



T25

GROUPS

AN AROCHA UK PROJECT
PARTNERS  **IN ACTION**

Groups from left to right: T6 Native wildflowers (Common poppy) Colin Conroy, T7 Farmland & garden birds (Turtle dove) MikeLane45, T8 Dragonflies (Four-spotted chaser) & damselflies (Common blue) David Chandler, T9 Butterflies (Comma) Regina Ebner, T10 Bees (Honeybee) Norman Crowson, T11 Bats (Greater horseshoe bat) Remus86, T12 Grassland fungi (Meadow coral) Peter Sturgess, T13 Macro moths (Privet hawk-moth) Phil Godbold, T14 Amphibians (Common frog) Norman Crowson, T15 Small mammal (Water vole) Norman Crowson
arocha.org.uk/partners-in-action/



GROUPS

Examples from left to right: Ashburnham Place wildflowers – Regina Ebner, Common poppy (*Papaver rhoeas*) Colin Conroy, St Madoc Centre wildflowers – Regina Ebner, Dandelion (*Taraxacum officinalis*) Norman Crowson

Native wildflowers

Information: Phil Leigh

All about wildflowers

- What's not to love about UK wildflowers? They are beautiful to look at and soothing to the soul. Many have long been known to have medicinal properties and, most importantly, they have multiple functions in the natural world.
- **Soil:** Where wildflowers grow, soil is stabilized by complex root systems. This helps prevent soil erosion, retains water reducing run-off during heavy rain and prevents the leaching of nutrients from soils into water courses. By binding carbon in to the soil, wildflowers also help to slow the effects of climate change.
- **Wildlife:** Native wildflowers have been part of the evolutionary processes that have shaped the UK's fauna and flora over millennia. Relationships which have developed between the UK's native wildflower and wildlife species are complex and intertwined. Wildflowers provide wildlife with shelter, a place to breed and food from stems, leaves, pollen, nectar and seeds. In return, pollinating insects pollinate wildflowers whilst insects, birds and animals disperse wildflower seeds so spreading them far and wide.
- **Humans:** In addition to the aesthetic and medicinal properties of wildflowers, at least 80% of our crop species require pollination so that they can set seed. Threats to pollinating insects can therefore also threaten our ability to feed ourselves.

Why do wildflowers need our help?

97% of the UK's wildflower meadows have been lost since the 1930s. This decline in wildflower habitats has come about largely through changes in farming practices, land development and the processes of urbanisation. Changes in trends in gardening have also greatly reduced the availability of wildflowers for pollinators, for example, use of herbicides, harsh mowing regimes and a switch to concrete, slabs and 'plastic grass'.

DID YOU KNOW? The dandelion, a common lawn 'weed', provides food for pollinators that is especially vital in early spring. Dandelions get their name from the French name dent-de-lion, meaning 'lion's tooth' and have many colloquial names including 'pee-a-beds' with children being warned not to pick them because of the powerful diuretic effects of their roots. However, the whole of the plant is edible and nutritious for people and it has been cultivated throughout history for human consumption. The seed heads of dandelions have long been blown by children as a fun way of predicting the time...(blow) one o'clock...(blow) two o'clock...(blow) three o'clock!

How can we help?

- Encourage the growth of UK wildflowers whether you have influence over a plant pot, a window box, a garden, a church yard, a park, a large farm or a vast private estate, whenever you can.
- Sow wildflower seeds in a pot or a meadow.
- Change mowing regimes to allow lawn 'weeds' to flower even in a small patch of grass.
- Change horticultural/agricultural practices to promote the reestablishment of species-rich grassland.
- Do not use herbicides and fertilisers in your garden to promote a more diverse lawn.
- Allowing UK wildflowers to grow will help to close the gap and provide corridors between our disjointed patchwork of wildflower habitats. This will help to promote and sustain healthy populations of UK pollinating insects. Therefore if you don't already, learn to love and embrace UK wildflowers and let them grow!

Learn more

- The Royal Horticultural Society (RHS) has provided a Plants for Pollinators label to help choose UK native wildflowers to grow. It is important to focus on native species as these best serve our native UK wildlife. Non-native species can be invasive, sometimes outcompeting native plants: rhs.org.uk/science/conservation-biodiversity/wildlife/plants-for-pollinators
- Here is a list of wildflower plants to grow and a great source of information, seeds and plants: wildflower.co.uk
- Contact an A Rocha UK naturalist at naturalist@arocha.org

Recommended species:

- Common poppy (*Papaver rhoeas*): Beautiful to look at and good for butterflies and bees.
- Evening primrose (*Oenothera biennis*): Though introduced to the UK in the 1600's this wildflower has had long enough to become naturalised and is highly attractive to moths. With flowers that open in the evening, evening primrose is also beneficial to bats that feed on the moths.
- Vipers bugloss (*Echium vulgare*): These striking blue flowers are attractive to bumble bees and day flying moths.



