

Urban grassland & verge guidelines

How can you help local wildlife to thrive?



Leverhulme Centre
for Nature Recovery



Environmental Change Institute



Why do we need to change the way we manage urban grass?

Although uniformly short grass used to be seen as a sign of good management, people now are becoming more aware of the value of nature and the need for more nature-friendly management techniques. Frequent mowing removes flowers that provide nectar for bees and butterflies. It removes the eggs that butterflies lay on grass stems, crushes caterpillars and other insect larvae, and can kill or injure other wildlife such as frogs, snakes and voles. Fewer insects mean less food for birds and bats, and this is part of the reason why wildlife populations are declining. For example, 76% of the UK's butterflies have either declined in numbers or are found in fewer places since 1976¹, and 43% of our birds are at risk of extinction.² Local Authorities now have a duty to produce Local Nature Recovery Strategies, and more creative management of urban areas can play a key role in this. Although some areas need to be kept short at all times (e.g., for health and safety or recreation), many areas could be mown less often, allowing them to develop into flower-rich urban grasslands that support wildlife.

Urban wildflower meadows and verges look beautiful and contribute to a sense of place. Wildflower features require less maintenance than herbaceous borders but can be just as attractive. Mowing less can also save fuel, which saves money and cuts carbon emissions. It also reduces soil compaction, leading to healthy, well-drained soil that stores carbon and soaks up floodwater. And finally, it reduces the safety risks associated with mowing busy road verges, especially those that need to be cut at night.

¹Butterfly Conservation, [The State of Britain's Butterflies 2015](#)

²[State of Nature 2019: UK Report](#), P14.



What are we aiming for?

In nature, grassy clearings are kept open by grazing animals such as deer, rabbits, wild cattle, geese or even beavers. This produces a rich mosaic of short, medium and long grass, with plenty of tussocks and scattered scrub, which suits lots of different wildlife. For example, some butterflies need short flower-rich turf while others need medium or tall grasses and flowers. In urban areas we can't usually accommodate the ideal solution of light grazing, but we can try to encourage a diverse mix of habitats and reduce the impact of mowing by following the guidelines below.

The key to achieving flower-rich grassland is to reduce soil fertility. Wildflowers thrive in poor soils, but on fertile soils they will be smothered by vigorous grasses. So it is important to remove the grass cuttings after mowing, as these put nutrients back into the soil as they decay. Once fertility has been reduced, you can mow less often, and in some areas you might eventually not need to mow at all.

There are four main principles for nature-friendly management of urban grassland:

- mow less often;
- collect the cuttings to reduce fertility;
- leave uncut refuges for wildlife;
- create varied habitats with different lengths of grass, mixed with scrub, hedges and trees.

This leaflet summarises a wide range of existing guidance by organisations such as Buglife, Plantlife and Butterfly Conservation into ten steps to show how this can be done in practice.



1. Work with local people and show that the area is cared for

COMMUNICATE

Before you start changing grassland management, explain what you are trying to do and address any concerns. Information signs are a good way of communicating your aims. You could also engage with local schools or resident's groups, and put articles in the local media.

MANAGE EXPECTATIONS

Explain that it may take a few years to fully establish a wildflower area, and that it may look untidy at the end of the flowering season, but that this is important for the survival of wildlife. If seeds are added (see step 10) some people include brightly coloured non-native annuals such as poppies for colour in the first year, but this can lead to disappointment as they will not return in subsequent years. They also shade out the wildflowers, slowing down their establishment. If annuals are not sown, people can instead enjoy seeing the gradual emergence of new wildflowers, which can help to sustain their interest. It is important to explain that we need perennial wildflowers as foodplants for butterflies, moths and other insects. Also, cultivation of the soil to plant annuals releases carbon, while leaving deep-rooted perennial wildflowers to grow in undisturbed soil helps to draw down and store more carbon in the root zone.

SAFETY FIRST

Ensure safe visibility for road users and safe conditions for pedestrians. Wider areas of short grass may be needed at road junctions or where local walkers use the verges a lot, such as where a verge provides a link in the public footpath network. In some urban areas, there could be a risk of litter collecting in long grass. These areas may need to be kept short.

FRAME THE EDGES

You may want to 'frame' areas of longer grass with short-mown areas. These could include 1m wide strips alongside paths and roads, winding paths through wildflower meadows, and picnic areas or dog exercise areas. This, along with signs where appropriate, shows that the area is being cared for and a service is still being provided. Scalloping the cut edge can also look nice and provides sheltered areas for basking insects and reptiles. Some wildflowers such as clovers and birds foot trefoil can survive in these shorter areas, especially if it is possible to avoid cutting in May and June.



