

Cambridge City Council parks & open spaces

# BIODIVERSITY TOOLKIT



**RE-THINKING AND ENHANCING**  
PUBLIC OPEN SPACES TO BENEFIT  
BIODIVERSITY AND PEOPLE





## WELCOME!

I am so pleased that this guide is now available, and I am sure that it will provide inspiration to us all to do what we can to make sure our beautiful parks and open spaces can support a wide range of plants and animals.

Improving biodiversity is one of the most important things we can do to counter the effects of climate change, and the advice given here will help us make sure that we can co-exist with other species and help threatened wildlife adapt to the impact of global heating.

Cambridge is fortunate to have an amazing range of community groups, residents associations and wildlife associations who care about the environment, and our team is working closely with many of them. I encourage everyone to get involved - if being in a park can make you feel good, then getting involved with park projects, learning more about local wildlife, and making a difference, is even better.

At the City Council we are doing all we can to ensure that land we look after is hospitable to wildlife, but there's a lot that you can do too, in your garden or in the spaces around your workplace. We want to create more space for plants and animals and connect them together to form 'linked habitats', and many of the suggestions in this guide will work for gardens and spaces of any size, so please give them a go. Every one of us can make a difference, and together we can transform our city.

### **Councillor Alex Collis**

Executive Councillor for Open Spaces, Sustainable Food and Community Wellbeing

Front cover picture: Perennial meadow at Cherry Hinton Hall



Perennial meadow at Histon Rec

# CONTENT

1. SCOPE, AIMS, AND AUDIENCE	5
2. BENEFITS OF RE-THINKING HOW WE MANAGE OUR GREEN SPACES	7
3. MAINTAINING GREEN SPACES IMPACTS THE ENVIRONMENT	8
4. WHAT KINDS OF PUBLIC OPEN SPACES CAN BE RE-THOUGHT?	9
5. HOW TO ASSESS YOUR SPACE	10
6. HOW TO GET INVOLVED	11
7. A TO Z OF FEATURES	
Bat boxes	13
Bee banks	15
Bee hotels	16
Beetle towers	17
Bird boxes	18
Bog gardens	19
Bramble patches	20
Brownfield gardens - including open-mosaic habitats	21
Butterfly and moths - habitats including banks	22
Community orchards and tree planting	23
Compost heaps	25
Grasslands	26
Green roofs	28
Hedgehog habitats	29
Hedgehog highways	30
Hibernacula	31
Honeybee Hives	32
Meadows	34
Nettle patches	36
Mixed native hedge	37
Ponds	38
Planting for pollinators, including perennial and bulbs	40
Wetland planting	42
Woodpiles (log piles) including frog and toad abodes	43

# 1

# SCOPE

## AIMS AND AUDIENCE

The scope of this guide covers public open spaces in Cambridge. These places might already be green open spaces but could benefit from additional features to better support biodiversity. They might currently be completely 'grey' but could be made more friendly to people and nature.

In addition to its private gardens, including the Cambridge colleges and the Cambridge Botanic Garden, Cambridge is fortunate to have a wealth of public green assets, including:

- 12 Local nature reserves (LNRs).
- Over 80 parks and recreation grounds, of all sizes.
- Large commons, including along the River Cam.
- Large and small allotment sites, community gardens and orchards
- Burial grounds, including some designated for their wildlife value.
- Extensive green roadside verges
- Brownfield sites, some of which can be classified as open-mosaic habitats.
- Many mature trees, with an active programme of both new and replacement planting.

Traditionally, these public green and open spaces have been managed by Cambridge City Council operations staff, including under Highways Agency contracts. Increasingly, residents and community groups have become involved in aspects of planning and caring for them, often with the support of the Community Engagement Officers within the Streets and Open Spaces (SOS) Community Engagement Team. The knowledge and skills of these people varies widely – from experts and enthusiasts to people just volunteering for one session through corporate social responsibility. They all, however, share the desire to be part of making Cambridge better for people - and nature.

This guide aims to provide some reasons for re-thinking the ways we care for our public open spaces to benefit biodiversity and provide inspiration and confidence for people to get involved.

Here we list some individual features that could be incorporated into green and grey public spaces and some tips on how they might be achieved, in what spaces, when, and by whom. It includes examples from Cambridge and links to further advice, including from council staff and local volunteer groups. In Cambridge, some features, such as sustainable urban drainage (SUDs), are being incorporated into new housing and commercial developments, including as part of their planning permission. However, because these can be complex and are generally installed by professionals, these are out

of scope of this guide. Further advice on these features can be found here:  
[www.london.gov.uk/sites/default/files/rba-gla\\_guide-parks\\_and\\_greenpace\\_final.pdf](http://www.london.gov.uk/sites/default/files/rba-gla_guide-parks_and_greenpace_final.pdf)

This guide has been authored by the biodiversity staff in SOS, with input from individual volunteers working in public open spaces across our city and the Community Engagement team. It reflects our combined experience but also, importantly, invites everyone to get involved in projects that include volunteers, and to contribute your ideas and projects for future versions of the guide.

We hope this guide will be useful for City Council Community Engagement and Operations staff and especially for people who already volunteer with them – or who might consider it in the future.



Perennial flowering meadow at Cherry Hinton Hall



Native Chalk Grassland Creation at Fulbourn Road open space

## 2

# BENEFITS

## OF RE-THINKING HOW WE MANAGE OUR GREEN SPACES

Urban green spaces benefit the natural world, humans, the wider environment, and our climate. Gardens and parks can have a greater variety of flowering plants than many rural areas, often flowering for longer, and may use less pesticides than nearby farmland.

To humans, they are places to travel through, visit and enjoy:

- Regular exposure to green spaces has well-understood short- and long-term benefits to mental and physical health and wellbeing.
- Appropriate planting of hedgerow and trees can reduce local air pollution and reduce urban heat in summer.
- Urban green spaces can be a local and healthy source of food, for example from allotments, community gardens, community orchards or even bramble and nettle patches.
- They are attractive places for life-long learning – for example, from pre-school to the University of the Third Age.
- Provide a place to meet friends and family, walk the dog, observe and reflect on the day to day life of other creatures

To the non-human natural world, their benefits include habitats for:

- Pollinators, including bees, butterflies, hoverflies and moths.
- Mammals, including mice, voles, hedgehogs, foxes, badgers and deer.
- Birds, resident, wintering and migrating through Cambridge.
- Molluscs, including slugs and snails.
- Reptiles and amphibians, including frogs, newts, lizards, grass snakes and toads.
- Fungi and plants, including wildflowers, trees, and the amazing soil ecosystem.

More generally, green spaces also:

- Help mitigate climate change by capturing carbon, especially by planting trees.
- Can help prevent flooding and drought by storing and using rainwater.
- Can be part of sustainable waste management, for example by hyper-local composting of food and green waste.
- Provide opportunities to recycle materials. For example, community gardens, orchards and allotments tend to reuse materials, for example use pallet wood for wildlife habitats and bird boxes.

There is a wealth of resources freely available online, to inspire and provide detailed guidance on how to enhance gardens and parks for both biodiversity and people. We have provided links within the A to Z section to helpful guides produced by a range of organisations to promote urban and garden biodiversity.

# 3

# MAINTAINING

## GREEN SPACES IMPACTS THE ENVIRONMENT

In general, it is accepted we need to transition to a lower carbon lifestyle, using fewer non-renewable resources, with less waste, less fossil-fuel and less water extraction. The council has begun this transition in our parks:

Until recently the City council invested in formal bedding areas requiring the annual purchase of plants and bulbs, which might be changed twice a year. Most of these would have been intensively produced at large scale. Suppliers specified peat-free composts, however the use of long-acting pesticides, single-use plastic containers and considerable transport costs was not sustainable. Annual bedding and hanging baskets, though popular with site users, also require a programme of frequent watering by Council staff, with this water being drawn from the chalk aquifer that supplies the City's drinking water and our precious chalk streams. We have replaced annual bedding with perennial flowering meadows made up of purely native or a mix of native and non-native beneficial species, depending on the site's location. These species are drought tolerant and require no or very little watering during establishment.

Many of our green spaces and verges have been traditionally maintained by regular cuts with petrol-driven mowers and strimmer's, with obstacles sprayed around with short or long-acting applications of herbicides. We have now taken the precautionary approach of applying no herbicides and leaving more areas of long grass to flower and provide food and cover for insects

In many parks, areas of brambles and nettles are now managed on rotation to support biodiversity whilst preventing their encroachment on our Local Nature Reserves staff and volunteers are cutting meadows using traditional scythes, a far more peaceful and pleasant pastime and less destructive to wildlife than petrol strimmer's.