GROUPS

Examples from left to right: Corn bunting (*Emberiza calandra*) Norman Crowson, Yellowhammer (*Emberiza citrinella*) Andyworks, Skylark (*Alauda arvensis*) Norman Crowson, Turtle dove (*Streptopelia turtur*)

MikeLane45

Farmland & garden birds

Information: Andrew Mann, Andy Lester

All about farmland & garden birds

- Several farmland species that were once common in the UK countryside, such as turtle dove, corn bunting, yellowhammer, and skylark, have become increasingly difficult to see. This has put increasing pressure on our gardens and many species once common in farmland, are relying on the seeds, fruits and berries that can be found in a typical urban garden.
- The corn bunting is a nondescript streaky brown bunting that typically sits on prominent perches in arable farmland and can be easily overlooked. It has a jangly song ("Pip-pip-pip-Tweedledee" that sounds like jangling keys), a dumpy gait and a fluttering flight style. The corn bunting is present in the UK all year but easier to find in spring and summer. It feeds mainly on seeds, but also invertebrates during the breeding season.
- The yellowhammer is a very bright yellow bunting with brown back and streaked underparts. The male is more colourful than the female, although predominately yellow too. It is a bird of open countryside with hedgerows, often sings its well-known song ("A-little-bit-of-bread-and-no-cheese") from a vantage point. The yellowhammer is present in the UK all year but more vocal in spring and summer. Like the corn bunting it feeds mainly on seeds, but also takes insects.
- The skylark appears to be a featureless brown bird on the ground, but in flight unleashing its continuous song it is unmistakable. Small and streaky with a slight crest on the head and white flanks on the tail, the skylark is easy to miss in winter when it mainly keeps to the ground. It can be tempted into the air to sing on a bright sunny day in early spring or even late winter – the soundtrack of many a long spring or summer day in open countryside. It has a particular liking for moorland habitat as well as farmland. The skylark feeds mainly on seeds and insects.
- The turtle dove is a small dove; a little larger than a blackbird. Darker than our common collared dove; it is clearly mottled with chestnut and black on its back. The familiar purr of the turtle dove is a well loved sound of the summer but this species is in rapid decline, probably faster than any other breeding bird in Britain. They can still be found on unimproved grassland and scrub areas in eastern and south eastern England between late April to August; it is very rare elsewhere.

Why do farmland & garden birds need our help?

- Loss of habitat, intensive farming, changes in farming practices, pesticides, over-development and climate change are the major contributing factors.
- Corn bunting, yellowhammer and skylark have declined in numbers over recent decades, making them 'red listed species', meaning they are now absent in parts of the UK.
- Turtle doves are the most rapidly declining farmland bird species in Britain. This sub saharan migrant is in trouble because of agricultural change, a shortage of food on their breeding grounds, hunting on their migration route and habitat loss on their wintering grounds. The impacts are so great that the UK population has fallen by 93% since 1970.

DID YOU KNOW? In Victorian Britain skylarks were a delicacy and were collected for the pot, a dozen birds sold for one shilling and sixpence and Mrs Beeton had recipes for them!

How can we help?

- It is not too late to take action and creating new places for turtle doves to thrive may at least help to slow their decline. Creating new areas of scrub and wider field margins will help to bring about new spaces and food sources for this threatened dove.
- In order to address the fortunes of our farmland birds we need to significantly diversify and 'rewild' areas that are currently intensively farmed.
- For our gardens, allowing more space for nature means letting your grass grow, leaving some scrub areas (including thistles, nettles and docks).
- Create small ponds for wildlife and ensure that there is a good supply of bird food all year round.
- Keeping to public footpaths, especially during the breeding season.
- Keeping any dogs on a lead.
- Supporting any farming initiative we know that does not employ intensive methods, for example through buying locally grown produce.

Learn more

- Find out about any British bird here: bto.org/understanding-birds/birdfacts/find-a-species
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right: Four-spotted chaser dragonfly (*Libellula quadrimaculata*) David Chandler, Southern hawker dragonfly (*Aeshna cyanea*) Ann Stuart, Common blue damselfly (*Enallagma cyathigerum*) David Chandler, Large red damselfly (*Pyrrhosoma nymphula*) David Chandler