2. Cut three times in the first year to reduce soil fertility

MOW THREE TIMES IN ONE YEAR, WHEN THE GRASS IS TALL

In the first year, when no wildflowers are present, mow and remove the cuttings three times (April, July and early September), waiting for the grass to grow to its full height each time. Coarse grasses put most of their energy into growing vertically, so cutting when the grass is tall will dramatically reduce their dominance and allow finer grasses and flowers to come through.

ADAPT TO THE SOIL TYPE

On thin, stony or chalky soil you might find that wildflowers appear rapidly. However, very fertile and clay-rich soils may need a different approach. These areas often have a lot of nettles, cleavers, hogweed, cow parsley, creeping thistle, spear thistle, broad-leaved dock, curled dock, vigorous grasses (such as perennial rye-grass, common couch, Yorkshire fog and cock's-foot) and brambles. It may not be worth trying to establish flower-rich grassland in these areas, especially if nutrients are being regularly replaced, such as during floods, or if the area was fertilised in the past, but they can be valuable in their own right. Nettles and tall grasses are the main food plants for the caterpillars of many of our common butterflies (see Table 1), and bramble thickets provide nectar for bees, berries for birds and small mammals, and homes for hedgehogs. Therefore it could be better to leave some of these areas as an uncut refuge for wildlife, and treat the rest as a tall grassland habitat (cut twice a year). If you want to try to restore part of the area to flower-rich grassland you might need to continue cutting and collecting three times a year for a few years, or cut a bit more often (e.g., every 6-8 weeks during the growing season).

WHEN TO REDUCE MOWING

Leave a small test area uncut each year, rotating the area, so you can see how fast the grass is growing. The cut area should start to resemble a 'flowering lawn' with short grass containing common species such as clover, buttercups, dandelions, daisies, selfheal and yarrow. Once you have reduced the fertility to the point where there is less than 30% competitive grasses such as perennial rye-grass, and the grass grows no higher than 70cm in the uncut test area, you can shift to mowing only twice a year.



3. Mow less often

AIM TO CUT NO MORE THAN ONCE OR TWICE A YEAR

Once the soil fertility has been reduced, aim to cut just once or twice a year in early spring and/or autumn. Try to avoid cutting between April and August when there will be lots of butterfly eggs and caterpillars in the grass.

SPRING CUT

If the grass is growing strongly, cut in early spring (Feb if the ground is dry enough, or March), then leave the wildflowers to grow. It is important to have lots of nectar-rich flowers such as dandelions for spring pollinators like queen bees when they emerge from hibernation in April. Mowing later than this, e.g., in May, will remove the flowers that Common Blue and Small Copper butterflies lay their eggs on.

AUTUMN CUT

Cut again in early autumn, between Sep-Oct, when most flowers have set seed and insects have completed their lifecycles. Most flowers take 6-8 weeks to set seed after flowering.

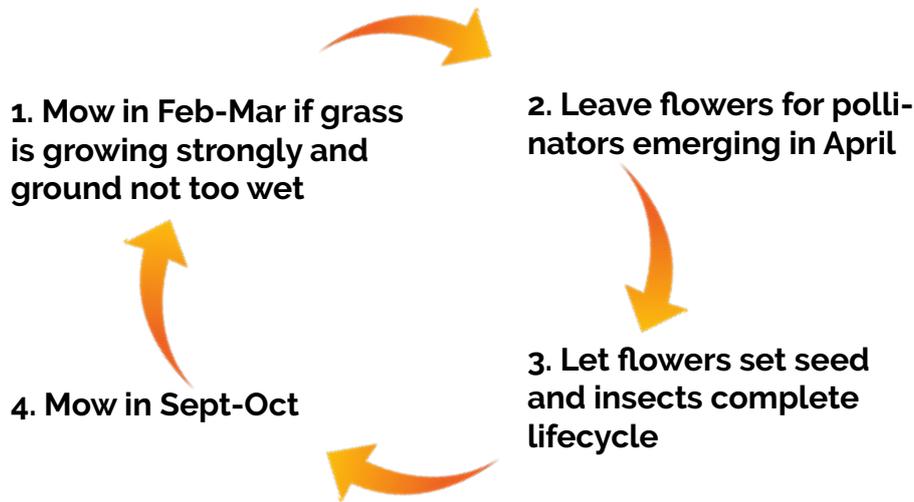
SPECIALIST MEADOWS

In areas which are already being successfully managed for biodiversity, such as floodplain meadows, hay meadows or other areas under traditional meadow management, do not change the cutting regime unless this has been agreed with local experts. For example, some hay meadows may be cut in July and again in October, and they may support species that have adapted to this regime. However, if cutting is earlier than September it is vital to leave an uncut refuge area for wildlife.



