



Enjoying moths and butterflies in your garden



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for people, places and nature

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Anyone with a garden, no matter what its size, can help our butterflies and moths. In doing so, we also help ourselves. These species are among our most beautiful insects.

All butterflies - and many moths - fly by day and visit gardens in search of flower nectar, and also warmth and shelter. Some species may find suitable food-plants in gardens where they can lay their eggs. Some of these plants may be wild, like stinging nettles, while others, like honesty, act as alternative non-native host-plants.

Very few species cause damage to flowers or vegetables. On the other hand, butterflies and moths are important pollinators and good indicators of a healthy environment. Many flowers that attract butterflies and moths are also a magnet for bees and other beneficial insects. And who wouldn't enjoy the sight of the first brimstone or orange-tip of the year eagerly supping at a garden primrose, or the sleek form of a hawkmoth hovering over honeysuckle at dusk? Butterflies and moths are delightful.

Although only about 25 butterfly species regularly come to gardens, they include many of the largest and brightest, like the peacock and the

small tortoiseshell. Several hundred species of moth may visit the smallest garden, although many of them are good at keeping out of sight!



The brimstone butterfly is often one of the first of the year to be seen in some gardens. Chris Gibson/English Nature.

The distinguishing feature shared by all butterflies and moths is their coloured wings. In some cases the colours are brilliant, even iridescent, while in others, especially moths, they are more subdued - but in their way no less beautiful - and designed to conceal the resting insect. The colours are formed from tiny scales which are arranged in overlapping rows rather like roof tiles. Some of

the brightest-coloured butterflies have contrasting wings, brilliant when open for flight but dull beneath to disguise the insect when it has settled and so become more vulnerable. Some moths, like the large yellow underwing, have bright hindwings which they flash like a warning light when disturbed. Every wing colour and every pattern has meaning and a message.



The large yellow underwing keeps its warning colours concealed when at rest. Rob Wolton/English Nature.

Most moths are less colourful than butterflies. Their subtle tints of grey, pink and brown help them to blend into the background during daylight. Some disguise themselves as dead leaves, bits of wood or even bird droppings. Others, however, like the

day-flying burnets and tiger-moths, are as brightly coloured as any butterfly. Moths also have a wide variety of resting postures, from outspread wings to wings folded over or around the back with the hindwings hidden from view.



Moths may imitate anything from wood or leaves to bird droppings to keep out of view of predators. Top left: Buff tip. Rob Wolton/English Nature. Top right: Waved umber. Rob Wolton/English Nature. Bottom left: Beaded chestnut. Rob Wolton/English Nature. Bottom right: Chinese character moth. Rob Petley-Jones/English Nature.

What's the difference between a butterfly and a moth? Surprisingly little! Butterflies all fly by day (and a few also at night, when they will come to light) and have distinctive clubbed antennae. Most, but not all, moths fly by night and have either wiry or feathered antennae. A very few, such as the burnets, have clubbed antennae similar to butterflies.

Most butterflies rest with their wings perpendicular to their back (the only exceptions are some of the rather moth-like skippers). Only a few moths do this.

How many species?

There are many more species of moths than butterflies. Butterflies form just one large group among many in the order Lepidoptera (which means 'scaly-winged').

Less than 10 per cent of the world's Lepidoptera are butterflies. In Britain, the proportion is even smaller, with only 70 species of butterfly compared to about 2,500 moths. In other words, for every butterfly we have 35 moths! This proportion holds true in the garden.



The muslin moth with its extraordinary antennae is on the wing in May and June. Jill Pakenham/Avico.

Butterflies and the larger moths all have English names. Most butterfly names derive from their colours -

white, yellow, blue, copper and tortoiseshell. The red admiral is named after a naval flag, the peacock



Moth names have style! Top: Peach blossom. Rob Wolton/English Nature. Above left: Feathered thorn. Rob Wolton/English Nature. Above right: Rosy rustic. Rob Wolton/English Nature.