Dragonflies & damselfies

Information: David Chandler

All about dragonflies & damselfies

- True dragonflies and damselfies are in the Order Odonata, which means 'toothed ones' – a name with its roots in the powerful jaws of these predatory insects.
- Over a million insect species have been named so far. About 6000 are true dragonflies or damselfies. 46 species breed in, or are regular migrants to, the UK.
- Dragonfly-like insects have been around for 325 million years.
- True dragonflies have stout bodies and most have eyes that touch (the one UK exception is the common clubtail). They are strong fliers and settle with their wings more or less at right angles to the body.
- Damselfies have long, thin bodies and a gap between their eyes. Their flight is weak and fluttery and they settle with their wings held along their back (except emerald damselfies – their wings stick out at 30–45°).
- Depending on the species adults can be seen from April/May to late autumn. Warm days that are not too cloudy or windy, are when they are likely to be most active.
- They need water to breed and can be seen around ponds, lakes, ditches, canals, streams, rivers, bogs and marshes. You can also see them elsewhere for example, immature dragonflies and damselfies head away from the water and return when they are ready to breed.
- Their compound eyes, as a proportion of body size, are the biggest of any animal. Each eye is made up of a large number of facets – each of which has its own lens and forms its own image. They can see forwards, sideways, up, down and, by moving the head a little, backwards.
- They are voracious predators that eat a wide range of insects. Midges and mosquitoes are favourites. Bigger prey includes butterflies, damselfies and even true dragonflies. Some eat other members of the same species!

- Some dragonflies and damselflies lay eggs into plants, others onto the water's surface (they then sink). Most of their life is spent underwater as a larva – typically a year or two. Larvae repeatedly moult to grow and when the time is right most climb out of the water on something upright – e.g. a plant stem, to emerge. The adult pulls itself out of its last larval skin (the exuvia) and pumps itself up – emergence can take up to four hours. Adults are short-lived; one to three weeks for a damselfly, and four to eight weeks, for a true dragonfly. Unlike other insects males have two sets of genitalia which makes it possible for them to mate in the heart-shaped wheel position.

Why do dragonflies & damselflies need our help?

The biggest challenges facing dragonflies and damselflies are climate change and loss of habitat. There is a general lack of fresh water in the UK. More ponds are destroyed than created in a typical year. As the climate changes we need to create new habitats that will enable dragonflies and damselflies to move more easily between sites. As new species arrive in the UK, we need to help them to be able to move through the landscape and colonise new areas. In addition, intensive farming systems and high density housing developments can rapidly destroy or damage dragonfly and damselfly habitats. Many British waterways are heavily polluted with sewage, industrial run-off, slurry from farmland and pollution from domestic homes (dishwashers, body products). Sources of unclean water reduce oxygen levels and in the long term prevent many species from thriving.

DID YOU KNOW? No insects fly better than dragonflies! They can fly forwards, backwards, sideways, up and down, and can glide and hover. They have two pairs of wings and all four of them can move independently of each other!

How can we help?

- Dig a pond – even a small pond can make a difference. Remember, never refill a pond using mains water supply. Chlorinated water is bad news for dragonflies and damselflies.
- Create pond dipping platforms where you can safely observe your dragonflies and damselflies
- Plant oxygenating aquatic and semiaquatic plants. These will help improve water quality and provide a place for odonata to mate and lay their eggs.
- Share your enthusiasm for these remarkable insects with other people.

Learn more

- british-dragonflies.org.uk
- Book: A Beginner's Guide to Dragonflies & Damselflies of Britain & Ireland, David Chandler, Pisces Publications, 2020.
- Book: The Dragonfly-Friendly Gardener, Ruary Mackenzie Dodds, Saraband, 2016.
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right: Gatekeeper (*Pyronia tithonus*) Regina Ebner, Comma (*Polygona c-album*) Regina Ebner, Painted lady (*Vanessa cardui*) Regina Ebner, Peacock (*Aglais io*) Norman Crowson

Butterflies

Information: Regina Ebner

All about butterflies

- There are about 18,500 named butterfly species worldwide, with more thought to be awaiting discovery. The UK has 59 species of butterflies – 57 resident species and two regular migrants – the painted lady and clouded yellow. Up to 22 of those species can be recorded in gardens.
- All butterflies play an important role in pollination.
- Butterflies have four different life stages. During their short lifetime, they undergo a complete change, or metamorphosis. Each one begins life as an egg, hatches into a caterpillar, pupates into a chrysalis and then emerges as an adult.
- Most British butterflies overwinter as either eggs (white letter hairstreak, silver washed fritillary), some as caterpillars (small copper, meadow brown), some as pupae (orange tip, holly blue) and some as adults (brimstone and small tortoiseshell). Some species, like the painted lady, cannot withstand our winters and migrate northwards from their breeding areas each spring. The speckled wood can overwinter as either a caterpillar or a chrysalis.
- Butterflies are cold-blooded and will not fly if the temperature is below 10 degrees Celcius.
- Adult butterflies use colour to attract mates and avoid predation, but also to raise their body temperature by basking. This is particularly important in British butterflies.

