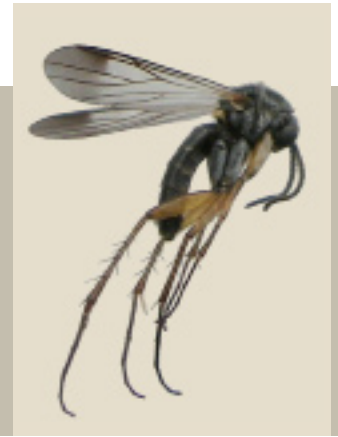


# Fungus Gnats Recording Scheme

Newsletter 4

Spring 2010



## Progress on Distribution Maps of Fungus Gnats of the British Isles

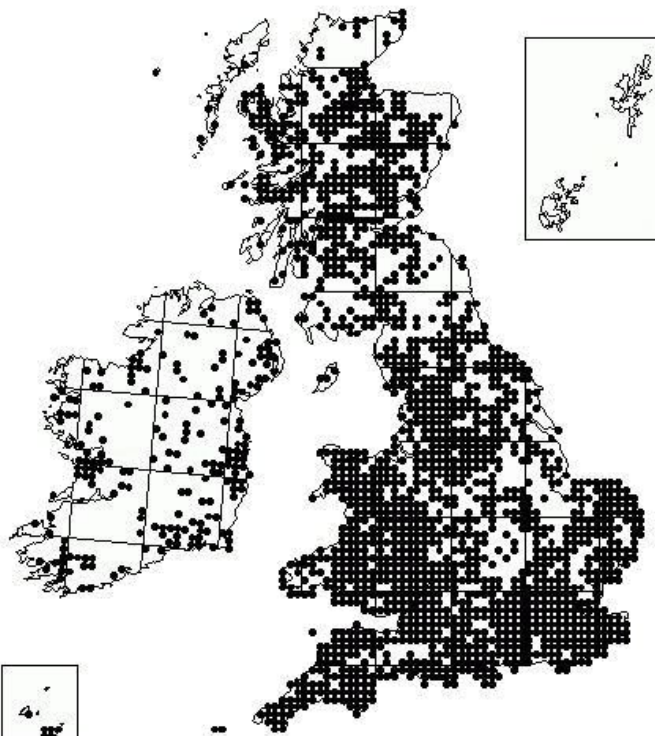


Fig. 1. Coverage of Fungus Gnat Recording Scheme.

Since the update regarding input of data in the previous newsletter, maps based on the records now included in the database have been made available by BRC. A presentation based on these latest maps was given at the annual meeting in November. Since then the remaining record cards have been returned to me and BRC has also supplied me with a CD with all the records they have so far entered included, so that the database can be compared with the source information. This has been invaluable in resolving discrepancies that were apparent on the maps, which were principally due to the inevitable problem of a single wrong digit in the 5 figure code sometimes being entered, resulting in the wrong species name appearing on the database. It will not be practicable to eliminate all such errors but it is hoped that all those affecting the range of a species will be eliminated. Harder to explain are some cases where either a correct record on the database has somehow failed to appear on the map, or a square on the map has no corresponding record in the database.

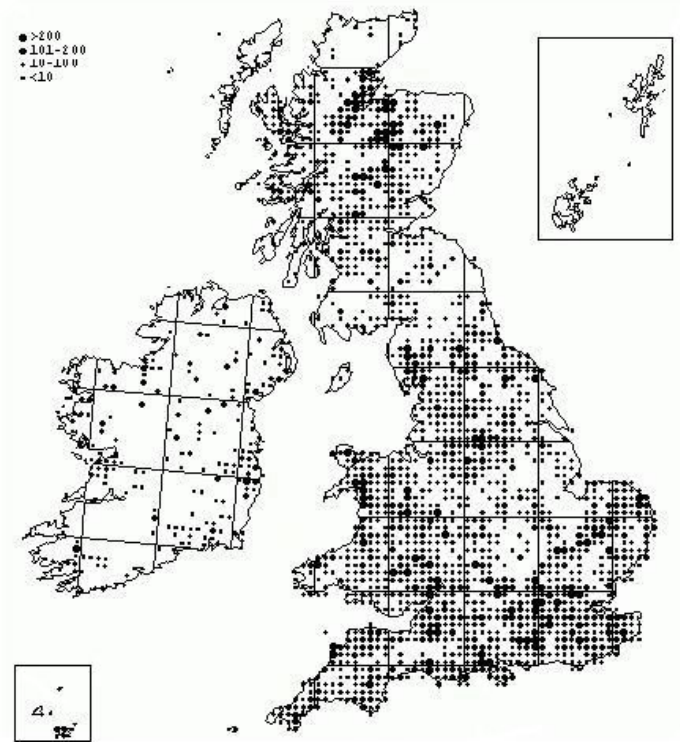


Fig. 2. Number of records per hectad (10km square).

