totals	492	0.17 (18 May)	

Analysis of variance				
Source of variance	Sum of squares	Degrees of freedom	Mean square	F
Between groups	6165.5	5	1233.1	4.20, $p<0.001$
Within groups	142725.8	486	293.7	
Total	148891.3	491		

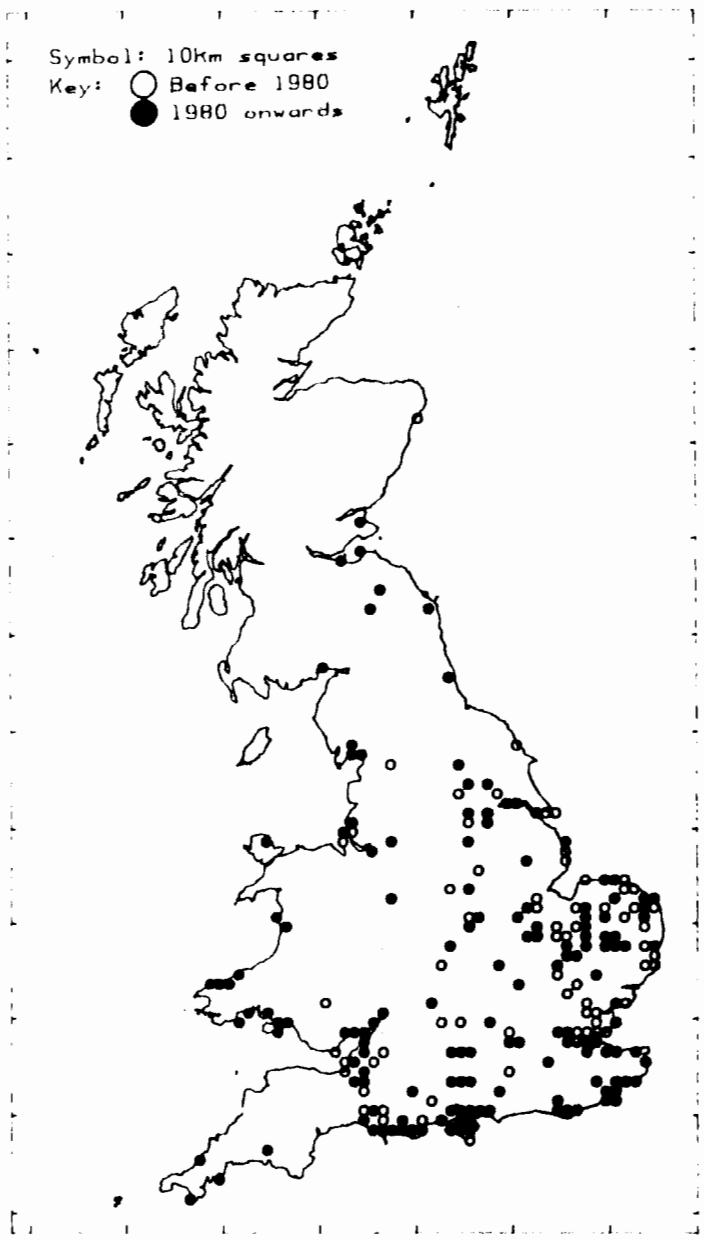
north of its range. To see if the Hoverfly Recording Scheme could reveal similar trends, we examined the flight period of *Epistrophe eligans*. This is an early spring species which is common in the lowlands of southern Britain. It is however scarcer in the north and we have few Scottish records. The computerised records include 876 for *E. eligans* of which 599 have a full date given. The records were divided into three geographical bands, running from south to north and two bands east to west, giving six areas in all, using the grid reference (map 8). Seasons vary considerably in the earliness or lateness of the spring and this needs to be taken into account if records for many years are to be lumped together. The average record date of a suite of 10 spring species (listed in the legend to Table I) was first calculated for the years 1982 -1991 (in which there were at least 100 records in each year to base the average on). The date of each record of *E. eligans* was then expressed as a difference from the average flight date in the appropriate year and the mean was calculated for each area. Table II shows the results. Map 8 shows the information graphically with records grouped into weeks and shown as a histogram of the number of records per week for each of the six areas.

The analysis of variance in Table II shows that the differences between the areas are significant. The difference in date between the area where *E. eligans* flies earliest (South East England) and latest (North East England) is 11 days. However this is less than the three week difference between the earliest spring (1990) and the latest spring (1985) suggested by Table I.

