

THE SMALLER MOTHS (MICRO-MOTHS)

There are 45 families of micro-moths in the UK, and over 1600 species. At first sight, to identify these appears to present an insuperable task, and unlike macro-moths they are known mostly by scientific names. However, don't be put off! Once you have tried identifying a few of the commoner micro-moths you will find that your powers of discrimination quickly increase.

Size matters

While the distinction between macro- and micro-moths is arbitrary, biologically they are grouped in families, and some families traditionally considered as micro-moths have the occasional species that differs greatly in size. The examples below show the Mother of Pearl, *Patania ruralis* (left, forewing length 15-17 mm) alongside *Pyrausta aurata* (right, forewing length 7-9 mm) from the same family (Crambidae).



(scale in mm)

Time of flight (Phenology)

For macro-moths the time at which they fly is an important variable for their identification (see Introduction). For micro-moths this can also be useful in identification, although many common species have a relatively long flight season, and some can be found all year round.

Illustrated below are three closely-related species from the genera *Eudonia* and *Scoparia* (also family Crambidae) that have overlapping but different flight times. Fresh specimens of these species can be distinguished with care on wing patterns but timing can also be useful.



Scoparia ambigualis
(from late April)



Eudonia lacustrata
(from mid-May)



Eudonia mercurella
(from June)

Where to find micro-moths

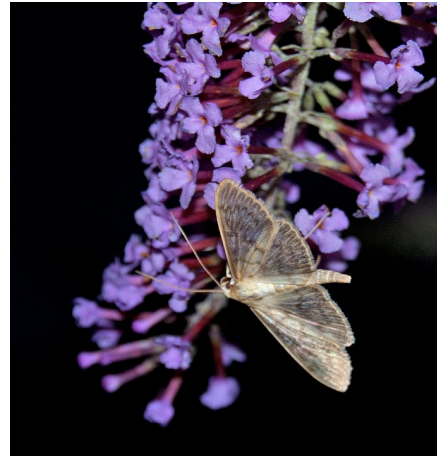
While you are likely to encounter micro-moths in light traps, only a small fraction are regularly found there. However, you may find them flying in daylight in gardens and the countryside (or found at night with a torch).



Celypha lacunana commonly seen in gardens



Anthophila fabriciana (Nettle-tap, top left) with *Glyphipterix* sp. (mid right) and green beetle on Ox-eye Daisy.



Patania ruralis on *Buddleia* at night (flash photo)

Also, in grassy places, small pale moths are frequently disturbed by day, flying short distances and 'disappearing' by aligning against grass stems – these are the grass moths (example below). Further, a substantial number of micro-moths can most easily be identified by examining plants for traces of their larval stage. These may be seen as distortions of leaves (folding or 'spinning') or as 'mines' where the larva burrows under the leaf surface to form characteristic tunnels or blisters. The most obvious of these 'miners' at present is seen on many Horse Chestnut trees, where the leaves progressively show unsightly brownish blotches in late summer caused by the larva of a tiny (3.5-5 mm) moth, *Cameraria ohridella* (see below). A number of micro-moths specialize in the plant species they mine and these have characteristic features that help identify the moth (an example on Hazel below). Other micro-moths may be recognized by the cases that they build on foliage or tree trunks from a variety of materials to protect themselves from predation (e.g., moths from the families Adelidae, Psychidae, Coleophoridae), and yet others feed inside the stems of plants.



A grass moth (*Agriphila tristella*)



Horse Chestnut leaf with miner blotches (inset: moth)



Stigmella microtheriella mine in Hazel leaf (inset: close-up of end)

Starting to identify micro-moths

To identify your moth as best you can, take note of size and shape as well as the wing markings and colours. Getting the identification down to the family level from your own observations will help greatly. Most of the books and websites listed at the end show thumbnail pictures by family, from which general characteristics can be seen, but shown below are a few examples that may help hone identification skills.

1. Some micro-moth families are defined by shape and posture.

In some families the wing shape varies (e.g. the Crambidae family, seen above with triangular or even butterfly-like shapes, also includes the grass moths), but in those families illustrated below most species have a relatively uniform shape and/or posture that helps identify them.



Family Gracillariidae (*Gracillaria syringella*)
Most have upright posture with long tufted front legs, some with strikingly patterned wings, as seen here



Family Coleophoridae (*Coleophora sp.*)
Upright posture with long forward-pointing antennae
The rather drab colouration makes it difficult to identify the individual species without dissection



Family Argyresthiidae (*Argyresthia pruniella*)
Declining posture with head close to the surface



Family Pterophoridae (*Emmelina monodactyla*)
These are the Plume Moths, recognized by their T-shape

2. The subtleties of pattern and shape

Many micro-moths require the recorder to look closely at shape and wing patterns to distinguish related species. The three moths shown below belong to the largest micro-moth family, the Tortricidae (with about 400 species). These three all belong to the same sub-family, all fly in the summer (June-August), are of a similar size (forewing length 6-7.5 mm) and show pale patches in the middle of the wings.