Why do butterflies need our help?

In the past 40 years there has been a 76% decline in the abundance of UK butterflies and many common species are now struggling for survival. Loss of pollinating plants, agricultural changes, overgrazing by deer in woodlands and climate change are all factors in the decline. Recent intensive conservation work with the farming community has proven the trends can be reversed. Duke of Burgundy fritillary is one such success story and is being actively cared for at one Partners in Action!

DID YOU KNOW? Many butterflies can taste with their feet! They find out whether the leaf they sit on would be good food for their caterpillars or not, if so, they will lay eggs on it!

The brimstone butterfly (*Gonepteryx rhamni*) has the longest adult lifetime: 9–10 months.

How can we help?

- Avoid using pesticides and insecticides.
- Avoid using peat. The best place for peat to be is in the ground on our moors and heathlands. So one way to protect our upland insect populations is to boycott the sale of peat for gardening.
- Help restore natural habitats and create safe havens for butterflies.
- Let your garden grow wild. Butterflies need longer grasses for warmth and shelter, so if you can, leave the edge of your lawn and wildflowers to grow, for butterflies to lay larvae on.
- Provide a food source – grow nectar-rich plants for adult butterflies and food for caterpillars. Many of the plants needed are easy to grow and tolerant to the changing climate. It is worth thinking about early/late flowering species so that a source of nectar can be found most months of the year. These can include species of hellebores, winter ivy, early crocuses, aconites, early clematis and mahonia.

Plants for adults (nectar):

- Spring nectar: aubretia, bluebell, clover, cuckooflower, daisy, dandelion, forget-me-not, honesty, pansy, primrose, sweet rocket and wallflower.
- Late summer/autumn: buddleia, french marigold, ice plant, ivy, knapweed, lavender, marjoram, michaelmas daisy, mint, red valerian, scabious and thyme.

Plants for caterpillars:

- Stinging nettles: comma, red admiral.
- Holly and ivy: holly blue.
- Buckthorn & alder buckthorn: brimstone.
- Cuckooflower and garlic mustard: orange-tip & green-veined white.
- Hop: comma.
- Common bird's-foot trefoil: common blue.

Learn more

- butterfly-conservation.org/butterflies/
- butterfly house: woodlandtrust.org.uk/blog/2019/07/diy-butterfly-house/
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right: Bumble bee spp. (*Bombus* spp) Regina Ebner, Gwynne's mining bee (*Andrena bicolor*) Peter Sturgess, Honey bee (*Apis mellifera*) Norman Crowson, Red mason bee (*Osmia bicornis*) Peter Sturgess

Bees (incl. bumblebees)

Information: Sarah Leedham

All about bees

- There are 270 species of bee in Britain and Ireland.
- They have four wings (two pairs), two antennae, and three segmented body parts (the head, the thorax, and the abdomen).
- Bees will generally reside in any habitat, as long as there is a place for them to build a hive, abundant flowering plants, and a water source.
- Like many other insects, bees are crucial pollinators.
- Climate change may be causing bumblebees to wake from hibernation in winter, increasing their dependence on early-flowering garden plants and if they are not available, bees can starve.

Why do bees need our help?

- Bees are declining because of habitat loss, climate change and agricultural intensification.
- Honeybees currently have no legal protection in the UK so they need all the help they can get!
- Many bee species are declining but information is patchy. Take part in a survey to record species on a favourite patch of ground in your area. You do not have to be an expert, but you could be after a few weeks. Start by looking up BWARS and Buglife.

DID YOU KNOW? The lifecycles of bees are intertwined with those of many other organisms, not just plants, for example, oil beetles lay their eggs in burrows close to those of mining bees. Oil-bettle larvae, called triangulins, hatch from the eggs. The triangulins crawl on to a mining bee, are taken into its burrow and feed on the bee's pollen store!

Bees cannot see the colour red but they can see the ultraviolet patterns in flowers so they do visit red flowers!

How can we help?

- Plant bee-friendly plants and flowers (rich in nectar). Transform your garden into a buzz of activity: grow flowering plants all year round and be part of creating the largest nature reserve in Britain – our gardens. If you do not have a garden, use windowsills and hanging baskets.
- Provide a source of shallow water in your greenspace (a shallow bowlful is fine!).
- Create suitable habitats through suitable mowing and cutting regimes and allow some area of grass to grow taller.
- Avoid using pesticides whenever possible, and check chemicals to see if they contain neonicotinoids (acetamiprid, clothianidin, imidacloprid, nitenpyram, nithiazine, thiacloprid and thiamethoxam).
- Use peat-free compost.
- Is your local churchyard/cemetery/school a haven for bees or a closely-mown desert? Can you encourage people to think differently? Could you start a small wildlife project in your local area?
- Support farmers looking after their land in wildlife-friendly ways. Buy local, organic produce.
- Provide space for an apiary. Bee and Bee is run by the British Beekeeper's Association and links landowners with beekeepers looking for a space for their hives. Perhaps you fancy taking up beekeeping yourself?

