



Guidance for Pollinators

Protecting and enhancing habitats in urban areas

City of London Corporation | 2025



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Buff tailed
bumblebees, *Bombus
lucorum agg.*, feeding
on echiums.





“A word on biodiversity

As the need to protect and enhance biodiversity in green spaces grows, tensions may arise between leaving areas untouched for nature to recover or remain undisturbed, and the need to maintain the space for leisure, health, safety, equal access, sport, and other purposes.

Supporting biodiversity is not necessarily straightforward and may sometimes conflict with methods associated with more formal landscape settings. Less impactful levels of maintenance will bring biodiversity gains, for example, by reducing or ceasing mowing grass for periods to encourage wildflowers and grasses for pollinators, or by leaving leaf detritus to enrich soil and support low nutrient habitats; yet conversely removing cuttings regularly and promptly from grassland can make it more species rich.

Varying maintenance regimes in different areas of the landscape can mean that areas near entrances or of visitor interest can be maintained for aesthetics and safety, while less frequented areas such as fringes of woodland can be subject to lower maintenance intensity with higher biodiversity value.

Seven spot ladybird,
Coccinella septempunctata
on ox-eye daisy.

There are also low-cost interventions that when suitably located can actively encourage wildlife, such as installing bug hotels, bird or bat boxes, composting green waste into mulch to retain nutrients on-site, leaving leaf litter to conserve moisture, and allowing some weed growth, without compromising on the use of spaces for other purposes.

Managing public expectations and feedback can be supported through appropriate signage to explain landscape management regimes and help initiatives that engage or educate visitors about local wildlife.

Enhancing biodiversity with other objectives, such as public safety, will be a balancing act too. For example, lighting installed for public safety could negatively affect or alter wildlife behaviours and nocturnal feeding. In such instances, the manual cannot be used to weigh between these objectives, and it is recommended to consult an ecologist and other experts.”

(Excerpt from Parks for London’s [Green Space Quality Manual 2024 Edition](#))



Specific actions to consider for pollinators

Pollinators is a general term for a wide range of insects (in the UK) such as beetles, butterflies, moths, hoverflies, bumblebees, and solitary bees. Honeybees, *Apis mellifera*, are only one species and in the UK these are domesticated animals.. Honeybees may not be appropriate to have in heavily urbanised environments as they compete with the other pollinators for resources.

Pollinators need food, nesting and basking resources but remember that lifecycle stages may have different requirements e.g. caterpillars.

Bumblebees need more sheltered nesting places and may have separate overwintering areas to spring nesting whereas cavity nesting solitary bees need warm south facing areas. Some bumblebees like large clump forming/tufty grasses such as *Bombus pascuorum*. In addition, plants need to earn their keep and if they can have good flowers but also provide berries or attractive foliage and stems as well then this is all to the good.



Bee hotel and nesting mound at Barbican Wildlife Garden.

This may all sound impossible but there are some key points which help:

- In designing the area include a range of microhabitats including some bare soil. A south facing bank is good.
- The greater the diversity of planting the greater the diversity of pollinators.
- Choose your plants with care, to give good sources of accessible forage i.e. for adults, caterpillars, and other larvae.
- Plant a variety of plants that will together flower over a long period from February through to end of October. Choose plants with flowers that pollinators can access e.g. don't choose double flowers.
- [Plants for Pollinators, Royal Horticultural Society](#)
- [Pollinator Friendly Trees and Shrubs, Pollinating London Together](#)
- Include a source of water which can be quite shallow with pebbles in it. Consider including a hoverfly lagoon.
- [Hoverfly lagoon fact sheet, Buglife](#)



Pollinator friendly water feature at the Golden Lane Estate Allotment.

Appendix 1 Bees

The right flowers will give food resources to adults and some larval stages through nectar and pollen. Plants can also provide nesting materials e.g. Stachys, Ballota, Achillea which are used by wool carder bees. Plants preferred by leafcutters have thin flexible non hairy leaves. A source of mud/damp clay allows mason bees to collect mud to plug their nests- these are often rare sources in the city centre [Plants for Pollinators, Apicultural](#).

Nesting of bees can be facilitated in a number of ways, but establishing banks within the design helps to have good drainage and a southeasterly aspect helps insects to warm at the start of the day. Some bees need cavities or crevices in which to nest others need to nest in the ground.

Cavity nesters – The diversity and populations of cavity-nesting bees can be increased by adding suitable bee hotels.

See information on bee hotels via the following link: [Bee Hotels, Pollinating London Together](#)

If you are interested in making your own, the following video demonstrates how it can be done [How to make a bee hotel, The Wildlife Trust](#)



Standing deadwood habitat at Bunhill Fields and Burial Grounds, nesting site for harebell carpenter bee, *Chelostoma campanularum*.