We manage our tree stock to ensure a diverse range of species and age groups within our parks. When specifying works we inspect for potential nesting or roosting features and retain standing deadwood, including large monoliths where safe to do so. If the tree need felling and safe to do so, we leave large sections of timber on site as natural play features and long lasting deadwood habitat for beetles and fungi.

We are also leaving many more areas of former short amenity grassland to grow longer to provide habitat for invertebrates and their predators.

# 4

# WHAT KINDS

## OF PUBLIC OPEN SPACES CAN BE RE-THOUGHT?

Cambridge's public open spaces range from:

- Relatively wild and special local nature reserves (LNRs), which are managed by SOS staff, sometimes working with local Wildlife Trust staff, and especially with regular teams of volunteers. These aim to have only native species of plant but can have additional features for biodiversity incorporated within them.
- Commons, which are mainly grazed using cattle and occasionally 'topped' by tractor to reduce pernicious 'weeds' such as Creeping thistle and Docks.
- Larger parks used for recreation, including team sports requiring pitch markings.
- Parks used for informal leisure activities.
- Play areas and fitness kit.
- Community gardens, which are usually led by volunteers working with Council staff.
- Some might be in, or near, allotments.
- Community orchards, with primarily fruit trees, which can be in or near allotments and commons.
- Numerous small but important patches of grass in housing estates, along roads and around trees.
- The River Cam and associated ditches and chalk streams running through the open spaces.

There are also grey public spaces, such as by some social housing or shops, that could be made greener with careful design.

Each location will have its own characteristics, including its own ecology, and also its own actual and potential benefits to both nature and people. Before planning to install and maintain some of the features listed in this guide it is useful to consider their suitability and also consult with council staff, local residents and users.

Many of these projects and management options have been trialled with volunteers at the amazing Nightingale Community garden, we encourage you to visit, learn more and be inspired of what can be achieved by partnership working.

# 5

## HOW TO ASSESS YOUR SPACES?

The described features will work in many Cambridge spaces if carefully positioned. It is worth taking time to consider the various options and how they fit with the wider network of parks, gardens and street tree habitats. Studying an aerial photo gives a fantastic insight as to how green spaces link up for nature. Using our parks to connect existing areas of vegetation cover and providing stepping stones of nectar rich planting for pollinators will go a long way to increasing our city's biodiversity.

Once you have an area in mind we can work with you to assess its suitability and check no existing biodiversity will be negatively impacted.



Recently created pond at Nine Wells

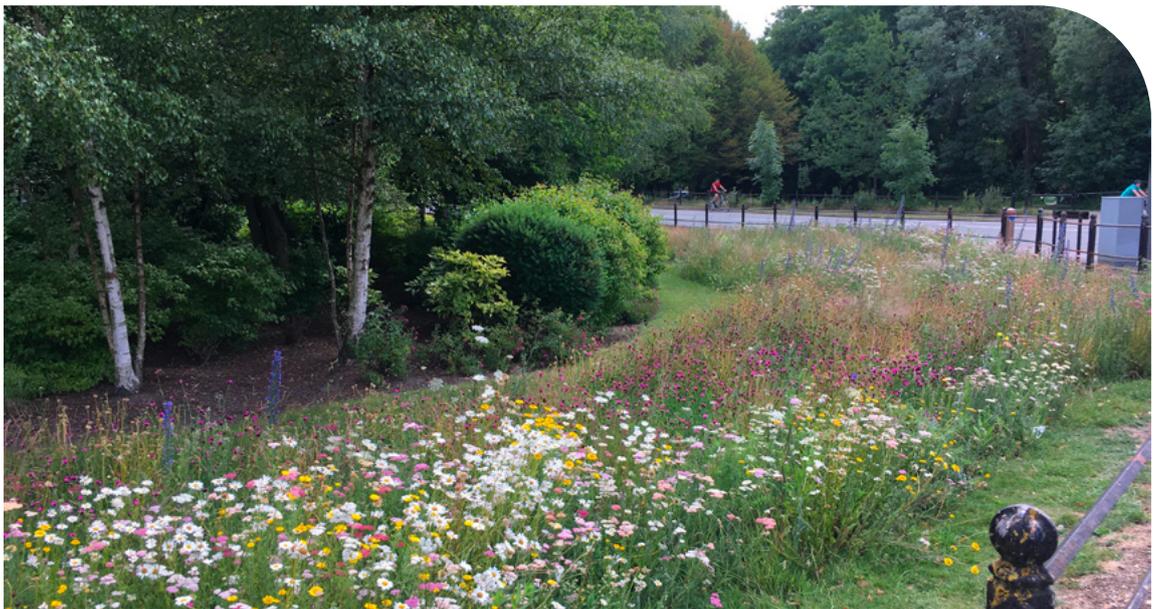
Collectively, private gardens cover a far greater area of Cambridge than all our parks and nature reserves. As our City grows gardens are becoming an increasingly vital refuge for wildlife. Many of the ideas in this guide can be translated to your garden or place of work. If everyone were to implement just one of these ideas on their patch, think of the benefits to our biodiversity and all those who enjoy it.

# 6

# HOW TO

## GET INVOLVED?

We hope this guide inspires you to get involved in helping us create and maintain new habitats across the city, both in on our parks and in your gardens and places of work. Based on the guide we would like to hear your ideas for your local parks and open spaces. We will then work with you to consult other park users, secure funding and deliver supported projects.



Perennial meadow on Trumpington Road

To find out how to get involved, register project ideas, and hopefully sign up to become a City Council volunteer, please visit:

[www.cambridge.gov.uk/streets-and-open-spaces-volunteers](http://www.cambridge.gov.uk/streets-and-open-spaces-volunteers)

or contact us at:

[sosvolunteers@cambridge.gov.uk](mailto:sosvolunteers@cambridge.gov.uk) / 01223 458084

## 7

## A TO Z

## OF FEATURES

FEATURE KEY	
	House/urban friendly (bird and bat boxes that can be integrated into buildings)
	Tree friendly (bird and bat boxes for trees)
	Bat friendly (good habitats for bats)
	Pollinators
	Invertebrates
	Birds
	Mammals
	Amphibians
	Reptiles
	Plants (good for wildflowers or freshwater plants)

## BAT BOXES



Several bat species are commonly seen flying over Cambridge open spaces, especially near woodland, ponds and the river at dusk. They are fascinating mammals that eat flying insects and are a good indication of a functioning ecosystem. Evening bat walks and punt safaris, using bat detectors, are very popular ways of engaging people with nature.

<p><b>DESCRIPTION OF FEATURE</b></p>	<p>Artificial roosts designed to encourage bats into areas where there are few roosting sites. There are various designs of bat box from home-made wooden boxes to ready-assembled boxes and ones that can be built into walls. Different bat species need different designs. On the Accordia Estate at Brooklands Avenue we have converted an old pill box into a winter hibernation site.</p>
<p><b>WHICH SPECIES BENEFIT MOST</b></p>	<p>Bat boxes are most suitable for crevice-dwelling bats such as Soprano and Common Pipistrelles, which are widespread across the City. It can however, take several years before bat boxes are used.</p>
<p><b>BEST LOCATION TO MAXIMISE BENEFITS</b></p>	<p>Bat boxes can be positioned on tree, built into or attached to buildings. Pole mounting is also an option in some locations. It is best to put at least two or three boxes close to each other but with different aspects so bats can choose the one with the right temperature for a given season.</p> <p>In general, it is best to site them where bats are known to feed, close to hedges and tree lines but away from artificial light. Ideally, they should be at least 4 m above the ground, sheltered from strong winds and exposed to the sun for part of the day, which is usually a south or south-west aspect. The entrances should not be impeded by branches.</p>
<p><b>LOCATIONS TO AVOID</b></p>	<p>Once occupied, a bat box cannot be opened legally without a Natural England licence and may be used for many years. For this reason, it is best not to install boxes in temporary locations or places that are likely to have extensive building or maintenance works. Avoid siting them above public walkways. It will be necessary to consult with the City council tree officer to agree suitable trees for fixing.</p>

