Nature Rich Spaces:
Grasslands and Wildflower Solutions for Climate Action

The Benefits of Species Rich Grassland and Wildflower Meadows

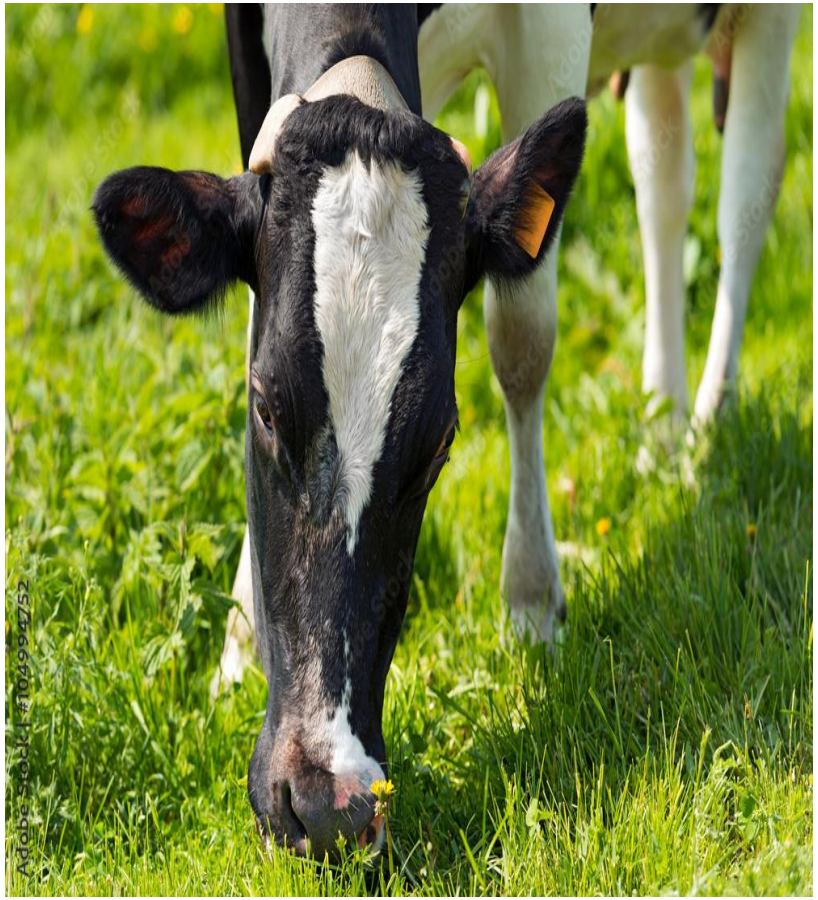
The workshop will explore benefits species rich grasslands and wildflower meadows bring to:

- Climate change mitigation
- Boosting biodiversity
- Promoting and supporting community engagement
- Benefiting greenspace management

Background

Evolution of Grasslands

- Grasslands are an ancient habitat, very much ingrained within our culture. Following the last Ice Age, around 12,000 years ago, mossy vegetation and weedy plants colonised bare ground, which was left behind when the glaciers melted.
- Gradually these areas developed into communities of grasses, sedges and herbs as more plants found a home - resulting in the wonderful flower-rich meadows we find (all too sparingly) today.
- Grassland now occupies roughly 40% of the UK's land surface, but its composition and distribution have changed significantly over time, most grassland is now farmland or rough grazing.



How grassland is classified

Grassland in the UK is generally divided into **upland** (above 300m) and **lowland.**

- This is because the cooler, wetter climate of upland areas favours different species to the warmer, drier and less exposed lowlands.

- Both types may also be classified as:

➢ Calcareous - found on shallow lime-rich soils

➢ Acidic - found on sands, gravels and siliceous rocks

➢ Neutral - found on clay and loam soils.

Meadows are enclosed grasslands where a hay or silage crop is taken in the summer, while pasture is generally grazed all year round.

Unimproved Grassland

- Unimproved grassland is grassland that hasn't been reseeded, fertilised or drained and tends to be full of flowers and wildlife.

- In England there are around 4.5 million hectares of grassland, of which just 100,000ha are unimproved.

- The remaining fragments of unimproved grasslands cover only 5% of England, in places such as the ancient chalk of Salisbury Plain and the hay meadows of the Yorkshire Dales.

What is a species rich grassland?

