

## Problematic dipterous leaf miners on Bracken (*Pteridium aquilinum*):

### (i) *Chirosia histicina* and *Chirosia flavipennis* (Diptera:Anthomyiidae):



Photo © Barry Warrington

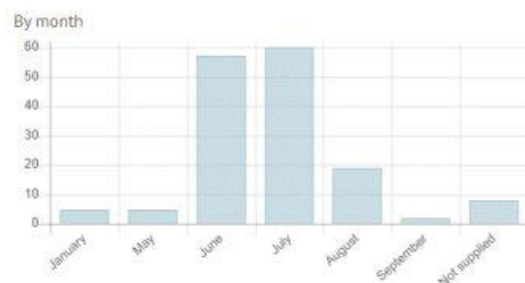
It was these mines, in late October, of a *Chirosia* species that seemed to be straightforward to identify, using the findings of Griffiths (1982), as *Chirosia flavipennis*.

This forms very similar mines to that of *Chirosia histicina* on the same host, but *Chirosia histicina* apparently occurs earlier in the year.

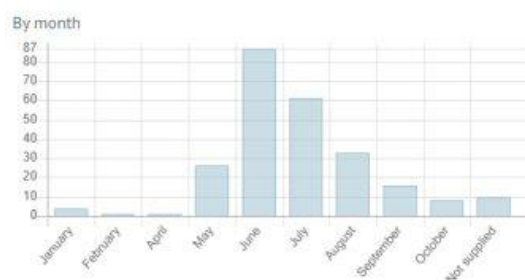
Griffiths' findings were based on a small sample of these Anthomyiid flies in North America but a different picture emerged once Phil Brighton (Anthomyiid Recording Scheme) was contacted.

The records of each species from the NBN atlas, including data from the Anthomyiid Recording Scheme, are as follows.

#### *Chirosia flavipennis* (156 records)



#### *Chirosia histicina* (247 records)



PB has found the adults of both species on dates ranging from 27 May to 4 August and he states that 'the flight periods of both species largely overlap, with *C.histicina* only a few weeks in advance.

The *C.histicina* data include leaf-mine observations which have been coming into IRECORD in recent years, and which may therefore also include some *C.flavipennis*.'

**The adults must be reared for a positive identification of either species but PB welcomes leaf mine records without rearing - recording them just as *Chirosia*, as such records could still give significant information.**

**Reference:** Griffiths, GCD (1982) - Flies of the Nearctic Region (Anthomyiidae)

(ii) *Phytoliriomyza hilarella* and *Phytoliriomyza pteridii* (Diptera: Agromyzidae):



Photo © Barry Warrington

A similar situation occurs with two agromyzid miners on Bracken – *Phytoliriomyza hilarella* and *Phytoliriomyza pteridii*, where both form very similar mines.

Can they be separated on phenology?

Barry Warrington (Agromyzidae Recording Scheme) says 'In the national database, there are 6 records of *pteridii* (7 June - 14 July), whilst there are 25 records of *hilarella* (25 May - 25 Aug). All records are of adult material with only one been a reared specimen (of *hilarella*).'

Again the flight periods (and presumably the mines) overlap and again **the adults must be reared for a positive identification of either species.**

**More details:**

Agromyzidae Recording Scheme:  
[agromyzidaers@gmail.com](mailto:agromyzidaers@gmail.com)

Anthomyiidae Recording Scheme:  
[helophilus@hotmail.co.uk](mailto:helophilus@hotmail.co.uk)

***Heterarthrus aceris* is now renamed to *Heterarthrus fiora* Liston sp.n:**

A recent paper reviewing the *Heterarthrus* species sawfly leaf miners found that leaf mines previously identified as *Heterarthrus aceris* were in fact a misidentification and should be renamed *Heterarthrus fiora*



Photo © Rob Edmunds

The mines of *H.fiora* are edge mines of Sycamore (*Acer pseudoplatanus*) and the pupal disc detaches and falls to the ground before the leaf falls from the tree (as shown).

**Reference:** Liston, A, Mutanen, M, Viitasaari (2019) - On the taxonomy of *Heterarthrus* (Hymenoptera, Tenthredinidae), with a review of the West Palaearctic species, Journal of Hymenoptera Research, 72, 83-126

## ***Caloptilia fidella*** **(Lep:Gracillariinae) – soon to occur in the UK?**

*Caloptilia fidella* is a bivoltine leaf miner of Hop (*Humulus lupulus*) which was first discovered in Belgium in 2009.

Will it soon be a leaf miner in the UK?

It forms distinctive mines with leaves showing both the small white initial triangular mine in a leaf axil (as shown, in transmitted light and surface view) and also subsequent three small leaf rolls formed at the leaf edge (as shown opposite, with the first leaf roll formed):



Photos © Carina Van Steenwinkel



Photo © Carina Van Steenwinkel

Pupation occurs in a white cocoon which is formed under the leaf (as shown, with exuviae).



Photo © Carina Van Steenwinkel



The adult (below) emerged on 13.ix.2012 from a mine collected at Meerhout, Belgium, on 02.viii.2012.



Photos © Carina Van Steenwinkel

***Pleuroptya ruralis* (Lep: Crambidae) may be a confusion species?**

These spinings by *Pleuroptya ruralis* (23.ix.2019) superficially resemble those of *Caloptilia fidella* but are **not *fidella*** as:

- There is no central white initial triangular mine (which is always seen)
- The leaf roll is too large, those of *fidella* are smaller



Photos © Rob Edmunds

## Distinguishing between the commoner Oak *Ectoedemia* species

There are four commoner *Ectoedemia* species on Oak in the UK – *E.albifasciella*, *E.heringi*, *E.quinquella* and *E.subbimaculella*.

