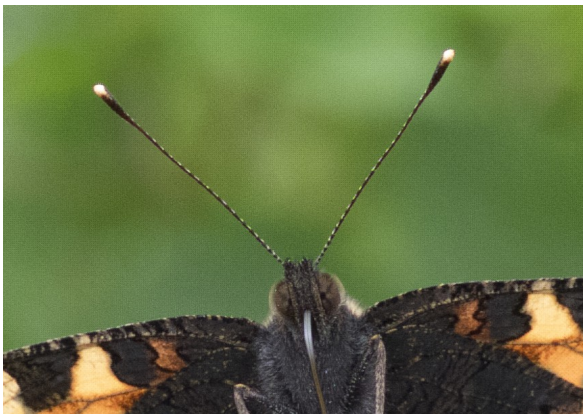
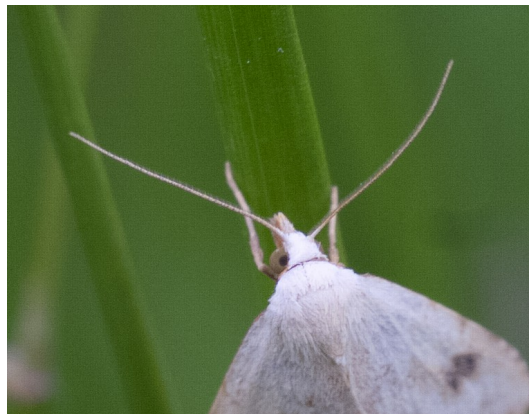


MOTHS FOR BEGINNERS

Moths and butterflies: There is no feature that uniquely separates moths and butterflies – they are classified as related branches of the Lepidoptera. However, most butterflies have 'clubbed' antennae (see below) while most moths do not (although, for example, the Burnet moths are an exception).



Butterfly antennae (Small Tortoiseshell)



Moth antennae (Straw Dot)

Moths and caddisflies: Caddisflies are closely related to moths, and as can be seen in the picture look similar to certain types of moth – but looking closely also shows two features that distinguish them from moths: (1) they have hairy membrane wings (moth wings have overlapping scales that easily rub off), and (2) they have long forward-pointing antennae that are held in parallel (moths at rest tend to hold their antennae back along their bodies, or where they also have very long antennae these are not held together).



A common caddisfly (*Limnephilus lunatus*)













Macro-moths and micro-moths

This is an artificial distinction, although as the name suggests the micro-moths are usually smaller and can be more difficult to identify. Although each moth species is assigned a number and two-part scientific name, macro-moths are commonly known by their English names. In contrast, micro-moths are mostly known by their scientific names, although a few (usually the larger ones or those that are pests) are also known by English names. This guide covers mainly the macro-moths but there is also a final section giving an introduction to micro-moths.

THE LARGER MOTHS (MACRO-MOTHS)

CATEGORIES OF LARGER MOTHS

The table below illustrates one way that Macro-moths can be grouped into categories. There are of course exceptions to this categorization and some moths will fit into more than one category, but it may help to initially place your moth into one of these:

