Wildlife-Friendly Gardening Trail

See an online version of this trail at www.botanic.cam.ac.uk/wildlifegardening
Why garden for wildlife?

Gardens cover a surprisingly large area in the UK, about a fifth the size of Wales. That’s a lot of potentially important habitat for wildlife, especially in urban areas. Up to a quarter of a city’s area may be made up of gardens and so, although each garden on its own is small, together they form a network linking urban green spaces with nature reserves and the wider countryside.

Some would say that gardens, sympathetically managed for wildlife in the city, provide a haven for many more species than that provided by the countryside, where intensive agriculture dominates and only small fragmented and shrinking habitats remain.

So why might we want to include wildlife amongst all the other considerations we may have when maintaining a garden, assuming we are lucky enough to have one? Wildlife is under threat; preventing its loss is probably as important an endeavour as preventing run away climate change. We are wholly dependent on the diversity of living organisms that we share this planet with, whether that be for pollination of our crops, regulation of our climate, or purification of our water, provision of food and medicine and wellbeing. Only healthy ecosystems can continue to deliver these free services and an ecosystem’s health is a function of its biodiversity. It’s not only the biodiversity in wilderness areas that needs our protection, it’s also the biodiversity in our back yard, as everything is connected.
When we talk about garden wildlife, we include all invertebrates such as bees, dragonflies, earthworms, hoverflies, beetles, butterflies and moths, in addition to vertebrates such as bats, hedgehogs, birds, frogs and toads and grass snakes. Some garden wildlife may be considered much less desirable than others, including species such as slugs, muntjac, rats and aphids against whom many of us will wage a constant battle. It’s how we wage this battle that is important if we want to ensure that beneficial wildlife is not caught in the cross fire.

Wildlife needs four things to thrive in a garden: water, food, shelter and a place to breed. If you are able to provide even one of these things, you will be benefitting the biodiversity on your doorstep. Plants are the foundation of the ecosystem and the greater the variety of plants in a garden the more wildlife species it will attract.

This trail will take you around the Botanic Garden from the viewpoint of the wildlife that it supports, and hopes to inspire you to think of your garden as more than just a place for recreation, growing food or a place of beauty and relaxation, but also an essential wildlife refuge.
**Stream Garden – adding water**

Ensuring there is some form of water in your garden is probably the single most important thing you can do for garden wildlife. You may not be lucky enough to have a stream flowing through your garden, like we have here, but even providing a simple water bath for birds offers huge benefits.

Ponds are arguably the richest, most productive and engaging of all habitats in the garden, hosting a range of wildlife that would otherwise struggle to find a home there, effectively adding a whole new ecosystem: from frogs and newts to a myriad of aquatic invertebrates, as well as predatory dragonflies and damselflies.

When creating a waterbody in your garden, make sure that there is an escape ramp or gradual sloping edge, to allow an exit route for wildlife unfortunate enough to fall in.

Look out for frogspawn in spring and froglets later in the season.

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**Schools’ Garden – sustainability**

Gardening is not always beneficial to the environment. Overuse of pesticides and herbicides, addition of fertilisers, use of non-recyclable plastic plant pots and power tools, water wastage, and the use of peat-based composts all contribute to carbon dioxide emissions and environmental degradation. Increased levels of carbon dioxide in the atmosphere drive climate change, which affects the wildlife in your garden in a number of ways.

In the Schools’ Garden you can find many examples of sustainable gardening practices, including rainwater harvesting and the composting of garden waste.

If you want to make your gardening hobby greener, try upcycling materials for use as planters rather than buying new, or use ‘no dig’ principles to reduce loss of organic matter from the soil. Through using mulches, weeding by hand and growing green manures, you’ll reduce back-breaking digging – and you will be helping to save the planet at the same time.

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Dry Garden – adapting to climate change

Cambridge is one of the driest places in the UK. Climate change will bring drier and hotter summers, so it’s never been more important to conserve water in the garden. Plants growing here in the Dry Garden don’t receive any watering other than from rainfall, and we hope this garden inspires you with water-wise planting ideas.