Learn more

- A year of bee-friendly flowers to grow: bbka.org.uk/gardening-for-bees
- Make a bee hotel, take part in surveys and more: bwars.com/information_sheets
- Buy local, organic: soilassociation.org/take-action/organic-living/buy-organic/find-your-local-independent-retailer/
- Provide space for an apiary: bbka.org.uk/bees-neighbours-siting-an-apiary/
- Bee Hives | National Bee Supplies: beekeeping.co.uk/collections/hives
- beehivesupplies.co.uk
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right: Greater horseshoe bat (*Rhinolophus ferrumequinum*) 01234lukeorom/CC BY-SA 4.0., Greater horseshoe bat – Hilary Bond, Lesser horseshoe bat (*Rhinolophus hipposideros*) F. C. Robiller, Lesser horseshoe bat – Norman Crowson

Bats

Information: Hilary Bond

All about bats

- There are more than 1300 species of bats in the world, making them the second most common group of mammals.
- Bats are found in almost every corner of the planet apart from the North Pole and Antarctica.
- There are 17 breeding species of bats in the UK. Most roost in trees, making use of cracks, holes and loose bark; but where appropriate trees are not available, they will also roost in buildings.
- Blood-sucking vampire bats are real and all 3 of these species are found in South America.
- The smallest bat weighs about the same as a one pence piece and the largest bats have a wing span of just under 2m.
- Bats hang upside down because it enables them to easily escape from predators as they can drop straight into flight. When in flight, bat hearts beat at 1000 times a minute.
- Bats are nocturnal and navigate using echolocation, sending out waves of sound from their mouths or noses which bounce off their surroundings, to help build up a picture of what surrounds them. This is how they can find their way around and hunt for food in the dark.
- Bats eat insects and even a small bat like a pipistrelle can eat up to 3000 insects in one night.
- Bats are really important for pest control and in the US alone bats are thought to eat enough pests a year to save a billion dollars worth of crop damage and pesticide costs.
- Pregnant females will move together to a warmer roost to have their young, sometimes just moving further up a tree or round to the side facing the sunshine.

Why do bats need our help?

Firstly, climate change is impacting the ability of UK bats to hibernate. This can lead them to emerge early when there is no food around to eat. Secondly habitat loss not only removes vital old wood for bat's maternity roosts, but is also a key supply of insects, resulting in starvation. Disturbance of roosting and nesting sites can also be a major problem and in some parts of the world viral infections can also wipe out populations. Finally, the removal of hedgerows leaves large gaps in habitat corridors that can impact the ability of bats to navigate.

DID YOU KNOW? Bats are the only mammals that can truly fly rather than glide!

How can we help?

- Don't be too tidy in your garden. If you are lucky enough to have a dead tree with loose bark, cracks and holes, you have an ideal bat habitat already in place.
- Encourage insects which bats like to eat by having a pond, night-scented flowers and minimal low-level outdoor lighting.
- Avoid using pesticides and herbicides in your garden and try to keep disturbance to a minimum, so there are lots of insects around.
- Put up a bat box. These should be placed at least 10 feet above the ground and in a place which receives at least 6 hours of sunlight a day; morning is preferred to evening sun. Do not place your bat boxes too near to artificial light.

Learn more

- The Bat Conservation Trust: bats.org.uk
- bats.org.uk/about-bats/what-are-bats/uk-bats
- bats.org.uk/advice/gardening-for-bats
- fun-facts.org.uk/animals/animals-bats.htm
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right: Pink waxcap (*Porpolomopsis calyptriformis*), Hairy earthtongue (*Trichoglossum hirsutum*), Scarlet waxcap (*Hygrocybe coccinea*), Meadow coral (*Clavulinopsis corniculata*) Peter Sturgess

Grassland fungi (esp. waxcaps)

Information: Peter Sturgess

All about grassland fungi

- Grassland fungi are typically found in old pastures and are primarily associated with relatively short, unfertilised grasslands with a long history of management by grazing or cutting, but have escaped agricultural improvement such as ploughing or treatment by fertilisers or herbicides. This habitat is increasingly uncommon and therefore many species are rare and declining.
- The most well known grassland fungi include waxcaps, earthtongues, fairy clubs and coral fungi.
- Waxcaps are often the most obvious grassland fungi. There are about 50 species in the UK. This diverse group tends to have brightly-coloured species with a waxy cap (sometimes scurfy or slippery). Most are 1–5cm in diameter but some can reach 15cm. A few have distinctive smells.
- Earthtongues are often hard to spot as they are rarely taller than the grass and moss they grow amongst. They are typically dark coloured or black. Earthtongues do not have gills but the spores are released from the surface of these dark club-shaped structures.
- Fairy clubs and coral fungi also have no gills. They include a wide range of colours though the most common are white, yellow or orange. The structures vary from simple clubs to richly branched bushy clusters.
- A few species of waxcaps and other grassland fungi can be identified in the field but most require a microscope to confirm identification.

