

AGROMYZIDAE NEWSLETTER

LATEST NEWS FROM THE NATIONAL AGROMYZIDAE RECORDING SCHEME

A BRIEF UPDATE

RECORDS

In May, the Scheme received 134 records, a fantastic total and a big thank you to everyone who sent in their records. *Phytomyza ilicis* continues to be the most recorded species, forming 53% of the total records received.

Jacob Everitt submitted a very welcomed record of *Phytomyza brunripes*, which forms linear mines on Wood Sanicle (*Sanicula europaea*), as he photographed below.

The NRS holds only 22 records of this species, with the majority of records coming from the South-east so Jacob's record was received with great interest.



During recent weeks, more records have been collated from Local Record Centre's and we would like to express our gratitude to all LRC's who are helping to build up the NRS database, both with their historic data and working in partnership with the NRS.

At present, the total number of records held by the NRS stands at 20,000.

PHOTOGRAPHS

Recently, the scheme has received several records, via iRecord, which do not have a photograph to support the record. Although this is acceptable for some species, it really does aid the verification process if photographs were to be included with **ALL** records submitted.

Many thanks for your cooperation.

WHAT'S ABOUT.....

JULY

This month sees the mines of *Aulagromyza tremulae* developing on Aspen and Poplar leaves. The mine of this species is a long, irregular, linear corridor which is always on the lower surface of the leaf.

The frass is in irregularly scattered grains. The larvae pupate externally, leaving the mine via a slit on the lower surface of the leaf.

The image below shows typical mines on the lower surface of an Aspen leaf. At the end of the mines, you can see where the larvae have vacated the mine to pupate.

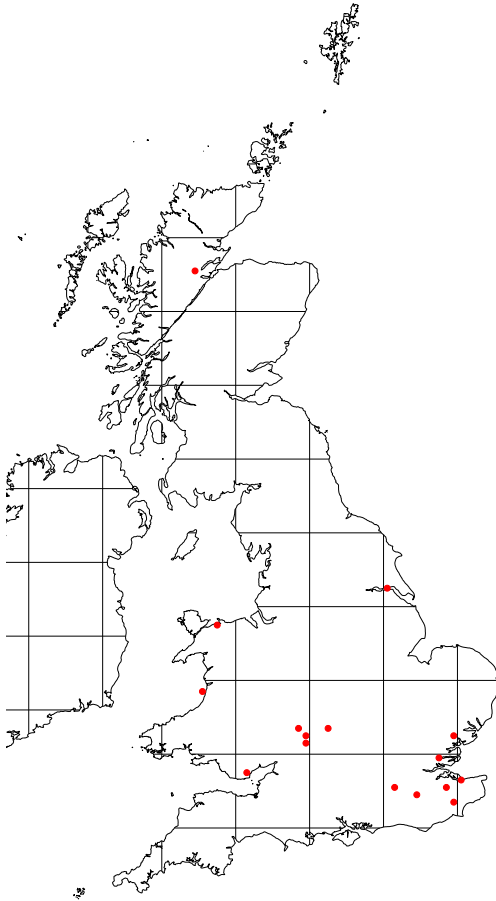


The next image shows the upper surface of the same leaf;



As the larvae feed on the spongy parenchyma of the lower leaf surface, there are usually no visible signs of the mine on the upper surface, as shown in the previous image.

Due to this factor, *Aulagromyza tremulae* can be difficult to locate and this may account for the fact that the NRS only holds 18 records of this species;



The NRS would really appreciate any records of this species to help build a bigger picture of its distribution in the UK. If there are any Aspen or Poplar trees in your area, please check and let us know!

NEW UK HOST-PLANTS

AGROMYZA ABIENS AND PHYTOMYZA HELLEBORI RECORDED ON NEW HOST PLANTS IN UK

On 2nd June 2017, blotch mines were found on Common Fiddleneck (*Amsinckia micrantha*), in Hessele, East Yorkshire (VC61). Several were collected and on closer examination, a few contained feeding larvae.

The online resources state only *Agromyza abiens* as a miner of *Amsinckia*, but it has not yet been recorded on this hostplant in Britain.

The mines, shown below, are typical of *A.abiens*. They start with a narrow corridor which has frass neatly placed at the sides. After the first moult, a large blotch is formed which usually overruns the initial corridor, although in some cases, the corridor can remain visible (which can be seen in the image below).



Over 23rd/24th June, two males and a single female emerged. The male’s genitalia were examined and this confirmed the species to be *Agromyza abiens*.

“This is a very interesting record as *Amsinckia* is not mentioned in the literature as a host to miners, including *Agromyzidae*. *Amsinckia* occurred originally in North America and even the **Manual of US Agromyzidae** (Spencer & Steyskal (1986a) does not mention the genus as a host-plant” (source : *Dr. W. Ellis bladmineerders.nl*).

Andy Banthorpe recorded mines on *Helleborus* and writes;

“I have taken an interest in leaf mines, mainly Lepidopteran, since 2002. At that time David Manning, the then VC30 Bedfordshire micro-moth recorder, was looking for a scanner that would enable transmitted light scans of leaves showing the mines and I had a scanner that would do this.