Red-tailed bumblebee, *Bombus lapidarius*, feeding on echinacea.

However, consider the following:

Bee species vary in size so nesting tunnels of varying widths e.g. 4 mm, 6mm, 8mm, and 10mm to ensure that your bee hotel accommodates a diversity of species.

Providing a 14-15 cm depth of nesting tunnel is essential for the female bee to lay the appropriate ratio of male and female eggs.

Sunlight exposure of your bee hotels is significant, too, especially in the morning, so make sure you place them at a sunny southeastern location.

Ground-nesters – consider building a bank for nesting. Try not to cultivate this bank and where weeds start to come through remove by hand while small to prevent soil disturbance and damage to any nests.

- Soil type – Sandy loam is generally bees' preferred soil type. Subsoil is recommended as it has fewer plant seeds than topsoil.
- Size – As big as possible, at least 1 square metre is preferred. You can create more than one if possible.
- Depth – The maximum nesting depth of ground-nesting bees is believed to be approximately 30 cm in the UK, so at least 40 cm of soil depth.

- Drainage – Add gravel (5 cm in depth) at the bottom of the sandy loam to help with drainage.
- Gradient – Ground-nesting bees are often found nesting on slopes and the preference is for a south easterly aspect. Build it as layers of soil and press with your hands to give some compaction.
- Pebble – Ground-nesting bees show a preference to nest next to or under stones which appear to act as thermoregulators. Bees may also use them as features to determine the location of their nest on return from foraging. Consider adding a layer of river pebbles (2-3 cm thickness) on half of the surface of the mound of soil.
- Temperature – a critical factor, so ensure a southeastern orientation and receive as much sunlight as possible.
- Disturbance – avoid digging or foot traffic on bee nesting habitats, as these can damage the nest or block the entrance during nest construction and food provision phases. Solitary bees hibernate inside the nest during autumn and winter, so ensure no disturbance all year round.

Bumblebee nests – Different bumblebee species like to nest in different places, so offering a variety of nesting spots is helpful. Some like to nest in tufts of grass so leaving grass to grow longer can support bumblebees. Some like to nest higher perhaps in a bird box or holes in trees. Others like to inhabit empty tunnels left by voles and mice etc. Bumblebees prefer not to have nests in direct sunlight and so patches which are a little overgrown can help.

Buff-tailed bumblebee, *Bombus lucorum agg.*



Appendix 2 Butterflies and Moths

Butterflies and moths require feeding, breeding, and shelter habitat to support the lifecycle through the year. Nectar provides food for adults which is needed from spring to autumn as butterflies emerge in spring and prepare for hibernation in autumn. Caterpillar foodplants are essential to support breeding populations. Shelter habitat such as long grass, trees and shrubs is needed for roosting, breeding, and overwintering refuge habitat.



Holly blue butterfly, *Celastrina argiolus*, at St Dunstan's in the East.

Top five nectar sources for butterflies and moths:

- **Birds-foot Trefoil** 45 different species of butterfly and moth are known to feed on this native wildflower. It prefers nutrient-poor well drained soil and is drought tolerant.
- **Wild Marjoram** Seven different types of caterpillar feed on Wild Marjoram, including those of the Burnished Brass and Mint Moths. The purple flowers are a valuable source of nectar for many different butterflies and moths including Green-veined White and Peacock butterflies.
- **Knapweeds** are the caterpillar food for several species of moth and their flowers are an especially good source of nectar for butterflies, including Painted Lady butterflies.
- **Yarrow** (Achillea) Easy-to-grow and available in many colours, Achillea produces flowers from June to September and grows best in a sunny spot, with moist and well-drained soil. The wild variety, Common Yarrow, has white flowers and is eaten by caterpillars of the Ruby Tiger and Yellow Shell moths.
- **Red Valerian** With pink-red flowers that bloom all summer long, Red Valerian is easy to grow and survives well in dry conditions. It prefers full sun and well-drained soils. The oval green leaves are eaten by the caterpillars of the Angle Shades moth, and the flowers are visited by Burnished Brass and Humming-bird Hawk-moths.

Top five caterpillar foodplants for butterflies and moths:

- **Nasturtiums** (*Tropaeolum*) are one of the easiest annuals to grow, they provide colourful blooms in summer and autumn and are eaten by caterpillars of Small and Large White. Sow them in spring where they are to flower, or in 9cm pots in a greenhouse. Free-draining soil is essential for nasturtiums, and they thrive on poor soils.
- **Common Nettle** is the foodplant for Red Admiral, Peacock, Comma butterflies and Jersey Tiger moth. Nettle patches in sunny and sheltered spots are preferred for breeding.
- **Garlic Mustard** is the foodplant for Green-veined White and Orange-tip butterflies. It is a native wildflower that is often found beside hedges and edges with plants in sunny conditions often preferred for breeding.
- **Holly and Ivy** provide shelter, nectar sources and foodplants for many species including Holly Blue and Peacock butterflies.
- **Honeysuckles** are the foodplant for 39 different types of caterpillars, including those of the Angle Shades, Buff Ermine, and Common Emerald moths.

