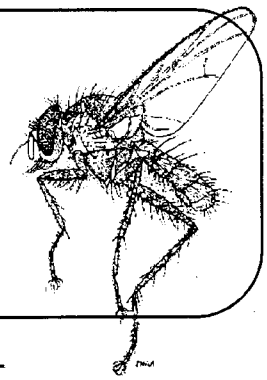
ANTHOMYIIDAE NEWSLETTER



FEBRUARY 1999 NO 6

Anthomyiidae in 1998

I found 1998 to be a poor year for Anthomyiidae, with normally abundant and common species being often absent or in very low numbers.

In Oxfordshire a few warm days at the end of February (when some Egle species occurred locally around sallow bushes) were followed by dull cold weather. Much dull, cloudy weather in March and April (sleet on the 3rd of April, and heavy rain with floods in mid April) continued into May. In spite of a warm spell in mid May, the weather deteriorated in June. As a result of this poor early weather, a trip to collect in Epping Forest in September produced very low numbers of specimens and species.

The weather of 1998 followed a poor year in 1997, which started out with some fine sunny days in March *(Egle's* appearing on March 30th) but heavy rain started on April 25th after 20-30 days of drought. Poor weather at a critical time over two years appears to be cause of low populations in 1998.

Other areas may have been different. Ivan Perry's collecting trip to Scotland in June 1998, produced some very interesting records (see below). He tells me that in spite of some very cold and wet days, especially in the Black Wood of Rannoch, it was cold enough to freeze the hands; yet Anthomyiidae were obtainable, including some rare or little recorded species. This echoes my own experience in Abisko, Lapland, where anthomyiids were flying (albeit close to the ground) on cold cloudy days. Presumably in the north the period for mating, egg-laying etc is so short that populations are adapted to behaving in a way that is rarely seen in the south.

Anthomyiidae collected in Scotland in June, 1998, by Ivan Perry

The most interesting capture was 4 males and 1 female of *Heterostylodes caledonicus*, (d'Assis-Fonseca, 1966) at Nairn, Culbin, 8.vi.1998. This species was originally described from 1 male caught in the Orkney Isles, by Waterston in 1906. All subsequent records from mainland Britain were from pitfall and water traps in the Scottish Highlands, at altitudes ranging from 550m to 890m. (See Horsfield, 1984, 1987 and 1988 in the *Entomologist's Monthly Magazine*). Michelsen in 1987 transferred *caledonicus* from *Delia* to *Heterostylodes.* Larvae of other species of *Heterostylodes* have been recorded from the flower heads of Compositae. The foodplant of *caledonicus* is unknown. This new record for *H. caledonicus* is interesting in that it would appear to be from a different habitat from those at higher altitudes.

Other records worthy of note are:

Paregle atrisquama (Ringd.), Inverness: River Findhorn, Balnught, 10.vi.1998, 1 male; Banff: Bridge of Brown, 11.vi.1998, 1 male. *Eutrichota longimana* (Pok.), Perth: Black Wood of Rannoch, 2.vi.1998. *Eutrichota frigida* (Zett.), Perth: Black Wood of Rannoch, 4.vi.1998, 1 male; River Tummel, Ballinluig, 5.vi.1998, 1 male. *Pegomya furva* Ringd., Inverness: Craigellachie, 12.vi.1998. 1 male. (All caught by Ivan Perry, who kindly presented me with a pair of *H. caledonicus)*

Note on some larval foodplants and habitats

A very useful reference to the breeding habits of Anthomyiidae is Ferrar, P., 1987, A Guide to the breeding habits and immature stages of Diptera Cyclorrapha, part 1: Text. *Entomonograph* 8: 1-478 [Anthomyiidae on pages 66-77]

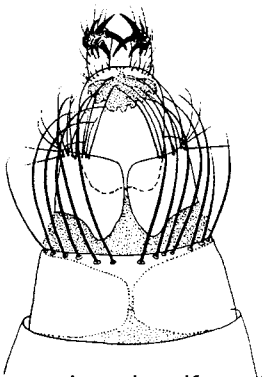
The larvae of Anthomyiidae live in a wide range of foodplants and habitat associations. They have been recorded from roots, stems, flowerheads, seeds, and leaves of many groups of plants, especially of the families Cruciferae, Caryophyllaceae, Compositae, Solanaceae, Chenopodiaceae, Gramineae and Polypodiaceae. Other species are general saprophagous feeders in decaying vegetable matter, rotting seaweed etc.

A large group of *Pegomya* species feed in fungi, and certain species of other genera have also been recorded from fungi. More specialised fungi feeders are found in the *phrenione* group of *Botanophila,* which feed on *Epichloe* fungus on grass stems.