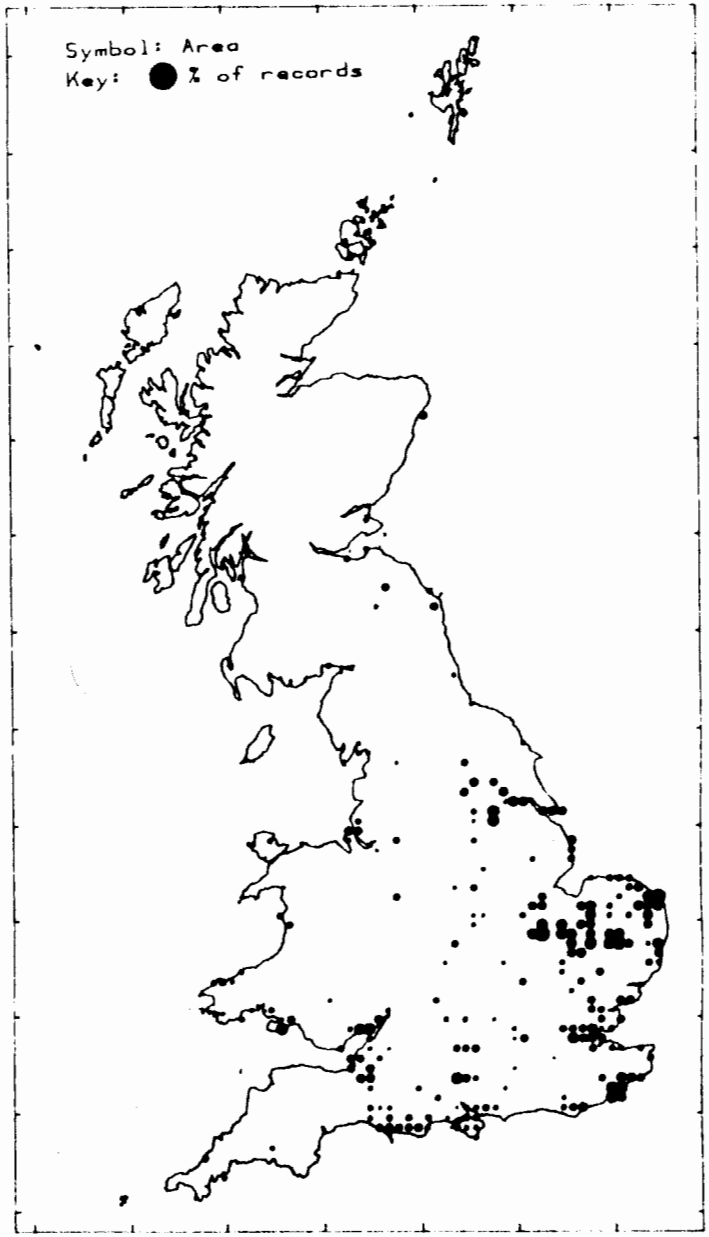
Table III Number of 10km squares (out of approx 2,800 in Britain) and numbers of records for the 25 commonest species based on records from 1980 onwards and all records.

Species	ISR status	1980 onwards		All records	
		10kms	records	10kms	records
Episyrphus balteatus	Common	739	3066	846	3296
Eristalis pertinax	Common	718	3091	843	3290
Syritta pipiens	Common	708	2801	821	3000
Helophilus pendulus	Common	697	3344	805	3542
Platycheirus albimanus	Common	692	2813	808	3018
Rhingia campestris	Common	657	2233	778	2418
Eristalis tenax	Common	652	2360	751	2541
Eristalis arbustorum	Common	619	2205	747	2432
Melanostoma scalare	Common	600	2038	703	2196
Syrphus ribesii	Common	589	2216	726	2461
Melanostoma mellinum	Common	586	1814	712	2005
Xylota segnis	Common	497	1581	586	1716
Neoascia podagrica	Common	467	1337	553	1466
Platycheirus clypeatus agg.	Common	466	1123	572	1288
Volucella pellucens	Common	462	1375	577	1530
Syrphus vitripennis	Common	431	1269	548	1504
Metasyrphus corollae	Common	427	1122	523	1310
Eristalis intricarius	Common	405	1112	513	1268
Leucozona lucorum	Common	401	1042	506	1187
Eristalis nemorum	Common	398	1015	481	1142
Myathropa florea	Common	397	1330	498	1483
Volucella bombylans	Common	368	898	490	1089
Cheilosia illustrata	Common	365	928	451	1060
Pyrophaena granditarsa	Common	364	982	444	1091
Cheilosia pagana	Common	360	1084	431	1210