<p><b>WHEN TO INSTALL</b></p>	<p>Boxes can be installed at any time of year. Take advantage of scaffold during buildings works to mount on suitable buildings. Tree boxes are potentially easier to install in winter when trees are not in leaf.</p>
<p><b>WHEN TO MAINTAIN</b></p>	<p>Select designs that have an open base for bats to access and therefore are self-cleaning of dropping, requiring no maintenance. Wooden boxes should not be treated with preservative, as this can be detrimental to bats. They should be allowed to naturally deteriorate, and new boxes erected in advance of their failure. Purchased 'Woodcrete' boxes provide a long-term solution with better insulation properties although are more expensive.</p> <p>The making of wooden bat boxes is a suitable project for volunteers, but ensure the materials and design are appropriate. If the location can be reached safely, they could be installed by volunteers. Otherwise the council may be able to provide a tree contractor to erect safely and securely.</p>
<p><b>LOCAL EXAMPLES</b></p>	<p>Accordia bat hotel, boxes on many LNRs, parks and new development sites</p>
<p><b>FURTHER INFORMATION</b></p>	<ul style="list-style-type: none"> <li>● <a href="http://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/buildabatbox/">www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/buildabatbox/</a></li> <li>● <a href="http://www.wildlifetrusts.org/actions/how-build-bat-box">www.wildlifetrusts.org/actions/how-build-bat-box</a></li> <li>● <a href="http://www.bats.org.uk/our-work/buildings-planning-and-development/bat-boxes">www.bats.org.uk/our-work/buildings-planning-and-development/bat-boxes</a></li> </ul>



Woodcrete bat box on Christ's Piece



## BEE BANKS (SAND BANKS)

Of the 267 species of bee in the UK, 220 are solitary, nesting as individuals, although often close together where conditions are right. After mating, the female makes a series of cells in which she lays an egg in a ‘cake’ of pollen and nectar, leaving the young to feed on these stores. Mining bees are one category of solitary bee, they nest in underground burrows, which can be encouraged by making bee banks.

<b>DESCRIPTION OF FEATURE</b>	Mound of compacted soil kept bare by occasional disturbance
<b>WHICH SPECIES BENEFIT MOST</b>	Solitary bees, including tawny mining bees. They are also good habitats for pollinator-friendly plants such as viper’s bugloss.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Sunny locations adjacent to good nectar sources such as woodland edges, meadows, and water courses. Perfect as part of a suite of measures to increase biodiversity on a more formal park
<b>LOCATIONS TO AVOID</b>	Adjacent to play or seating areas or on public path desire lines. Consider the potential attraction for use as bike ramps and design this temptation out with planting, dead hedges or ditches.
<b>WHEN TO INSTALL</b>	Any time of year. The majority of bee species take up residence from March onwards
<b>WHEN TO MAINTAIN</b>	Plant cover might need trimming back in autumn to ensure exposed areas remain for nesting. These structures lend themselves to be managed and ideally monitored by a small group of volunteers
<b>LOCAL EXAMPLES</b>	One planned for installation at Logan’s meadow LNR in 2020
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>• <a href="https://community.rspb.org.uk/wildlife/homesforwildlife/b/gardeningforwildlife/posts/get-wildlife-rich-at-the-bee-bank">https://community.rspb.org.uk/wildlife/homesforwildlife/b/gardeningforwildlife/posts/get-wildlife-rich-at-the-bee-bank</a></li> </ul>

## BEE HOTELS – FOR CAVITY NESTERS



Cavity-nesting bees are another category of solitary bee. They need dry, hollow tubes or holes in logs and walls to lay their eggs.

<b>DESCRIPTION OF FEATURE</b>	Structures that mimic the cavities where solitary bees nest. They often have ‘tubes’ of between 2 and 13 mm in diameter designed for bees to lay eggs. These can be made from paper straws, hollow stems of plants, drilled bamboo canes or drilled into logs.
<b>WHICH SPECIES BENEFIT MOST</b>	Different bee species prefer different diameter tubes. Aim for a range between 2mm and 13mm and a depth of around 100mm
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Different solitary bees need different conditions. In general, site the hotel at least 1 m off the ground, on a south-facing wall or alternative sunny location that is protected from strong winds. Think about siting where bees have access to pollen rich habitats.
<b>LOCATIONS TO AVOID</b>	Locations that are likely to get driving rain are surrounded by urban environment with few foraging opportunities close by, or close to play areas.
<b>WHEN TO INSTALL</b>	Any time of year. The majority of bee species take up residence from March onwards.
<b>WHEN TO MAINTAIN</b>	The tubes can build up a parasite load over time. Preferably, replace tubes every 2 to 3 years
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Sheep’s Green &amp; Coe Fen LNR has a bespoke sign for the learner pool, incorporating a bee hotel</li> <li>● Christ Piece has a large hotel built by the Cambridgeshire Youth Offending team</li> <li>● Empty Common Community Garden: has a small, but sophisticated, bee hotel with channels that can be opened to view the larvae.</li> </ul>
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="http://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/build-a-bug-hotel/">www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/build-a-bug-hotel/</a></li> <li>● <a href="http://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/buildabeebandb/">www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/buildabeebandb/</a></li> <li>● <a href="http://www.nightingalegarden.org.uk/bees">www.nightingalegarden.org.uk/bees</a></li> </ul>

## BEETLE TOWER



Some types of beetle, including lesser and greater stag beetles lay eggs in rotting wood, especially underground.

<b>DESCRIPTION OF FEATURE</b>	Collection of logs or wood buried in the ground to encourage the wood to rot, providing a habitat for beetles to lay eggs.
<b>WHICH SPECIES BENEFIT MOST</b>	Wood boring beetles such as Lesser Stag beetle.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Stable location unlikely to be disturbed. Some beetles take years to pupate and become adults.
<b>LOCATIONS TO AVOID</b>	Waterlogged soil.
<b>WHEN TO INSTALL</b>	Any time of year. City Council tree team will be able to source suitable logs from tree works in the City. These may be more readily available in the autumn and winter.
<b>WHEN TO MAINTAIN</b>	Keep vegetation clear, so the feature is not forgotten.
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Nightingale Community Garden</li> <li>● Byron's Pool LNR</li> <li>● Logan's Meadow LNR</li> </ul>
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="https://ptes.org/get-involved/wildlife-action/help-stag-beetles/build-a-log-pile-for-stag-beetles/">https://ptes.org/get-involved/wildlife-action/help-stag-beetles/build-a-log-pile-for-stag-beetles/</a></li> </ul>

## BIRD BOXES



Many species of bird use natural tree cavities including those excavated by woodpeckers, to raise their young. Such cavities are often not available in parks as the trees are not of a suitable age or safety requirements have meant deadwood features have been removed. Bird boxes of various designs are an effective alternative and provide instant nest sites. Across the City we have boxes being used by a diverse array of species including Swift, House Sparrow, Blue Tit, Kestrel and Tawny Owl.

<b>DESCRIPTION OF FEATURE</b>	Structures to provide cavities for hole nesting birds, they can also be popular with tree bumblebees and small mammals
<b>WHICH SPECIES BENEFIT MOST</b>	Different bird species prefer different designs.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Depends on the desired bird species and whether the appropriate habitats are nearby. Great way of providing nesting opportunities when few mature trees with suitable features on site.
<b>LOCATIONS TO AVOID</b>	Places that cannot be protected against predators, especially cats. Also, areas in full sun as some types of box can overheat in strong sunshine.
<b>WHEN TO INSTALL</b>	Any time of the year, but before March is best to ensure ready for nesting season. These links show the sort of design likely to be most successful in the City. Species to target include: Swift (on buildings), Starling, Blue Tit, Great Tit, Tawny Owl, Kestrel <ul style="list-style-type: none"> <li>● <a href="http://actionforswifts.blogspot.com/p/diy.html">http://actionforswifts.blogspot.com/p/diy.html</a></li> <li>● <a href="https://www.rspb.org.uk/fun-and-learning/for-families/family-wild-challenge/activities/build-a-birdbox/">https://www.rspb.org.uk/fun-and-learning/for-families/family-wild-challenge/activities/build-a-birdbox/</a></li> <li>● <a href="https://www.wildlifetrusts.org/actions/how-build-nesting-box-birds">https://www.wildlifetrusts.org/actions/how-build-nesting-box-birds</a></li> <li>● <a href="https://www.bto.org/how-you-can-help/providing-birds/putting-nest-boxes-birds/make-nest-box">https://www.bto.org/how-you-can-help/providing-birds/putting-nest-boxes-birds/make-nest-box</a></li> <li>● <a href="https://www.bto.org/sites/default/files/bto-nest-boxes-essential-guide.pdf">https://www.bto.org/sites/default/files/bto-nest-boxes-essential-guide.pdf</a></li> </ul>
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Many sites including Christ's Piece, Jesus Green, Byron's Pool LNR.</li> <li>● Trumpington Community Orchard: have a swift tower.</li> <li>● Logan's Meadows LNR: has a swift tower designed as public art</li> </ul>

## BOG GARDENS



Bog gardens are invaluable for wildlife and great for wetland plants. Many amphibians use these to stay cool in the Summer and they are also attractive to a large range of invertebrates.