I have occasionally looked at Agromyzid mines but not seriously until the National Agromyzidae Recording Scheme was set up last year.

Whilst on a visit to Cambridge University Botanic Gardens with my wife Melissa on 7th April 2017, I noticed some leafmines on *Helleborus tibetanus* in one of the greenhouses at NGR TL454572. I noted the data on the iRecord app on my phone at the time to get the grid reference etc and a photo and assumed it was *Phytomyza hellebori* whose usual host in the UK is Stinking Hellebore *Helleborus foetidus*.

On checking the British fly mines website <http://www.ukflymines.co.uk> the only other UK host was listed as *Helleborus niger* with *Helleborus dumetorum*, *foetidus*, *lividus*, *niger*, *odorus*, *purpurascens* & *viridis* elsewhere - information that comes from the Dutch site <http://www.bladmineerders.nl>.

Barry Warrington, the National Recording Scheme organiser, queried my record on iRecord as this would be a new host for the species. He made contact with staff at Cambridge University Botanic Garden to request material if possible and he will carry on the story from here...”



Photograph of the mines © Andy Banthorpe

Having contacted the Cambridge University Botanical Gardens, they very kindly collected three mined leaves and sent them in the post. On arrival, all three had a puparium present at the end of the mine.

Unfortunately, one of the mines appeared to have been damaged in transit. A couple of weeks after receiving the mines, an adult male emerged and an examination of the genitalia confirmed it to be *Phytomyza hellebori*.

Although many Agromyzids will utilise several species of host plant within a specific genus, this, as far as is ascertainable, is the first known record on *Hellebori tibetanus*.

Many thanks to Andy Banthorpe and Cambridge University Botanical Gardens for all their help in the matter.

GENITALIA DETERMINATION

GEN DET - EASIER THAN YOU MIGHT THINK!

As mentioned in the first newsletter, many of the Agromyzids can only be reliably identified by the detail of the male genitalia.

Many folk seem to be put off recording adults due to the perceived difficulty in dissecting a fly which often measures only 2-3mm in length.

However, the process is relatively simple and with a steady hand, fine forceps and a microscope, most adults can be determined within a few minutes.

Although most Dipterists will have their own preferred way to do things, there is no right or wrong way to ‘gen det’ adult material.

Therefore, the following process is just one method which will yield perfectly acceptable results.

Firstly, if you are dissecting reared material, it is best to wait at least 24 hours after emergence before dissecting. This allows the specimen to fully develop its external features (if to be kept as a reference specimen).

Once the specimen has been killed, the whole abdomen needs to be removed using fine forceps and/or dissecting needle and then immersed into a petri dish (staining blocks can be used) containing 10% Potassium Hydroxide (KOH).

This should be left overnight at room temperature. The next step is to carefully lift the material out of the KOH and then place in to a different dish/block which contains acetic acid (white wine vinegar works perfectly well) to neutralise the KOH.

After a few minutes, again, carefully pick up and place into a final dish/block which should contain Isopropyl alcohol.

Once in the dish, with forceps/dissecting needles, you can then carefully remove all the surrounding tissue and membranous matter from the rear end of the abdomen and, with luck, you should be left with the genitalia structures.

Of course, this may take a few goes to master but what you will hopefully be left with would look something like the below image, which is a lateral view of the genitalia (naturally, owing to the differences in genitalia features, unless you have dissected *Amauromyza monfalconensis*, it won't look exactly like this image!).



In summary, the genitalia consists of the following features;

- A – Aedeagal apodeme/Phallopodeme
- B – Ejaculatory apodeme
- C – Hypandrium
- D – Aedeagus

The shape and detail of the aedeagus (D) will, in most cases, allow an immediate determination using the reference books mentioned in the previous newsletter.

Of course, there will be instances where some features are slightly different compared to the literature or you may have to view the genitalia ventrally.

All of this becomes more familiar with each dissection.

In some cases, it may be necessary to remove the hypandrium (C). This can be tricky but it does become easier with practice and is best achieved by using fine micro pins inserted in to the end of matchsticks.

By doing so, the aedeagus becomes free from viewing obstructions and would result in the genitalia looking something like this (note - this is the genitalia of *Agromyza pseudoreptans*);



The genitalia can then be preserved but that is a topic for another newsletter!

The chemicals required are available from [Anglian Lepidopterist Supplies](#) (click on name to be taken to their site).

Hopefully, the article has highlighted how relatively straightforward 'gen det' work can be and isn't something to be frightened of!

If you have any questions though or would like further advice, please do get in touch via the methods below.

CONTACT

IF YOU HAVE ANY QUESTIONS OR WOULD LIKE TO KNOW MORE ABOUT THE SCHEME, PLEASE DO GET IN TOUCH WITH US;



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Finally, a big thank you to everyone who is contributing and supporting the scheme, each and every record is greatly appreciated and really does help build a greater understanding of these fascinating little flies.