## Statistics of the Data so far processed by BRC

In November it was reported that the database presently included 88,591 records and that was the number of individual records that had been input by BRC, potentially covering all data that had been passed to them for records made up to the end of 2008. The actual number of records on which this was based was, however, actually well in excess of 100,000 because for all localities that had been recorded consistently over a period of several years a single species list was given to them for each 10km square involved (if more than one) to speed up the data entry process. Where for some of these sites, e.g. Burnham Beeches, Leckford Estate, Windsor Forest, records existed for the periods both before and since 1980 a distinction was made for any species not recorded since 1980.

The present situation is displayed on the two overall maps. Altogether the total number of 10km squares in the British Isles with records is 1862 (Fig. 1). Gaps in recording are most apparent in the north of Scotland, the Scottish borders, parts of the Midlands and large parts of Ireland.

The second map (Fig. 2) shows the number of species recorded

per hectad within the following categories (in descending order of the size of symbol employed):

- Number of 10km squares with 201+ species recorded 105
- Number of 10km squares with 101-200 species recorded 130
- Number of 10km squares with 10-100 species recorded 823
- Number of 10km squares with less than 10 species recorded 804

As most fungus gnats are woodland insects the best recorded squares, with in excess of 100 species recorded, are not surprisingly in the most wooded areas and Fig. 2 demonstrates this quite well. Although some species occur in grassland, moorland or high mountains, those squares without any woodland will have relatively few species of fungus gnats; wetlands may have a rich fauna but this is usually concentrated in the more wooded parts. Nevertheless, the maps show where further recording needs to be targeted.

Although this cannot be shown in the printed version of this newsletter, the maps that have been produced are in two colours, red for hectads that have records post 1980 and blue for those for which only pre 1980 records exist. There has been much more recording since 1980 than was carried out before, with many species newly recognised and added to the British list in that time, so a direct comparison to indicate whether changes in distribution have occurred is difficult. However, of the 546 species of fungus gnats currently recognised as occurring in the British Isles, 15 have not been recorded since 1980, but most of them are only known from one or two British records so their status is unclear.

The species only recorded before 1980 are as follows, with the date of their most recent occurrence: *Bolitophila fumida* (1931), *Macrocera aterrima* (1969), *M. inversa* (1923), *M. propleuralis* (1936), *Mycomya digitifera* (1933), *M. punctata* (1970), *Palaeodocosia alpicola* (1923), *Gnoriste longirostris* (1964), *Docosia morionella* (1904), *Brevicornu arcticum* (1971, Ireland only), *B. canescens* (1913), *B. rosmellitum* (1968), *Trichonta fusca* (1972), *Phronia sylvatica* (1976) and *Sciophila cliftoni* (undated, locality unknown). There are several other cases where there are fewer post than pre 1980 records. There are also cases of recent records of species that had not been recorded for a long time so it cannot be certain that any of these species has disappeared from our fauna. Conversely 20 species have been added to the list since the 1998 checklist and some of these are apparently recent arrivals, some of which have become established and are apparently spreading (see below).

The species with most records are shown in the two following maps. *Boletina trivittata* (Fig. 3) with 1620 records (in 668 10km squares) is the most frequently recorded species, while *Mycetophila ocellus* with records from 683 10km squares is recorded from the largest number of squares. While both are generally distributed, *B. trivittata* is found mainly in damp woodland, which explains the greater density of records in Wales and the south-west; its larval biology is unrecorded but it is probably not a fungus feeder. On the other hand *M. ocellus* is dependent on presence of rotten wood bearing the saproxylic fungi in which it develops and is less restricted by the type of woodland.