Cream-spot tiger. Roger Key/English Nature.

after the eyed tail of that bird (its original name was 'peacock's eye').

Moth names are far more imaginative. We have quakers, drabs and rustics, hawk-moths and tiger moths, brocades and carpets, darts and spindles, burnets and pugs - not to mention some rather obscure species with names like the anomalous, the uncertain and the confused!

There are more species of day-flying moths in Britain than there are butterflies.

Why butterflies and moths visit gardens

Most butterflies and moths feed on nectar, which they suck from flowers using their long proboscis like a straw. The sugar-rich drink provides them with the instant energy needed for flight. But not all flowers are equally attractive. They need to draw the insect in with colour and scent, and store the nectar where a butterfly or moth - but not too many other kinds of insect - can reach it. Butterflies seem to be particularly attracted to blue or pink flowers. Many moths like pale flowers that

reflect the light and are strongly scented at dusk.

Most gardens will have some food-plants for moths and butterflies, whether they are 'weeds' like stinging nettles and dandelions or tall trees like birch and willow - not to mention cabbages and currant

bushes. The more food-plants there are, the more species a garden will potentially support. Native trees and shrubs have by far the largest number of dependent species, but some garden flowers, including sweet William, delphinium and mint, are also food-plants for particular moths.

Another great advantage of gardens is that they are sheltered. Often, too, they are sunny and offer a variety of small-scale habitats which butterflies and moths can use. The holly blue butterfly and many moths are drawn to old ivy-covered walls. Garden ponds are a refuge for some species, with marshy food-plants like water-mint and bulrush, as well as bur-reed or water-lily for the aquatic caterpillars of the china-mark moths.

Species needing quiet and shady places to hibernate or sleep during the hottest part of summer can often find them in outhouses and garden sheds. Some gardens will have sheltered 'hot-spots' in full sunshine where butterflies and moths will congregate. All in all, gardens are likely to have more places like this than the equivalent area of countryside.



Top: The hummingbird hawkmoth, seen here feeding on buddleia, is a summer migrant from mainland Europe. Andy Darrington/Avico.

Above: The humble dandelion (Chris Gibson/English Nature) is a food plant for a number of species of moth including (right) the lovely ruby tiger moth. Rob Wolton/English Nature.



Brown china-mark. Rob Wolton/English Nature.

Which plants are the most attractive?

In general, the flowers butterflies and moths like are the traditional cottage kinds that most closely resemble their wild counterparts. Buddleia or 'the butterfly bush' is famous for attracting butterflies, especially when in a warm spot by a brick wall.

Ideally, it should be planted within sight of a window so you can watch the butterflies while cooking a meal or washing up. Don't put it too near, however, as it is apt to put down deep roots that can undermine foundations! It is also highly invasive and needs cutting back. For this reason, never plant buddleia in open countryside.

Other butterfly favourites include ice-plant, lavender, wallflowers, verbena, and, as an end-of-the-season treat, Michaelmas daisy. To attract them to borders, try planting old-fashioned cottage flowers, such as red valerian, aubrietia, yellow alyssum, thyme or sweet rocket. Hebe is an attractive flowering shrub for a sunny position and, like many butterfly plants, is a magnet for bees. Butterfly Conservation has produced a Top 100 list of butterfly nectar plants from a survey of gardens around the country. The highest scoring were buddleia, ice-plant, lavender, Michaelmas daisy, marjoram, red valerian, aubrietia, field scabious and bramble.

a good idea to plan your garden to produce a long season of nectar flowers.

Butterflies emerging from hibernation will head straight for early spring flowers like primrose, dandelion, sweet rocket and wallflower. Early moths home in on the catkins of goat and grey willow, but be aware that both have extensive root systems and should not be planted near houses. In the autumn, flowering ivy growing on a sunny wall is a great favourite. Moths will feed on the blossom and also use the foliage for shelter.