THE DISTRIBUTION OF *TROPIDIA SCITA*



5. ALL RECORDS



6. AS A PERCENTAGE OF RECORDS FOR A GIVEN 10K SQUARE

Table IV **10km squares with 100 or more species recorded.**

TQ15	150	Surrey
SU30	150	South Hants
SP37	140	Warwickshire
SD47	140	West Lancashire/Westmorland
SZ08	137	Dorset
TQ05	129	Surrey
SU20	125	South Hants
SU40	121	South Hants
ST57	121	North Somerset/West Gloucestershire
SP61	118	Oxfordshire/Buckinghamshire
SU97	117	Surrey/Berkshire
SP17	117	Warwickshire
TL66	116	West Suffolk/Cambridgeshire
SE30	116	South West Yorkshire
TQ26	114	Surrey
SU94	114	Surrey
ST50	114	South Somerset/Dorset
TQ14	113	Surrey/West Sussex
TQ04	113	Surrey
SD48	113	Westmorland
TQ35	112	Surrey
TQ49	111	South Essex
SU96	110	Surrey/Berkshire
SP19	109	Warwickshire
ST41	108	South Somerset
SK37	105	Derbyshire
ST40	104	South Somerset/Dorset
TQ06	103	Surrey/Middlesex
SU95	103	Surrey
SU56	103	North Hants.
SU51	103	South Hants.
TQ88	102	South Essex
TQ16	102	Surrey
SK39	102	South West Yorkshire
TQ25	101	Surrey
TQ46	100	West Kent
SO77	100	Worcestershire/Salop

References

HARDING, P.T. & ROSE, F. 1986. Pasture-woodlands in lowland Britian. A review of their importance for wildlife conservation. Institute of Terrestrial Ecology, Huntingdon.

STUBBS, A.E. 1982. Hoverflies as Primary Woodland Indicators with Reference to Wharncliffe Wood. Sorby Record 20: 62-67.

STUBBS, A.E. & FALK, S.J. 1983. British Hoverflies. An illustrated identification guide. British Entomological & Natural History Society.

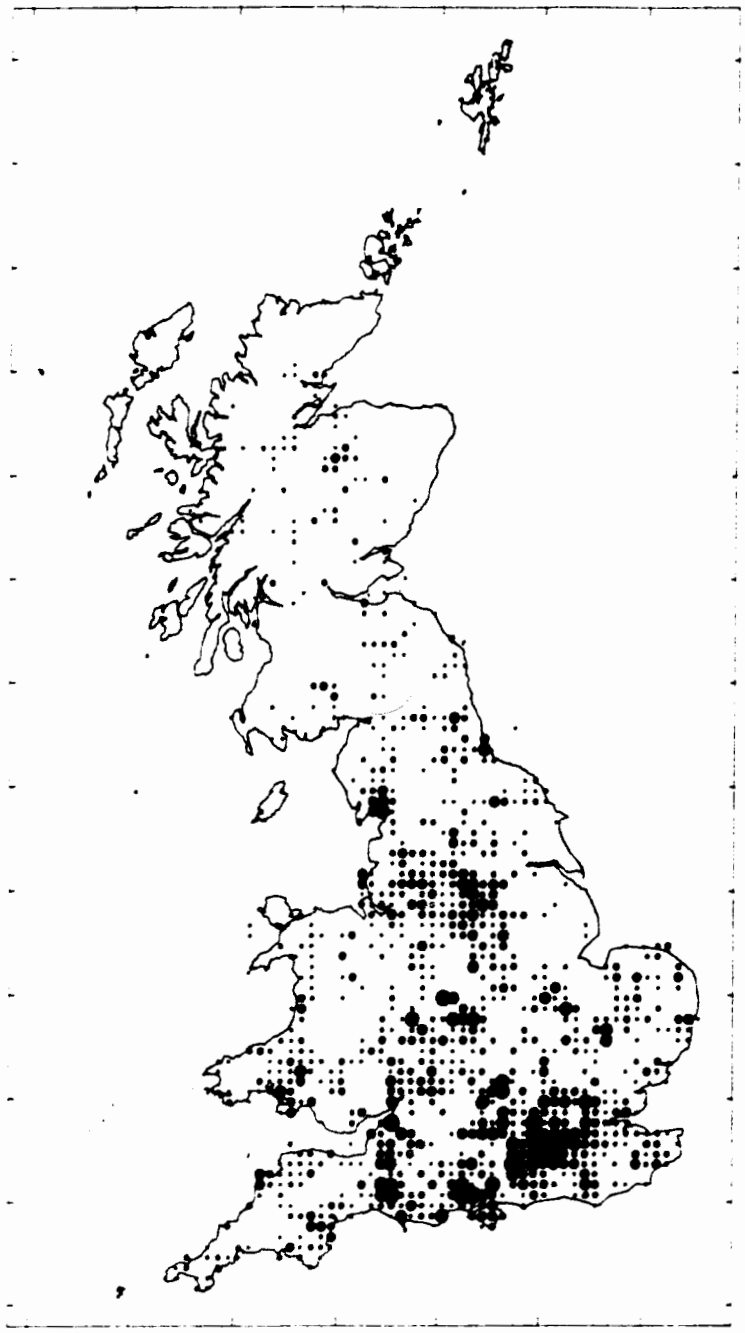
STUBBS, A.E. & FALK, S.J. 1987. Hoverflies of the Sheffield area. Sorby Record special series No. 6: 48-49.