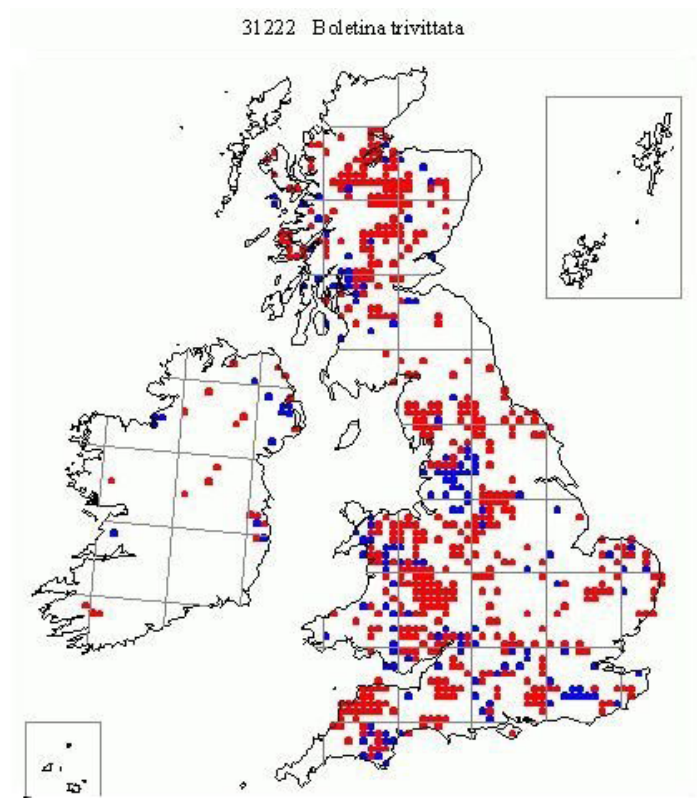


Fig. 3. *Boletina trivittata*, records to end of 2008.

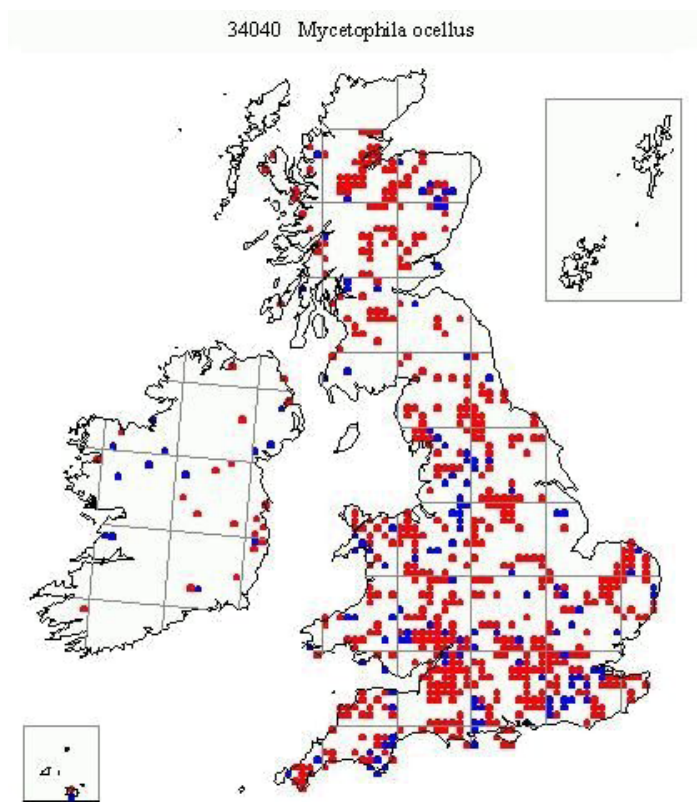


Fig. 4. *Mycetophila ocellus*, records to end of 2008.

## Putting Fungus Gnat Recording Scheme data on the NBN Gateway

It is hoped to resolve all significant discrepancies before the Recording Scheme database is made available on the NBN Gateway, where individual recorders will be able to check that their data has been processed accurately. When the data is put on the Gateway it will be as a separate entity to avoid mixing with fungus gnat data that has already been put there from diverse sources. These sources and the resulting records sometimes coincide with the Scheme database, but there are also a number of sources that have been used which have not been incorporated in the Recording Scheme. In some cases verification of the accuracy of identification would be desirable and no detailed evaluation of existing records on the Gateway has yet been possible.

## Examples of different distribution types

Several examples of differing distribution types that could be discerned from the maps were presented in November. Four of these, representing three families, are given here.

### *Ditomyia fasciata* (Ditomyiidae)

*Ditomyia fasciata* (Ditomyiidae) was illustrated on the cover of Digest Volume 16 No 1, with a photograph by Judy Webb of a live gnat that she had reared, and it was then recorded as new to Wales. Only one of the Welsh records and neither of the two Gloucestershire records then published, appear on the current map.