Many genera have larvae which feed on dung *(Calythea, Emmesomyia, Hylemya, Pegoplata, Paregle). Eutrichota* specie have been associated with mammal burrows in Europe. *Eustalomyia* and *Leucophora* are associated with nests of aculeate Hymenoptera, where they probably beehave as cleptoparasites. *Anthomyia* and *Lasiomma* have been bred from bird's nests, the latter also from dung

A note on some anthomyiid females, with drawings of the ovipositor

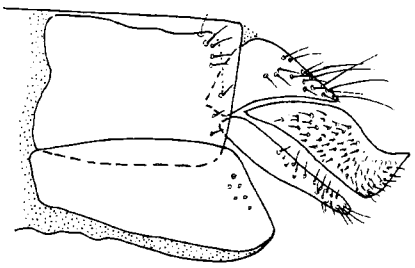
Leucophora species generally have strong recurved spines on the cerci, which they use for digging in sandy soil during oviposition. This adaptation is also found independantly in a few species of *Delia* which frequent sandy locations.



Leucophora brevifrons Seg. (Not British)

Phorbia bartaki Ackland & Michelsen

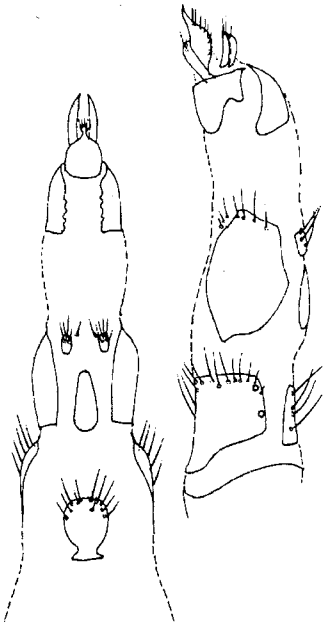
All *Phorbia* species have a laterally compressed ovipositor, adapted for inserting eggs into the leaf sheaths of grasses. The 6th tergite is strongly reduced, 6th and 7th spiracles are in the membrane. *Phorbia* species occur generally fairly early in the year (March-May) although the common *P. fumigata* Mg appears to have several generations in some years, and specimens can be found in August. The females are easily recognised by the sclerotized cerci, with only short fine sensory hairs and an angulate upper apical corner.



Phorbia bartaki Ackland & Michelsen

Botanophila latifrons Zett.

This species was mentioned (under the name of *Pegohylemyia humerella* Zett.) by Collin in 1967 (*Entomologist's Monthly Magazine* 102:183). He stated that it had been recorded (though not published) as having been bred from *Epichloe* fungus on grasses. I think this is unlikely, especially as the ovipositor is of a very different type. The cerci are laterally compressed, superficially like *Phorbia* species. Perhaps this suggests egg laying in some narrow vertical crevice, such as fungus gills, or even in stems of some sort. The female was not known with certainty to Hennig, but Collin in 1933 (*The Scottish Naturalist,* July-August, 1933: 121) correctly recognised it. The species is not uncommon in Scotland, Collin also recorded it from North Wales. I have seen a female caught by Peter Chandler in South Wales: Glamorgan, Llyn Fach, 25.v.1968, in a wood above a stream; Ivan Perry has caught it in W. Suffolk, and there are specimens also from Suffolk in the Verrall-Collin coll. In the University Museum in Oxford.

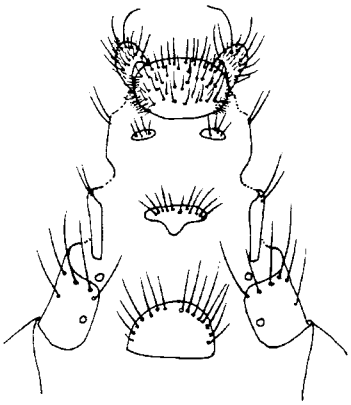


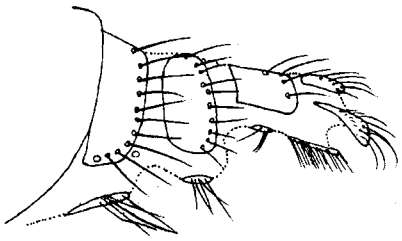
Botanophila latifrons Zett

Botanophila phrenione Séguy

B. phrenione belongs to a group of species whose larvae feed on the fungus Epichloe. Recently Bultman (1995, *Can. J. Bot.* 73 Suppl. 1): 1343-1348) reported that there was a mutualism between these flies and the fungus. The fungi are self-incompatible, and the flies transport spermatia between fungi. Bultman et al have written a number of very interesting papers on this subject, and a full bibliography can be found in one of their latest papers, 1995, *Mycologia* 87(2):182-189.