Left: Peacock butterfly on buddleia. Chris Gibson/English Nature. Right: Ice plant with small tortoiseshell. Susan Tindall.



Some other garden flowers sought out by butterflies. Left: Lavender. Chris Gibson/English Nature. Right: Michaelmas daisy. Chris Gibson/English Nature. Facing page: Musk mallow. Chris Gibson/English Nature.



If you have room for a wild corner, many native wild flowers are attractive to butterflies and moths. Among the best (besides those mentioned above) are fleabane, lady's smock, bugle, mint, thistles (especially marsh thistle) common valerian, knapweed, teasel and musk mallow. They must be in a sheltered position that receives bright sunshine for at least part of the day. It is also



Red admiral on ivy. Chris Gibson/English Nature.



Green pug. Rob Wolton/English Nature.



The native honeysuckle (top, Chris Gibson/English Nature) may attract a number of moth species including the brimstone moth (above, Rob Wolton/English Nature).

regular migrant to these shores, particularly in late summer.

If you have the space, a bramble patch in a sunny place will provide both nectar and sugary fruit. Fruit trees are also good for butterflies and moths, especially if you leave a proportion of apples or plums to rot on the ground. Red admirals have a particular craving for fermenting fruits, but many moths will also feed on them by night. Try over-ripe split bananas, placed on a bird table. If you have apple trees you will almost certainly have the unusually-coloured green pug, a moth with a taste for apple blossom.

Food for caterpillars

Butterflies and moths have a life-cycle that begins with an egg and moves on through a caterpillar (or larva) and a pupa before the winged insect emerges. The full life-cycle can last a year. The adult stage is generally quite short, normally



Chestnut moth. Rob Wolton/English Nature.

varying between a few days and several months. However, some species, like the brimstone butterfly and the chestnut moth, hibernate as adults. Nearly all the growing is done at the caterpillar stage; the adults remain the same size throughout their lives. Most caterpillars eat green leaves, though a few specialise in flowers or, like the swift moths, live underground eating the roots of grasses. A few, like the notorious clothes-moths, feed on animal fibre and organic debris. Some small ones 'mine' into leaves and stems, while the larger ones nibble leaves either by day or by night.

To attract butterflies and moths to stay and breed, you need the right food-plants. In general, these need to be the ones the insects are used to finding in the wider countryside, and will usually be native species of wild flowers and trees. However, a few feed on plants found mainly in gardens, like the Blair's shoulder-knot moth, which has spread with



Fuchsia. Chris Gibson/English Nature.



Blair's shoulder-knot. Chris Gibson/English Nature. This moth first appeared in the UK only in 1951 but has colonised new territory rapidly.



Stinging nettle supports a variety of butterflies and moths such as (top) the burnished brass moth (Roger Key/English Nature) and (above) the mother of pearl moth. Rob Wolton/English Nature.

Leyland's cypress planted as a fast-growing hedge plant. If your garden has no tall trees, native grey willow and hawthorn are good host-plants which will attract large numbers of species, including some very attractive caterpillars, like those of the puss-moth, yellow-tail and vapourer moth. Garden forms of juniper attract a select group of moths, including the juniper carpet. Fuchsia is a favourite of the elephant hawkmoth.

While many moth caterpillars have a large number of food-plants - knot-grass and dandelion leaves are always popular - others need exactly the right kind of plant. One wild flower worth planting in a sunny garden is bird's-foot trefoil, which is used by many species and might attract the common blue butterfly if it occurs nearby. It may also be worth keeping that patch of stinging nettles, especially if they grow by a sunny wall. Not only is nettle the food-plant of red admiral, small tortoiseshell, peacock and comma butterflies but it is also used by several moths, including the uncannily metallic burnished brass and the semi-transparent mother-of-pearl moth.

