The 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 patchwork 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 some 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.

Seven spot lady bird

Migrant hawker spotted at the Fen Display during a Bioblitz event. Photo by Geoff Oliver

[Image of Migrant hawker]

[Image of Seven spot lady bird]
1 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 wildlife unfortunate enough to fall in, a route to exit the pond safely.

Look out for frog spawn in spring and froglets later in the season.

2 Schools’ Garden - sustainability

Gardening is not always beneficial to the environment. Overuse of pesticides and herbicides, addition of fertilisers and use of non-recyclable plastic plant pots, the use of power tools and water wastage as well as peat-based composts, all contribute to carbon emissions and environmental degradation. Increasing carbon in the atmosphere drives 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 rain water harvesting and composting garden waste.

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

3 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.

4 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 artificial watering, and this garden hopes to inspire you with water-wise planting ideas.

Plants in this garden have been selected to demonstrate the clever adaptations that enable plants to thrive in dry climates such as 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 and this is due to the water-wise plant selection and soil preparation.

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If you do not wish to keep this booklet, please return it to the ticket office for others to use.
Wildlife Friendly Gardening Trail

Numbers indicate the position of selected gardens or points of interest.

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
**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, due to its lightweight and water-retentive properties. The extraction of this non-renewable resource results in loss of habitat and wildlife, as well as release of carbon into the atmosphere.

From 2020, the RHS has stopped selling peat-based composts. Peat-free growing media is now encouraged across all sectors. Much research is going on into how to grow certain specialist plants that are thought to require peat for proper growth, such as carnivorous and ericaceous plants, using sustainable peat alternatives. Be sure to look out for peat free composts next time you visit your garden.

**Dry, Perennial Meadow**

Planting a wildflower meadow in your garden can provide flowers for pollinators and breeding sites for butterflies and moths. Perennial meadows mimic traditional hay meadows which are an extremely important habitat for wildlife, and don't need reseeding. 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 traditional lawn, which is not only unsustainable but also has very little wildlife value. 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.

**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 species with specialist habitat requirements.

This area may not be traditionally aesthetically appealing and most likely won’t inspire replication in our own small gardens, however, it is important to appreciate that the biodiversity in our gardens needs more than the 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 food plants.

**Scented Garden - function 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 well.

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. Provide sweet smelling day flowering plants for bees and butterflies and night scented plants such as jasmine to attract moths.

Plants have evolved chemical defences against herbivores and release scents when attacked to warn their neighbours to fortify their defences, or to attract in a predator to dispatch the pesky 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 life stages.
Natural area - don't be too tidy

From a wildlife point of view, 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 diversity of species.

Woodpile - providing wildlife habitat

This shaded woodpile recreates a valuable habitat for mosses, lichens and fungi, as well as many insects, that would be created naturally in woodlands 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 are now an overwhelming array of artificial wildlife habitats on the market. Other than bird and bat boxes which have been proven to work, 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 plant stems or drilling holes into untreated wood, but if purchasing one, look for holes of different sizes, a good roof to protect from rain and avoid hotels without a back wall or any with pine cones.

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, like the Small Tortoiseshell butterfly, have very specific food plants, in this case only 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.

Resources for Wildlife Friendly Gardening

The Wildlife Gardening Forum (www.wlgf.org) is a small UK based independent charity run by volunteers which aims to help everyone make their gardens better for wildlife, through disseminating evidence-based advice based on the latest science.

The Wildlife Trust produces a number of lovely pamphlets in their Wild About Gardens series.
Top tips for wildlife friendly gardening

1. Add some water, make a wildlife pond.
2. Plant as many different plants, as densely as you can, with as long a flowering season as possible.
3. Plant plants to provide nectar, pollen, berries, seeds, nuts and foliage to feed all garden wildlife, include some native species.
4. Replace vertical surfaces with plants, grow a hedge, train creeping plants up walls and fences, 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.
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.