Why do grassland fungi need our help?

The UK is one of the most important countries for grassland fungi in the world. 50% of the world's population of waxcap species are just found in Scotland and Wales! Many grassland fungi are in rapid decline because they are very sensitive to small environmental changes. Big threats for grassland fungi include plowing, fertilisers and grass reseeding.

More recently one of the biggest threats is the planting of trees on grasslands for carbon offsetting which will reduce the population. Also with less grazing and less money to manage scrub, the destruction of complex grasslands will inevitably lead to the decline of fungi.

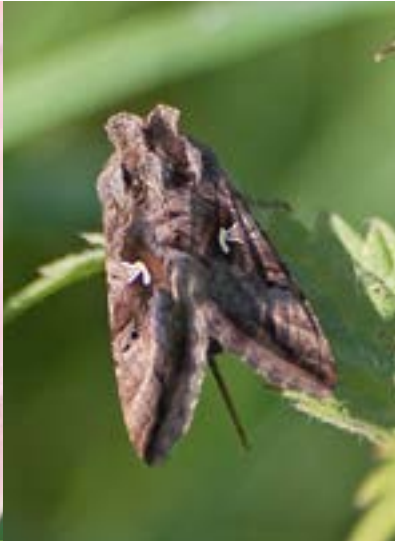
DID YOU KNOW? Grassland fungi mainly appear from late summer to winter. They may not appear every year, but their underground mycelium is present all year round and may live for over a hundred years.

How can we help?

- Churchyards, cemeteries and other regularly cut lawns can be excellent sites for grassland fungi.
- Mowing is important to provide short grass during the autumn to allow the fungi to produce fruiting bodies. Ideally the cuttings should be removed to keep nutrient levels low (especially if grass has been allowed to grow long and flower during the summer). Do not to cut whilst they are actually fruiting as thus would potentially damage the population in future seasons.
- Do not use herbicides or other lawn treatments on long established grassland. Don't worry about mosses in your lawn; many grassland fungi prefer mossy turf.
- Don't assume that mown grass has no value for biodiversity. If considering activities such as tree planting in grassland please check first to see if it is already a valuable site for fungi.

Learn more

- plantlife.org.uk/uk/our-work/publications/waxcaps-and-grassland-fungi
- aber.ac.uk/waxcap/
- The fungi of Irish Grasslands and their value for nature conservation [researchgate.net/publication/261510690_The_fungi_of_Irish_Grasslands_and_their_value_for_nature_conservation](https://www.researchgate.net/publication/261510690_The_fungi_of_Irish_Grasslands_and_their_value_for_nature_conservation)
- Griffith, G.W., J.L. Bratton & G.L. Easton (2004). Charismatic megafungi: the conservation of waxcap grasslands. *British Wildlife*, 15(3), pp. 31–43.
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right: Privet hawk-moth (*Sphinx ligustri*) Phil Godbold, Beautiful golden y (*Autographa pulchrina*) Norman Crowson, Lime hawk-moth (*Mimas tiliae*) Norman Crowson, Six-spot burnet moth (*Zygaena filipendulae*) Norman Crowson

Macro moths

Information: Bertie Stirling

All about macro moths

- Moths (*Lepidoptera*) are divided for convenience into two types: macro moths (larger) and micro moths (smaller). There are over 900 species of larger (macro) moths in the UK and 3000 species of micro moths).
- They have a range of colours from bright crimson to bright yellow to various blues, greens and browns, with amazing patterns.
- Macro moths have a typical insect life cycle of egg -> larva -> pupa -> adult.
- Their habitats vary greatly; some larvae live on or in leaves and grasses, some in wood and bark, others may live in seeds or even ant colonies. In addition, a number of species are attracted to light, especially the ultraviolet lights.
- Macro moths are also important in the pollination process. When the bees and flies retire for the evening, moths take over for the night shift. They carry pollen from our fruit trees and legume plants, and a single moth species tends to cover a wider variety of flowers than any bee species.
- Moths vary greatly in size, from the size of a single grain of rice, to filling the palm of your hand.

Why do macro moths need our help?