<b>DESCRIPTION OF FEATURE</b>	A marshy, usually wet area designed as a habitat for wetland plants but also insects and amphibians. Artificial ones usually have a hole-pierced butyl liner to prevent the soil above drying out. This can be planted or just left to develop its own flora.
<b>WHICH SPECIES BENEFIT MOST</b>	Native marsh flowers, amphibians, and invertebrates
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Near a water source such as an overflow to a pond, water butt or at the base of downpipes from roofs.
<b>LOCATIONS TO AVOID</b>	Anywhere that might dry out, deep shade
<b>WHEN TO INSTALL</b>	Any time of the year.
<b>WHEN TO MAINTAIN</b>	They might need topping up with water but should not be reliant on mains water. Plants will need occasional thinning in the autumn to prevent single species dominating or the feature drying out.
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Nightingale Community Garden,</li> <li>● Byron's Pool LNR,</li> <li>● Logan's Meadow LNR</li> </ul>
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="http://www.rhs.org.uk/advice/profile?PID=356">www.rhs.org.uk/advice/profile?PID=356</a></li> <li>● <a href="http://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/digadampditchfordiversity/">www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/digadampditchfordiversity/</a></li> <li>● <a href="http://www.wwt.org.uk/discover-wetlands/gardening-for-wetlands/how-to-build-a-mini-drainpipe-wetland/">www.wwt.org.uk/discover-wetlands/gardening-for-wetlands/how-to-build-a-mini-drainpipe-wetland/</a></li> </ul>

## BRAMBLE PATCHES



Brambles (wild blackberries) can be invasive and without management threaten to take over other habitats such as grassland. However, a mature bramble in a sunny location is one of the best native plants for an array of species, including pollinators, small mammals and nesting birds. They are also popular with people who like eating the berries.

<b>DESCRIPTION OF FEATURE</b>	Area of wild blackberry allowed to thrive and managed on a cyclical rotation
<b>WHICH SPECIES BENEFIT MOST</b>	Butterflies and moths for nectar and larvae food. Birds and small mammals for nesting, cover and food. Berries for humans.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Sunny spot adjacent to other habitats, ideally away from boundary fences to avoid growth becoming a nuisance to neighbouring properties.
<b>LOCATIONS TO AVOID</b>	On existing good quality grassland, immediately adjacent to footpath and cycle ways as risk of thorns
<b>WHEN TO INSTALL</b>	Many parks will have patches of bramble already established. If planting new plants this is best done in the autumn / early winter. Ideally select a native variety rather than a garden cultivar.
<b>WHEN TO MAINTAIN</b>	Cut edges back annually to ensure bramble does not encroach into unwanted areas. Part of the patch should be cut back to ground level in the winter, every two years, to ensure a varied structure and encourage flowering and fruiting on newer canes.
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>Nightingale Recreation Ground: large areas to the West by the peripheral path. Bramblefields LNR</li> </ul>



Bramble boundary at Nightingale Recreation Ground

## BROWNFIELD GARDENS

*(also known as open-mosaic habitats)*



Brownfield sites, which are often post-industrial, can support nationally important populations of rare and endangered invertebrates, alongside other wildlife such as birds, reptiles, plants and lichens. The best examples have a mosaic of different habitats. Such sites are often needed for redevelopment, meaning the communities that have developed are often destroyed. In mitigation or just for increased biodiversity, similar ecosystems 'brownfield gardens' can be intentionally created in grey and green spaces. If planned and installed correctly they tend to be relatively maintenance free once established.

<b>DESCRIPTION OF FEATURE</b>	Habitats with varied topography and low-nutrient soils. These can self-establish naturally on derelict land, or they can be created seeded and planted with suitable species. If the site has rich soils or pernicious weeds these can be controlled by first laying down a permeable root proof barrier and laying the planting substrate on top of this.
<b>WHICH SPECIES BENEFIT MOST</b>	Black Redstarts, Pied Wagtails, scarce plants, ground beetles, bumblebees, butterflies and reptiles.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Close to existing brownfield sites and railways lines already supporting similar plant and animal communities. They can be installed on roofs, alongside paths, roundabout and areas that are otherwise tricky to maintain.
<b>LOCATIONS TO AVOID</b>	Places where people might not tolerate the aesthetics of the substrate until the planting is established.
<b>WHEN TO INSTALL</b>	Any time of year. They can be made with materials existing at the location or purchased crushed concrete or crushed ceramics, such as toilets and basins.
<b>WHEN TO MAINTAIN</b>	Occasional weeding of invasive species such as Buddleia
<b>LOCAL EXAMPLES</b>	Bramblefield LNR has a large area created on a former bramble patch.
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>• <a href="https://insideecology.com/2017/08/25/connecting-people-with-nature-brownfield-gardening/">https://insideecology.com/2017/08/25/connecting-people-with-nature-brownfield-gardening/</a></li> <li>• <a href="https://cdn.buglife.org.uk/2019/08/Planning-for-Brownfield-Biodiversity.pdf">https://cdn.buglife.org.uk/2019/08/Planning-for-Brownfield-Biodiversity.pdf</a></li> </ul>

## BUTTERFLY AND MOTH PLANTING



Butterflies and moths are insects that form the insect order Lepidoptera. There is no consistent way of telling butterflies and moths apart: butterflies are all day-flying and most moths fly at night, but several species fly by day. In the UK there are 59 resident species of butterfly and around 30 others that visit. Whereas there are around 2,500 species of moth.

Both are very important for pollination and the food web. The adults feed bats, owls (and other birds), small mammals and spiders. The caterpillars feed many species of birds (particularly their young) and parasitic wasps.

Most adults need nectar rich plants to fuel their flight, whilst the caterpillars feed on a huge range of plants, often species specific. Good species for butterfly larvae includes alder buckthorn, birds foot trefoil, brassicas, currants, docks, elm, garlic mustard, grasses (tussocky), lady's smock, holly, hop, ivy, nettle, purging buckthorn, sorrels, thistles and willows.

Species good for moths and their caterpillars include, evening primrose, foxglove, fuschia, honeysuckle, knapweed, lady's bedstraw, primrose, lavender, summer-flowering jasmine, rose-bay willowherb, sweet rocket, thistles, thyme, tobacco plants and native trees such as birch, hawthorn, hornbeam, oak, willows.

<p><b>DESCRIPTION OF FEATURE</b></p>	<p>Planting especially for butterflies and moths, this could be within other habits features being created or targeted to benefit known butterfly or moth species on a site. It is important to think about the requirements of a species throughout their life cycle, to ensure they can sustain a population on the site.</p>
<p><b>WHICH SPECIES BENEFIT MOST</b></p>	<p>Some plants attract a wide range of pollinators to nectar, foodplant for caterpillars tend to be more host specific</p>
<p><b>FURTHER INFORMATION</b></p>	<ul style="list-style-type: none"> <li>● <a href="https://butterfly-conservation.org/how-you-can-help/get-involved/gardening/gardening-for-butterflies">https://butterfly-conservation.org/how-you-can-help/get-involved/gardening/gardening-for-butterflies</a></li> <li>● <a href="https://www.rhs.org.uk/get-involved/community-gardening/butterfly-garden">https://www.rhs.org.uk/get-involved/community-gardening/butterfly-garden</a></li> <li>● <a href="https://butterfly-conservation.org/how-you-can-help/get-involved/gardening/gardening-for-moths">https://butterfly-conservation.org/how-you-can-help/get-involved/gardening/gardening-for-moths</a></li> </ul>

## COMMUNITY ORCHARDS



Cambridgeshire used to be a strong hold for commercial orchards with several local apple varieties, most of these orchards have been lost through changes in agricultural practices and development of former sites. Traditional orchards are rich habitats and groups of trees in larger gardens remain in the City, along with several community orchards that have been established on common or allotment land.