*Ectoedemia quinquella* forms contorted gallery mines (as shown) whereas the other three ultimately form blotches, after an initial thin gallery.



Photo © Rob Edmunds

Of the remaining three only *E.subbimaculella* forms a blotch with a slit in the lower epidermis. With the others the blotch remains intact.

The mine of *E.subbimaculella* showing the slit in the lower epidermis:



Photo © Rob Edmunds

The larval head of *E.subbimaculella* is a dark blackish brown (as shown):



Photo © Rob Edmunds

These mines are found during October and November.

The remaining two blotch miners have different phenologies and larval characteristics, with *E.albifasciella* forming mines August to October and *E.heringi* October to November.



The larva of *E.heringi* has a darker reddish brown head (as shown):



Photo © Ben Smart

The early instar larva of *E.albifasciella* showing some ventral plates:



Photo © Ben Smart

Whereas the larva of *E.albifasciella* has a very pale brown head (as shown):



Photo © Rob Edmunds

The larvae can also be identified at an early stage by the presence of ventral plates, with only *E.albifasciella* having these in the early instars, but they are not very distinct.

The plates are thought to have a protective function and are lost by the final instar.

*E.heringi* and *E.subbimaculella* do not have these ventral plates.

Interestingly *E.quinquella* larvae have distinctive black ventral plates, from the second to early fourth instar.

The larva of *E.quinquella* showing black ventral plates:



Photo © Rob Edmunds

## Reference:

Keys to Nepticulid mines and larvae:

Johansson R, Nielsen ES, Nieukerken EJ van & Gustafsson B (1990)- The Nepticulidae and Opostegidae (Lepidoptera) of North West Europe. – Fauna Entomologica Scandinavica 32.1 p77-98

## Green Islands:

A very interesting blog summarising present knowledge on Green Island formation by Simon Leather:

<https://simonleather.wordpress.com/2019/09/10/green-islands-mining-cytokinins/>

## Pocket Guides to leaf mines:

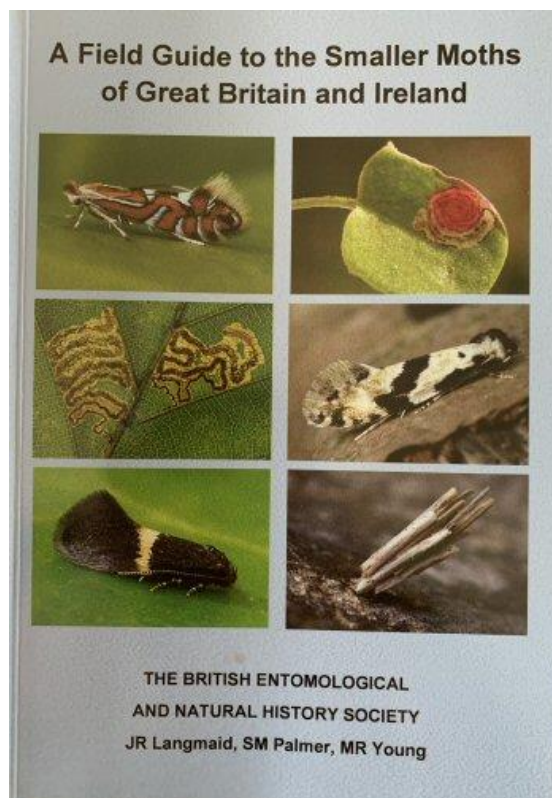
Some suggestions if you are looking for a guide to leaf miners that you can carry in the field. The following are all guides to lepidopteran miners (and microlepidoptera).

### (i) Leafmine site keys:

The guide produced by Barry Dickerson is very popular on leaf mine excursions and prints out to a compact handy pocket size.

[http://leafmines.co.uk/html/Mine\\_Guide.htm](http://leafmines.co.uk/html/Mine_Guide.htm)

### (ii) A Field Guide to the Smaller Moths of Great Britain and Ireland:

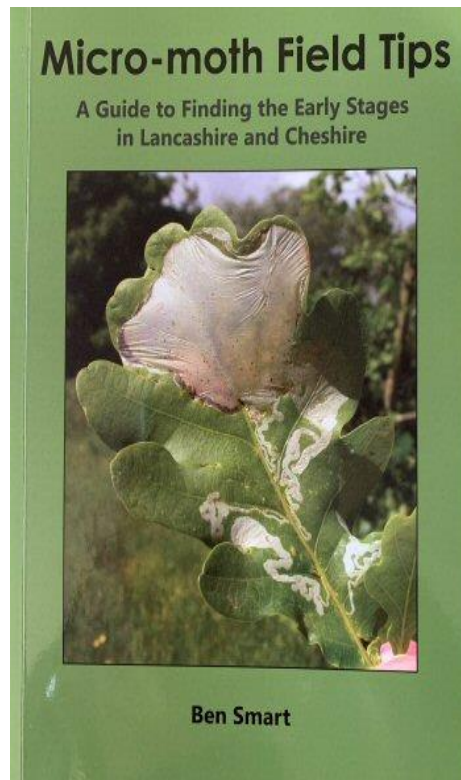


I've been using this constantly over the past year (since publication) and cannot recommend it highly enough.

It is a paperback with a plastic cover (so can be used in the field) and is packed full of masses of useful information ranging from phenology to distribution maps to descriptions of the life stages.

An essential purchase for every microlepidopterist!

(iii) **Micro-moth Field Tips:**



Another very useful field guide, with life stages beautifully photographed by Ben Smart.

Although the title refers to Lancashire and Cheshire it is applicable throughout the UK and contains many descriptions of leafminers on a month by month basis.

There is generally one species described on each page, with summaries of other species to find at the end of each chapter.

My copy is very well used!