Over the last 20–30 years numbers of moths appear to have declined rapidly. Unlike butterflies, which have been studied and watched every year since the second world war, research into moths is a lot further behind. Undoubtedly some of the changes in moth populations have been caused by a lack of food and destruction of habitat. In the past 10 years it is thought that the numbers of moths have also been affected by climate change, especially wetter winters and extended hot periods in summer months.

DID YOU KNOW? In the UK, there are several hundred macro moths and there are several thousand micro moths. In contrast, there are only a couple of dozen or so butterflies. Moths outnumber butterflies greatly in the British Isles.

How can we help?

To attract moths into your garden you could plant some flowers which they like. Evening primrose (*Oenothera biennis*), madonna lily (*Lilium candidum*), night-blooming jasmine (*Cestrum nocturnum*), and some yucca species draw these pollinators to them. Usually, they have white or pale coloured flowers that reflect moonlight making it easy for moths to find their flowers from a distance. Species such as saxifrages (*Saxifraga*), dead-nettles (*Lamium*), yarrows (*Achillea*), knapweeds (*Centaurea*) and willow (*Salix*) provide food for the larvae.

Learn more

- wildlifeinsight.com/guide-to-british-moths/
- extreme-macro.co.uk/extreme-macro-moth/

Two sources for identifying macro-moths are:

- Book: Field Guide to Moths of Great Britain and Ireland, Paul Waring and Martin Townsend, British Wildlife Publishing Ltd, 2003.
- ukmoths.org.uk
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right top to bottom: Common frog (*Rana temporaria*) Norman Crowson, Frogspawn – lillitve, Great crested newt (*Triturus cristatus*) WitR, Palmate newt (*Triturus helveticus*) MikeLane45

Amphibians

Information: Mary Cummins

All about amphibians

- A class of vertebrates that evolved lungs and colonised land but still returns to water to breed.
- There are 7 native amphibian species in Britain: natterjack toad, common toad, common frog, pool frog, great crested newt, smooth newt and palmate newt. They are of two orders: tailless – frogs and toads, and tailed – newts.
- Several species are widespread but none is common; all receive some level of legal protection.
- Common frogs and common toads are “explosive” breeders, congregating in ponds, sometimes in large numbers. Females release all their eggs at once. Breeding is usually 14–21 days. Combative breeding behaviour and arduous migrations weaken the animals; many will breed only once. Thousands of eggs are produced in jelly-like spawn; free-swimming tadpoles graze on algae and detritus.
- The rare natterjack toad breeds later in the year than the common frog and common toad; its breeding habitats of dune slacks (water-filled depressions between coastal sand dunes) and sandy heaths, are scarce and declining in the UK.
- The newt breeding season is more prolonged, lasting up to four months. Mating is less combative: during a courtship “dance”, a sperm package is passed from male to female and eggs are laid individually on submerged plant leaves. Larval newts (efts) are active predators feeding on aquatic invertebrates. All tadpoles and eft are food for predatory invertebrates, fish and terrestrial animals.
- For successful breeding amphibians require unpolluted, well-vegetated, still water, retained for long enough each year for tadpoles and eft to complete development.
- To survive on land, adults and juveniles need undisturbed, semi-natural, habitat, providing an abundant invertebrate food supply and shelter from frost, high temperatures, drought and predation.

Why do amphibians need our help?

Breeding ponds have been lost due to deliberate destruction, development of brownfield sites (e.g. quarries), neglect, pollution and drought. Terrestrial habitat has been destroyed, fragmented and degraded by development and agricultural intensification.

Climate change: drought causes ponds to dry up prematurely and creates uninhabitable arid terrain; high rainfall and resultant flooding spreads pollution, displaces tadpoles and spawn and can cause colonisation of ponds by predatory fish; erratic weather can disrupt breeding activity.

DID YOU KNOW? The rarest UK amphibian is the pool frog. Thought to have gone extinct in the 1990s, it has since been reintroduced in Norfolk. Research has shown that pool frogs have local dialects; it is possible to tell an English pool frog from one found in Norway by the sound of its call.

How can we help?

- Create your own wildlife sanctuary: Dig out a pond and plant it up with native species, provide shallows so that animals can climb out. Please do not introduce fish. Create a terrestrial sanctuary by maintaining patches of overgrown vegetation and damp areas, along with log piles or gappy rockeries. Grow/encourage insect-friendly plants and leave heaps of dead vegetation as additional winter refuge.
- Avoid using insecticides, slug pellets, weed-killers, fertilisers and strimmers.
- Don't get a cat and reduce cat damage by making sure there are plenty of hidey holes on land which give easy access to the safety of the pond.