This year's field meeting is based at Stirling from 13th to 20th June. Why not join us?
Contact Roger Morris for further details.

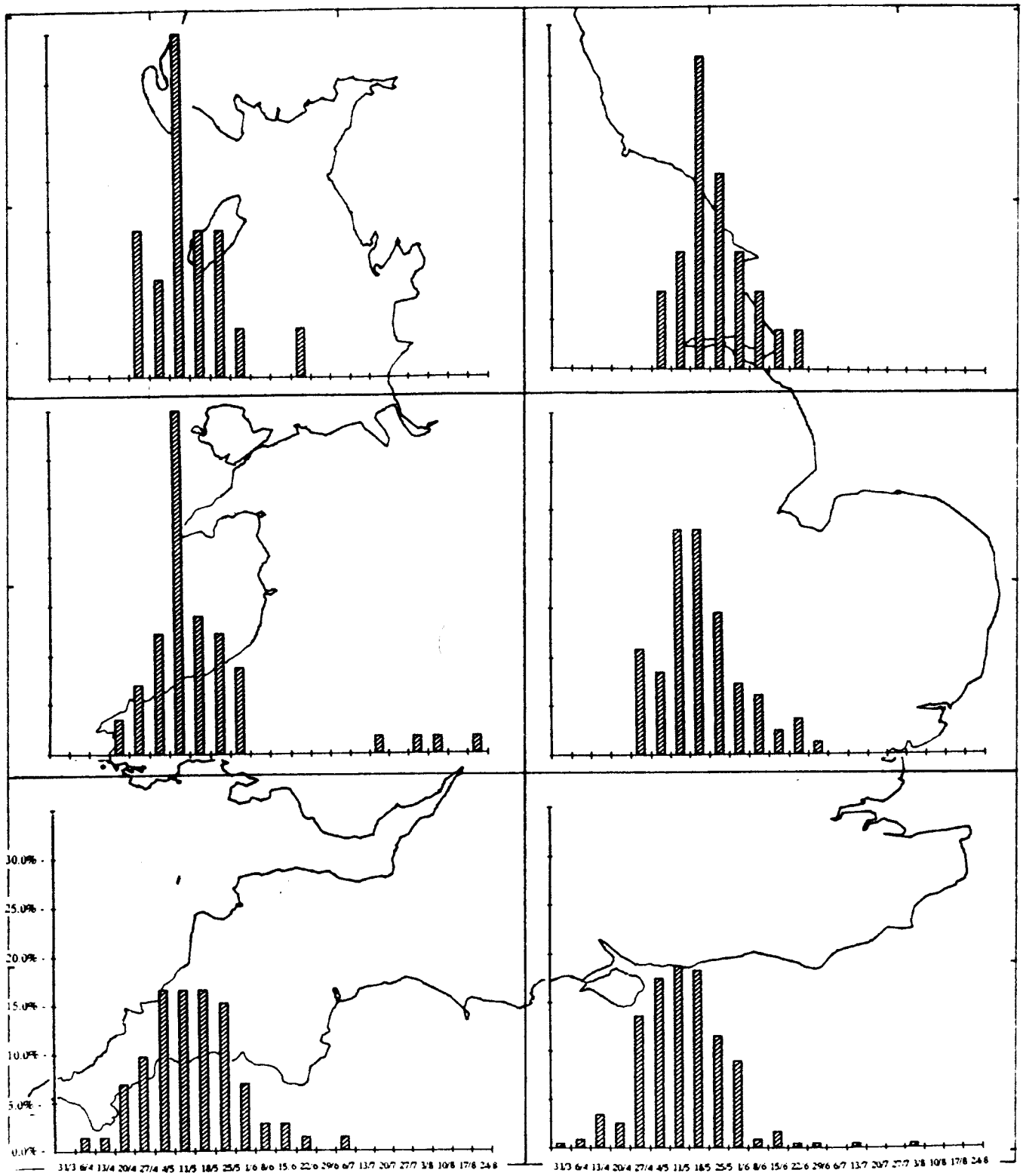
Address for correspondence:

Dr S.G. Ball and R.K.A. Morris
The Joint Nature Conservation Committee
Monkstone House
Peterborough
PE1 1JY

Tel: 0733 62626



7 The distribution of old woodland indicator species listed by Stubbs and Falk (1987) represented as numbers of species for each 10 Km grid square.



8 *Epistrophe elegans* represented in weekly units as the precentage of records received for each of six areas of England, Wales and southern Scotland.

Updated list of hoverfly names

This list is intended to update that of Stubbs & Falk (1983) to include species which have been added to the British list subsequently and to reflect the current understanding of forms and unnamed species included in that work. It will hopefully form the basis of a new hoverfly recording card to replace RA33. The name changes which have been published in Antennae, Dipterists' Digest and the Hoverfly Newsletter are noted, but are not used here in order to retain a list as close to Stubbs & Falk (1983) as possible.