Plants in this garden have been selected to demonstrate the clever adaptations that enable them to thrive in dry climates. This includes using small narrow leaves with less surface area for water to evaporate from (Artemisia arborescens), hairs to trap moisture and reflect heat (Stachys byzantina), leaves with a waxy coating to waterproof the leaf surface (Euphorbia myrsinites), or thick fleshy leaves to store water (Aeonium ‘Zwartkop’).

The Dry Garden can be considered ‘low maintenance’ gardening, due to the water-wise plant selection and soil preparation.

Bee Borders – plants for pollinators

On a sunny day, enjoy the sights and sounds of bees at work, collecting nectar and pollen from the plants growing in our Bee Borders. These beds have been planted with flowers that are ‘bee magnets’ in terms of colour (bees prefer blues and purples) and provide a steady supply of ‘bee food’ from March until October.

There are over 250 different species of bee in the UK. Bees are either social and live in colonies (such as bumblebees and honey bees) or solitary (such as mason bees and leafcutter bees), but all are threatened by the reduction in availability of wildflowers in the countryside.

As you walk around our Bee Borders, look out for different pollinators visiting the beautiful display which will hopefully inspire you to create your own pollinator border at home. Pick up a Bee Border planting list from the ticket offices for further inspiration.
Wildlife-Friendly Gardening
1. Stream Garden
2. Schools’ Garden
3. Bee Borders
4. Dry Garden
5. Fen Display
6. British Wild Plants
7. Dry Meadow
8. Scented Garden
9. Natural Area
10. Woodpile at the Cambridge Oak
11. Schools’ Garden (bug hotel, wormery, composting, water butts, solar panels)
5 Fen Display – use peat-free composts

Fens and bogs are a wetland habitat where peat accumulates. Peat locks away carbon.

Since the 1970s, the horticultural industry has relied heavily on peat-based composts sourced from natural peat bogs, because they are lightweight and retain water well. The extraction of peat – a non-renewable resource – results in loss of habitat and wildlife, as well as release of carbon into the atmosphere.

The Royal Horticultural Society stopped selling peat-based composts in 2020. Peat-free growing media are now encouraged across all sectors and we endeavour to make the Garden peat free. Researchers are working on finding sustainable peat-free alternatives for growing certain specialist plants that are thought to require peat for proper growth, including carnivorous and ericaceous plants. Be sure to look out for peat-free composts next time you visit your garden centre.

6 British Wild Habitats – plants for all stages of the insect lifecycle

This area showcases a number of British habitats that occur in Eastern England. Native plant species are grown together and the habitats are managed using ecological principles, in order to mimic as far as possible the natural processes responsible for the formation of these habitats. Although small, these habitats are known to support a number of rare animal species with specialist requirements.

This area may not be traditionally aesthetically appealing, and most likely won’t inspire replication in most people’s gardens! However, it is important to appreciate that our urban biodiversity needs more than pretty flower borders providing pollen and nectar to survive. Most invertebrates have a number of stages to their lifecycle which are dependent on the foliage of plants, rather than the flowers, and some have quite specialist requirements such as being dependent on one or two particular food plants.
Dry, Perennial Meadow

Planting a wildflower meadow in your garden can provide flowers for pollinators and breeding sites for butterflies and moths. Perennial meadows don’t need reseeding, and mimic traditional hay meadows, which are extremely important habitats for wildlife. Annual meadows, despite looking pretty and generating a lot of interest, don’t provide the breeding opportunities for moths and butterflies, and are hence less valuable.

A meadow is much better than a heavily fertilised and regularly mown lawn, which is not only unsustainable but also has very little value for wildlife. However, by relaxing the mowing frequency (mowing only twice a year in spring and autumn) and reducing the fertility of your lawn, it can also eventually become a valuable wildlife haven, supporting a wide variety of plant species with relatively little effort. It’s amazing to see which wildflowers turn up over time – but you can also add plug plants to get things going a little quicker.

Scented Garden – the power of smell

The Scented Garden was designed in 1960 to perfume the air and stimulate our sense of smell. To help collect and intensify the scents, the site was scooped out to create a protected hollow.

Plants produce scents to attract pollinators as well as to defend against herbivores. No two plants produce the same scent, and pollinating insects use the chemical cues from the flowers to help them decide which plant to land on. You can provide sweet-smelling day flowering plants for bees and butterflies and night-scented plants such as jasmine to attract moths.