Small copper butterfly, *Lycaena phlaeas*, in the Tower of London Moat.



Suggestions for helping create shelter habitat for breeding and overwintering include:

- Leave leaf litter under trees and avoid digging soil as much as possible will provide lots of spaces for caterpillars and pupae to shelter.
- Leave some dead stems and flowerheads over winter instead of 'tidying up.' Many butterflies and moths spend the winter as eggs, caterpillars, or chrysalises on plant material. When you do finally cut them back, leave the stems and flowerheads in a quiet spot to give any overwintering creatures the best chance of survival.
- Stagger the cutting of hedges so that some sections are left uncut each year.
- Create a 'wild' area that is not managed very often including long grass.
- Trees and shrubs are fantastic for butterflies and moths. Caterpillars eat the leaves, blossom and catkins provide nectar for adults, and all stages of the life cycle find shelter amongst the branches and or on the stem. See top 5 species on Wild Spaces website here.



Useful links

[Gardening for Butterflies, Butterfly Conservation \(butterfly-conservation.org\)](https://www.butterfly-conservation.org/)

[Gardening for moths, Butterfly Conservation \(butterfly-conservation.org/how-you-can-help/get-involved/gardening/gardening-for-moths\)](https://www.butterfly-conservation.org/how-you-can-help/get-involved/gardening/gardening-for-moths)

[Get gardening, Butterfly Conservation \(butterfly-conservation.org/how-you-can-help/get-involved/gardening/get-gardening\)](https://www.butterfly-conservation.org/how-you-can-help/get-involved/gardening/get-gardening)

[Let's create Wild Spaces information hub with tips and ideas. Butterfly-conservation.org](https://www.butterfly-conservation.org)

Barber surgeons meadow being scythed by volunteers later in the season.

Appendix 3 Beetles and Hoverflies

3.1 Beetles

24 families of beetles of the 102 in the UK are associated with flowers. About a quarter of the UK's beetles are considered to be pollinators, some 1,000 species. They feed on pollen and distribute it; others act as pollinators fortuitously. They are the largest group of insects (and animals) in terms of species, reflecting the diversification of the larval stage and the ecological niches in which the larvae live. Maintaining a diversity of habitats for them is therefore essential for ensuring a diversity of adults.

Links

[Beetles as pollinators, Xerces Society \(xerces.org\)](http://xerces.org)

[Beetles' pollination, USDA \(fs.usda.gov\)](http://fs.usda.gov)

[Beyond bees and butterflies: The role of beetles in pollination system \(sciencedirect.com\)](http://sciencedirect.com)



Thick-thighed beetle, *Odemera nobilis*, feeding on yarrow.

3.2 Hoverflies

As with other insects that have a complete life cycle, the immature larvae live in very different habitats from the adults i.e.

- In wet situations, e.g. *Eristalis*
- Feeding on aphids including those in galls and also on other insects, including scale insects, psyllids, moth caterpillars (*Xanthandrus comutus*) and larvae of leaf beetles on alders and willows (*Parasyrphus nigritarsus*)
- In the nests of ants: Those of the genera *Chrysotoxum*, *Doros* and *Xanthogramma* are believed to feed on ant-attended root aphids. *Microdon* larvae are predators on ant eggs and larvae.
- In the nests of social wasps and bees: *Volucella*.
- Plant feeding: *Emerus*, *Merodon* and *Portuvinia* feed on stems, roots, and leaves. *Cheilisia* species mine stems of thistles and other species live in the caps of *Boletus* and other large fungi. The larvae of *Merodon* and *Eumerus* mine garden bulbs, especially daffodils
- In tree sap runs, e.g. *Ferdinandea*, *Brachyopa*
- In decaying vegetation, *Syritta* and *Neoascia*
- In Cow dung: *Rhingia*
- In rotting wood, e.g. *Brachypalpoides lentus*, *Criorhina* and *Xylota*. In rot holes in trees: *Callicera*, *Mallota* and others. Under bark e.g. *Chalcosyrphus*.

Source: Ball, S and Morris, R. (2015). Britain's Hover flies A Field Guide. (Second Edition). (Woodstock: Princeton University Press).313pp.



Hoverfly, *Helophilus* spp., feeding on ox-eye daisy.

Appendix 4 Top Risks for Pollinators

Pollinators in the City of London face a number of risks that impact their population and the crucial role they play in the ecosystem. As a densely urbanised environment, the City of London presents particular challenges for these species, compounded by various human-induced factors. According to The Butterfly Conservation **nearly “80% of butterflies have declined across the UK”**, as well as the Bumble Bee Conservation Trust **“bumblebees are declining across the UK.”** Habitat loss, climate change, pesticides and honeybees are the main causes for the decline of these important pollinator groups. Identifying the risks and dangers is a key part of knowing how to support pollinators and how to mitigate them.