Learn more

- Amphibian & Reptile Conservation (ARC) arc-trust.org/
- Amphibian and Reptile Groups of the UK (ARG UK) arguk.org/
- British Herpetological Society (BHS) thebhs.org/information-advice/native-reptiles-and-amphibians
- Froglife froglife.org/
- Rewilding Britain rewildingbritain.org.uk
- The Royal Society for the Protection of Birds rspb.org.uk/birds-and-wildlife/wildlife-guides/other-garden-wildlife/amphibians-and-reptiles/
- The Wildlife Trusts wildlifetrusts.org/
- Information on legal protection Natural England gov.uk/government/organisations/natural-england
- Contact an A Rocha UK naturalist at naturalist@arocha.org



GROUPS

Examples from left to right: Harvest mouse (*Micromys minutus*) David Smith, Wood mouse (*Apodemus sylvaticus*) Norman Crowson, Water vole (*Arvicola amphibius*) Norman Crowson, Bank vole (*Myodes glareolus*) Norman Crowson

Small mammals

Information: David Beattie

All about small mammals

- Possibly our most elusive taxonomic group due their size and behaviour.
- There are three groups of small mammals plus one individual. Note, there are some other species of mice and voles not listed, but all are quite rare.
- **Mice:** House mouse (*Mus musculus*), wood mouse (*Apodemus sylvaticus*), yellow necked mouse (*Apodemus flavicollis*), harvest mouse (*Micromys minutus*). All are rodents (thus herbivores) but will sometimes eat small insects.
- **Shrews:** Common shrew (*Sorex araneus*), pygmy shrew (*Sorex minutus*), water shrew (*Neomys fodiens*). Carnivores with a long-pointed snout and sharp spike like teeth. Mainly eat invertebrates.
- **Voles:** Field vole (*Microtus agrestis*), bank vole (*Myodes glareolus*), water vole (*Arvicola amphibius*). Plump rodents with blunt muzzle, small eyes and ears and relatively short tail. Important prey species for birds of prey and other mammals e.g., stoats.
- **Hazel dormouse:** (*Muscardinus avellanarius*). Found mainly in the south and west of the UK, in a line from the Wirral to Essex, though there is a population in Cumbria. Living as they do in the tree canopy and hibernating for up to seven months; hazel dormice are probably the most elusive species. Their hibernation lasts from October to May.

Why do small mammals need our help?

Many are in decline due to habitat loss or degradation from development, pesticide use, modern methods of farming and domestic cat predation. The water vole also has suffered from predation by mink, although some species do have a stable population which is at its highest in autumn.

DID YOU KNOW? Hazel dormice are the only small mammal that truly hibernate. The other mammals that hibernate are hedgehogs and bats.

Water shrews have a venomous bite that can cause pain in humans but death to other small mammals!

How can we help?

- Have a wild area in your garden. Some people ensure this contains bramble which acts to protect the small mammals from a variety of predators.
- If you do have a cat, try to keep it in at night as many animal lovers do. If that proves difficult, use a small bell on a collar round the cat's neck.
- Encourage your local council to keep the grass verges wild or take part in 'No Mow May'.

Learn more

- Book: Britain's Mammals, Dominic Cousins et al, Princeton University Press, 2017.
- The NHBS Guide to UK Small Mammal Identification nhbs.com/blog/uk-small-mammal-identification
- The Mammal Society – For Evidence Based Conservation – For Evidence Based Conservation mammal.org.uk/
- People's Trust for Endangered Species (PTES) ptes.org
- Contact an A Rocha UK naturalist at naturalist@arocha.org

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GROUPS – credits

Photos: Dandelion – Norman Crowson, Bank vole – Norman Crowson

Information

T6 Native wildflowers	Phil Leigh
T7 Farmland & garden birds	Andrew Mann Andy Lester
T8 Dragonflies & damselflies	David Chandler
T9 Butterflies	Regina Ebner
T10 Bees (incl. bumblebees)	Sarah Leedham
T11 Bats	Hilary Bond
T12 Grassland fungi (esp. waxcaps)	Peter Sturgess
T13 Macro moths	Bertie Stirling
T14 Amphibians (incl. frogs, newts, toads)	Mary Cummins
T15 Small mammals	David Beattie

Photographs

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Norman Crowson (1, 3), Andyworks (2), MikeLane45
David Chandler (1, 3, 4), Ann Stuart (2)
Regina Ebner (1, 2, 3), Norman Crowson (4)
Regina Ebner (1), Peter Sturgess (2, 4), Norman Crowson (3)
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Peter Sturgess (1, 2, 3, 4)
Phil Godbold (1), Norman Crowson (2, 3, 4)
Norman Crowson (1, 2, 3, 4)
David Smith (1), Norman Crowson (2, 3, 4)