27201 *Ditomyia fasciata*

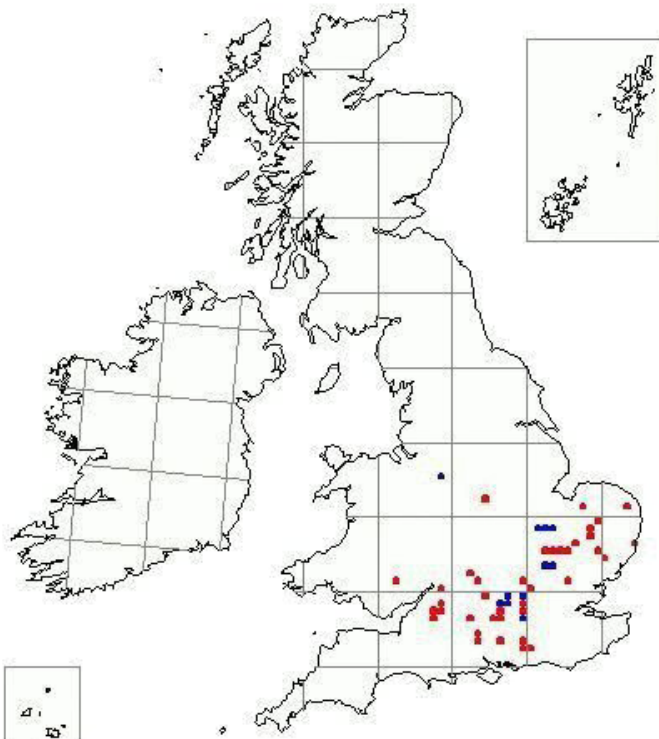


Fig. 5. *Ditomyia fasciata*, distribution map.



Fig. 6. *Ditomyia fasciata*, lateral view of male.

Fig. 6, taken by Bryan Formstone, is a third Welsh record (a male from Denbighshire in 2009) and shows the profile of the genitalia. The distribution map (Fig. 5) shows that it is a southern species in Britain, which is mainly restricted to central areas with extensions into East Anglia. As it favours drier woodlands, where it develops in several species of polypores, its apparent absence from Kent and adjacent parts of the south-east is surprising.

### *Platyura marginata* (Keroplattidae)

*Platyura marginata* (Keroplattidae) is a large glossy black gnat, which occurs mainly in damp woodland and near woodland streams. It is present in Kent but does not extend far up the eastern side of the country, having a mainly south-westerly distribution. It is evidently widespread in Wales but doesn't extend any further north than the southern part of the Lake District (Fig. 7).

27901 *Platyura marginata*

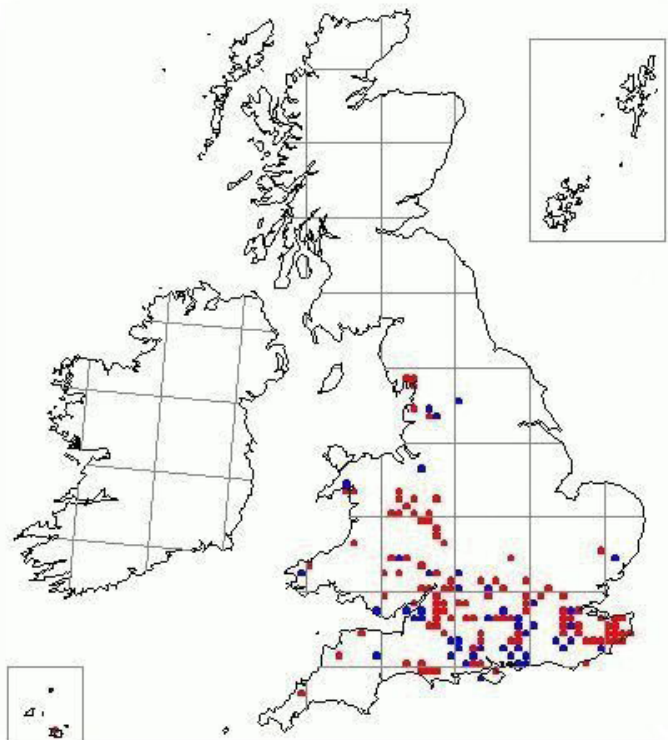


Fig. 7. *Platyura marginata*, distribution map.