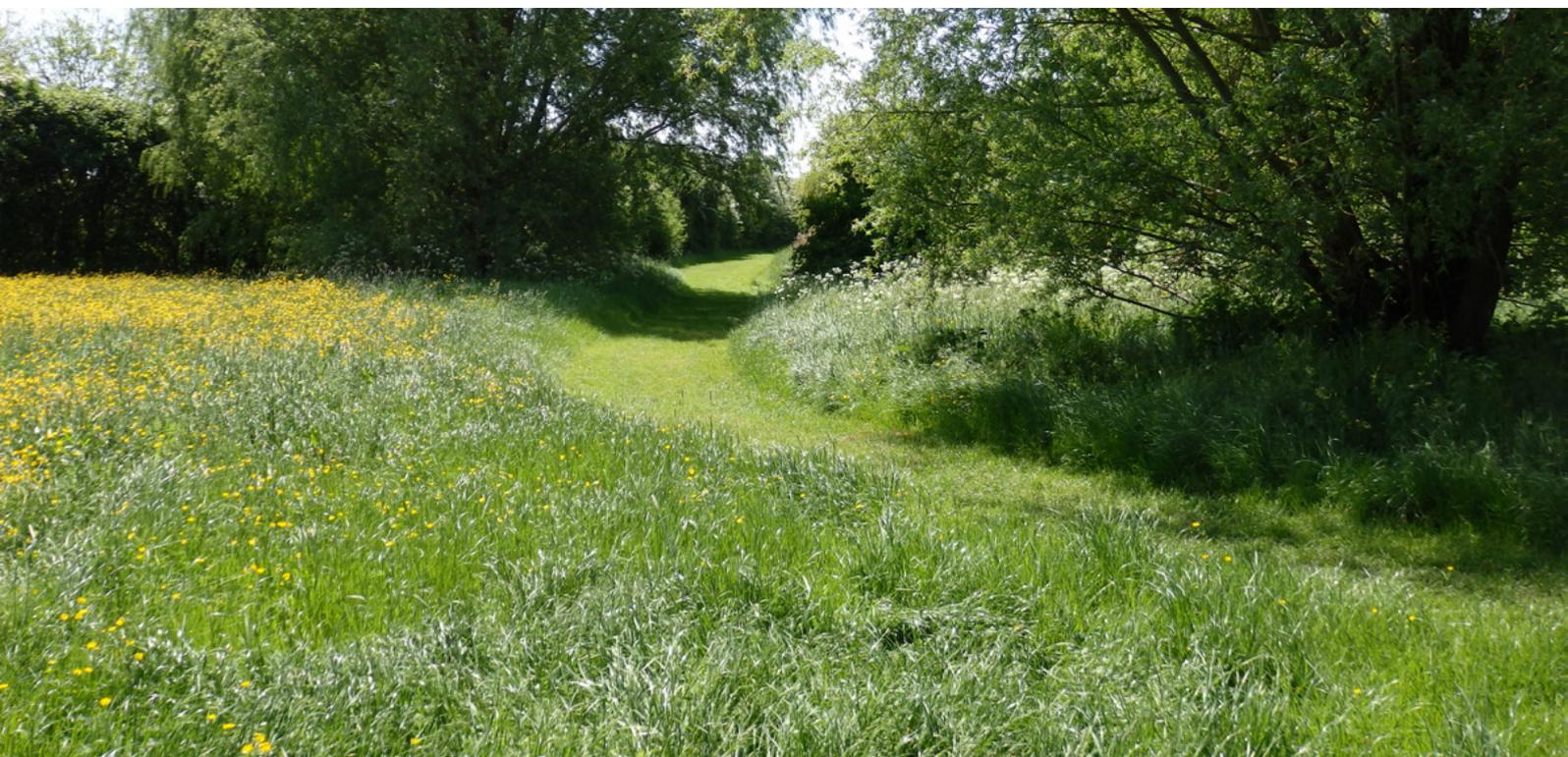
BE ADAPTABLE

If you can see wildflowers growing, if the grass is not growing strongly, or if the area is wet, you could skip the spring cut altogether. In the north of the UK, cut later (March or April). On very fertile soils you might need to cut more often (e.g., three times) or cut slightly earlier (as early as mid-July if necessary, provided that a refuge is left) to remove vigorous grasses while they are still growing. In some areas, the fertility could eventually decline to the point where you don't need to mow at all.