Pammene regiana



Pammene aurita



Dichrorampha vancouverana

While these moths look somewhat similar, note that the shapes, colours, and/or relative positions of the pale patches are different. The overall shape of *D. vancouverana* is also narrower than the other species and it has other features, not easily illustrated here, that help distinguish it (e.g. an edge-fold in the wing near to the base).

Common micro-moths belonging to a different sub-family of the Tortricidae illustrate this theme further. The three below are all similarly-sized and closely related *Pandemis* species, and are sometimes difficult to tell apart. However, the wing crosslines differ in relation to one another. *P. corylana* has the edges of the first (basal) and second (middle) dark crosslines in parallel, while for *P. cerasana* the edge of the basal crossline is not parallel to the middle crossline. *P. heparana* is generally darker coloured with a distinct kink in the inner edge of the middle crossline, and the first crossline commonly has a more jagged outline than that of the other two species.



Pandemis corylana



Pandemis cerasana



Pandemis heparana

3. Degrees of spottiness



The two species above are smallish moths from the same family (Yponomeutidae; sizes from 8-12 mm) and both have spots in rows, but the numbers of spots differ – on the left with many spots is *Yponomeuta evonymella* (Bird-cherry Ermine), while on the right with fewer spots is one of 4 very similar species (*Y. padella*/*Y. malinellus*/*Y. cagnagella*/*Y. rorrella*) which cannot be distinguished from a photograph (therefore recorded as *Yponomeuta sp.* unless identified from larvae reared from their different food plants).

The next two species (below), despite looking like those above are from different families. On the left is *Ethmia dodecea* (family Elachistidae) – note that it has much larger spots and the palps are larger, reaching above the head. The moth on the right is *Myelois circumvoluta* (Thistle Ermine) from the family Pyralidae; this is longer in the body (up to 17 mm) with a slightly curved outline and the density and positions of the spots do not match those from *Yponomeuta* species.



Aids to identification

Many of the micro-moths you will find will be common species – and we are fortunate to have an invaluable guidebook for this area, the **Common Micro-moths of Berkshire** (Berkshire Moth Group 2013). This covers 103 species in detail (one species per page with descriptive text, photographs labelled with important features, flight season, etc.). The original edition of this book is now out-of-print, but it is available as a free download from:

https://sites.google.com/site/berksmoths/Home/resource_list/microbook. A second edition, that will be slightly expanded and available as a hardcopy for purchase, is in preparation at present (2021).

As noted above many micro-moths can best be identified from the activities of larval stages, and a book that provides an excellent introduction to these is **Micro-moth Field Tips** by Ben Smart (Lancashire & Cheshire Fauna Society). Although this is sub-titled 'A guide to finding the early stages in Lancashire and Cheshire', the information provided is equally valuable outside these counties, with the feeding stages of each of about 200 species given a full-page description with photographs, arranged chronologically.

There are also more comprehensive guidebooks:

Field Guide to the Micro-moths of Great Britain and Ireland by Phil Sterling, Mark Parsons & Richard Lewington (Bloomsbury 2012). This is the 'bible' for many micro-moth recorders, covering the vast majority of species in detail with illustrations of each moth's resting position.

British Moths : a photographic guide to the Moths of Britain & Ireland by Chris Manley (3rd Edn.; Bloomsbury 2021). Remarkably covering both macro- and micro-moths in photographs, but inevitably with less written detail to help discriminate between species.

There are two types of websites that can also help:

(1) Websites that show photographs and sometimes descriptions of micro-moths for you to compare to your moth. While the Upper Thames area does not have this type of website, some adjacent counties do e.g., Hampshire (<https://www.hantsmoths.org.uk>); Herts & Middlesex (<http://www.hertsmothgroup.org.uk>).

Additionally there are comprehensive country-wide resources, especially UK Moths (<https://ukmoths.org.uk>) which illustrates most species with photos and a short description. Also Dr. Chris Lewis's website (<https://britishlepidoptera.weebly.com>) is becoming a superb resource for moth identification, with detailed accounts of many species. This site is updated regularly as he encounters new specimens; its main menus are family-based but also has a Google search function.

(2) Websites that can offer help in identifying moths. In particular Upper Thames has its own blog (<http://upperthamesmoths.blogspot.com>) on which sightings can be reported (with a good photo!) and expert advice given.

Photography While it is emphasised in some of the examples above that some micro-moths may not be identifiable simply from photographs, getting good photographs can be crucial for many. The suggestions in the introductory pages are especially relevant for micro-moths, and are worth repeating here. Take a close-up photo in good natural light against a plain background, so that the shape and wing patterns are clearly seen. Including a ruler in the photo may also be vital since size is sometimes an important variable to distinguish closely-related species. Many micro-moths are most easily identified from a side view rather than a top view, but taking several different aspects will often help.