## *Gnoriste bilineata* (Mycetophilidae)

*Gnoriste bilineata* (Mycetophilidae) is one of those species that in the British Isles is restricted to Scotland (Fig. 8). It inhabits damp broad-leaved woodland, particularly in mossy areas and is evidently widespread within its range. It has a very long proboscis, extending beyond the hind coxae, and is presumably a flower feeder but nobody has observed it feeding.

There are 46 species of fungus gnats that, within the British Isles, are presently recorded only from Scotland. Some are restricted to Caledonian pine forest and others to high mountains, while some like *G. bilineata* are found mainly in broad-leaved woodland. Many other species have a mainly northern distribution in Britain, but as there is a large boreal fauna in Europe it is perhaps surprising that there is not a larger proportion of the British fauna in this category.

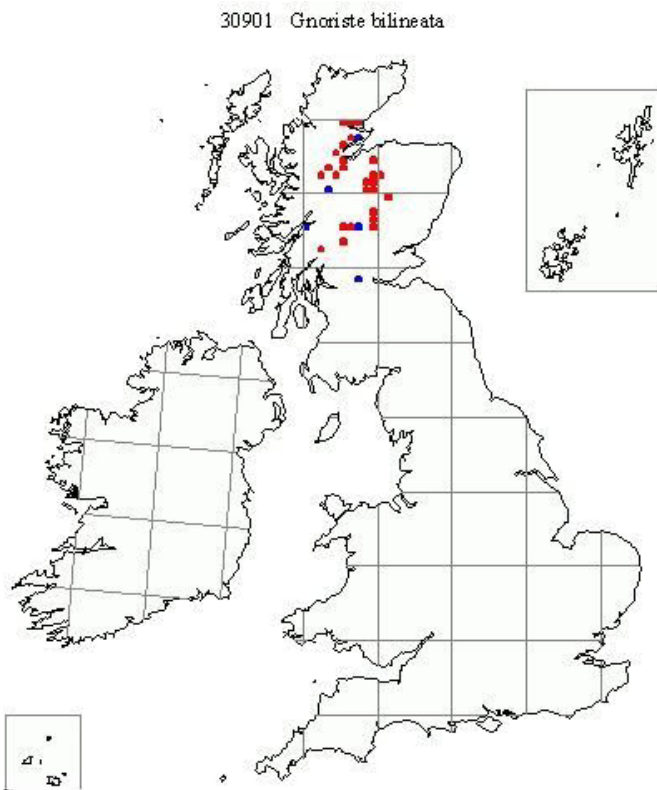


Fig. 8. *Gnoriste bilineata*, distribution map.

## *Leptomorphus walkeri* (Mycetophilidae)

*Leptomorphus walkeri* (Mycetophilidae), of which another of Judy's photographs is shown in Fig. 9, is a large conspicuous gnat that is widespread in Britain, although with only one fairly old Scottish record. Although it is distinctive and often collected even by entomologists who are not primarily dipterists, most records are of single individuals and it is not considered significant that 27 of the 65 squares for which records are shown on the map (Fig. 10) are pre 1980.



Fig. 9. *Leptomorphus walkeri*, male.

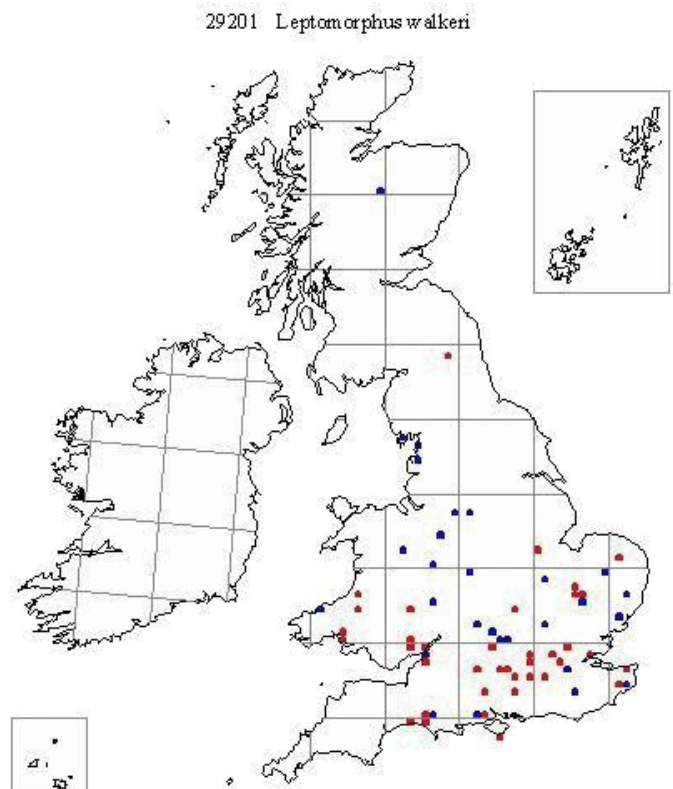


Fig. 10. *Leptomorphus walkeri*, distribution map.