Two species of *Platycheirus* have been spilt: *P. clypeatus* into *P. clypeatus s.s.*, *P. occultus* and *P.europa*; and *P. peltatus* into *P. peltatus* s.s., and *P. nielseni*. To cope with older records, two aggregate species "*P. clypeatus* agg." and "*P. peltatus* agg." have been included. A further aggregate species *Melangyna compositarum/labiatarum*" has been included to cover records of this difficult species pair which many recorders do not attempt to separate. The one aggregate species which was included in RA33 ("*Baccha* spp") remains to cope with females of this genus which cannot be separated. Records of these aggregate species should only be made when it is not possible to make a full determination, or for field or literature records where specimens are not available to check. There are two "species" of doubtful validity, *Dasysyrphus hilaris* and *Cheilosia globulipes*, which are included in the list for the moment, but may prove not to be distinct species.

The national status of hoverfly species as published in Falk (1991) is also shown on the list. The following abbreviations have been used:

N	Notable (=Nationally scarce) ie. believed to occur in 100 10km squares or fewer.
1,2,3	Red Data Book categories 1 (Endangered), 2 (Vulnerable) or 3 (Rare).

Three further abbreviations have been used to denote:

V	Vagrant (*Scaeva albomaculata* & S. mecogramma)
I	Known from Ireland only (*Cheilosia laskai*)
U	Unknown. This is used for new additions to the British list which may turn out to be rare, but are as yet insufficiently known to make a judgement.

Some species are particularly difficult to identify, or there is as yet insufficient material available to be sure what their field characters are. These have been **emboldened** and marked with an asterisk (*) in the list. Voucher material will normally be required for records of these species to be accepted by the recording scheme. (Note that in the case of *Platycheirus podagratus* this applies to females only).

S.G.Ball
R.K.Morris
A.E.Stubbs

March 1991

Falk, S.J. 1991. A review of the scarce and threatened flies of Great Britain (part 1). Research and Survey in Nature Conservation No. 39. Nature Conservancy Council, Peterborough.

Stubbs, A.E. & Falk, S.J. 1983. British Hoverflies. British Entomological & Natural History Society, London.

Baccha spp		
Baccha elongata (Fabricius, 1775)		
Baccha obscuripennis Meigen, 1822		
Melanostoma dubium (Zetterstedt, 1838)	N	
Melanostoma mellinum (Linnaeus, 1758)		
Melanostoma scalare (Fabricius, 1794)		
Melanostoma form A Stubbs & Falk, 1983	N	
Platycheirus albimanus (Fabricius, 1781)		*cyaneus* (Müller, 1776)
Platycheirus ambiguus (Fallén, 1817)		
Platycheirus amplus **Curran, 1927**	**U***	
Platycheirus angustatus (Zetterstedt, 1843)		
Platycheirus clypeatus agg.		
Platycheirus clypeatus (Meigen, 1822)		
Platycheirus discimanus Loew, 1871	N	
Platycheirus europaeus **Goeldlin, Maibach & Speight, 1990**	**U***	
Platycheirus fulviventris (Macquart, 1827-8)		
Platycheirus immarginatus **(Zetterstedt, 1849)**	**N***	
Platycheirus manicatus (Meigen, 1822)		
Platycheirus melanopsis Loew, 1856	3	
Platycheirus nielseni Vockeroth, 1990		species A of Stubbs & Falk, 1983
Platycheirus occultus **Goeldlin, Maibach & Speight, 1990**	*	
Platycheirus peltatus agg.		
Platycheirus peltatus (Meigen, 1822)		
Platycheirus perpallidus Verrall, 1901	N	
Platycheirus podagratus **(Zetterstedt, 1838)**	**N***	(call in females only)
Platycheirus ramsarensis **Goeldlin, Maibach & Speight, 1990**	**U***	
Platycheirus scambus (Staeger, 1843)		
Platycheirus scutatus (Meigen, 1822)		
Platycheirus sticticus (Meigen, 1822)	N	
Platycheirus tarsalis (Schummel, 1836)		
Pyrophaena granditarsa (Forster, 1860)		
Pyrophaena rosarum (Fabricius, 1787)		
Xanthandrus comtus (Harris, 1780)	N	
Paragus haemorrhous Meigen, 1822		
Paragus tibialis (Fallén, 1817)	N	
Paragus albifrons (Fallén, 1817		
Chrysotoxum arcuatum (Linnaeus, 1758)		
Chrysotoxum bicinctum (Linnaeus, 1758)		
Chrysotoxum cautum (Harris, 1776)		
Chrysotoxum elegans Loew, 1841	3	
Chrysotoxum festivum (Linnaeus, 1758)		