CONSIDER CUTTING ON ROTATION

Practically, in most areas it may not be possible to do all the cutting in Feb-March and Sept-Oct. If you need to cut at different times of year, try to have a rota and/or leave uncut refuges (see step 6) so that not all the grass in each area is cut at the same time, as this takes away all the pollen, nectar, caterpillars and butterfly eggs at once. Having a mix of grass at different lengths in an area is good for biodiversity, and many flowers will re-grow so that they provide nectar and pollen later in the season.



4. Remove cuttings

Remove grass cuttings to reduce soil fertility On fertile soils, coarse grasses will grow fast and smother any wildflowers. Many flowers also need bare and damp soil to germinate, and a thatch of dead grass stops them from growing and stops rainwater from soaking into the soil, as well as looking unsightly.

Cut-and-collect machinery can be expensive, but there can be overall cost savings from mowing less often and therefore using less fuel. For example, in Dorset, the new machinery paid for itself in 5 years.

If there is room, you can leave grass cuttings in small piles on site, where they will rot down quite fast. Put them in places which are already quite fertile (e.g. with lots of common nettles). Do not put them next to watercourses as the liquids they produce as they rot down can pollute the water. Leaving some piles in sunny spots will provide homes for wildlife such as grass snakes and slow worms.

It is legal to leave cuttings in situ, but you might need a waste management license or an exemption to move them to a different land class (e.g., from a verge to a park).

Over time, the volume of cuttings generated should decrease as the soil fertility declines, but you might have too many to dispose of on site in the first few years. Surplus cuttings could be used for mulch, composted (making peat-free compost for local use), or sent to anaerobic digestion facilities where they generate energy. The cost of transport and disposal (including gate fees for sending to municipal composting plants) can be reduced hugely by leaving the grass to rot down for a year or two in temporary piles on site.

In some cases, it might be possible to make late season hay if a local farmer is interested and if you can guarantee that the area is free of dog mess, litter and pollution (e.g., from heavy traffic). After early September the hay is unlikely to dry in time.



5. Use low impact mowing and maintenance methods

HIGH PRIORITY AREAS

In some small areas or in high priority areas such as nature reserves you might be able to hand scythe, leave the grass in place for a few days for seeds to fall and caterpillars to escape, and then rake it up. In many areas there are enthusiastic trained volunteers willing to do this. This is far less damaging than mowing.

SET THE BLADE HIGH

Otherwise, set the mower blade at its highest setting (at least 5 cm, preferably 8 cm), or use a strimmer or brush cutter (again cutting high), to reduce injury to wildlife. Many insects and their larvae live in tussocks at the base of grass stems, close to the ground.

DO A PRE-CUT WALK OVER

Do a pre-cut walk over before mowing, to remove litter and let any small animals know you are there so that they can move away before you begin cutting. Check for hedgehogs before mowing long grass. Display this sticker on strimming or mowing equipment and you can be put on the [Hedgehog Heroes Roll of Honour!](#)



AVOID 'CONDITIONERS'

Bar mowers, brush cutters or power scythes cause less damage to wildlife than drum mowers or flails. However, returning to collect the cuttings with heavy machinery such as a baler can be just as damaging as a single cut-and-collect operation. If using a flail, avoid fitting it with a 'conditioner' or mulcher that pulverises the cuttings, because that will kill any surviving insects, caterpillars or eggs on the cut grass.

MOW TOWARDS A REFUGE

Mow towards a refuge, to help wildlife such as small animals, ground-nesting birds, frogs and snakes to escape.

AVOID USING FERTILISERS, HERBICIDES, AND PESTICIDES

Fertilisers encourage grasses to grow faster, smothering wildflowers, and herbicides and pesticides are harmful to biodiversity.