It was finding a specimen in Scrogginhall Wood at Bromley (TQ46) on 29 June 1964 (Chandler 1966) that started my interest in fungus gnats and I only later realised that it wasn't a typical member of the group, most of which are less spectacular in appearance. Edwards (1925) said that the larvae are more easily found than the adults; they occur in webs on the surface of wood encrusting fungi and the pupae are suspended by a thread from this web, without a cocoon unlike some other species with similar larval habits.

## Some recent additions to the British list that are spreading

In previous newsletters accounts have been given of two recent additions to the British list, *Greenomyia mongolica* and *Mycetophila sigmoides* (both Mycetophilidae). These appear to be recent arrivals in this country and, as there have been further records of both during 2009, BRC have kindly prepared up to date maps (Figs 11 and 13).

*Greenomyia mongolica* is a distinctive shining black gnat that has the legs yellow apart from the mid and hind coxae and a dark tip to the wing and Judy's photograph is depicted at the heading of this and other recent newsletters. The first British record was by Graham Collins in 2007.

Ivan Perry found it at three more sites in 2009, in Surrey, Cambridgeshire and Suffolk, bringing the British total to 7. In Surrey he found it at wild parsnip (*Pastinaca*) flowers on the North Downs, and it was already known to be a flower feeder, having been found at ivy flowers in the Czech Republic. It is curious in view of Ivan's experience that no other recorder turned it up in the year.

Has anyone else seen it?



Fig. 12. *Mycetophila sigmoides*, male.

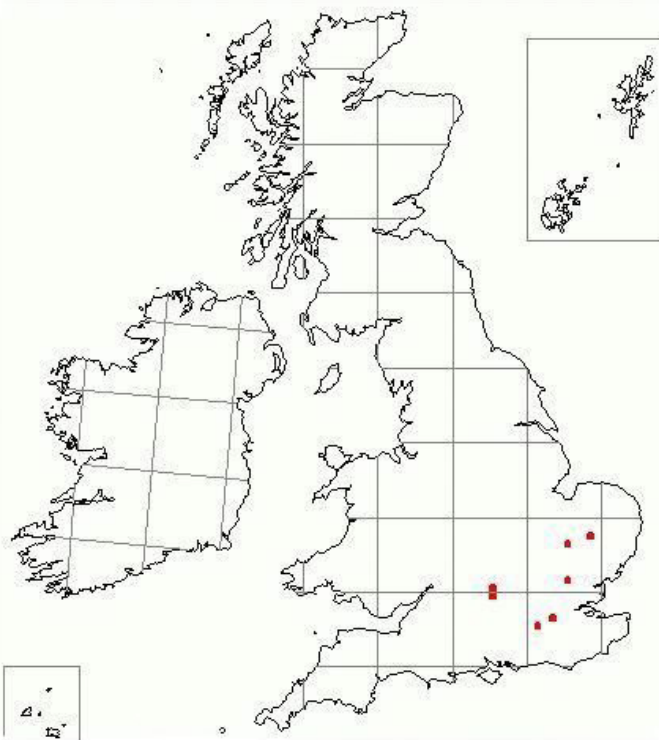


Fig. 11. *Greenomyia mongolica*, distribution map.

*Mycetophila sigmoides* was added to the British list only in 2009 by David Gibbs, but was found from examination of collections to have been present here at least since 1998. It is evidently still spreading and was found by Roger Morris at a site in Shropshire on one of the 2009 autumn field meetings. Although similar to the widespread species *M. cingulum*, which develops in the soft polypores *Polyporus squamosus* and *Grifola frondosa*, *M. sigmoides* differs in larval biology as it develops in tougher polypores such as *Trametes* species.

Judy's photograph (Fig. 12) is of one reared from *Daedaleopsis confragosa*, from a site not yet shown on the map.