Chrysotoxum octomaculatum Curtis, 1837	2	
Chrysotoxum vernale Loew, 1841	1	
Chrysotoxum verralli Collin, 1940		
Dasysyrphus albostriatus (Fallén, 1817)		
Dasysyrphus friuliensis van der Goot, 1960		
[Dasysyrphus hilaris (Zetterstedt)]	U	var of *venustus* ?
Dasysyrphus lunulatus (Meigen, 1822)		
Dasysyrphus tricinctus (Fallén, 1817)		
Dasysyrphus venustus (Meigen, 1822)		
Didea alneti (Fallén, 1817)	1	
Didea fasciata Macquart, 1834	N	
Didea intermedia Loew, 1854	N	
Doros conopseus (Fabricius, 1776)	2	*profuges* Harris, 1780
Epistrophe diaphana (Zetterstedt, 1843)	N	
Epistrophe eligans (Harris, 1780)		
Epistrophe grossulariae (Meigen, 1822)		
***Epistrophe melanostoma* (Zetterstedt, 1843)**	U*	
Epistrophe nitidicollis (Meigen)		
***Epistrophe ochrostoma* (Zetterstedt, 1849)**	U*	
Epistophella euchroma (Kowarz, 1885)	3	*Meligramma euchroma* (Kowarz, 1885)
Episyrphus balteatus (Degeer, 1776)		
Eriozona syrphoides (Fallén)		
Leucozona glaucia (Linnaeus, 1758)		
Leucozona laternaria (Müller, 1776)		
Leucozona lucorum (Linnaeus, 1758)		
Megasyrphus annulipes (Zetterstedt, 1838)	N	*Didea erraticus* (Linnaeus, 1758)
Melangyna arctica (Zetterstedt, 1838)		
Melangyna barbifrons (Fallén, 1817)	N	
Melangyna cincta (Fallén, 1817)		
Melangyna compositarum Verrall, 1873		
Melangyna compositarum/labiatarum indet.	U	
***Melangyna ericarum* (Collin, 1946)**	3*	
Melangyna guttata (Fallén, 1817)	N	
Melangyna labiatarum (Verrall, 1901)		
Melangyna lasiophthalma (Zetterstedt, 1843)		
Melangyna quadrimaculata (Verrall, 1873)		
Melangyna triangulifera (Zetterstedt, 1843)	N	
Melangyna umbellatarum (Fabricius, 1794)		
Meliscaeva auricollis (Meigen, 1822)		
Meliscaeva cinctella (Zetterstedt, 1843)		
Metasyrphus corollae (Fabricius, 1794)		*Eupeodes*
Metasyrphus lapponicus (Zetterstedt)	N	*Eupeodes*
Metasyrphus latifasciatus (Macquart, 1829)		*Eupeodes*
***Metasyrphus latilunulatus* (Collin, 1931)**	N*	*Eupeodes*
***Metasyrphus lundbecki* (Soot-Ryen)**	U*	*Eupeodes*

Metasyrphus luniger (Meigen)		*Eupeodes*
***Metasyrphus nielseni* Dusek & Laska, 1976**	N*	*Eupeodes*
Metasyrphus nitens (Zetterstedt, 1843)	N	*Eupeodes*
Metasyrphus species A Stubbs & Falk, 1983		*Eupeodes*
Parasyrphus annulatus (Zetterstedt, 1838)		
Parasyrphus lineolus (Zetterstedt, 1843)		
Parasyrphus mallinellus (Collin, 1952)		
***Parasyrphus nigritarsis* (Zetterstedt, 1843)**	1*	
Parasyrphus punctulatus (Verrall, 1873)		
Parasyrphus vittiger (Zetterstedt, 1843)		
Scaeva albomaculata (Macquart, 1842)	V	
Scaeva mecogramma (Bigot, 1860)	V	
Scaeva pyrastri (Linnaeus, 1758)		
Scaeva selenitica (Meigen, 1822)		
Sphaerophoria abbreviata Zetterstedt, 1859		*fatarum* Goeldin, 1938
***Sphaerophoria bankowskae* Goedlin, 1989**	U*	
Sphaerophoria batava Goeldlin de Tiefenau, 1974	U	
***Sphaerophoria loewi* Zetterstedt, 1843**	2*	
Sphaerophoria menthastri (Linnaeus, 1758)		*interrupta* (Fabricius)
Sphaerophoria philanthus (Meigen, 1822)		*philantha*
***Sphaerophoria potentillae* Claussen, 1984**	U*	
Sphaerophoria rueppellii (Wiedemann, 1830)		
Sphaerophoria scripta (Linnaeus, 1758)		
Sphaerophoria taeniata (Meigen, 1822)		
Sphaerophoria virgata Goeldlin de Tiefenau, 1974	N	
Sphaerophoria form A Stubbs & Falk, 1983	U*	
Sphaerophoria form B Stubbs, in press	U*	
Syrphus ribesii (Linnaeus, 1758)		
Syrphus torvus Osten-Sacken, 1875		
Syrphus vitripennis Meigen, 1822		
Xanthogramma citrofasciatum (Degeer, 1776)		*festivum* Linnaeus, 1758
Xanthogramma pedissequum (Harris, 1776)		
Callicera aenea (Fabricius, 1777)	3	
Callicera rufa Schummel, 1841	3	
Callicera spinolae Rondani, 1844	1	
Cheilosia albipila Meigen, 1822		
Cheilosia albitarsis Meigen, 1822		
Cheilosia antiqua Meigen, 1822		
***Cheilosia argentifrons* Hellen, 1914**	U*	
Cheilosia barbata Loew, 1857	N	
Cheilosia bergenstammi Becker, 1894		
Cheilosia carbonaria Egger, 1860	N	
Cheilosia chrysocoma (Meigen, 1822)	3	
Cheilosia cynocephala Loew, 1840	N	
Cheilosia fraterna (Meigen, 1830)		
[Cheilosia globulipes Becker, 1894]	*	
***Cheilosia griseiventris* Loew, 1857**	*	
Cheilosia grossa (Fallén, 1817)		
Cheilosia honesta Rondani, 1868		