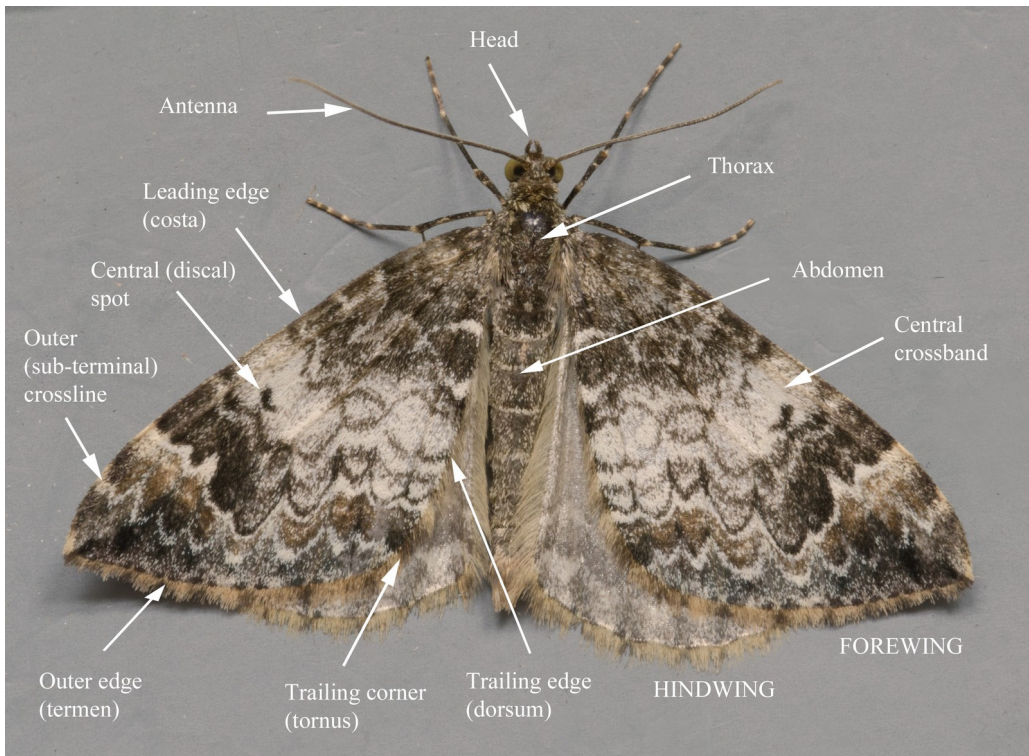
CATEGORY	EXAMPLES			
1. Moths with wings usually widely-spread and relatively slim bodies – at first glance a little like butterflies (mostly Geometrids)	 <p>Small Fan-footed Wave</p>	 <p>Garden Carpet</p>	 <p>Oak Beauty</p>	 <p>Dusky Thorn</p>
2. Relatively large-bodied moths and/or strikingly-patterned (various families)	 <p>Elephant Hawkmoth</p>	 <p>Pebble Prominent</p>	 <p>Five-spot Burnet</p>	 <p>Scarlet Tiger</p>
3. Brown moths with robust bodies, wings usually held close to the body and often with prominent oval- and kidney-shaped marks (mostly Noctuids)	 <p>Common Quaker</p>	 <p>Heart & Dart</p>	 <p>Setaceous Hebrew Character</p>	 <p>Green-brindled Crescent</p>

All these moth photos contain a millimetre scale to show approximate size, unless taken outdoors.