Pond margins are places of high natural biodiversity used by a large number of moths. You can attract some of these into your garden by planting yellow iris. Bulrushes, bur-reeds and tall grasses, such as reed sweet-grass, will also attract moths but need to be carefully controlled or will

take over your pond completely. A sunny, marshy hollow, full of wild flowers, will become one of the best butterfly and moth-watching spots in the garden.

Unwanted visitors



Nasturtium is so attractive to large and small white butterflies that it may keep them from laying eggs elsewhere in your garden. Chris Gibson/English Nature.

Very few butterflies and moths are a real nuisance in today's gardens. The main ones are the two 'cabbage white' butterflies - large white and small white - and the less well-known cabbage moth, whose caterpillar bores into the heart. Their numbers can be kept down by interplanting nasturtiums or marigolds among the cabbages. Nasturtium acts as a decoy, marigold as a repellent. If you have to control 'cabbage white' caterpillars, try to do so by physically removing them



Magpie moth. Chris Gibson/English Nature.

without resorting to chemicals: not only is it much more environment-friendly, it is, of course, much cheaper!

Currant bushes have a select community of moths, including the butterfly-like magpie moth, but owing to insecticides these are not as common as they were. Try growing some organic blackcurrants or gooseberries to help declining currant

moths like the phoenix and currant clearwing. Toxic chemicals are the enemy of all insects, not just pests, and butterfly gardens should ideally be maintained organically, avoiding chemically-based herbicides and insecticides. The vast majority of moths and butterflies do no harm at all while performing a useful service as pollinators and maintaining biodiversity.



Currant clearwing. Roger Key/English Nature.

Finding butterflies and moths

Butterflies are easy to watch. You quickly get to know which species are around and their favourite spots - knowledge which comes in useful when planning where to plant butterfly flowers. Day-flying moths can be watched in the same way, but many, like the carpet moths, spend most of the time resting and will fly up only when disturbed. Some small

moths seldom fly very far. If you have buttercups, look out for the tiny greenish *Micropterix* moth inside the flower. As a primitive moth with functioning jaws, it will be feeding not on nectar but on pollen.

Another way of finding out which moths are around is to inspect your local spiders' webs, or even the front of your car!

Most moths are active after the sun has gone down. A good way to find them is to go out with a torch on a warm, windless night an hour or so after sunset. Use a torch with a red filter which doesn't disturb the moth, whose eyes are less red-sensitive than ours. You can spotlight moths feeding on flowers and also on honeydew produced by aphids. Flat, pale blossoms like those on Senecio (ragwort and others), stock, wallflowers and umbellifers, and any over-ripe, liquidising fruit are particularly worth examining, as are buddleia, ivy blossom and sallow catkins. Early risers may find it worth looking for moths on tree trunks, fences and walls shortly after dawn.

Another way of spotting moths is to use the old collectors' trick of

sugaring. Prepare a suitably aromatic bait by boiling together black treacle and soft brown sugar and lacing the resulting sticky goo with beer or rum (over-ripe fruit, such as mashed banana, also works). Paint the stuff on tree trunks, fences or even bunches of grass just before sunset, and return with a torch a few hours later to see what has turned up.

A less messy bait is a 'wine rope', a length of cord, like a washing line, dipped into a mixture of wine and sugar. 'Sugaring' can be hit-and-miss, but on a good night there should be swarms of moths, jostling one another to get at the treat. Some moths, like the aptly-named copper and red underwings - and the spectacular old lady moth - are more attracted to 'mothing sugar' than by any other method.



Silver ground carpet. Rob Wolton/English Nature.



Top: Red underwing. Roger Key/English Nature.
Bottom: Copper underwing. Chris Gibson/English Nature.

The easiest way to attract moths is to take advantage of their helpless attraction to light. Moths will come to lighted windows, especially early and late in the year. They arrive in larger numbers if you shine a bright light, such as a hurricane lamp, on to a white sheet. But the best results are obtained by using a light trap, and these are particularly useful if you are making a list of moths for a recording scheme. There are several kinds on the market, a portable one - powered by a car-battery - and a more powerful one that needs mains electricity or a generator.