Species-rich grassland is open, grassy habitat that is normally maintained by traditional grazing and cutting methods. A grassland is species-rich if it has:

- more than 15 plant species per square metre
- more than 30% cover of wildflowers and sedges (excluding white clover, creeping buttercup and injurious weeds)
- less than 10% cover of white clover and perennial rye grass

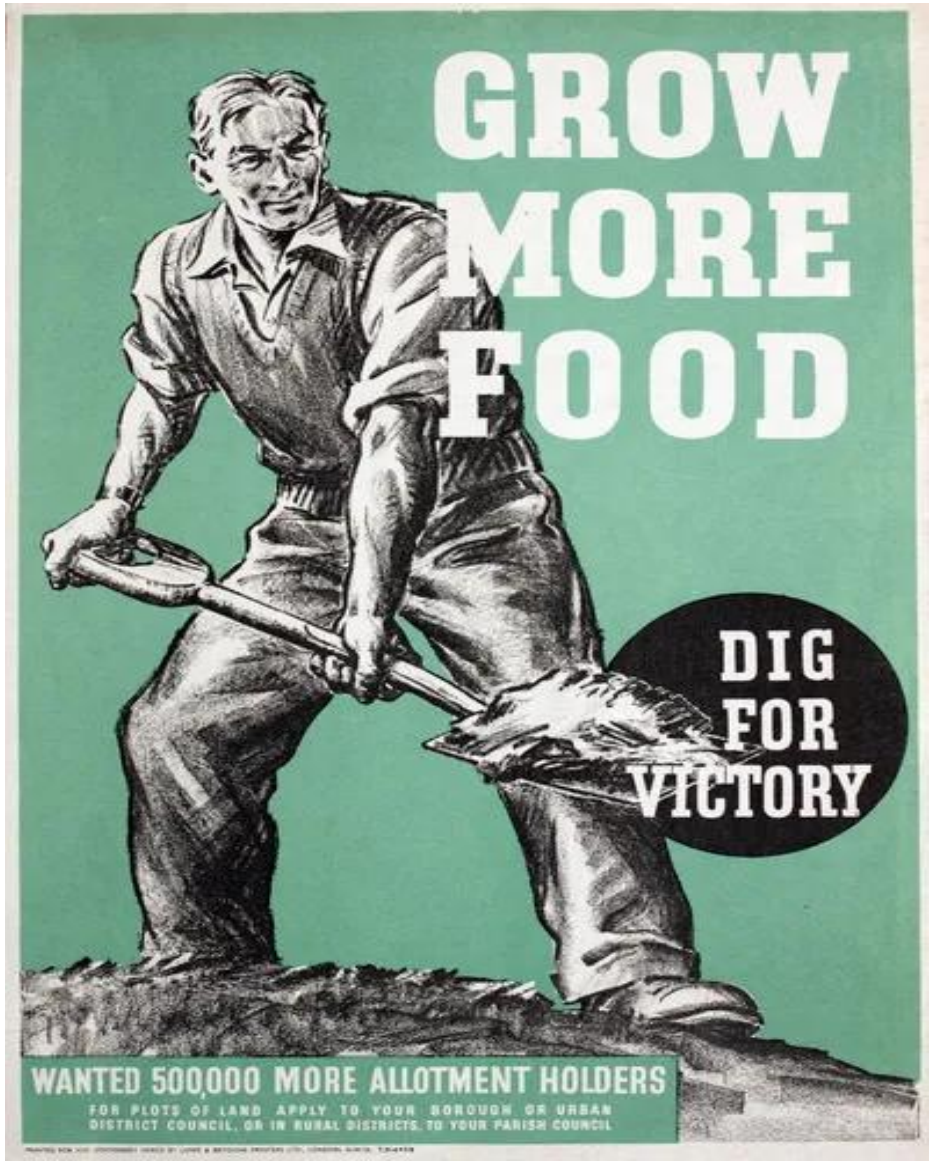
Each grassland has its **own community of plant species**, which can be grouped into different types.

The type of species-rich grassland depends on location, underlying geology, soil pH (acid, neutral, calcareous), its management and history.

However, species-rich grassland **is rare** and where it is present it provides homes to a large number and variety of wildflowers as well as many threatened species of plants, invertebrates and birds.

Levels of grassland loss

- During the 20th Century, 90% of unimproved lowland grasslands have been lost due to alternative winter feeds being produced.
- The application of chemical fertilisers, herbicides and new grass varieties being introduced to increase yields have altered the composition of grasslands immeasurably.
- Two world wars also added to the amounts of unimproved grasslands being lost, as Government encouraged ploughing of land to meet food needs.
- Post 1945, further government incentives to plough grasslands to meet growing population numbers also added to these losses.



