

Gordon Henshall – Lepidopterist

Butterflies & Moths – What Are The Differences Between Them?

If you spend time, like me, photographing and trying to understand butterflies you will also get involved in studying moths – anything which moves you photograph, as your eyes get used to small movements! A belief still exists today that wrongly paints moths as small, brown creatures that only come out at night. It's surprising how many different species of moth may be seen flying during the day. In fact many more species of moth may be seen during the day than the total number of butterfly species found in the British Isles.

The Similarities

Butterflies and moths make up the order of flying insects called Lepidoptera, a word meaning “scale-wing”, which indicates their most important and similar characteristic. Together they are classified in about 80 families, of which the butterflies count for 6. Butterflies are day flyers without exception; most moths fly by night but some are active by day.

Female moths and butterflies lay eggs from which caterpillars hatch. The eggs are tiny and usually overlooked by the human eye.

Most eggs are laid on a suitable food plant, which are stuck by an adhesive that quickly hardens when exposed to the air, as the eggs of the cabbage white butterfly. The female chooses correct food for her offspring by an inherited instinct and is guided to the plant by a delicate sense of smell that resides in her antennae.



If you find a caterpillar it is more likely to be a moth than a butterfly, as there are over 2,500 types of moth in Britain, but fewer than 70 butterflies. However, one caterpillar easily recognised by gardeners is that of the so-called “cabbage butterfly”.

The Large White caterpillar emerges from its egg (about 0.5 mm), which is laid on the food plant (a cabbage) in clusters.



Caterpillars are also important to animals, especially birds, as a source of food.

Consequently, they have evolved ways of avoiding predators. One very common method is camouflage to blend into their background, which is why so many are green and brown.

Some caterpillars are protected from predation by repellent qualities such as spines or irritating hairs or an unpleasant taste.

Butterflies and moths also pupate, or become adult flying insects. Both go through their metamorphosis in a chrysalis or pupa, which is a resting stage and also serves to bridge the gap between the form of the larva and the winged adult.



Small Cabbage White



Swallow-tailed moth

The third stage, when the insect becomes winged and sexually mature, is known as the imago. Although many butterflies and moths are spectacular and very colourful, they can also be white and still beautiful.

Size alone cannot also be used to distinguish between butterflies and moths. Mentioned previously, there are about 2,500 moths in the UK, of which 900 are classified as macro-moths (the others being micro-moths and barely visible) and only a small number of these, about 100, fly in the daytime – but still more than the number of butterflies.

The Silver “Y” moth has a forewing span of 40 mm, whilst the Small Tortoiseshell butterfly has a total forewing span of 50 mm. The Small Skipper butterfly has a forewing span of 30 mm, so there is some overlap in sizes between butterflies and moths.

The Differences Between Butterflies and Moths

The differences between moths and butterflies fit into two categories: behaviour and anatomy.

Behaviour: For the most part, moths are nocturnal. They fly and feed at night. Butterflies, on the other hand, are diurnal, or active during the day. So the winged insect you see feeding from a flower in the middle of a spring afternoon is most likely a butterfly.

If you watch a large-winged, flitting insect making its way towards a candle at night, it's probably a moth. However, there are moths, which do fly in the daytime that you may see.

Wing positions: Butterflies and moths also tend to hold their wings differently when they rest. You'll often see moths with their wings draped down their backs or spread out to the side. The Drinker moth (so called because of its habit of drinking drops of dew) has draped wings while the Light Emerald rests with its wings out.



Drinker moth



Light Emerald moth

At rest: Quite often moths will settle under leaves as opposed to butterflies, which will always settle on top. Unless butterflies are warming themselves in the sun (Small Tortoiseshell), they typically hold their wings upright and folded together, perpendicular to their backs (Marbled White).

The physical differences between moths and butterflies are usually easy to see:



Small Tortoiseshell butterfly



Marbled White butterfly

Anatomy: The antennae are found between the eyes of both butterflies and moths. They are complex organs that can pick up chemical and tactile messages. Butterflies have antennae that are more uniform than moths, whose antennae are very varied. Butterflies' antennae are wider at the tips (Orange Tip – named after its orange wing tips) - their ends look like little clubs. Moths' antennae are often feathery like the Yellow Shell (looks like one), which is a very pretty moth.



Orange Tip butterfly



Yellow Shell moth

Most of the time, butterfly wings display more vivid colours than moths' wings. This doesn't mean that moths aren't spectacular, as the two examples shown:



Tiger moth



Magpie moth

Often, moths' bodies are plumper and fuzzier than butterflies' bodies, as in the case of the Silver Y (named because of the letter "Y" on the forewing) – which flies by day and night.



It's a visitor to Great Britain and most abundant in the autumn.

Concluding: these differences mentioned make it much simpler to decide whether an insect is a butterfly or a moth – but one can always take a photograph and determine what it is from an internet search, which can sometimes be frustrating due to the large number of moths.

But not every member of the order Lepidoptera fits neatly into the categories of butterfly and moth. There are butterflies with moth-like qualities and moths with butterfly-like qualities.

Skipper Butterflies have stocky bodies like moths, but they usually have the clubbed antennae of butterflies, often with a little bend at the end (Large Skipper). Like butterflies, Skippers fly during the day, but like moths, they tend to have duller colouring. But in one way, Skippers aren't like butterflies or moths. Skippers hold their wings at an angle, with the forewings separate from the hindwings (Small Skipper).



Large Skipper butterfly



Small Skipper butterfly

All pictures taken by Gordon Henshall

Some text from publications produced by Butterfly Conservation, of which Gordon is a Member.