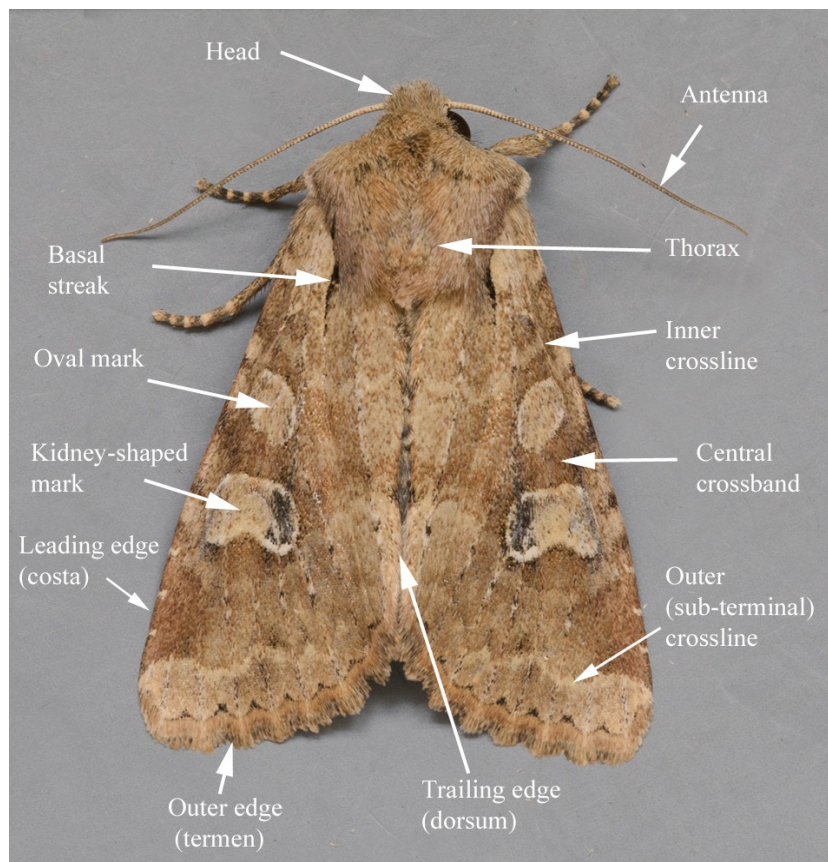
If you can place a moth into one of these categories, it is then important to consult a Field Guide (see below) to narrow down your identification. Some websites are also useful for this (also see below). With some exceptions, the order given above is similar to the order the moths are found in Field Guides.

The largest families are the Geometrids (over 300 species, mostly category 1 above) and Noctuids (over 400 species, mostly category 3 above), but there are a number of other families with smaller numbers of species, a few of which are illustrated in category 2 above.

Macro-moth structure In order to identify moths further, knowing the names given to the parts of moths will be useful:



Structure of a Geometrid moth (Common Marbled Carpet)



Structure of a Noctuid moth (Rustic Shoulder-knot)

(note that at rest the abdomen and hindwings are usually covered by the forewings)

ADDITIONAL CLASSIFICATION SCHEMES

There are other more artificial categories that could be used for identification. These may help to identify a moth quickly, if you find one that appears distinctive in some way, but only apply to a limited number of macro-moths. Suggested additional categories are listed as follows:

1. Does your moth have a distinctive colour (e.g., green, yellow/orange, red or white)? See PART 1: COMMON MACRO-MOTHS BY WING COLOUR.
2. Is your moth a shade of brown (but this varies from greyish-brown through plain brown to a yellowish- or reddish-brown)? See PART TWO: A BRIEF GUIDE TO SOME COMMON BROWN NOCTUIDS
3. Does your moth have a pattern or motif on its wings that suggests a name (e.g., Figure of Eighty, Blood-vein, Scorched Wing). See PART THREE: COMMON MACRO-MOTHS WITH DESCRIPTIVE NAMES
4. Does your moth fly in daylight? See PART FOUR: COMMON DAY-FLYING MACRO-MOTHS
5. What time of year did you find your moth? The date on which a moth flies can be very helpful in identification. The website at https://shiny-apps.ceh.ac.uk/whats_flying_tonight/ gives a listing of macro-moth species (with photos) in order of abundance for your area on a given day (initially shown as those recorded in your 10 km square, but settings including area, date and number of species can all be altered). At the county level, a 'flying tonight' guide is also included in the new Upper Thames Moth website (<https://upperthamesmoths.co.uk/index.php?flightarrivals=yes>) as well as in some of the adjacent counties (e.g. http://www.hantsmoths.org.uk/flying_tonight.php).

WHAT TO DO IF YOU CAN'T IDENTIFY YOUR MOTH

While the vast majority of moths you find will be relatively common, with identifiable external features that make identification relatively easy using a Field Guide (see below), a few may be tricky and it is always possible that you will encounter a rare moth. If you have exhausted your efforts at identifying a moth it may be worthwhile putting it in the fridge overnight while seeking advice elsewhere. A few macro-moth species may require dissection to establish their identity (assuming you are willing to sacrifice the moth).