These traps use a mercury-vapour bulb that emits ultra-violet light, invisible to us, but the brightest part of the spectrum to a moth. Once in the trap, the moths settle down (egg-cartons make ideal dark places for them to hide in, away from the light).

Release them in the morning in tall, shady vegetation, or

keep the trap in a cool and shady place until evening and then remove the cover. On a warm summer night these traps can catch incredible numbers of moths: you may find yourself wondering where they all manage to hide during the day.

Finding eggs and caterpillars

Finding the early stages of butterflies and moths is a nice trick if you can



The mullain moth caterpillar advertises its presence. ChrisGibson/English Nature.



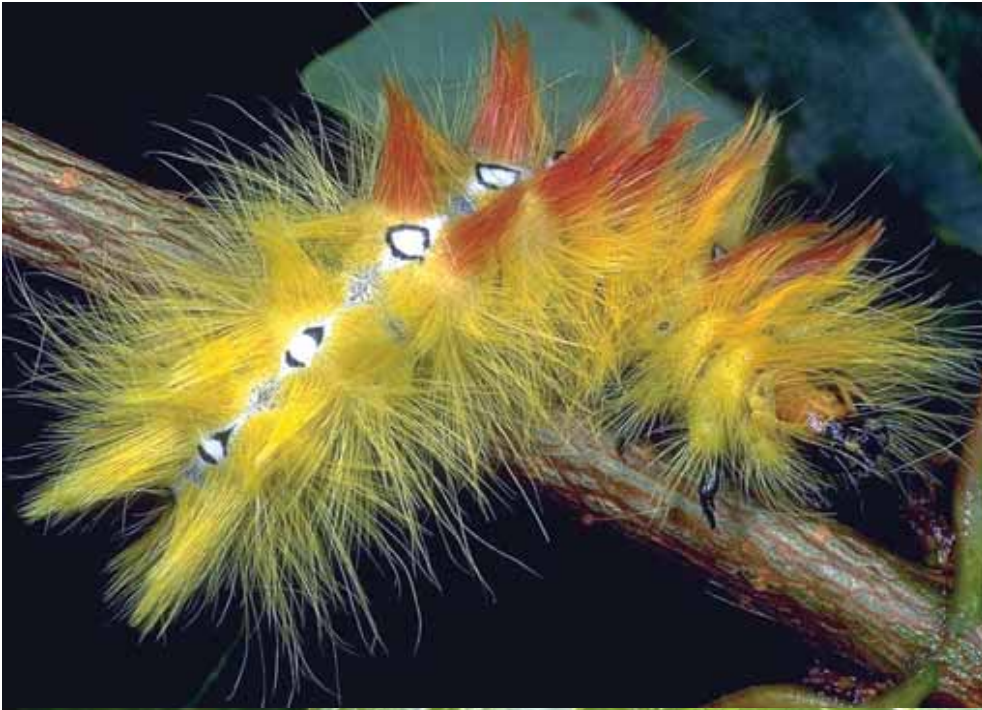
The caterpillar of the puss moth employs disruptive colouring to conceal the shape of its body. Rob Wolton/English Nature.

do it! You need sharp eyes to spot a green caterpillar feeding on a leaf, but fortunately they leave clues like droppings or nibbled leaves. Full-grown hawk-moth caterpillars leave droppings up to the size of peppercorns. These caterpillars can be identified by the sharp spike on their rear. Contrary to appearances, this does not sting.

If you have sensitive skin, however, avoid picking up hairy caterpillars: a very few of them can give you a rash.

The best places to look are sheltered bushes, especially of hawthorn or blackthorn, or small willow or birch trees. May and June, when the leaves are still tender, are the best times.

Some caterpillars, like the mullein moth, make no pretence of hiding, relying on their bright warning colours to relay a message that they taste nasty. Normally, if you see a caterpillar out in the open it may be full grown and looking for somewhere to pupate. Alternatively it may be parasitised and disorientated.