6. Leave refuges of long grass

Leave 10%-20% as an uncut refuge of tall grass and flowers. This can include strips at least 1-2m wide along hedges, fences and walls, 'drip zone' areas beneath trees, and larger areas. Refuges help insects and spiders complete their lifecycles, as larvae and eggs overwinter in dead vegetation like seedheads and hollow stems. Refuges also allow grass tussocks to form, which are essential shelter and hibernation sites for small mammals such as harvest mice, as well as butterflies and other insects. For example, the caterpillars of the Small Skipper butterfly hibernate in a silk shelter attached to tall stems of Yorkshire-fog grass from July until April, so they need the grass to stay uncut over winter. Similarly, green woodpeckers need undisturbed grassland where anthills can form.

Ideally, leave the refuges uncut to protect the tussocks and anthills, and just prune out any saplings every few years with loppers and bow saws (in winter) to prevent scrub from spreading into the grassland. If this is not possible, cut every 4-5 years on rotation so that it is not all cut at once, setting the highest possible cutting height.

Piles of logs, branches and stones can be left as shelter for wildlife such as lizards and hedgehogs. Large pieces of dead wood left in both sun and shade are particularly good for bees, wasps and beetles.



7. Incorporate scrub

SCRUB IS UNDERVALUED!

Scrub is often viewed as being untidy, but UK shrubs such as hawthorn, blackthorn, buckthorn, hazel, elder, field maple, guelder rose, holly, ivy and bramble are vital to support wildlife. Their flowers provide early season nectar and pollen for bees and butterflies, and later in the season they also provide berries and nuts for birds and small mammals. Some shrubs are also essential food plants for the caterpillars of butterflies and moths (Table 1). Meanwhile, their dense structure provides safe shelter, nesting and hibernation sites for birds, hedgehogs, reptiles, and insects.

KEEP 10% SCRUB

While scrub may often need managing to stop it spreading over grassland or wetland areas, it is important to keep at least 10% scrub cover. This could include individual clumps and also soft scrub edge zones between woodland and grassland.

SCALLOP THE EDGES

The edge between grassland and scrub can be scalloped into a series of bays, providing warm, sheltered conditions that attract many species. You could make south-facing 'Butterfly bays' with benches.

DON'T LET SCRUB TAKE OVER

Scrub that is spreading onto grassland or becoming too dense can be removed or thinned out in autumn and winter. Some of the other scrub patches could be managed by coppicing (cutting down to base) on rotation (up to 10-12 years depending on growth) only removing one small area at a time, so that there is always a range of scrub patches of different ages. Some patches should be left as permanent features because mature shrubs and their dead wood support rare beetles and fungi.



8. Hedges and ditches

Hedges should be trimmed every 3-5 years between mid-January and the end of February.

Trim on rotation, cutting no more than one third each year, allowing the height and width to gradually increase if possible. This will allow more flowers and berries to appear, supporting more wildlife, and will protect nesting sites. Hedges that are cut every 3 years produce more than three times as many berries as those that are trimmed every year and 40% more berries than those cut every 2 years.³

Ditch management (if necessary) is best done in November to January to minimise disturbance to plants, water voles and amphibians. Do not dispose of dredged material on meadows, hedge bases or verges because this will smother the grassland flowers and increase soil fertility, leading to more coarse grasses.



³Wolton et al, 2013. [Understanding the combined biodiversity benefits of the component features of hedges.](#)

Table 1

Essential grassland and hedgerow food plants for butterfly caterpillars

Grasses

Coarse grasses (e.g. Yorkshire-fog, Cock's-foot)

Associated Butterflies

Ringlet, Speckled Wood, Small Skipper, Large Skipper, Essex Skipper, Wall, Marbled White

Fine grasses (e.g. Common Bent, Creeping Bent, Red Fescue, Sheep's Fescue)

Gatekeeper, Meadow Brown, Grayling, Small Heath, Marbled White

Flowers

Common Nettles

Peacock, Red Admiral, Small Tortoiseshell, Comma, Scarlet Tiger Moth

Thistles

Painted Ladies

Common Birds Foot Trefoil

Dingy Skipper, Common Blue, Green Hairstreak

Common Rock Rose

Brown Argus

Agrimony, Salad Burnet, Creeping Cinquefoil

Grizzled Skipper

Kidney Vetch

Small Blue

Devil's Bit Scabious

Marsh Fritillary

Common Sorrel, Sheep's Sorrel

Small Copper

Shrubs and hedgrow trees

Brambles

Grizzled Skipper, Fox Moth

Holly, Ivy

Holly Blue

Blackthorn

Brown Hairstreak, Black Hairstreak

Buckthorn and Alder Buckthorn

Brimstone

Gorse, Broom, Bilberry

Green Hairstreak

Elm (including suckers in hedgerows)