Cheilosia illustrata (Harris, 1780)		
Cheilosia impressa Loew, 1840		
Cheilosia intonsa Loew, 1857	*	
Cheilosia laskai Speight, 1978	I*	*ahenea* von Roser, 1840
Cheilosia longula (Zetterstedt, 1838)		
Cheilosia mutabilis (Fallén, 1817)	N	
Cheilosia nasutula Becker, 1894		
Cheilosia nebulosa Verrall, 1871	3*	
Cheilosia nigripes (Meigen, 1822)	3*	
Cheilosia pagana (Meigen, 1822)		
Cheilosia praecox (Zetterstedt, 1843)		
Cheilosia proxima (Zetterstedt, 1843)		species D & E of Stubbs & Falk, 1983
Cheilosia pubera (Zetterstedt, 1838)	N	
Cheilosia sahlbergi Becker, 1894	2	
Cheilosia scutellata (Fallén, 1817)		
Cheilosia semifasciata Becker, 1894	3	
Cheilosia soror (Zetterstedt, 1843)	N	
Cheilosia variabilis (Panzer, 1798)		
Cheilosia velutina Loew, 1840	N	
Cheilosia vernalis (Fallén, 1817)		
Cheilosia vulpina (Meigen, 1822)		
Cheilosia species B Stubbs & Falk, 1983	U*	
Ferdinandea cuprea (Scopoli, 1963)		
Ferdinandea ruficornis (Fabricius, 1775)	N	
Portevinia maculata (Fallén, 1817)		
Rhingia campestris Meigen, 1822		
Rhingia rostrata (Linnaeus, 1758)	3	
Brachyopa bicolor (Fallén, 1817)	3	
Brachyopa insensilis Collin, 1939	N	
Brachyopa pilosa Collin, 1939	N	
Brachyopa scutellaris Robineau-Desvoidy, 1844		
Chrysogaster chalybeata Meigen, 1822		*cemiteriorum* (Linnaeus, 1758)
Chrysogaster hirtella Loew, 1843		
Chrysogaster macquarti Loew, 1843	N	
Chrysogaster solstitialis (Fallén, 1817)		
Chrysogaster virescens Loew, 1854		
Hammerschmidtia ferruginea (Fallén, 1817)	1	
Lejogaster metallina (Fabricius, 1777)		
Lejogaster splendida (Meigen, 1822)	N	
Myolepta luteola (Gmelin, 1788)	N	
Myolepta potens (Harris, 1780)	1	
Neoascia geniculata (Meigen, 1822)	N	
Neoascia interrupta (Meigen, 1822)	N	
Neoascia meticulosa (Scopoli, 1763)		
Neoascia obliqua Coe, 1940	N	
Neoascia podagrica (Fabricius, 1775)		
Neoascia tenur (Harris, 1780)		