The best orchards for biodiversity are lightly managed, with widely spaced and longer-lived trees on half standard or standard rootstocks, growing in unimproved grassland with a range of fruit types and varieties. Orchard fruit trees can share many of the same physical characteristics as usually much older native woodland trees. A fifty-year old fruit tree can have fissured bark, rots holes from pruning wounds and some dead wood, all of which create ideal food sources and habitats for other wildlife to use.

<b>DESCRIPTION OF FEATURE</b>	Area with fruit trees, usually with public access or the harvest is shared with the community.
<b>WHICH SPECIES BENEFIT MOST</b>	Mosses, lichens, fungi, and numerous species of mammals (including bats), insects and birds.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Location suitable for fruit tree growing where community keen to be involved with planting and management. Important to have access to water, at least until the trees are established.
<b>LOCATIONS TO AVOID</b>	Locations where caring for the trees or harvesting the fruit would be difficult or dangerous. Areas where fallen fruit may accumulate on roads and footpaths or attract wasps near to benches and play equipment.
<b>WHEN TO INSTALL</b>	Best to plant bare root trees in Autumn to early Spring.
<b>WHEN TO MAINTAIN</b>	Young trees need frequent watering until established. Tree will require formative and ongoing pruning to optimise fruit production. There will also need to be a regime agreed for mowing or scything between the trees. Many orchards are volunteer led. Tree planting is relatively quick and easy to attract volunteers, it is the aftercare and grassland management that is more onerous. Harvesting is popular, including for juicing at apple days. Professional help might be required for pruning.

<b>LOCAL EXAMPLES</b>	Margaret Wright Community Orchard. Midsummer Common Community Orchard. Trumpington Community Orchard.
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"><li>● <a href="https://trumpingtonorchard.org/">https://trumpingtonorchard.org/</a></li><li>● <a href="https://www.midsummercommon.org.uk/Orchard/page.html">https://www.midsummercommon.org.uk/Orchard/page.html</a></li><li>● <a href="http://www.applesandorchards.org.uk/">http://www.applesandorchards.org.uk/</a></li></ul>



Midsummer Community Orchard

## COMPOST HEAPS



Many green open spaces, especially community gardens and orchards, have space for on-site composting. This avoids the transport required to remove greenwaste off site to recycling facilities. It also produces local valuable organic material for the green space, for example to mulch beds against water loss. Compost heaps and bins are also good habitats for wildlife.

<b>DESCRIPTION OF FEATURE</b>	A collection of green, and shredded woody waste aimed to break down into a mulch or compost. It is often supported by walls but can also be enclosed in a bin. Food waste should not be incorporating as it will attract congregations of brown rats and associated health hazards to site users.
<b>WHICH SPECIES BENEFIT MOST</b>	Mice, snails, slugs, woodlice. Some of which are food for hedgehogs, frogs and toads.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	A warm compost heap near wetland and grassland habitats may attract grass snakes to lay their eggs.
<b>LOCATIONS TO AVOID</b>	Cold, dry, shady places.
<b>WHEN AND HOW TO MAINTAIN</b>	<p>Compost heaps need a mix of materials adding to them and require frequent turning. The final product can be used on bee borders or left in situ for biodiversity.</p> <p>Compost bins can be constructed from waste wood (including pallets). They can also be purchased. Turning compost is a good physical task, which is popular with many volunteers.</p>
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Empty Common Community Garden</li> <li>● Nightingale Community Garden</li> </ul>
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/startcomposting/">https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/startcomposting/</a></li> <li>● <a href="https://www.rhs.org.uk/advice/profile?pid=444">https://www.rhs.org.uk/advice/profile?pid=444</a></li> </ul>

## GRASSLANDS



Close-mown, perfect-green lawns are popular with many people but can be very resource intensive and are not wildlife friendly. The charity Buglife say that verges are either cut too often, removing flowers at peak flowering season, or not cut enough, resulting in grasses and scrub taking over and swamping wildflowers.

<b>DESCRIPTION OF FEATURE</b>	It is better for biodiversity to have a diversity of grass types and heights. By careful management of mowing, some species of plants, such as orchids, can be encouraged.
<b>WHICH SPECIES BENEFIT MOST</b>	Rarer plant species such as orchids. Meadow Ants which encourage Green woodpeckers that feed on their larvae. Long grass is a good habitat for insects, such as crickets, small mammals and the seed heads are food for birds.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Good habitat choice to join other areas of habitats such as woodland and ponds. Especially good along hedgerow bases and woodland edges. Cutting a scalloped edge can help provide micro climates for insects.
<b>LOCATIONS TO AVOID</b>	For long grass, locations that are at high-risk of anti-social behaviours, such as dog fouling and littering.
<b>WHEN TO INSTALL</b>	Existing grassland can simply be left to grow longer. New grass mixes can be sown on prepared ground in spring or autumn.
<b>WHEN TO MAINTAIN</b>	<p>Cutting regimes will need to be agreed with CCC operation team. Long grass needs to be monitored for anti-social littering and also perennial weed growth. Grass can be left to grow long over the Summer and then cut and collected in the autumn leaving some seed heads and tussocks to overwinter.</p> <p>Additional mid-season cuts may be appropriate dependent on location and multifunctional uses of a space. For example, it may need to be cut before a specific summer event but could provide enhanced habitat in the interim. Volunteer work parties may be required to help rake up the areas once cut.</p> <p>Plug plants can be added and yellow rattle sown in the autumn, this semi parasitic plant will inhibit grass growth making space for other flowering species.</p>

<p><b>LOCAL EXAMPLES</b></p>	<ul style="list-style-type: none"> <li>● Nightingale Recreation Ground has areas that are close mown in Autumn and then allowed to grow longer to support bee orchids.</li> <li>● Most large green spaces in Cambridge now have some areas of different heights of grass.</li> <li>● <a href="https://www.cambridge.gov.uk/long-grass-areas-on-parks">https://www.cambridge.gov.uk/long-grass-areas-on-parks</a></li> </ul>
<p><b>FURTHER INFORMATION</b></p>	<ul style="list-style-type: none"> <li>● <a href="https://www.rspb.org.uk/globalassets/downloads/activities-pdfs/gnahactivities_nomow.pdf">https://www.rspb.org.uk/globalassets/downloads/activities-pdfs/gnahactivities_nomow.pdf</a></li> <li>● <a href="https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/giveyourmowerarest/">https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/giveyourmowerarest/</a></li> </ul>



Spring buttercups on New Bit

## GREEN ROOFS



Green roofs provide benefits for the buildings occupants such as insulation and storm-water attenuation, and an additional level of habitat for urban biodiversity. They can range from small areas of low-height sedum 'mats' to deep-substrate mosaics of habitats across the whole roof surface, which support the most biodiversity. Cambridge has a Green Roof planning policy for all new flat roofs. There may be opportunities to retrofit biodiverse green roofs on existing council structure such a bin stores or bike sheds. This will require various permissions; City Council officers can provide technical advice and help with funding if suitable opportunities identified.

<b>DESCRIPTION OF FEATURE</b>	The roof of a building, or structure of any size, that has a substrate suitable for growing drought tolerant plant species.
<b>WHICH SPECIES BENEFIT MOST</b>	Depending on the depth and type of substrate, height, aspect and seeding/planting, a wide variety of plants and also insects. Rare Black Redstarts if you're really lucky!
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	The larger the area, the more diverse the ecosystem can become.
<b>LOCATIONS TO AVOID</b>	Under deciduous trees, due to shade and leaf fall.
<b>WHEN TO INSTALL</b>	Any time of the year, however seeding or planting is better in the Autumn or early Spring.
<b>WHEN TO MAINTAIN</b>	
<b>LOCAL EXAMPLES</b>	Nightingale Community Garden has a green roof shelter installed in 2020 and using clinker from underneath the original bowling green
<b>FURTHER INFORMATION</b>	<a href="http://www.thegreenroofcentre.co.uk/Library/Default/Documents/GRC%20Biodiverse%20Design%20small_634147160617860000.pdf">http://www.thegreenroofcentre.co.uk/Library/Default/Documents/GRC%20Biodiverse%20Design%20small_634147160617860000.pdf</a>



## HEDGEHOG HABITATS

In the 1950s, there were around 30 million hedgehogs in the UK but, in 2019, there are probably just 1 million. There are many reasons for this decline but also ways we can make our parks and gardens more friendly to these popular animals.

