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Magical moths

Day or night, help moths take flight!



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RHS

Moth or butterfly?

Moths are the unseen allies of our gardens. With around 2,500 species in the UK, they're just as vital to our ecosystems as butterflies – yet often go unnoticed. While butterflies dazzle in the daylight, most moths quietly take the night shift.

Moths and butterflies are part of the same taxonomic order, Lepidoptera (meaning scaly wings). The two main features that are used to tell them apart are the shape of the antennae and the way they hold their wings whilst resting. Moths tend to rest with their wings flat or slightly tented, whereas butterflies usually hold them upright and closed above their body. Moths also have thread-like or feathery antennae, rather than clubbed tips as seen on butterflies. Many moths also have stouter, furrier bodies than butterflies.

But even these differences are generalisations, with lots of exceptions to the rule. Moths and butterflies are so closely related that many naturalists are hard pushed to give any firm distinctions between the two. In French, moths are simply known as papillons de nuit – butterflies of the night. So perhaps it's time for us to think of moths and butterflies as having far more that unites them than divides them.



Merveille du jour moth



Meadow brown butterfly



White ermine © Vaughn Matthews

Cover image: elephant hawk-moth © Tom Marshall

Moth myth busting

There are some common and often unfair misconceptions about moths. It's time to set the record straight!

Moths are dull and brown, butterflies are colourful

MYTH

Moths come in a huge variety of shapes, shades and patterns. There are many colourful moths, from vibrant tiger moths to the gorgeously green emeralds and bright yellow brimstone. Even the less colourful moths are far from dull. They often have beautifully intricate markings, or incredible camouflage. There are also plenty of brown butterflies.



Brimstone moth © Amy Lewis

Moths all eat clothes

MYTH

Of the thousands of species in the UK, only a handful of tiny moths have caterpillars that feed on natural fibres used in clothing, such as wool. The two that usually cause problems are the case-bearing clothes moth and the common clothes moth. Regular cleaning and careful storage can reduce the risk of issues.

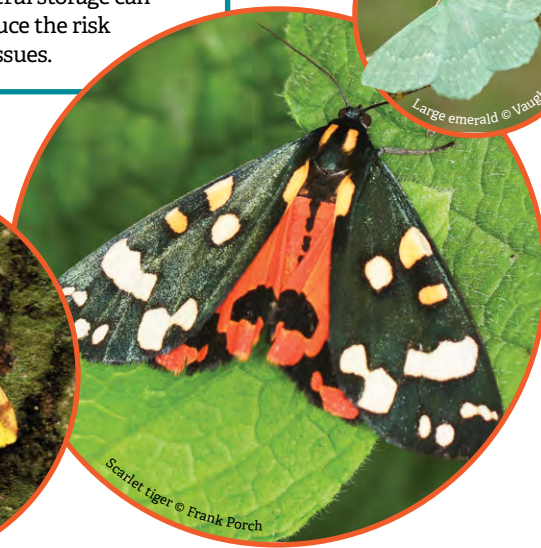
Moths only come out at night

MYTH

Most moths prefer to fly at night, but in the UK there are more than 150 species of day-flying moth. That's more than twice the number of butterflies you can see here!



Large emerald © Vaughn Matthews



Scarlet tiger © Frank Porch

The importance of moths

Moths play a quiet but powerful role in the natural world. As pollinators, they help plants reproduce – especially those that bloom in the evening or at night.