Orthonevra brevicornis Loew, 1843	N	
Orthonevra geniculata Meigen, 1830	N	
Orthonevra nobilis (Fallén, 1817)		
Orthonevra splendens (Meigen, 1822)		
Sphegina clunipes (Fallén, 1816)		
Sphegina kimakowiczi Strobl, 1897		*elegans* Schummel, 1843
***Sphegina sibirica* Stackelberg, 1953**	**U**	
Sphegina verecunda Collin, 1937	N	
Anasimyia contracta Claussen & Torp, 1980		
Anasimyia interpuncta (Harris, 1776)	3	
Anasimyia lineata (Fabricius, 1787)		
Anasimyia lunulata (Meigen, 1822)	N	
Anasimyia transfuga (Linnaeus, 1758)		
Eristalinus aeneus (Scopoli, 1763)		
Eristalinus sepulchralis (Linnaeus, 1758)		
Eristalis abusivus Collin, 1931		
Eristalis arbustorum (Linnaeus, 1758)		
Eristalis cryptarum (Fabricius, 1794)	2	
Eristalis horticola (Degeer, 1776)		
Eristalis intricarius (Linnaeus, 1758)		
Eristalis nemorum (Linnaeus, 1758)		*interrupta* (Poda, 1761)
Eristalis pertinax (Scopoli, 1763)		
***Eristalis pratorum* (Meigen, 1822)**	**U***	
Eristalis rupium Fabricius, 1805	N	
Eristalis tenax (Linnaeus, 1758)		
***Helophilus groenlandicus* (Fabricius, 1780)**	**2***	
Helophilus hybridus Loew, 1846		
Helophilus pendulus (Linnaeus, 1758)		
Helophilus trivittatus (Fabricius, 1805)		
Lejops vittata (Meigen, 1822)	2	
Mallota cimbiciformis (Fallén, 1817)	N	
Myathropa florea (Linnaeus, 1758)		
Parhelophilus consimilis (Malm, 1863)	2	
Parhelophilus frutetorum (Fabricius, 1775)		
Parhelophilus versicolor (Fabricius, 1794)		
Eumerus ornatus Meigen, 1822	N	
Eumerus sabulonum (Fallén, 1817)	N	
Eumerus strigatus (Fallén, 1817)		
Eumerus tuberculatus Rondani, 1857		
Merodon equestris (Fabricius, 1794)		
Psilota anthracina Meigen, 1822	2	
***Chamaesyrphus caledonicus* Collin, 1940**	**1***	
Chamaesyrphus scaevoides (Fallén, 1817)	3	

Pelecocera tricincta Meigen, 1822	3	
Heringia heringi (Zetterstedt, 1843)		
Neocnemodon brevidens (Egger, 1865)	N	*Heringia*
Neocnemodon latitarsis (Egger, 1865)	N	*Heringia*
Neocnemodon pubescens Delucchi & Pschorn-Walcher, 1955	N	*Heringia*
Neocnemodon verrucula (Collin, 1931)	N	*Heringia*
Neocnemodon vitripennis (Meigen, 1822)		*Heringia*
Pipiza austriaca Meigen, 1822		
***Pipiza bimaculata* Meigen, 1822**	*	
***Pipiza fenestrata* Meigen, 1822**	*	
***Pipiza lugubris* (Fabricius, 1775)**	N*	
Pipiza luteitarsis Zetterstedt, 1843		
***Pipiza noctiluca* (Linnaeus, 1758)**	*	
***Pipizella maculipennis* (Meigen, 1822)**	3*	
Pipizella varipes (Meigen, 1822)		*viduata* (Meigen, 1822)
***Pipizella virens* (Fabricius, 1805)**	N*	
Trichopsomyia flavitarsis (Meigen, 1822)		
Triglyphus primus Loew, 1840	N	
Arctophila fulva (Harris, 1780)		*superabiens* (Müller, 1776)
Sericomyia lappona (Linnaeus, 1758)		
Sericomyia silentis (Harris, 1776)		
Volucella bombylans (Linnaeus, 1758)		
Volucella inanis (Linnaeus, 1758)	N	
Volucella inflata (Fabricius, 1794)	N	
Volucella pellucens (Linnaeus, 1758)		
Volucella zonaria (Poda, 1761)	N	
Blera fallax (Linnaeus, 1758)	1	
Brachypalpoides lenta (Meigen, 1822)		
Brachypalpus laphriformis (Fallén, 1816)	N	
Caliprobola speciosa (Rossi, 1790)	1	
Chalcosyrphus nemorum (Fabricius, 1805)		
***Chalcosyrphus eunotus* (Loew, 1873)**	2*	
Criorhina asilica (Fallén, 1816)	N	
Criorhina berberina (Fabricius, 1805)		
Criorhina floccosa (Meigen, 1822)		
Criorhina ranunculi (Panzer, 1804)	N	
Pocota personata (Harris, 1780)	2	
Syritta pipiens (Linnaeus, 1758)		
Tropidia scita (Harris, 1780)		

Xylota abiens Meigen, 1822	N
Xylota coeruleiventris Zetterstedt, 1838	N
Xylota florum (Fabricius, 1805)	N
Xylota segnis (Linnaeus, 1758)	
Xylota sylvarum (Linnaeus, 1758)	
Xylota tarda Meigen, 1822	N
Xylota xanthocnema Collin, 1939	N
Microdon devius (Linnaeus, 1761)	2
Microdon eggeri Mik, 1897	N
Microdon mutabilis (Linnaeus, 1758)	N