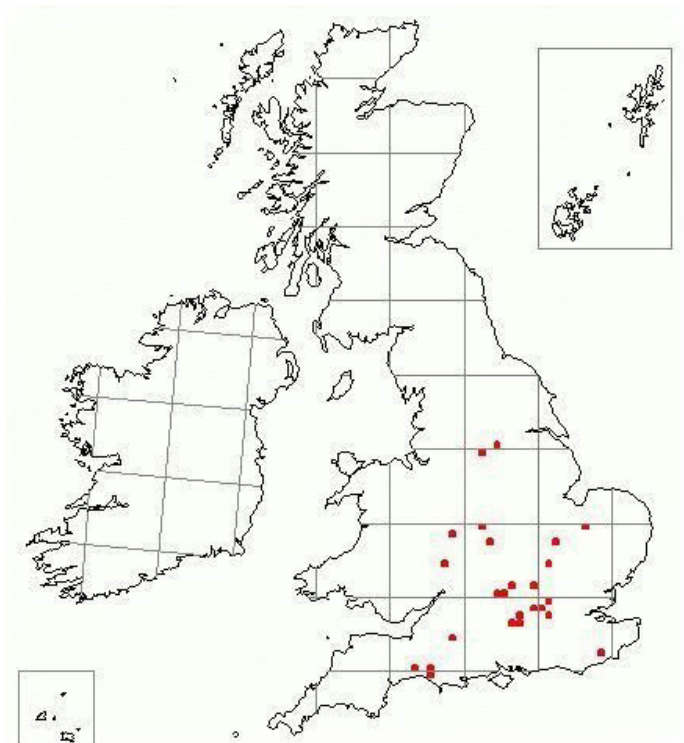


Fig. 13. *Mycetophila sigmoides*, distribution map.

## Distribution of the Truffle Gnat

In the previous newsletter the development of *Stigmatomeria* species in truffles was discussed. It was noted that the only rearing record of the British species *S. crassicornis* was from truffles as cited by Edwards (1925). This is a widespread species and common in woodland throughout the British Isles (Fig. 14).

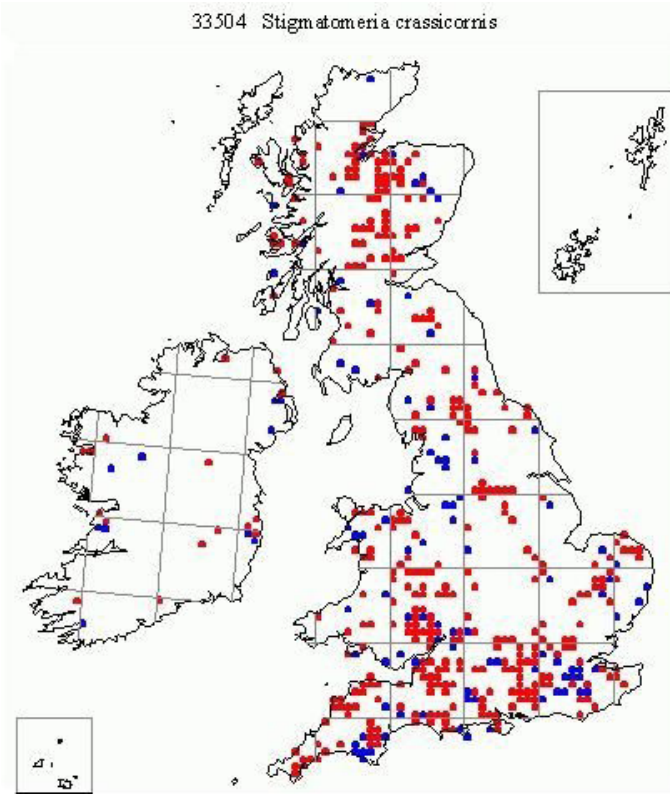


Fig. 14. *Stigmatomeria crassicornis*, distribution map.

If it is confined to truffles they must be more frequent than generally perceived. Or perhaps any subterranean fungi will suffice.

## More species new to the British list

During 2009 I heard of two more additions to the British list, of which full details are yet to be published. Whether these are also recent arrivals, or have simply been overlooked previously, is open to speculation but both are small and dark coloured so are not as conspicuous as the two species discussed above. Both species were identified by their collectors from characters of the male genitalia, as figured by Zaitzev (2003), whose figures are reproduced here.

*Exechia spinigera* was identified by David Gibbs from a single male that he found in a yellow pan trap at a site on the Gwent Levels. It is close in most respects to the widespread species *E. spinuligera*. The most obvious difference in the genitalia is in the apical part of the longer external lobe of the gonostylus, which is forked in both species, but in *E. spinuligera* the unbristled internal branch is slender while in *E. spinigera* it is nearly as thick as the outer branch (Fig. 15).