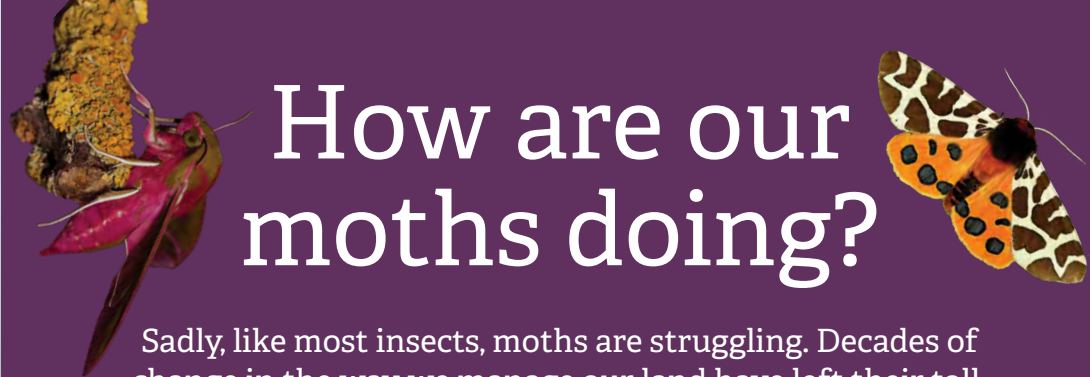
Their long tongues allow them to reach deep into flowers like honeysuckle and evening primrose, transferring pollen as they feed. There's even evidence that moths are more efficient pollinators than bees and other day-flying insects!

They're also a vital part of the food chain. Adult moths provide food for birds, bats and amphibians, while their caterpillars are a rich source of nutrition for hedgehogs, birds, beetles, wasps and many other insects. A staggering number of parasitoid wasps depend on caterpillars for reproduction, with some reliant on just a single species of moth. All of this helps keep nature in balance.

Beyond their ecological roles, moths are valuable indicators of environmental health. Because they're sensitive to changes in habitats, pollution and climate, scientists observe moth populations to monitor the state of our ecosystems. Changes in moth populations can act as early warning signs, helping researchers understand and respond to wider nature loss.



Whitethroat with moth © Fergus Gill/2020VISION



How are our moths doing?

Sadly, like most insects, moths are struggling. Decades of change in the way we manage our land have left their toll.

A wealth of evidence

It can be hard to prove long-term changes in insect numbers, as most insects haven't been closely monitored over significant time periods. Moths are a rare exception. The UK's long history of moth recording includes the Rothamsted Insect Survey. Running since 1964, this is the most comprehensive, standardised long-term data on insects in the world!

Sadly, the findings aren't good news. In 2021, Butterfly Conservation, Rothamsted Research and UKCEH published *The State of Britain's Larger Moths 2021*. This report revealed that the overall abundance of larger moths recorded at light traps decreased by 33% between 1968 and 2017.

The report also looked at the fortunes of 427 individual species of larger moth. It showed that 41% of moths studied have significantly declined in abundance, whilst only 10% have significantly increased in abundance.

On the other hand, moth distribution showed the opposite trend. Of 511 species studied, 37% of moths increased their distribution, whilst 32% decreased in distribution. So there are fewer moths, but many of the ones remaining can be found over a larger area. Climate change is playing a major role in this, leading to many moths spreading north. It has also enabled new species to colonise the UK from Europe.

Urban impacts

A recent study explored the effects of urbanisation on bees, moths and hoverflies. It found that as you move from the edge of an urban area to the city centre, you find fewer and fewer species. Interestingly, the study suggested that moths and hoverflies were more sensitive to urbanisation than bees. But other studies have shown that our gardening can make a difference.

By growing more trees and shrubs for cover and food plants for moth caterpillars in our gardens, we can help give them a boost.

One thing is clear, moths need our help!

The intensification of agriculture, urbanisation, climate change and pollution from both chemicals and light are all linked to impacts on moths.

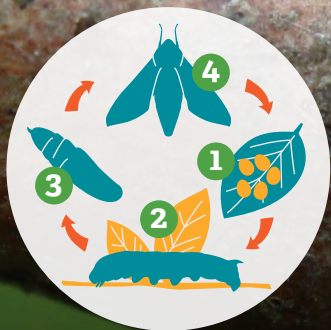


Top left to bottom right: elephant hawk-moth © Paul Wray, garden tiger © Iain H Leach, September thorn and purple thorn © Vaughn Matthews

Feed the caterpillar, save the moth

We know moths are important and that they are struggling, but how can we help? Providing nectar sources for adults is a good start, but to really boost moth numbers we need to care about the caterpillars!