### Provide food and water

By leaving some areas wild and undisturbed for foraging.

Leaving grass, moss, leaves for them to make to nests.

Providing well-designed ponds for drinking.

### Reduce dangers

Identify hotspot for road casualties and provide signage

Check before strimming or hedge cutting

Check bonfires before lighting

### Improve habitat

Create hedgehog highway (next section).

Create nest sites in a variety of places including hedgerows and dense shrubs, long grass and overgrown areas, under sheds and decking, and in compost heaps.

Purpose-built hedgehog houses will be used but natural sites are preferable

<b>DESCRIPTION OF FEATURE</b>	Construct or maintain nesting and forging habitats
<b>WHICH SPECIES BENEFIT MOST</b>	
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Shady, dry place, away from noise, crowds and pets.
<b>LOCATIONS TO AVOID</b>	Busy places with lots of dogs off of leads or close to main roads.
<b>WHEN TO INSTALL</b>	Before November
<b>LOCAL EXAMPLES</b>	Nightingale Community Garden
<b>FURTHER INFORMATION</b>	<a href="https://www.cambridgehedgehogs.org/">https://www.cambridgehedgehogs.org/</a> <a href="https://www.britishhedgehogs.org.uk/">https://www.britishhedgehogs.org.uk/</a>



## HEDGEHOG HIGHWAYS

Hedgehogs can roam approximately one mile each night to find food. In Cambridge, there are many barriers to this, which is why there is a national and local campaign to make better corridors for them, including making new CD-case (130mm x 130mm) sized gaps in garden fences and walls.

<b>DESCRIPTION OF FEATURE</b>	Safe corridor for hedgehogs to roam for food, especially at night.
<b>WHICH SPECIES BENEFIT MOST</b>	Hungry hedgehogs as well as other small mammals and amphibians
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Boundaries to parks and gardens in urban areas.
<b>LOCATIONS TO AVOID</b>	Exits onto busy roads and cycle routes.
<b>WHEN TO INSTALL</b>	Any time of year.
<b>WHEN TO MAINTAIN</b>	Routine checking to make sure they have not become blocked.
<b>LOCAL EXAMPLES</b>	<p>Cambridge City Council officer can make hedgehog holes in the fences of any city resident unable to do the work themselves, contact <a href="mailto:sosvolunteers@cambridge.gov.uk">sosvolunteers@cambridge.gov.uk</a>.</p> <p>From May 2019, the ongoing Cambridge Hedgehogs without Borders project aims to open up wildlife corridors for hedgehogs in Cambridge to allow them to roam freely from one garden to the next.</p> <p><a href="https://www.cambridgehedgehogs.org/recent-projects/">https://www.cambridgehedgehogs.org/recent-projects/</a></p>
<b>FURTHER INFORMATION</b>	<a href="https://www.hedgehogstreet.org/">https://www.hedgehogstreet.org/</a>

## HIBERNACULA



There is an overlap between habitats designed for cavity-laying bees, ones for insects (often called bug hotels) and ones that are designed for overwintering small and larger amphibians and mammals (sometimes called hibernacula. Overwintering creatures will seek out dry, cool, stable places to hibernate. Hibernacula are safe places for them because once they are made, they are left alone.

<b>DESCRIPTION OF FEATURE</b>	A reasonably dry and cool space for creatures to hibernate over winter in safety.
<b>WHICH SPECIES BENEFIT MOST</b>	Any creature that hibernates including hedgehogs, frogs, newts and toads.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Close to other habitats, especially ponds and wetlands.
<b>LOCATIONS TO AVOID</b>	Sites in full sun or that can become waterlogged.
<b>WHEN TO INSTALL</b>	Any time of year.
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Nightingale Community Garden: hibernaculum behind the nature pond;</li> <li>● Great Crested Newt Hibernacula at Bar Hill Crematorium</li> </ul>
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="https://www.froglife.org/wp-content/uploads/2015/09/Hibernacula.pdf">https://www.froglife.org/wp-content/uploads/2015/09/Hibernacula.pdf</a></li> <li>● <a href="https://www.wildlifetrusts.org/actions/how-build-hibernaculum-amphibians-and-reptiles">https://www.wildlifetrusts.org/actions/how-build-hibernaculum-amphibians-and-reptiles</a></li> </ul>



Great Crested Newt hibernaculum at Bar Hill Crematorium

## HONEYBEE HIVES



Honeybees are good pollinators and can provide honey! They do especially well in urban settings because of the diversity of flowering plants in gardens, parks, and other green spaces. There is evidence, however, that managed honeybees compete for pollen and nectar with our native bumblebees and other pollinators.

<p><b>DESCRIPTION OF FEATURE</b></p>	<p>Constructed habitat, of several designs, for honeybee colonies. Colonies should be considered permanent, they live in the hives all year around.</p> <p>Some types, such as horizontal and vertical top bar hives, are considered more 'natural' for the colonies – they are also easier and cheaper to make. “National hives” are more common and it will be easier to find bee-keepers with experience of this type of hive.</p>
<p><b>WHICH SPECIES BENEFIT MOST</b></p>	<p>Honeybees and plants to be pollinated by them, including fruit trees.</p>
<p><b>BEST LOCATION TO MAXIMISE BENEFITS</b></p>	<p>Near to forage (including fields of crops) and away from crowds and strong winds.</p> <p>Hives need a reasonable amount of space around them for manipulation and honey harvesting. Usually, they need netting or a fence at the front to encourage the bees to fly higher than head level, so they do not interact with the public. They are often found in or near community orchards for their pollinating benefits.</p>
<p><b>LOCATIONS TO AVOID</b></p>	<p>Near to populations that might be especially allergic to stings.</p> <p>Dark, cold and shady places. Local Nature reserves where bees may compete with native bumble bees</p>
<p><b>WHEN TO INSTALL</b></p>	<p>Any time of the year but colonies (including from caught swarms) are usually introduced around May to July.</p>

<p><b>WHEN TO MAINTAIN</b></p>	<p>Cambridge City Council are keen to support beekeeping in our parks and allotments. There will need to be consultation to make sure local people are happy with the idea of hives, for example close neighbours. Most colonies will swarm at some point (sometimes several times in a season) and are likely to settle on local trees or structures. They should be collected and re-hived to prevent them starting a new colony in nearby buildings.</p> <p>The hives would need to be maintained by volunteers, registered, and insured, which can be done via Cambridgeshire Beekeepers Association, who also offer a very comprehensive training programme.</p>
<p><b>LOCAL EXAMPLES</b></p>	<p>Trumpington Community Orchard: observation beehive.</p>
<p><b>FURTHER INFORMATION</b></p>	<p>Need frequent attention from trained beekeepers.</p>



Solitary bee hotel at Christ's Pieces

## MEADOWS

### *Perennial sown (wildflower or mixed)*



The term meadow can describe a variety of grassland habitats. In Cambridge parks we have been establishing a number of different sorts from simply allowing the existing grassland to grow longer to removal of existing low diversity amenity grassland and sowing both annual and perennial native and non-native species mixes. The diversity of the grassland flora and associated invertebrate will depend on the soil conditions, proximity to other habitats and ongoing management.

At a practical level, you can achieve a wildflower meadow by careful management of the existing grass or can prepare an area of bare earth and sowing with a variety of native and carefully selected non-native species. This can be by sowing seed or using ready-prepared turf. All the meadows trialled in Cambridge have proved very popular with people – and pollinators.

<b>DESCRIPTION OF FEATURE</b>	Meadow sown once with mainly perennial species, including soft grasses
<b>WHICH SPECIES BENEFIT MOST</b>	Pollinators
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Not too shady
<b>LOCATIONS TO AVOID</b>	Waterlogged.
<b>WHEN TO INSTALL</b>	Best sown on prepared bare ground in spring or autumn – follow supplier's instructions.
<b>WHEN TO MAINTAIN</b>	Can need irrigation, weeding, two or more cuts in the first Summer to reduce weed load. Cut and collect in the Autumn or early the following Spring.
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Cherry Hinton Hall, Jesus Green.</li> <li>● Nightingale Community Garden</li> </ul>
<b>FURTHER INFO AND ADVICE</b>	<a href="https://wildseed.co.uk/page/sowing-and-aftercare">https://wildseed.co.uk/page/sowing-and-aftercare</a>

## MEADOWS

### *Annual sown (wildflower or mixed)*



Annual meadows can be a popular ‘first meadow’ to trail a locations suitability. These are prepared on bare earth each Spring following rotavation, seed is sown as per the supplier’s instructions. There is, therefore, an annual cost. They usually start to flower around June/July, in Autumn or late winter they can be scythed (or strimmed) down to a low level. The arisings are usually collected by raking and can be composted or removed. If they are left long over winter, they provide additional habitats and food for birds and may drop seed for next years display. Over time undesired weeds may begin to dominate the annual sowings. After one or more years of annual meadow, we usually replace them with perennial meadows, either sown or using pre-established turf.