Caterpillars can sometimes be weird and wonderful.
Top: Sycamore moth caterpillar. Roger Key/English Nature.
Bottom: Garden tiger moth caterpillar. Roger Key/English Nature.



Sycamore moth cocoon.
Roger Key/English Nature.

The variety of caterpillars is amazing: some have colourful bristles and tufts, others bright spots, or have long, thin bodies and walk in a looping fashion. Some caterpillars spin leaves together to form a little tent. Searching at night by torch or lamp can be more productive than by day.

Many caterpillars can be identified with the help of a book, although this is easier in their later stages of growth. The food-plant is often a good clue.



The eggs of the golden plusia moth may be laid on delphiniums or monkshood. Roger Key/English Nature.

Finding the tiny eggs might seem impossible, but for a few species it is easy once you know where to look. The bright orange, bottle-shaped eggs of the orange-tip butterfly, for example, are usually laid on the

flower stalks of honesty, lady's smock or sweet rocket and near the top of the plant.

The small tortoiseshell lays its eggs in batches and they are reasonably easy to spot on the underside of a nettle leaf near the top of the plant. Of course, you can avoid a lot of searching by simply watching a female closely and checking the plant after the insect has flown away.

Enjoying butterflies and moths

Butterflies and moths are good subjects to photograph. The day-flying species need to be stalked but become oblivious of your presence when busy on a flower. Nocturnal moths normally sit still and allow you to take your time or even move them to a better spot. Traditionally, people used a single-lens reflex (SLR) camera with a close-up lens or extension tubes but non-SLR digital cameras with good close-up capability may produce excellent results and are far cheaper.

To avoid camera shake, a good tripod is essential. Flash is an alternative, but many users dislike the harsh shadows it produces. For the same reason, a bright but overcast day produces better results than brilliant sunshine. As ever, practice makes perfect but there are many helpful guides on the market.

Orange tip butterflies are attracted to lady's smock. Paul Keene /Avico.





Scarce silver lines. Jill Pakenham/Avico.

Rearing butterflies and moths is great fun. Some caterpillars do well on cut plants in water or even in sandwich boxes, while others are best reared on rooted plants in pots or tubs. The important thing is to keep them supplied with fresh food and to maintain strict hygiene by tidying away their droppings - much as you would do with a rabbit or guinea pig!

The trickiest time comes when the caterpillar is ready to pupate. Some species will spin up on the food-plant but many like to wander away and some need deep compost to burrow into. For that reason you should try to identify which species you have.



Above: The caterpillars of *Pyrausta aurata*, sometimes called the mint moth, may sometimes be found in herb gardens on mints, thyme or marjoram. Roger Key/English Nature.

Right: The lackey moth flies in July and August. Its larval food-plants include many trees and shrubs such as *Potentilla*. Roger Key/English Nature.



To find out more

Most counties in England have a recording scheme for butterflies and moths. You can take part in Butterfly Conservation's national recording project, Butterflies for the New Millennium. For details and for local record contacts, visit www.butterfly-conservation.org/bnm/index/html.

There are many moth groups in England - visit www.angleps.btinternet.co.uk/recorders.pdf for more information - and if you are good at identifying moths they will welcome records from your garden.

For at least one day each year, the charity Butterfly Conservation and the magazine *Atropos* run a National Moth Night in which as many people as possible are invited to take part (visit www.nationalmothnight.info). Such projects help to reveal how our moths are faring in a fast-changing world.

Perhaps the best way of getting to know the moths is to join one of the mothing nights organised by Butterfly Conservation (see above), your county wildlife trust or one of the nature study centres.

Holly blue larva. The holly blue butterfly is regularly seen in gardens, even in city centres in the south. In spring, it lays its eggs mainly on holly; in summer, ivy is usually preferred.
Roger Key/English Nature.