The ovipositor of *B. phrenione* is short, with the cerci widely separated. The 10th sternite is clothed with rather long erect setulose hairs that are all th same length, rather brush-like, which may be an adaptation for collecting the spermatia during egg laying, for transfer to other fungi.

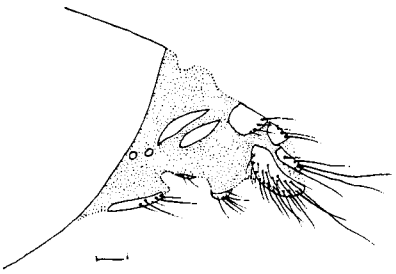




Botanophila phrenione Séguy

Hylemya vagans Pz.

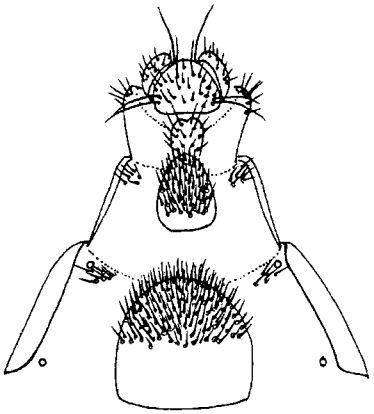
The larvae of this very common species is coprophagous, feeding in the dung of a wide range of mammal species. The ovipositor is very short, with reduced 6th and 7th sternites. This suggests that the species is oviviparous, laying perhaps first instar larvae.



Hylemya vagans Pz.

Pegomya species

Pegomya species are divided into two subgenera. The subgenus *Pegomya* contains leaf-mining species, with shorter ovipositors and larvae with numerous teeth (3 or more) on their mouthhooks. The subgenus *Phoraea* have longer ovipositors, larvae with fewer teeth on their mouthhooks. *Phoraea* species are mainly stem feeders or fungus feeders.



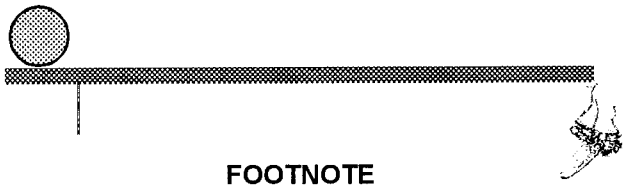
Pegomya bicolor Wied.

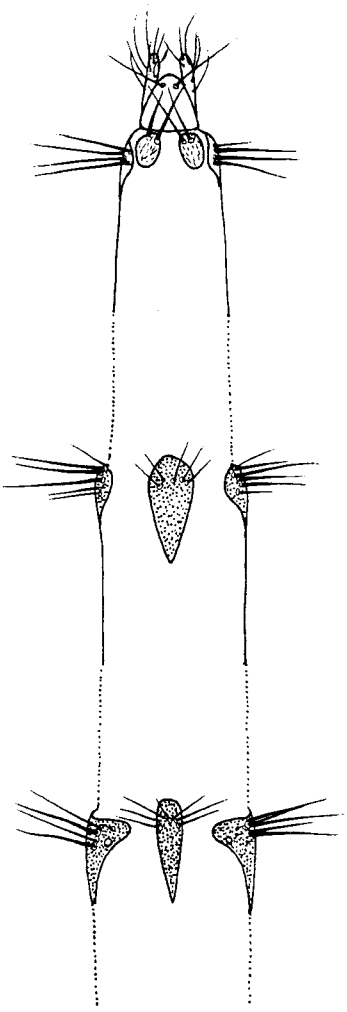
Pegomya bicolor Wied.

Pegomya bicolor belongs to a section of subgenus *Pegomya* which possess (among other characters) 6th and 7th sternites which are densely clothed with short spinules. The larvae are multivoltine leaf miners on Polygonaceae *(Rumex* spp.,)

Pegomya transversa Fallen

Pegomya transversa belongs to the subgenus *Phoraea,* with a long ovipositor. It has been bred from *Armillaria* species. It occurs often rather late in the year (September/October) and has been taken in malaise traps in old woodland.





Pegomya transversa Fall.

FOOTNOTE

These few notes are intended to encourage dipterists to breed out anthomyiid flies, especially those which are rarely caught as adults. Many common species are still unknown in the larval stage. This is in many cases probably because very abundant species can breed in a variety of general habitats, such as decaying matter or mud. Some rarely recorded species, such as *Anthomyia cannabina* Stein, have not been caught or bred for a number of years. Most records are from adults bred from song-bird's nests, collected early in the year (March/April), and they emerged in May. Although this species has been recorded from Scotland, most of the records seem to stem from the Home Counties (Bucks, Berks, Surrey). I suspect that the adults are very retiring, keeping near nests in thorn hedges, hence they are not often netted.