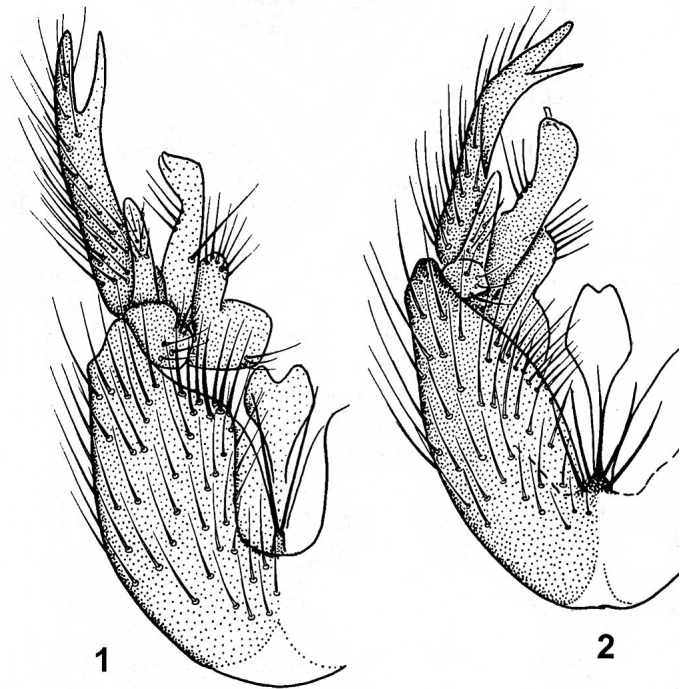


Fig. 15. *Exechia* species, male genitalia: 1, *E. spinigera*; 2, *E. spinuligera* (from Zaitzev 2003).

*Phronia forcipula* was first recognised as British by John Coldwell, from two males collected in 2009 at Wortley Top Forge in Yorkshire (SK29). Soon after he had sent me a specimen, I identified some of both sexes from flight interception trap samples obtained in 2007 at Langley Park, Buckinghamshire (TQ08) and passed to me by John & Barbara Ismay. It has male genitalia rather similar to the common species *P. humeralis* but among other small differences, the ventral bristly lobe of the gonostylus is more or less rounded apically while it comes to a blunt point in *P. humeralis*, and the median excavation of the gonocoxites is a little narrower and deeper in *P. forcipula* (Fig. 14). Also *P. forcipula* has clear wings while there is usually a brownish patch behind the posterior fork in both sexes of *P. humeralis*.

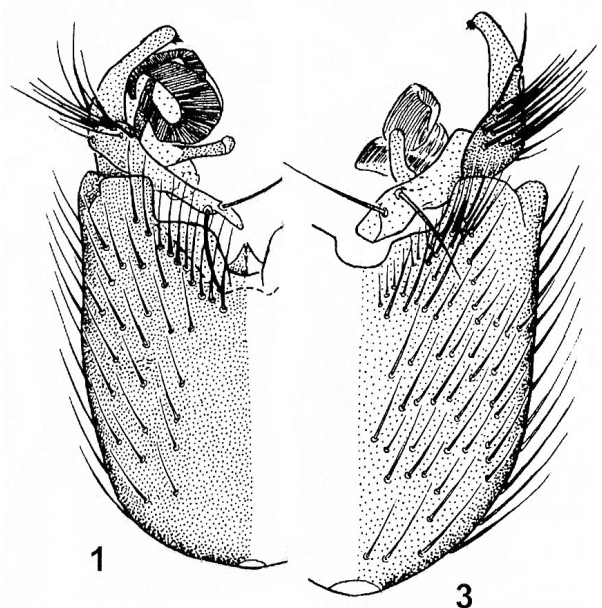


Fig. 16. *Phronia* species, male genitalia: 1, *P. forcipula*; 3, *P. humeralis* (from Zaitzev 2003; taken from different plates, hence numbering).

## Acknowledgements

I am indebted to Judy Webb for the use of her photographs, and to Ivan Perry, David Gibbs, John and Barbara Ismay, and John Coldwell for the opportunity to cite their records. I thank Stephanie Ames for providing the updated maps of *Greenomyia mongolica* and *Mycetophila sigmoides* and I am grateful to her and the other staff of BRC, Bjorn Beckmann, Colin Harrower, Helen Roy and Mark Hill, for useful discussion.

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