1. Take a photo. This will allow you to compare your moth with other photos on websites (see below). The photo should preferably be a close-up on a plain background in natural light to allow all the features to be seen clearly. Usually for macro-moths a top view of the moth is sufficient, but where the moth holds its wings upright (forming a tent shape) it helps to take a side view. If possible include a millimetre scale such as a ruler in the photo so that size can be judged. Remember that patience (sometimes considerable) is required to get the moth to adopt a resting position before photographing.
2. Submit your photo to a website that gives expert advice. There is a very helpful site for this region at <http://upperthamesmoths.blogspot.com/>.
3. Your County Moth Recorder can also be contacted for advice, especially if you think that you have found a rare moth. There are separate Recorders for each vice-county: details are given on the UTB website.

RECORDING YOUR MOTHS

The most straightforward way for beginners to record their finds is to use the iRecord website (<https://www.brc.ac.uk/irecord/>). Records can be entered online after a simple registration process; a single moth sighting can be entered or a list of those seen on the same day, using the 'Record' tab. If you are recording only moths there is a specific moth form (go to the 'Record' tab and scroll down to 'Species group forms/Moths'). The form lists name of the moth, numbers found, whether adult or an earlier stage, and any comments you wish to make – and it is most useful for beginners (and commonly more experienced recorders) to add a photo of the moth. The location where you found the moth is also required. There is also an iRecord app to record species on the go with a mobile phone (<https://irecord.org.uk/app/>); additionally the app has a 'moth survey' function, which allows lists of records to be entered from a single moth-trapping event. All records are then viewed routinely by the respective County Moth Recorder to check and verify the sighting.

GUIDE BOOKS

Field Guide to the Moths of Great Britain and Ireland by Paul Waring, Martin Townsend and Richard Lewington (3rd Edn 2017). Covering all of the naturally-occurring macro-moths with details of features important for identification, accounts of similar species, life cycle, food plants, distribution maps, etc., each illustrated with wings folded at rest. There is also a Concise Guide by the same authors with reduced textual descriptions of the macro-moths (2nd Edn. 2019).

British Moths: A Photographic Guide to the Moths of Britain and Ireland by Chris Manley (3rd Edn. 2021). Has photos and brief accounts of all species of macro-moths as well as micro-moths, including notes on abundance, food plants and with distribution maps.

Colour Identification Guide to the Moths of the British Isles: Macrolepidoptera by Bernard Skinner (3rd Edn. 2009). Moths shown pinned out, so particularly useful to show the hindwings.

WEB RESOURCES

<https://upperthamesmoths.co.uk/index.php> At present (2022) covering all the macro-moths found in the Upper Thames region (micro-moths are in preparation), this site shows images of each moth as well as a detailed map of sightings, flight times, food plants, etc.

This site also has links to the moth websites of other counties (e.g., Hampshire Moths, West Midlands Moths) and other useful sites (e.g. Moth Dissection UK).

<https://ukmoths.org.uk> Searchable resource with information on where and when found and one or two photos of most macro- and micro-moths of the UK.

<https://britishlepidoptera.weebly.com/index.html> A very valuable and comprehensive account of all species encountered by the author (Dr. Chris Lewis) with large images and analytical details to help with the identification of species, often including keys to difficult groups, etc. The site can be searched using the family menus or the Google Chrome 'search this site' extension.

There are also some online identification resources for 'difficult' macro-moths:

1. http://www.mothscount.org/text/105/guide_to_difficult_species_online.html. Discussion and detailed description of similar-looking species, often relying on dissection to reveal differences in genitalia.
2. Pug moths: <https://www.lancashiremoths.co.uk/home>. Under 'Identification Aids' is a guide to the Pug moths of Lancashire and Cumbria by Brian Hancock. Although 'out of county' this is a useful guide with descriptions and photos of this difficult group, listed by time of flying.