Plants have also evolved chemical defences against herbivores, and release scents when attacked to warn their neighbours to fortify their defences, or to attract a predator to dispatch the pest. It is because of this chemical arsenal that some herbivores (like the caterpillars of certain butterfly species) have become so specialised that they only feed on a few food plants. If we want to support wildlife, we need to provide food for all stages of the life cycle.
Natural area – don’t be too tidy

From the point of view of wildlife, we keep much of our countryside and gardens ‘too neat’ by frequently mowing and trimming lawns and hedges and removing dead plant material. This damages or removes sources of food and shelter, ultimately impacting on wildlife breeding.

This area is an intentionally uncultivated ‘wild’ area that lets nature take control. Native plants are allowed to self-seed, in turn providing food and shelter that attracts invertebrates and small mammals.

Though a small area left to its own devices is extremely beneficial, whole so-called ‘messy’ areas are not essential. Simply leaving seed heads in place for the birds, leaving leaf litter in the borders, cutting back your hedge less often, and leaving ornamental borders to shrink into themselves in autumn and winter (rather than cutting everything back) will all go a long way for providing food, shelter and overwintering sites for a diverse range of species.

Woodpile – a haven for wildlife

This shaded woodpile creates a valuable habitat for mosses, lichens and fungi, as well as many insects. Such a habitat would be created naturally wherever there is fallen wood. Other animals such as birds and hedgehogs will then use this habitat as a source of food and shelter, particularly over winter. Dead wood is an amazing habitat for a large number of beetle species, including the stag beetle, which will breed in wood buried in the ground.

There is now an overwhelming array of artificial wildlife habitats on the market. Bird and bat boxes have been proven to work, but many commercially available wildlife products are badly designed, so be careful. Bee hotels can do more harm than good if not appropriately managed. You can make your own out of bamboo, hollow stems, or by drilling holes into untreated wood, but if purchasing one, look for holes of different sizes and a good roof to protect from rain, and avoid hotels with no back wall, or any with pine cones.
**Recording wildlife in your garden**

Recording which species visit your garden is not only a wonderful way to spend time in your garden: it also helps scientists understand the value of gardens for biodiversity and how this may change with climate change. Here at the Botanic Garden we have been recording the wildlife for many years, and have recorded almost 3,000 species so far. You can contribute to the recording effort in the Botanic Garden by visiting our website to find out more, or submitting a sighting using the iRecord app (see QR code above).

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**Best plants for pollinators: native or non-native?**

We already know that most butterflies and moths are very picky about which species they lay their eggs on. Many have very specific food plants – for example, the Small Tortoiseshell butterfly only feeds on Nettle. Native plants and insects have evolved together, but native insects also make good use of non-native plants.

If you want to support pollinators, planting a mix of flowering plants from different countries and regions is best, though priority should be given to plants native to the UK and northern hemisphere. Plants from the southern hemisphere can be added to extend the season.

To support plant-dwelling invertebrates, UK natives are best. Regardless of plant origin, the more flowering plants a garden can offer throughout the year, and the more densely they can be planted, the more invertebrates they will support.

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*If you do not wish to keep this booklet, please return it to the ticket office for others to use.*
Top tips for wildlife-friendly gardening

1. Add some water, or make a wildlife-friendly pond.
2. Plant as many different plants as densely as you can, with as long a flowering season as possible.
3. Grow plants which provide nectar, pollen, berries, seeds, nuts and foliage to feed all garden wildlife, and include some native species.
4. Replace vertical surfaces with plants – grow a hedge, train creeping plants up walls and fences, or add a green roof.
5. Leave some of your garden wild to allow native plants to self-seed, and leave some dead plant material in place to support overwintering invertebrates.
6. Provide a log pile for shelter, food and breeding spots for insects
7. Plant a tree and some shrubs to add structure.
8. Garden without pesticides, weedkillers, slug pellets and fertilisers.
9. Compost your food and garden waste to reduce landfill and create a habitat for wildlife.
10. Go peat free in your garden to safeguard huge areas of biodiversity and keep carbon dioxide out of the atmosphere.

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