Caterpillars have one job, which is to eat as much as they can – famously demonstrated by *The Very Hungry Caterpillar* by Eric Carle. Since almost all insects are unable to grow once they've reached adulthood, their size is determined by how large they are during their final larval stage. They also need to make sure they have enough stored energy to completely transform their body. To add to the pressure, some adult moths don't feed at all. They're totally reliant on energy stored up during their youth!



Caterpillar is the name given to the larval stage of a moth or butterfly. It's the second step in a four-stage lifecycle:

1 Egg 2 Larva 3 Pupa 4 Adult

Many caterpillars are picky eaters, only feeding on a small number of specific plants or even just one species.

Many caterpillars feed at night to avoid hunting birds – but some bats are experts at plucking them from plants.

Caterpillar poo is known as frass. Some caterpillars flick frass away from the leaf they're on, so it doesn't attract the attention of predators.

Some caterpillars are so small that they live within the leaves they eat. They are known as leaf miners.

Caterpillars also have a number of prolegs – fleshy growths that function as extra legs.

Some caterpillars, like the puss moth, can spray formic acid to fend off predators.

Many caterpillars are excellently camouflaged, looking like twigs, bark, lichen or bits of flower or leaf.

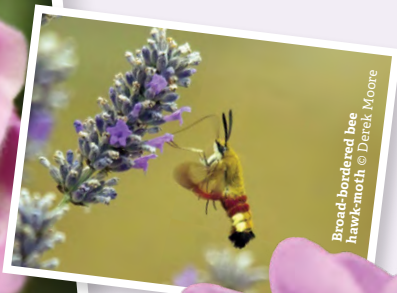
When they feel threatened, elephant hawk-moth caterpillars retract their head and puff their body up to look like a snake.

Caterpillars have six true legs, like an adult moth.

Some caterpillars are brightly coloured to warn predators that they're toxic.



Elephant hawk-moth © Tom Hibbert



Broad-bordered bee hawk-moth © Derek Moore

Gardening for moths

Creating a garden that supports moths means thinking about both the adult fliers and their caterpillars. With a few thoughtful choices, your outdoor space can become a haven for these vital insects – boosting biodiversity and bringing your garden to life after dark.

Adult moths need nectar-rich plants throughout the year. By choosing the right plants for each season, your garden can offer a continuous source of food.

For night-flying moths try:

Spring: honesty and sweet rocket

Summer: tobacco plant, evening primrose, honeysuckle and jasmine

Autumn: night-flowering catchfly and white campion

For day-flying moths try:

Spring: bugle, forget-me-not and primrose

Summer: lavender, scabious and marjoram

Autumn/winter: ivy and Michaelmas daisy



Bird's-eye primrose © Philip Precey



Mullein moth caterpillar © Vaughn Matthews

Start with structure

If you have the space available, native trees and hedges offer shelter, food and breeding sites for moths and their larvae. Species like hawthorn, birch and hazel support a wide range of caterpillars, while hedges also create microclimates that protect moths from wind and predators. If space is tight, go for compact cultivated forms such as the small weeping Kilmarnock willow or shrubs such as fuchsia or privet.

A meal for munchers

As well as woody plants, some other garden favourites also offer a packed lunch for hungry caterpillars. Grow hops or honeysuckle up a pergola, and find a spot for foxgloves, verbascum, comfrey, marjoram, bedstraw and sweet William. A few holes in leaves are signs of success, not failure!

Leave the leaf litter

Resist the urge to tidy up too much! Leaf litter and undisturbed soil provide safe places for caterpillars to pupate and overwinter. These hidden habitats are crucial for the next generation of moths.