<b>DESCRIPTION OF FEATURE</b>	Meadow-like planting of annual flowers sometimes mixed with grass seed.
<b>WHICH SPECIES BENEFIT MOST</b>	Pollinators. Parks users enjoy the colourful displays
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Sunny location
<b>LOCATIONS TO AVOID</b>	Heavily shaded or water-logged.
<b>WHEN TO INSTALL</b>	Usually sown in early to mid-Spring on bare earth prepared from February onwards.
<b>WHEN TO MAINTAIN</b>	Can need irrigation and weeding during establishment, Followed by an Annual cut and collect
<b>LOCAL EXAMPLES</b>	Parker’s Piece, Barnwell Road verge
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/sowapoppypatch/">https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/sowapoppypatch/</a></li> <li>● <a href="https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/startawildflowermeadow/">https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/startawildflowermeadow/</a></li> <li>● <a href="https://www.onthevergecambridge.org.uk/">https://www.onthevergecambridge.org.uk/</a></li> </ul>

## NETTLE PATCHES



Much maligned, nettles are one of the most important native plants for wildlife in the UK, supporting over 40 species of insect. Flourishing on previously disturbed ground they can provide a challenge when trying to establish other habitats such as meadows, however, in some location they are by far the easiest way of boosting biodiversity and should be embraced and managed with this in mind.

<b>DESCRIPTION OF FEATURE</b>	Area in which nettles are allowed to flourish.
<b>WHICH SPECIES BENEFIT MOST</b>	<p>Specialist invertebrates, birds, such as blue tits, who eat over-wintering nettle aphids, and also species that eat their late-Summer seeds such as house sparrows, chaffinches and bullfinches.</p> <p>Caterpillar food plant for many colourful Butterflies, including small tortoiseshell, comma, peacock, and red admiral. Also, moths, including burnished brass, golden Y, small magpie, mother of pearl, and spectacle.</p>
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	A sunny sheltered location is best for butterflies. Nettles like rich soil but will grow in most conditions. Larger patches tend to support more species.
<b>LOCATIONS TO AVOID</b>	Adjacent to paths, benches, play areas and other places where people are likely to get stung. Next to habitats which they may invade such as species rich meadows.
<b>WHEN TO INSTALL</b>	Most sites will have existing nettle patches that can be nurtured. They spread by seed and root. If necessary, seed can be shaken from mature flower heads onto bare ground in late summer.
<b>WHEN TO MAINTAIN</b>	Can manage them by trimming and mowing in Summer, which can induce a late growth of fresh leaves.
<b>LOCAL EXAMPLES</b>	Patched identified and left on Stourbridge Common and all our Local Nature Reserves.
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.wildlifetrusts.org/wildlife-explorer/wildflowers/stinging-nettle">www.wildlifetrusts.org/wildlife-explorer/wildflowers/stinging-nettle</a></li> <li>• <a href="http://www.nettles.org.uk/nettles/wildlife.asp">www.nettles.org.uk/nettles/wildlife.asp</a></li> </ul>

## MIXED NATIVE HEDGE



Mixed native hedges are a boon for biodiversity, providing food, cover and fantastic corridors to aid species moving around the City.

<b>DESCRIPTION OF FEATURE</b>	<p>Hedge planted from several species of native trees and shrubs. Species can include beech, blackthorn, crab apple, dog rose, dogwood, field maple, guelder rose, hawthorn, hazel, holly, hornbeam, spindle, wayfaring tree, wild cherry and wild privet.</p> <p>The mixes can be selected to provide a long period of interest (flowers, berries, leaves and seeds) and diversity of wildlife food and shelter.</p>
<b>WHICH SPECIES BENEFIT MOST</b>	Birds, invertebrates, small mammals, including hedgehogs.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Park boundaries, linking other habitats and gardens.
<b>LOCATIONS TO AVOID</b>	Blocking views of junctions or screening areas that encourage anti-social behaviour.
<b>WHEN TO INSTALL</b>	They are cheapest to plant from bare root 'whips' from late Autumn to early Spring. Prepare a weed free strip for planting in a double staggered row of 5 plants per metre. Mulch with bark chippings to reduce competition from weeds and retain soil moisture.
<b>WHEN TO MAINTAIN</b>	Hedgerows require regular management most likely by our operations team. Cutting different sides or sections on a rotation can ensure an annual supply of flowers and berries.
<b>LOCAL EXAMPLES</b>	Nightingale Community Garden, Lammas Land Driftway
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.bbc.co.uk/gardening/basics/techniques/organic_nativehedge1.shtml">www.bbc.co.uk/gardening/basics/techniques/organic_nativehedge1.shtml</a></li> <li>• <a href="http://www.rhs.org.uk/advice/profile?pid=377">www.rhs.org.uk/advice/profile?pid=377</a></li> <li>• <a href="http://www.wildlifetrusts.org/actions/how-make-hedge-wildlife">www.wildlifetrusts.org/actions/how-make-hedge-wildlife</a></li> </ul>

## PONDS



Installing a pond is one of the best ways of attracting a wide range of new species and enhancing existing habitats on a site. However, finding suitable locations and gaining community support can be tricky due to perceived safety issues. However, ponds do not need to be deep and careful design can usually reduce risk and enhance the ponds biodiversity value.

<b>DESCRIPTION OF FEATURE</b>	A small water body that retains water for all or much of the year. Drying up in the summer is not always a bad thing as some species of plant and insects thrive in the 'draw down' zone. Occasional drying up also prevents introduced goldfish from becoming established and impacting on amphibians and invertebrate communities.
<b>WHICH SPECIES BENEFIT MOST</b>	Amphibians (frogs and newts), bats, bees, birds, dragonflies and damselflies, molluscs, pond invertebrates, reptiles including grass snakes. Young and old pond dippers love them!
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Ponds of a range of sizes and designs could be installed in most locations. Best to have sunshine for at least some of the day. Useful if there is a nearby water supply, ideally harvested rainwater rather than tap water.
<b>LOCATIONS TO AVOID</b>	Where children might visit unsupervised Near to trees to avoid excessive leaf fall into the pond.
<b>WHEN TO MAINTAIN</b>	<p>Frequent check on water levels, which might need topping up. Check for litter and invasive plants species. Infrequent thinning out of plants is best undertaken by volunteer groups in the autumn.</p> <p>Due to the complexities of construction and perceived hazards, potential locations will need to be assess by City Council officers for suitability and necessary permission or design considerations.</p> <p>Depending on the scale ponds can be quite expensive in labour and materials, but could be suitable for fundraising projects or council grants.</p>

<p><b>LOCAL EXAMPLES</b></p>	<ul style="list-style-type: none"> <li>● Bramblefields LNR</li> <li>● Byron's Pool LNR</li> <li>● Empty Common Community Garden</li> <li>● Margaret Wright Community Orchard</li> <li>● Nightingale Community Garden: large nature pond and tiny mini pond.</li> </ul>
<p><b>FURTHER INFORMATION</b></p>	<ul style="list-style-type: none"> <li>● <a href="http://www.rhs.org.uk/advice/profile?PID=622">www.rhs.org.uk/advice/profile?PID=622</a></li> <li>● <a href="http://www.froglife.org/wp-content/uploads/2013/07/JAW2014-for-printing-HLF1.pdf">www.froglife.org/wp-content/uploads/2013/07/JAW2014-for-printing-HLF1.pdf</a></li> <li>● <a href="http://www.wildlifetrusts.org/actions/how-build-pond">www.wildlifetrusts.org/actions/how-build-pond</a></li> <li>● <a href="http://www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/water-for-wildlife/making-a-pond/">www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/water-for-wildlife/making-a-pond/</a></li> <li>● <a href="https://freshwaterhabitats.org.uk/pond-clinic/create-pond/make-garden-pond/">https://freshwaterhabitats.org.uk/pond-clinic/create-pond/make-garden-pond/</a></li> </ul>



Wildlife Pond at Nightingale Community garden

## TREE PLANTING

Trees provide arguably the most important habitat across Cambridge, collectively creating an urban forest in the surrounding predominantly arable landscape. The Cambridge Canopy Project seeks to increase overall canopy cover by 2% by working with communities to identify locations, plant and care for new tree stock.