White-letter Hairstreak

Oak

Purple Hairstreak



9. DESIGN FOR VARIETY

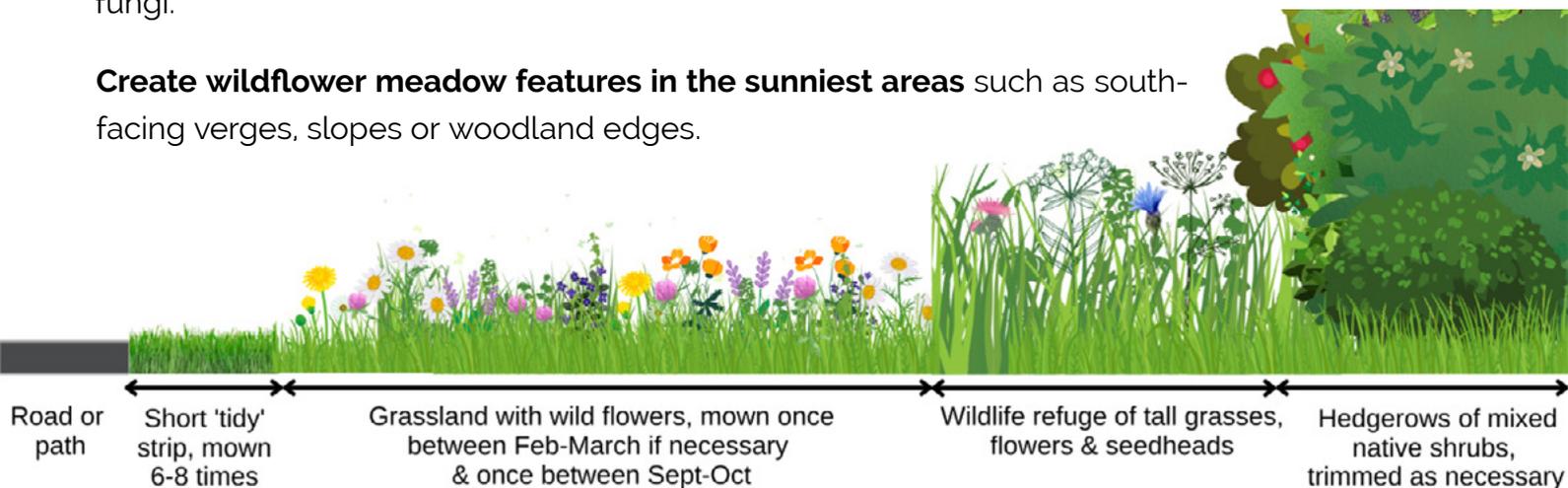
Design urban green spaces to include a range of grassland habitats of different lengths, and other features, to provide interest for people and to support different species. This could include:

- Short mown functional space e.g. for sports pitches or footpaths (cut every few weeks through growing season; no need to collect clippings)
- Flowering lawn (cut and collect every 6-8 weeks) with short grass containing common species such as clover, buttercups, dandelions, daisies, selfheal and yarrow.
- Flower-rich urban grassland (aim to cut and collect in Feb-March and Sept-Oct to leave a short sward in spring, with another cut as early as mid-July if needed in lush areas)
- Specialist meadows (areas already being managed for biodiversity: continue to manage in accordance with local expertise, see step 3)
- Uncut refuge of tall grass, tussocks and wildflowers (cut out woody growth as required, to prevent scrub from taking over, leaving tussocks undisturbed and herbaceous stems standing over winter)
- Scrub mosaic (occasional pruning every few years)
- Hedgerows (trimmed every 3-5 years if necessary) and trees.

You could create a gradient from the short-mown high footfall areas towards the wilder, more natural areas. For example, a short-mown path or picnic area could be softly framed by a wildflower meadow mown twice a year, leading into an uncut tall grass refuge zone and then a shrub zone, perhaps grading into woodland or scattered parkland trees.

Using a zone of tall meadow grassland and scrub to separate trees from paths and other high footfall areas could reduce any risk to the public from dead or diseased trees, allowing them to be left standing. This will add interest for people and provide homes for bats, birds, insects and fungi.