Dim the lights

Artificial lighting can confuse and exhaust night-flying moths, disrupting their feeding and breeding. Use motion sensors, warm-coloured bulbs and direct light downward to reduce impact. Better still, switch off unnecessary lights altogether!



Forget-me-not © Neil Wyatt

Moths in the garden

If your garden fronts on to a grass verge, ask your council to consider delaying mowing until late winter to allow caterpillars to develop.

No need to panic if you see caterpillars on your plants! Most well-established plants can tolerate nibbled leaves.

Remember not to use any sprays or chemicals in your caterpillar garden.

Native grasses feed lots of caterpillars

Drinker caterpillar

White dead-nettle supports lots of moths

Burnished brass

Caterpillars feed on species of verbascum

Mullein moth caterpillar

These caterpillars feed on fuchsias

Elephant hawk-moth caterpillar

Mint moths love marjoram as well as mint

Mint moth

This species was once known as 'hop dog'

Pale tussock caterpillar




With smaller shrubs, try to plant several to make them more attractive to female moths looking to lay their eggs.



How to watch moths

Wine Ropes

What you need:

- bottle of cheap red wine 
- 1kg sugar 
- Saucepan 
- some one metre lengths of cloth

1 Mix wine and sugar together... heat until sugar is dissolved.



2 Soak lengths of cloth in the cooled liquid.



3 Hang the strips over tree branches.

4 Leave for two hours and check after dark.



Light trap

What you need:

- white sheet
- washing line 
- pegs 
- bright lamp or torches



1 Peg your sheet on a washing line or over a branch.

2 Turn off nearby lights.






3 Shine your torch/light onto the sheet... wait patiently.

4 ID the moths that gather.

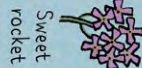
Illustration: Corinne Welch © Copyright Royal Society of Wildlife Trusts 2016

Make a night-time nectar bar

You will need

- A large container or pot (at least 30cm wide) 
- Peat-free compost 
- Watering can 
- Mulch or leaf litter (optional) 
- A mix of night-scented, nectar-rich plants 

Some suggested plants



Sweet rocket



Evening primrose



Night-scented stock



Cornflower



Borage

1 Pick a large pot that has some drainage holes.



2 Use peat-free compost to fill your container.



Fill to about 5cm below the rim.

3 Arrange your chosen plants so that the taller varieties are at the back or centre. Mix spring, summer and autumn blooms to keep moths fed throughout the seasons.



4 Give your plants a good water after planting. Make sure to keep your compost moist, especially during dry spells.



5 Scatter some leaf litter or mulch around the base of the container.



Offers shelter for caterpillars and pupating moths.



















6 Position your nectar bar in a sheltered spot away from bright artificial lights.

If you use outdoor lighting, opt for warm-coloured bulbs and switch them off when not needed.



Illustration: Corinne Welch © Copyright Royal Society of Wildlife Trusts 2026

Moth identification

<p>MAY-JULY</p> <p></p> <p></p> <p>Wing length: 28-33mm</p> <p><input type="checkbox"/> Elephant hawk-moth</p>	<p>MAY-JULY</p> <p></p> <p></p> <p>Wing length: 30-46mm</p> <p><input type="checkbox"/> Poplar hawk-moth</p>	<p>MAINLY MAY-SEPT</p> <p></p> <p></p> <p>Wing length: 20-24mm</p> <p><input type="checkbox"/> Hummingbird hawk-moth</p>	<p>JUNE SEPT</p> <p></p> <p></p> <p>Wing length: 16-19mm</p> <p><input type="checkbox"/> Burnished brass</p>	<p>MAY-JULY</p> <p></p> <p></p> <p>Wing length: 17-23mm</p> <p><input type="checkbox"/> Cinnabar</p>
<p>MAY-AUG</p> <p></p> <p></p> <p>Wing length: 7-9mm</p> <p><input type="checkbox"/> Mint moth</p>	<p>ALL YEAR</p> <p></p> <p></p> <p>Wing length: 9-13mm</p> <p><input type="checkbox"/> Common plume</p>	<p>APRIL-OCT</p> <p></p> <p></p> <p>Wing length: 14-21mm</p> <p><input type="checkbox"/> Brimstone moth</p>	<p>JULY-SEPT</p> <p></p> <p></p> <p>Wing length: 28-33mm</p> <p><input type="checkbox"/> Jersey tiger</p>	<p>MAY-JULY</p> <p></p> <p></p> <p>Wing length: 15-19mm</p> <p><input type="checkbox"/> Lunar hornet moth</p>