To find out how to get involved with this exciting project visit:

- [www.cambridge.gov.uk/cambridge-canopy-project](http://www.cambridge.gov.uk/cambridge-canopy-project)
- [www.cambridge.gov.uk/suggest-a-location-for-planting-a-new-tree](http://www.cambridge.gov.uk/suggest-a-location-for-planting-a-new-tree)

## PLANTING



### *For pollinators, including perennials and bulbs*

The flowers in urban environments are very important for the survival of pollinators. A study showed colonies of wild bumblebees thrived much better in village and urban environments compared with agricultural ones.

Different species of pollinators prefer different plants, for example different bee species are active at different times of the year and have different length tongues; some moths fly in the evening and at night so prefer night-scented plants. In general, it is best to have as many kinds of flowering plants with different shapes and colours, to flower from at least February to November. This can best be achieved using a structure of perennial plants and trees, with bulbs, annuals and biennials added.

The RHS advises growing a wide diversity of plants and flowering trees and hedges, allowing lawns to grow longer so they can flower and to learn to tolerate dandelions because their flowers are superb for spring forage. Understanding of species' preference can help with the design of an area. For example:

- Ashy mining bees like early hedge blossom such as blackthorn and fruit blossom.
- Buff-tailed bumblebees nest underground in old mouse holes, beneath sheds and in long grassland. They like lavender, alliums and cornflowers.
- Common carder bees have long tongues and like comfrey, clover and other long flowers.
- Hairy footed flower bees especially like lungwort
- Ivy bees emerge in September and feed on mature ivy.
- Leafcutter bees like knapweed, annual and perennial sweetpeas and old roses
- Red mason bees line their cells with mud and likes fruit tree blossom and catmint.
- Tree bumblebees have short tongues and like daisy-type flowers, such as single dahlias, chamomile, (early) coneflowers and thistles
- The female wool carder bee will shave off the fluff from rabbits' ear plants (*Stachys byzantina*) and mullein to line nests and feed from the nectar-rich flowers. 2

You don't need huge spaces to make an impact, containers can have useful plants for pollinators. The RHS has a labelling system for 'Plants for Pollinators' and useful online lists.

<b>DESCRIPTION OF FEATURE</b>	A diversity of flower shapes and types across the year. From early Spring flowers, such as crocus and primroses, to later flowering Verbena bonariensis and echinacea.
<b>WHICH SPECIES BENEFIT MOST</b>	Bees, butterflies, hoverflies, moths.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Can find 'right plant for right place'. Full sun can be very good for pollinator-friendly plants. Will be visited practically anywhere and provide useful staging post for flying insects in dense urban environments.
<b>LOCATIONS TO AVOID</b>	Very Shady, dry or waterlogged ground will restrict range of plants. However, a few suitable species can usually be found.
<b>WHEN TO INSTALL</b>	Best planted in autumn or spring. Diversity can be increased gradually as space and resources allow. Most perennial plants are best moved in spring or autumn. Bulbs are planted in Autumn.
<b>WHEN TO MAINTAIN</b>	Likely to require occasional weeding. Weeds can be suppressed by dense planting and use of organic mulch such as woodchips. The council would be able to provide wood chip from our tree management activities. Plants can be divided (often in the Autumn) to keep them healthy and produce more plants for other sites.
<b>LOCAL EXAMPLES AND ADVICE</b>	<ul style="list-style-type: none"> <li>● Cambridge Botanic Gardens: bee borders – and other planting such as herbaceous borders and Mediterranean beds, scented garden and a winter garden.</li> <li>● Nightingale Community Garden: several beds with plants chosen for pollinators including bees and butterflies and moths, most are also drought tolerant when established and cope with full sun and freely draining soil.</li> </ul>
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="http://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/plants-for-pollinators-garden-plants.pdf">www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/plants-for-pollinators-garden-plants.pdf</a></li> <li>● <a href="http://www.rhs.org.uk/science/conservation-biodiversity/wildlife/plants-for-pollinators">www.rhs.org.uk/science/conservation-biodiversity/wildlife/plants-for-pollinators</a></li> <li>● <a href="https://friendsoftheearth.uk/bees/gardening-bees">https://friendsoftheearth.uk/bees/gardening-bees</a></li> <li>● <a href="http://www.buglife.org.uk/get-involved/gardening-for-bugs/gardening-for-bumblebees/">www.buglife.org.uk/get-involved/gardening-for-bugs/gardening-for-bumblebees/</a></li> </ul>

## WETLAND PLANTING



Wet areas along watercourses or around pond edges can be easy to establish with a diverse range of flowering native plants providing rich habitats for invertebrates.

<b>DESCRIPTION OF FEATURE</b>	Native plants adapted to thrive in wet conditions, including by ditches, streams, and ponds. Other low-lying areas that hold water after heavy rains may also be appropriate.
<b>WHICH SPECIES BENEFIT MOST</b>	Plants, invertebrates, water voles if close to the river or watercourses.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Adjacent to other habitats
<b>LOCATIONS TO AVOID</b>	Locations that might dry out.
<b>WHEN TO INSTALL</b>	Any time of year
<b>WHEN TO MAINTAIN</b>	Vegetation likely to grow rapidly and over time some species may dominate, vegetation can be cut on a rotation once a year and removed, Dominant species can often be hand pulled to keep in check.
<b>LOCAL EXAMPLES</b>	Logan's Meadow and Paradise LNRs.
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>• <a href="https://www.wwt.org.uk/discover-wetlands/gardening-for-wetlands">https://www.wwt.org.uk/discover-wetlands/gardening-for-wetlands</a></li> <li>• <a href="https://www.wwt.org.uk/discover-wetlands/gardening-for-wetlands/how-to-build-a-mini-drainpipe-wetland/">https://www.wwt.org.uk/discover-wetlands/gardening-for-wetlands/how-to-build-a-mini-drainpipe-wetland/</a></li> </ul>



Marginal planting at Nine wells

## WOODPILES (LOG PILES)



Piles of wood, including logs, attract invertebrates and anything that feeds on them, including frogs and newts. Small mammals and hedgehogs like them as shelter too.

<b>DESCRIPTION OF FEATURE</b>	Semi-permanent collection of wood, including logs, designed as a habitat. They can be above ground with earth piled up to support them or dug into pits in the ground to encourage the wood to rot for beetle larvae. They are also similar to beetle towers which tend to have a larger portion of logs buried in the ground, including uprights.
<b>WHICH SPECIES BENEFIT MOST</b>	Invertebrates, amphibians, small mammals. Species of fungi that live on rotting wood.
<b>BEST LOCATION TO MAXIMISE BENEFITS</b>	Sun or shade will determine the species present and how long the feature persists.
<b>LOCATIONS TO AVOID</b>	Places that will be disturbed frequently. Highly waterlogged places.
<b>WHEN TO INSTALL</b>	Any time of the year.
<b>WHEN TO MAINTAIN</b>	Might need vegetation cleared back from time to time.
<b>LOCAL EXAMPLES</b>	<ul style="list-style-type: none"> <li>● Nightingale Community Garden: two medium-sized piles.</li> <li>● Bramblefield's LNR</li> </ul>
<b>FURTHER INFORMATION</b>	<ul style="list-style-type: none"> <li>● <a href="http://www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/dead-wood-for-wildlife/">www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/dead-wood-for-wildlife/</a></li> </ul>



Woodpile at Nightingale Community Garden



Tawny Owl box at Christ's Piece

We would like to acknowledge all of the content provided by third parties within the links suggested in this summary guide. We will endeavour to review and keep this guide and associated links relevant, but apologies if some become outdated.



Common Blue on White Campion Kings Hedges Recreation Ground



Dead tree monolith at Cherry Hinton hall left for beetles fungi and numerous species of solitary bees and wasps.



Felled timber left for insects and a cattle scratching post on New Bit



New flowering grassland at Hobsons's park