Habitat loss is the leading cause of declining pollinators. Urban pollinators rely on spaces like parks, green roofs, community gardens, and wildflower meadows.

That is why the City of London Corporation recommends planting pollinator friendly plants, to increase abundance and diversity of food resources for pollinators. Here is a [list](#) of suitable shrubs and plants.

In addition, climate change affects pollinators hugely. Some studies have shown evidence of ecological mismatches. This can lead to mismatched timing between when flowers bloom and when pollinators are active. Furthermore, climate change may increase the frequency of extreme weather events, including heatwaves, heavy rain, flooding, and drought. Such events can damage pollinator habitats disrupting food sources and nesting areas and in densely built areas the urban heat island effect can further exacerbate these impacts. Green infrastructure is vital to helping alleviate the impacts of climate

change and can be used to incorporate positive outcomes for pollinators, for example creating pollinator friendly rain-gardens to manage flood risk.

Pesticides are damaging to pollinators. Some pesticides, especially insecticides, are designed to target and kill pests by affecting their nervous systems, however these are not discerning and can have negative impacts on beneficial insects including pollinators. When a pollinator comes into contact with pesticide-treated plants or shrubs, they can ingest or absorb these toxic substances. This can lead to paralysis, disorientation, or death. Even if the pesticide does not immediately kill the pollinator, it can cause sub-lethal effects that will reduce their ability to perform essential tasks, such as foraging for nectar and pollen, navigating back to their nest, or communicating with other members of their colony. Luckily, due to legislation “the use of pesticides” is not as widespread now as it has been.

The City of London recommends reducing the use of pesticides and use non-chemical methods instead. RHS suggests adding a layer of mulch to your plants and flowers to help infestations or removing the diseased materials.

Within the City of London, one of the main risks associated with the decline of pollinators in the large increase of honeybees. Honeybees in the UK are a domesticated species and are not declining, unlike many wild bees. It is important to consider that in a beehive, up to 30,000 hungry honeybees that compete with wild bees and other pollinators for food resources. To help support wild bees like solitary and mason bees try installing a bee hotel. Due to the amount of natural habitat loss, including their nesting resources, bee hotels are a great way to support wild bees.

Finally, cultivation is a major factor in reducing opportunities for pollinators in urban areas like the City of London, where there is a high proportion of cultivation. These activities are likely to disturb nesting sites, specifically ground nesting sites, as well as potential egg laying sites. In the City of London, the proportion of ground nesting bee species is low, compared to the proportion of bee species present in the UK that have this nesting preference (up to 70%). This is primarily due to environmental conditions, which can include cultivation practices. To address this management plans should consider retaining areas for pollinators, including undisturbed bare ground, as well as taller swards of vegetation including native grasses and wildflowers. Other factors should be considered including sunlight exposure and wider site priorities. Green roofs receive an abundance of sunlight exposure and could present key opportunities to create artificial nesting sites using bare earth (sandy loam), as well as natural colonisation of wildflower species.



Wool carder bee, *Anthidium manicatum*, feeding on betony.

Links

[Hoverflies, Royal Horticultural Society \(rhs.org.uk\)](https://www.rhs.org.uk)

[Bumblebees top urban pollinator, University of Sussex \(sussex.ac.uk\)](https://www.sussex.ac.uk)

[Hoverfly Ecology, National Botanic Gardens Wales \(botanicgardens.wales\)](https://www.botanicgardens.wales.gov.uk)

[Pollinator of the Month: Hoverfly, Bee The Change \(beethechange.org\)](https://www.beethechange.org)

[The UK's bumblebees are in crisis, Bumblebee Conservation Trust \(bumblebeeconservation.org\)](https://www.bumblebeeconservation.org)

[Identify a moth, Butterfly Conservation \(butterflyconservation.org/identify-a-moth\)](https://www.butterflyconservation.org/identify-a-moth)

[Identify a butterfly, Butterfly Conservation \(butterflyconservation.org\)](https://www.butterflyconservation.org)

[Bees Wasps & Ants Recording Society, BWARS \(bwars.com\)](https://www.bwars.com)

[ID Guide Hoverflies, British Naturalists' Association \(bna-naturalists.org/id-guide-hoverflies/\)](https://www.bna-naturalists.org/id-guide-hoverflies/)

[Beetle Families, UK Beetle Recording \(coleoptera.org.uk\)](https://www.coleoptera.org.uk)

[LBKA: Home \(lbka.org.uk\)](https://www.lbka.org.uk)

Contact

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Pollinating London Together

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