Create wildflower meadow features in the sunniest areas such as south-facing verges, slopes or woodland edges.



10. Do you need to add seeds?

GIVE NATIVE FLOWERS A CHANCE

It is always best to give flowers a chance to appear naturally, as seeds can lie dormant for many years, and there might be rare local species that are characteristic of the area. If you sow seeds straight away, these rare species could be swamped by more robust species that can grow anywhere.

WHEN TO CONSIDER SEEDS OR PLANTS

If only a few wildflowers appear during the first three or four years, you could consider sowing with a wildflower seed mix in autumn. You could also consider adding some plug plants or established pot plants. A 9 cm pot size may be needed to establish a new meadow. If rabbits are present, plant in very dispersed patterns in the middle of fields.

SOW SEEDS AT LOW DENSITY

This will leave space for native flowers to emerge from dormant seeds or colonise from nearby areas.

USE SUSTAINABLY SOURCED SEEDS OR PLANTS THAT ARE NATIVE TO THE AREA

Choose a supplier that follows the [Flora Locale code of practice](#), or try to source [green hay](#) from a nearby meadow with similar conditions and soil type (seek specialist advice for this).

WHICH SPECIES?

Aim to include a few pioneer species that will establish quickly as well as a few robust grassland species that should be found widely across the countryside (Boxes 1 and 2 in Table 2). You could include Yellow Rattle, which is parasitic on grass and will therefore help more wildflowers to become established. It is not worth doing this until fertility is low enough for cutting to be reduced to twice a year, as Yellow Rattle is an annual which will be rapidly removed through frequent cutting. Later, if necessary, you could introduce additional species (such as those in Box 3 in Table 2).

ANNUALS VS PERENNIALS

One reason for seeding is that it can speed up the transition to a flower-rich meadow and encourage acceptance by local people. Some managers include a few brightly coloured annuals such as Annual Poppy. These have comparatively low value for wildlife, and they generally will not appear after the first year (as they need soil disturbance to germinate), so it is important to manage expectations. They also shade out slower growing perennial wildflowers in the first year, slowing down the establishment of the meadow. 'Pictorial meadows' that include a lot of brightly coloured non-native flowers don't have much value for wildlife, and generally need re-seeding (and sometimes spraying with herbicide) every year. If there is public demand for these, they could be grown in a small separate area.



Recommended species for seeding urban meadows

Pioneer species that establish quickly from seed

Common Knapweed

Ox-eye Daisy

Common Bird's Foot Trefoil

Kidney Vetch (where the soil is bare enough)

Wild Marjoram (a good late summer nectar source)

Other robust widespread grassland species

Field Scabious

Devil's-bit Scabious

Agrimony

Meadow Vetchling

Meadow Cranesbill (hard to establish from seed so use plug plants)

Tufted Vetch

Red Campion

Musk Mallow

Cowslip

Yellow Rattle

Other butterfly-friendly species suitable for establishing from seed

Common Vetch, Bush Vetch

Red Clover

Greater Knapweed, Black Knapweed

Hawkbits

Fleabane

Bugle

Yarrow

Creeping Cinquefoil

Salad Burnet

Cuckoo-flower

Garlic Mustard

Common Sorrel

Common Rock-rose

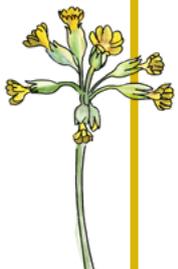
Dove's-foot Cranes-bill

Common Stork's-bill

Grasses: Yorkshire-fog, Cock's-foot,

Common Bent, Creeping Bent, Red

Fescue



Contributors

This leaflet was produced by members of the Healthy Ecosystems Restoration in Oxfordshire (HERO) team at the University of Oxford's Environmental Change Institute (ECI) - Dr Cecilia Dahlsjö, Carlyn Samuel and Alison Smith. The graphic design and illustrations were made by Tanaya Nair from the Ecosystems Group at ECI.