Threats to Species rich grasslands

- Agricultural improvements (re-seeding, fertilising and draining wet areas)
- Urban development (housing, roads and industry)
- Tree planting (both commercial plantations and native broadleaf)
- Damage by livestock (Overgrazing and poaching)
- Undermanagement (no grazing and eventual scrub encroachment)
- Creation of amenity grassland (e.g. golf courses and playing fields)

Species rich grasslands can be maintained or restored using the following management techniques:

- Grasslands do benefit from some management, as rank vegetation will hinder new growth of wildflowers and eventually reduce species diversity. Cut in late summer after flowering or graze over winter.
- Wildflowers need to grow in nutrient poor soil, so avoid the application of chemical fertilisers and manure. Removal of grass cuttings will also prevent nutrients from re-entering soil.
- Consider tree planting carefully and choose an appropriate site which will not shade out species rich grasslands..
- Remove gorse scrub and young trees which will regenerate naturally and quickly dominate ungrazed sites.
- Where historically rich grasslands have been degraded through agricultural improvements, introduce a cutting regime or consider seeding bare patches with Yellow Rattle – a species which parasitises dominant grasses and improves diversity.
- Avoid herbicide application but, if necessary, carefully control weeds such as Dock and Creeping Thistle with a non-drip weed wipe.

Considerations

- Are there any **sites** in your area that could be an opportunity?
- Who do you think would need to be **involved** to achieve this?
- Do you feel you have the **skills and knowledge** to make these areas work?
- Do you have the **support** to carry out this work?

