Improving urban grassland for people and wildlife

Access to nature is beneficial to human health. How can designed urban meadows help to enhance public well-being and urban biodiversity?

Living With Environmental Change Policy and Practice Notes

Note No.32
July 2016

The Living With Environmental Change Partnership brings together 22 public sector organisations that fund, carry out and use environmental research and observations. They include the UK research councils, government departments with environmental responsibilities, devolved administrations and government agencies. The private sector is represented by a Business Advisory Board.

Access to nature is beneficial to human health and well-being, yet over 80% of the UK population now live in urban areas and experience nature as "urban green infrastructure", a mosaic of greenspaces including parks, gardens and semi-natural areas. As well as providing recreational, educational and aesthetic benefits these areas provide potential habitats for urban wildlife such as birds and insects, including important pollinators. However, a high proportion of urban greenspace is currently managed as close-mown amenity grass, with limited aesthetic interest or value to wildlife. Replacing some of this with designed urban meadows has been shown to enhance the value of individual greenspaces for both people and wildlife. Local authorities and other organisations that are responsible for management of public space are in a position to make this change.

What is an "urban meadow"?

Urban meadows are different from traditional meadows. Traditional agricultural meadows:

- Comprise mainly native grassy plant communities, but can also have naturally occurring perennial and annual flower species.
- Are usually cut annually to produce a hay crop, and are often used for grazing after being cut.
- Are primarily found in rural situations but may occasionally be retained as "conservation meadows", in appropriate parts of urban areas, for their nature conservation value.

In an urban park the objectives are different. Here urban meadows:

- Prioritise public satisfaction and aesthetic delight as well as supporting wildlife objectives, including making visible wildlife and pollinators a priority.
- Often involve establishing new areas of meadow using seed mixes designed to produce a specific aesthetic effect and wildlife benefit.
- May be perennial meadows comprising grasses and flower species which flower each year. Sequential flowering during one season can be achieved by cutting meadows after the first flowering.
- May be annual meadows consisting of flower species which flower once, but can persist by self-seeding.
- May include non-native species to increase the colour range or extend the flowering season.

What are the human and biodiversity benefits of urban meadows?

Urban meadows can provide an alternative to amenity mown grass that is attractive to people and beneficial to urban wildlife, including pollinators. Evidence shows that:

- Many people prefer meadow-style or informal herbaceous planting to formal bedding, with meadow-style being more popular than informal herbaceous planting.
- The addition of urban meadows to parks increases users' site satisfaction.
- Urban meadows incorporating appropriate non-native species may continue flowering later in the season than those with only native species and, potentially, the availability of nectar and pollen for insects may also be extended.

Research on perennial urban meadows has shown that:

- Many people prefer designed meadows to standard mown amenity grass. The most popular meadows are those that contain a large number of flower species.
- Meadows support many more invertebrates than do areas of mown grass. This applies throughout the year, not just when meadows are flowering, and the effect is stronger in taller meadows with moderate or high flower species content.
- As well as obvious pollinators, these include less visible but equally valuable invertebrates such as detritivores which feed on decomposing organic matter.

Research on annual urban meadows has shown that:

- Most people respond more positively to meadows with more mixed colours and more species than to those with a limited range of colours and species.

How should a suitable site for meadow establishment be selected?

The locational context is crucial to both establishment and acceptance. A number of factors need to be taken into account:

— Ideal conditions are a flat or gently sloping site in full sun with an alkaline or neutral soil. Soils with a particularly high nutrient content should be avoided as this encourages competitive weeds.
— If a potential site is adjacent to an area of wildlife conservation value, management for nature conservation objectives should be prioritised.
— In the case of a large urban park, designed meadows must be located sensitively. Many people enjoy the appearance of a flowering meadow, yet space should be left for other recreational uses and to allow access through the park via habitual routes.
— Peripheral areas of parks are ideal locations for perennial meadows with a semi-natural appearance. Narrow road verges or areas at the front of housing are usually best avoided, as residents may prefer these to look more obviously managed.
— Colourful annual meadows have the potential to replace traditional formal bedding in high profile urban locations such as on roundabouts or in town centre parks.

Who needs to be involved in planning and establishing the meadow area?

Consultation with local residents, users and councillors is essential and should include:

— Initial consultation using images of similar meadows to explain the potential visual and biodiversity benefits of urban meadows.
— Signage to enhance public awareness once work begins. This might include information about the appearance, biodiversity benefits and plant species present, and can be used to manage expectations about the appearance of the meadow outside the flowering season.
— An invitation to local residents, site users and councillors to take part in activities such as the sowing of the meadow to increase the sense of local ownership.

What preparation and management does an urban meadow require?

Urban meadows are less labour intensive to manage than mown grass throughout the growing season, but require intensive preparation or maintenance at specific times of the year including:

— Initial removal of existing amenity mown grass and weeds from the site to ensure a clean seed bed.
— Cultivation of the soil followed by raking, treading and removal of all large stones.
— Mixing of seed with sand before hand-seeding at a rate appropriate to soil conditions and the desired aesthetic effect. Care should be taken to distribute sand and seed evenly across the site.
— In the case of perennial meadows, mowing once or twice a year. The cuttings should be removed, both for aesthetic reasons and to reduce soil fertility. Shorter perennials generate a smaller volume of cuttings.
— In the case of annual meadows, cutting at the end of the flowering season. For the best visual result annuals should be resown into a clean seed bed each year, although this is costly and unsustainable on a large scale.
— Cutting of desire lines through an area of designed meadows to indicate that the meadows are being managed, while allowing people to move freely through the site.

How can the benefits of meadows be brought into urban areas?

Local authorities and other organisations managing public land can help by:

- Recognising the value of conservation, perennial and annual meadows in different urban contexts, and adding these to Biodiversity Action Plans
- Recognising these as specific types of greenspace in strategic green infrastructure planning.
- Prioritising areas of high plant species richness as conservation meadows.
- Introducing perennial meadows in peripheral areas of urban parks and semi-natural sites.
- Choosing taller perennial seed mixes with a high flower content which support a greater abundance of pollinators and other invertebrates.
- Replacing areas of mown lawn and traditional bedding plants with colourful annual meadows in high profile sites on road verges and roundabouts.
- Modifying mowing regimes, leaving areas of longer grass while cutting clear desire lines to allow public access.
- Ensuring staff have access to expert knowledge and training in meadow establishment and management.
- Promoting knowledge and education about urban meadows, their establishment and management to other land managers and the general public.

Further information

This policy and practice note was written by Dr Helen Hoyle and colleagues from the Departments of Landscape and Animal and Plant Science at the University of Sheffield, drawing on research from the F3UES project (Fragments, Functions, Flows and Urban Ecosystem Services). F3UES is a research study looking at how the biodiversity of towns and cities contributes to human well-being and is part of a bigger research programme, Biodiversity and Ecosystem Service Sustainability (BESS). BESS is a six-year programme (2011–2017) funded by the Natural Environment Research Council (NERC) (NE/J015369/1), and the Biotechnology and Biological Sciences Research Council (BBSRC), as part of the LWEC partnership.

Useful resources:

Urban BESS (F3UES) website: http://bess-urban.group.shef.ac.uk/

National Wildflower Centre: http://www.nwc.org.uk/

Green Estate (social enterprise): Creating and managing urban landscapes: http://greenestate.org.uk/place

Urban Pollinators project website: www.bris.ac.uk/urban-pollinators

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LWEC Policy and Practice Note No 20 Managing urban areas for insect pollinators http://www.nerc.ac.uk/research/partnerships/lwec/products/ppn/ppn20

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