 Day-flying
  Night-flying
  Flies at night and day

Caterpillar identification

<p>JUNE-SEPT</p> <p></p> <p>Mainly on fuchsias and willowherbs</p> <p><input type="checkbox"/> Elephant hawk-moth</p>	<p>JULY-SEPT</p> <p></p> <p>Often on ash or privets</p> <p><input type="checkbox"/> Privet hawk-moth</p>	<p>JUNE-SEPT</p> <p></p> <p>On poplars and willows</p> <p><input type="checkbox"/> Puss moth</p>	<p>MAY-JULY</p> <p></p> <p>Mainly on great mullein</p> <p><input type="checkbox"/> Mullein</p>	<p>JULY-SEPT</p> <p></p> <p>Mainly on common ragwort</p> <p><input type="checkbox"/> Cinnabar</p>
<p>MAY-SEPT</p> <p></p> <p>On a wide range of plants</p> <p><input type="checkbox"/> Vapourer</p>	<p>AUG-JUNE</p> <p></p> <p>On grasses</p> <p><input type="checkbox"/> Drinker</p>	<p>JULY-SEPT</p> <p></p> <p>On a wide range of plants</p> <p><input type="checkbox"/> Peppered moth (Colour varies: often grey, brown or green)</p>	<p>JULY-SEPT</p> <p></p> <p>On a wide range of plants</p> <p><input type="checkbox"/> Pale tussock</p>	<p>JULY-OCT</p> <p></p> <p>Mainly on birches, hazel, oaks and willows</p> <p><input type="checkbox"/> Buff-tip</p>

About us

The Wildlife Trusts and the RHS created Wild About Gardens to celebrate wildlife gardening and to encourage people to act for nature. Over the past 50 years, we've seen declines in two thirds of the UK's plant and animal species. Many of our common garden visitors – including hedgehogs, house sparrows and starlings – are increasingly under threat, but collectively gardens can make an incredible difference. To discover more about wildlife gardening and for more resources, visit our website. You can also sign up to our monthly newsletter to receive updates and ideas on all things Wild About Gardens.



The Wildlife Trusts

The Wildlife Trusts is on a mission to restore a third of the UK's land and seas for nature by 2030. We believe everyone, everywhere, should have access to nature and the joy and health benefits it brings. No matter where you are in the UK, there is a Wildlife Trust empowering people to take action for nature and standing up for wildlife and wild places. Each Wildlife Trust is an independent charity formed by people getting together to make a positive difference for wildlife, climate and future generations. Together we care for 2,600 diverse and beautiful nature reserves. You can help us bring wildlife back in abundance by becoming a member of your Wildlife Trust today.

Email: enquiry@wildlifetrusts.org

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We're the UK's gardening charity, helping people and plants to grow. Our mission is to be there on people's lifelong journey with gardening – to bring happiness, health, stronger communities and a thriving natural world. With 220 years of experience, we support gardeners of all ages with expert advice, community and schools projects, scientific research, professional qualifications, our five RHS Gardens, and events including the iconic RHS Chelsea Flower Show.


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Pledge to help moths at wildaboutgardens.org.uk

Mint moth © Vaughn Matthews

Illustrations by Corinne Welch