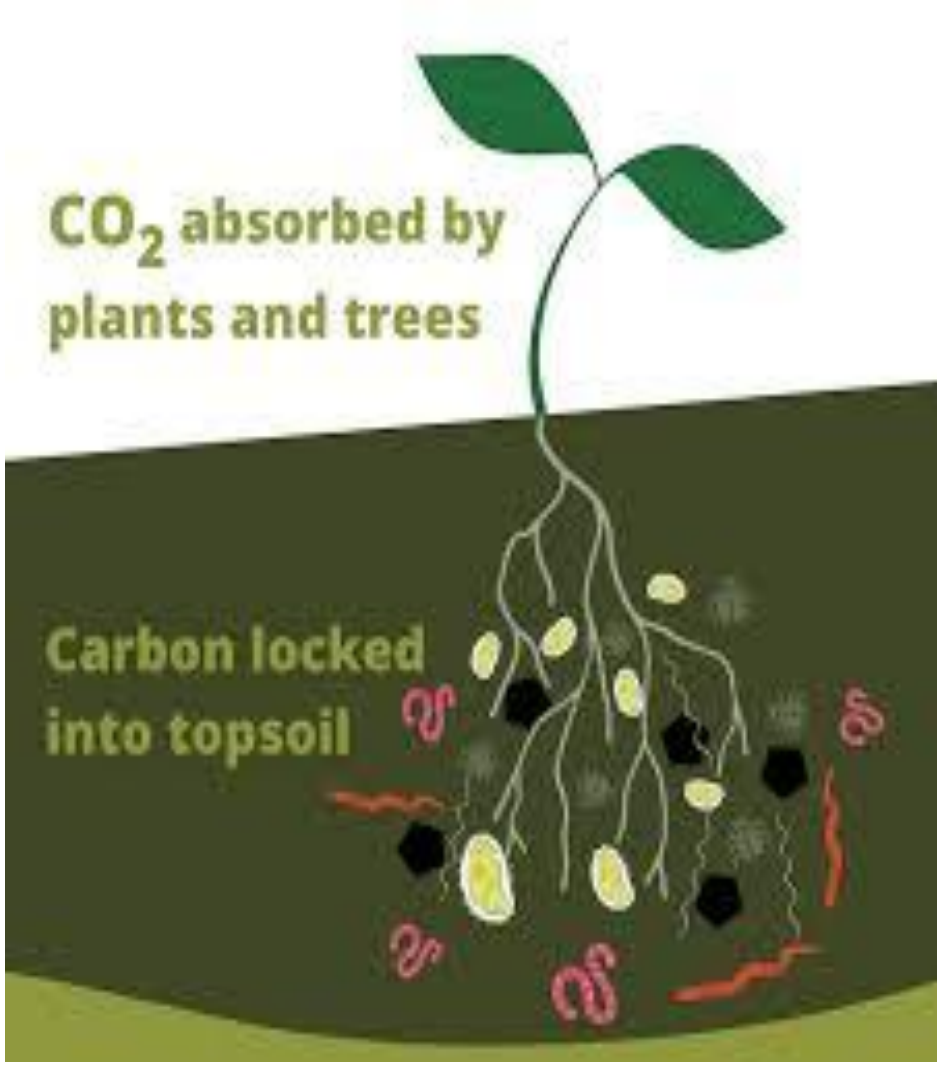
- Time allocation: 10 minutes

The Benefits


FACTS ABOUT
WILDFLOWERS

A natural solution to the climate crisis – carbon sequestration

- Species-rich grasslands are huge carbon stores and when managed carefully they lock in carbon and boost biodiversity.
- UK grasslands store two billion tonnes of carbon in their soils, but this is vulnerable to disturbance.
- Between 1990-2006, conversion from grassland to arable production (such as ploughing to grow crops) released 14 million tonnes of CO_2.
- Grasslands have a huge potential for locking up carbon not only due to the plants we can see, but also the relationships beneath the surface.
- Plant roots, fungi, bacteria and many other species help to enrich the soil with carbon.
- Approximately 90% of all carbon storage in grasses is below ground



Biodiversity Opportunities

Species-rich grasslands:

- These grasslands provide habitats for a vast array of species, including wildflowers, insects, birds, and mammals.
- They support healthy populations of pollinators like bees and butterflies, which are crucial for plant reproduction and ecosystem health.
- On a single day in summer, one acre of wildflower meadow can contain 3 million flowers, producing 1 kg of nectar sugar. That's enough to support nearly 96,000 honey bees per day,
- As some bee species are in decline in the UK wildflower meadows are even more important to protect their numbers and its worth remembering, over a third of the world's food relies on insects to pollinate them.

Amenity grasslands:

- Their monoculture nature, often with a few dominant grass species, limits the variety of organisms they can support. They offer fewer opportunities for wildlife to thrive.

Wider Ecosystem Services

- Grasslands hold significant value for their diverse ecosystem services
- They are vital for global food security, economic development, and climate change mitigation, making them a crucial component of the planet's natural system
- Flower-rich grasslands and meadows can store 500% more carbon than fields of pure grass.
- Grassland in the UK holds significant economic value, impacting both agricultural production and the broader economy. In 2023, agriculture contributed £13.7 billion to the UK economy

Opportunities for Local Authorities

Local Authorities – what are they doing to promote species rich grasslands and wildflower meadows

Local authorities in the UK are increasingly involved in projects focused on restoring and creating grasslands to benefit wildlife, biodiversity, and the environment.

Key aspects of local authority grassland restoration and creation efforts include:

Local Nature Recovery Strategies (LNRS):

- LNRS, introduced by the Environment Act 2021, help local authorities map out specific actions for nature recovery, including grassland restoration and creation.

Partnerships

- Working closely with local stakeholders, including farmers, to implement restoration and creation plans.
- Partnership working between neighbouring authorities and wildlife charities e.g. The Carbon Landscape.

The Carbon Landscape

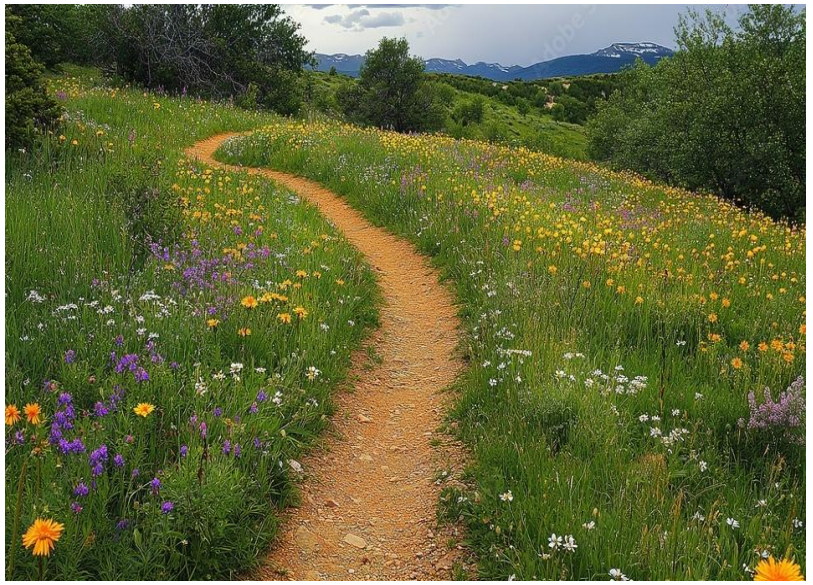
- The Wildlife Trust for Lancashire, Manchester and North Merseyside and Wigan Council have created more than 60 hectares of species-rich grassland in the borough.

- In place of poorly managed areas of grass, the meadows are now home to up to 25 plants species per square metre, including yellow rattle, orchids and the rare lesser spearwort and green-winged orchid.