There are many good identification guides to butterflies and the larger moths on the market. Particularly recommended are:

LEWINGTON, R. 1999.
How to Identify Butterflies.
Collins.

SKINNER, B. 1998.
Colour Identification Guide to Moths.
Viking Books.
Illustrated with set specimens.

TOMLINSON, D & STILL, R. 2002.
Britain's Butterflies.
Wildguides Ltd.

WARING, P. & TOWNSEND, M. 2003.
Field Guide to the Moths of Great Britain and Ireland.
British Wildlife Publishing.
This book shows moths in their natural resting postures.

For identifying caterpillars, the best book is:

PORTER, J. 1997.
The Colour Identification Guide to Caterpillars of the British Isles.
Viking Books.
Illustrated by colour photographs of living caterpillars.

For more on gardening for butterflies and moths, see:

BAINES, C. 1985.
How to make a Wildlife Garden.
Frances Lincoln Ltd.

STEEL, J. 2003.
Butterfly Gardening - how to encourage butterflies to visit and breed in your garden.
Webbs Barn Designs.

For photography, rearing and general enjoyment, see:

LEVERTON, R. 2001.
Enjoying Moths.
Poyser Natural History, Christopher Helm.

Butterfly Conservation is the largest insect conservation charity in Europe, with 11,500 members in the UK. Its aim is the conservation of butterflies and moths, and their habitats.

The Society runs conservation programmes on more than 60 threatened species of butterfly and moth, organises national butterfly and moth recording and monitoring schemes and manages more than 25 nature reserves. For further information on its work, and on how to become a member of Butterfly Conservation, visit their website at www.butterfly-conservation.org or call them at 0870 7744309.

Other English Nature leaflets in this series are: *Wildlife-friendly gardening: a general guide*; *Plants for wildlife-friendly gardens*; *Amphibians in your garden*; *Reptiles in your garden*; *Minibeasts in your garden*; *Focus on bats*; *Composting and peat-free gardening*; *Meadows - how to create one in your garden*; *Garden ponds and boggy areas: havens for wildlife*; *Dragonflies and damselflies in your garden*; *Mammals in your garden*; *Wildlife on allotments*; *Birds and your garden*. In preparation: *Living roofs*; *Another kingdom: fungi in your garden*; *Green gems: mosses and liverworts in your garden*; *Bees, ants and wasps in your garden*; *Not all bad: slugs and snails in the garden*; *How does your garden grow? Children and wildlife*.

All leaflets are freely available from the English Nature Enquiry Service on 01733 455100/101/102 or e-mail enquiries@english-nature.org.uk

English Nature also produces an interactive CD: *Gardening with wildlife in mind*. This has detailed texts and photos of 500 plants and 300 of the more common garden 'creatures', and shows how they are ecologically linked. Details from The Plant Press, 10 Market Street, Lewes, BN7 2NB. Alternatively, call John Stockdale on 01273 476151 or e-mail john@plantpress.com



Main: Pale tussock moth caterpillars are frequently found in gardens, on cultivated fruit trees, crab apple and other species. Roger Key/English Nature. Inset: The yellow shell moth is another whose larvae may feed on dandelion. Roger Key/English Nature.



The adult privet hawk-moth is even more spectacular than its curiously marked caterpillar. It is common in gardens. Roger Key/English Nature.



English Nature, the Rural Development Service and the Countryside Agency. Working in partnership to conserve and enhance our landscapes and natural environment, to promote countryside access and recreation as well as public well-being, now and for future generations.

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**Butterfly
Conservation**

Saving butterflies, moths and their habitats

Front cover photographs:

Main: The comma butterfly is far more widespread than it was 30 years ago. Jill Pakenham/Avico.

Left top: The garden tiger moth is now becoming more common in the north, perhaps as a result of climate change. Jill Pakenham/Avico.

Left bottom: The herald moth comes to ivy blossom and blackberries. Rob Wolton/English Nature.

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