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Find out more

https://www.biodiversity.ox.ac.uk/research_stories/urban-grassland-verge-guidelines-guidance-booklet/

References

Meadows

Buglife: Managing urban areas for pollinators

<https://cdn.buglife.org.uk/2019/07/managing-urban-areas-for-pollinators.pdf>

Buglife: Management of wildflower-rich grasslands for insects

<https://cdn.buglife.org.uk/2020/04/Sheet-4-Management-of-wildflower-rich-grasslands-for-insects-1.pdf>

Plantlife: Meadow hub

<https://meadows.plantlife.org.uk/>

Plantlife: No Mow May

<https://www.plantlife.org.uk/uk/discover-wild-plants-nature/no-mow-may>

Monmouthshire County Council 'Nature isn't Neat' initiative (part of the Gwent Green Grid)

<https://www.monlife.co.uk/outdoor/nature-isnt-neat/>

<https://www.monlife.co.uk/wp-content/uploads/2022/04/Nature-Isnt-Neat-Code-of-Practice.pdf>

Biodiversity Wales: Planting for Pollinators

<https://www.biodiversitywales.org.uk/File/809/en-GB>

Wild Oxfordshire: Community Resources page. Includes signs to download ("Please don't mow..." etc).

<https://www.wildoxfordshire.org.uk/guidance/helping-nature-on-your-patch>

Long Mead's Thames Valley Wildflower Meadow Restoration Project (TVWMP)

<http://www.longmeadwildlifesite.org.uk/thames-valley-wildflower-meadow-project.html>

Eynsham Nature Recovery Network (a network of people for nature)

<https://nrn.nature-recovery-network.org>

Verges

Buglife: Managing road verges for pollinators

<https://www.buglife.org.uk/resources/habitat-management/managing-road-verges-for-pollinators/>

Plantlife Road Verge Hub

<https://roadverges.plantlife.org.uk/>

Plantlife Good verge guide

https://roadverges.plantlife.org.uk/wp-content/uploads/2021/11/Good_verge_guide_2021.pdf

Plantlife: Managing grassland road verges

https://roadverges.plantlife.org.uk/wp-content/uploads/2021/11/Managing_grassland_road_verges_Singles.pdf

Wildlife Trusts: Managing Road Verges for Wildlife. Contains several case studies.

<https://www.wildlifetrusts.org/wildlife/managing-land-wildlife/managing-road-verges-wildlife>

Wild Oxfordshire: Community Resources page. Includes information on Oxfordshire's Road Verge Nature Reserves.

<https://www.wildoxfordshire.org.uk/communities/resources/>

Lincolnshire Wildlife Trust: Lincolnshire's Road Verges

<https://www.lincstrust.org.uk/what-we-do/conservation-projects/road-verges>

Planting or sowing new meadows

Plantlife: Keeping the 'Wild' in wildflower

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<https://cieem.net/wp-content/uploads/2019/07/FL-code-of-practice-growers-seeds.pdf>

Hedges

Hedgeline: Hedges in urban areas

<https://hedgeline.org.uk/hedge-hub/learn-about-hedges-in-town-and-city-spaces/>

Hedgeline: The Complete Hedge Good Management Guide

https://www.hedgeline.org.uk/cms/cms_content/files/30_complete_good_hedge_management_guide_leaflet.pdf

Buglife: Ancient and species-rich hedgerows

<https://www.buglife.org.uk/resources/habitat-management/ancient-and-species-rich-hedgerows/>

Wolton, R.J., Morris, R.K.A., Pollard, K.A. & Dover J.W., 2013. Understanding the combined biodiversity benefits of the component features of hedges. Report of Defra project BD5214. Annex C: Review of how well existing Environmental Stewardship provisions meet key hedge management requirements for biodiversity, with suggestions for change. Provides the background research on the benefits of trimming hedges less often.

https://www.hedgeline.org.uk/cms/cms_content/files/14_2013_annex_c_review_of_environmental_stewardship_hedge_provisions.pdf

Managing urban areas for Butterflies

Butterfly Conservation: Building Sites for Butterflies programme

www.butterfly-conservation.org/buildingsites

Butterfly Conservation: Big City Butterflies project

<https://butterfly-conservation.org/our-work/conservation-projects/england/big-city-butterflies>

Butterfly Conservation: Butterflies in towns and cities. This leaflet describes the main habitat requirements of thirty butterfly species associated with urban habitats and gives advice on managing habitats in towns and cities.

<https://butterfly-conservation.org/sites/default/files/habitat-towns-and-cities.pdf>

Butterfly Conservation: [How changing the way amenity grass is managed encourages wildflowers, butterflies & moths, and can save money: the Dorset experience.](#)

Wild London: Brilliant Butterflies partnership

<https://www.wildlondon.org.uk/brilliant-butterflies>





Leverhulme Centre
for Nature Recovery



Environmental Change Institute