- The much wider scheme involving a large area of wetland restoration has ensured wildlife is connected through habitat restoration, access improvements and capacity building within local communities,

Identifying areas suitable for areas of species rich grasslands and wildflower planting

- Roadside verges and roundabouts
- Urban parks
- Edges of wooded areas
- Cemeteries and closed churchyards
- Grounds of large buildings
- Greenspaces on housing estates
- Underused amenity land
- Allotments
- Domestic gardens



Reassessing grasslands in local authority control

- Large spaces of highly maintained grasslands
- Contain very few species
- Costly to maintain
- Valuable as recreation and leisure spaces
- Lawns, parkland, golf courses, etc.– have become a carbon emitters.

Species rich grassland vs Amenity grasslands

- Species-rich grasslands generally store more carbon than amenity turf grasslands due to their deeper, more extensive root systems and greater plant species diversity.
- Amenity turf often consists of a smaller number of grass species, limiting the potential for carbon storage through plant diversity.
- Species-rich grasslands are often managed less intensively than amenity turf, leading to less soil disturbance and potentially higher soil organic carbon.
- .Species rich grasslands offer more habitats for both flora and fauna including a vast array of species, including wildflowers, insects, birds, and mammals. They support healthy populations of pollinators such as bees and butterflies, which are crucial for plant reproduction and the wider ecosystem health,
- The **maintenance costs** of maintaining amenity grasslands can be extremely costly and heavily reliant on fertilisers and herbicides.

Creating grassland/wildflower strategies

- **Develop a strategy from a practical operational perspective**

Key points include:

➢ main aims, plan, timelines and a policy document which outlines the different types of grasslands/wildflowers and how they should be managed.

- **Making it happen**

includes clear timelines and agreed areas proposed, staff training programmes, consultation with local wildlife trusts, wider consultation and communication programmes with residents and businesses

- **The benefits to be achieved**

such as how the council will increase biodiversity and support nature recovery networks and identify how the changes will contribute to Net Zero, via carbon sequestration

- Finally, and perhaps most importantly, **how grasslands/wildflowers will be managed now and into the future**

So, you've decided to go ahead – what next?

- ❑ Decide where you are going to develop the wildflower areas
- ❑ Consider soil suitability
- ❑ Look at what wildflowers grow locally
- ❑ Look at areas where there will be little disturbance
- ❑ Having maps are useful for staff, elected members and local communities

Things to consider before introducing wildflower areas

- ❑ Unsightly before and after flowering?
- ❑ Fire risk?
- ❑ Dog toilet?
- ❑ Attracts littering and fly-tipping?
- ❑ Encourage vermin?
- ❑ Affect house values?
- ❑ Unwanted

What happens if we don’t communicate?

Gaining support

- For changes to be accepted there is a need to gain community and staff support as well as local elected member support
- Communicate any proposals before any work is started
- Monitor species present for 'good news' stories on social media and local press

Making it Happen

- Has anyone developed species-rich grasslands with wildflowers?
- What size are these areas?
- What challenges have you faced? (e.g., community support, horticultural etc)
- What parts of your projects have been successful?

- Time allocation: 10 minutes

The responsibilities on local authorities

- UK grasslands are under threat from human activity, overgrazing, house and infrastructure building and now the effects of climate change are also adding to the precarious state of many of our grasslands.
- Local authorities hold and manage significant areas of grassland and are beginning to recognise the need to manage their own areas in an environmentally sustainable and biodiversity friendly manner.
- As well as getting their own house in order, Local authorities can also influence private landowners in their areas to follow suit and additionally we must not forget the millions of private gardens which can also be included in their sphere of influence.

Concluding comments

- It appears the days of closely cropped and frequently cut grassed areas may be numbered, excluding those areas used for specific leisure or sporting activities and even the management of these are being looked at in order to introduce more environmentally friendly management practices.
- We have failed to understand the many benefits grasslands can bestow and have simply manipulated them for our own means.
- Now with greater understanding we may be able to more sustainably manage them, or even allow them to naturalise, to offer greater biodiversity opportunities for which they were initially intended.
- We need to overcome this belief that nature is there merely to provide a service to humankind.

‘Grasslands stretch across the planet, their apparent simplicity masking their ecological, climatic and social importance and complexity. These undervalued and overlooked landscapes are fundamental to planetary and human health. Protecting them is not merely an urgent mandate; it is central to numerous global challenges’

Additional Reading

https://apse.org.uk/index.cfm/apse/members-area/briefings/2025/25-02-grassland-management/

http://www.barnsleybiodiversity.org.uk/Amenity%20grassland%20BAP%20section.pdf

https://www.plantlife.org.uk/advice-learning/managing-grassland/