How we manage our grasslands for nature

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BRISTOL CITY COUNCIL

Contents

What are grasslands?

Grasslands are habitats dominated by grasses and other flowering plants, with limited cover of trees and shrubs. The type of grassland and the wildlife it supports will depend on many factors from geographical location and climate, soil type, and how the habitat is managed. Across the UK, 97% of species-rich grassland was lost between 1930-1984 with further losses since then. Bristol is fortunate enough to have green spaces which still include over 200 hectares (that's almost 500 acres) of these species-rich grasslands.

Grasslands can form a rich ecosystem which supports a variety of wildlife from wildflowers and fungi to bees, flies, beetles, spiders, moths, butterflies, reptiles, amphibians, small mammals, bats and birds.

Most wildlife needs several different types of habitats to complete their life cycle. Grasslands are more valuable when they are part of a 'mosaic' or patchwork of habitats, including a mix of grasslands, wetlands, scrub, scattered trees, and woodlands. Managing grasslands as part of these mosaics is therefore vital to support nature across Bristol. Keeping and enhancing grasslands also helps fight climate change because the plants, fungi, and bacteria in grasslands help store carbon in the soil.

Small tortoiseshell butterfly

Grassland management

The UK has lost many of the wild grazing and browsing animals which were vital in shaping our landscapes. Without some form of management, grasslands will eventually be swallowed up by scrub and tree cover, resulting in fewer wildflowers.

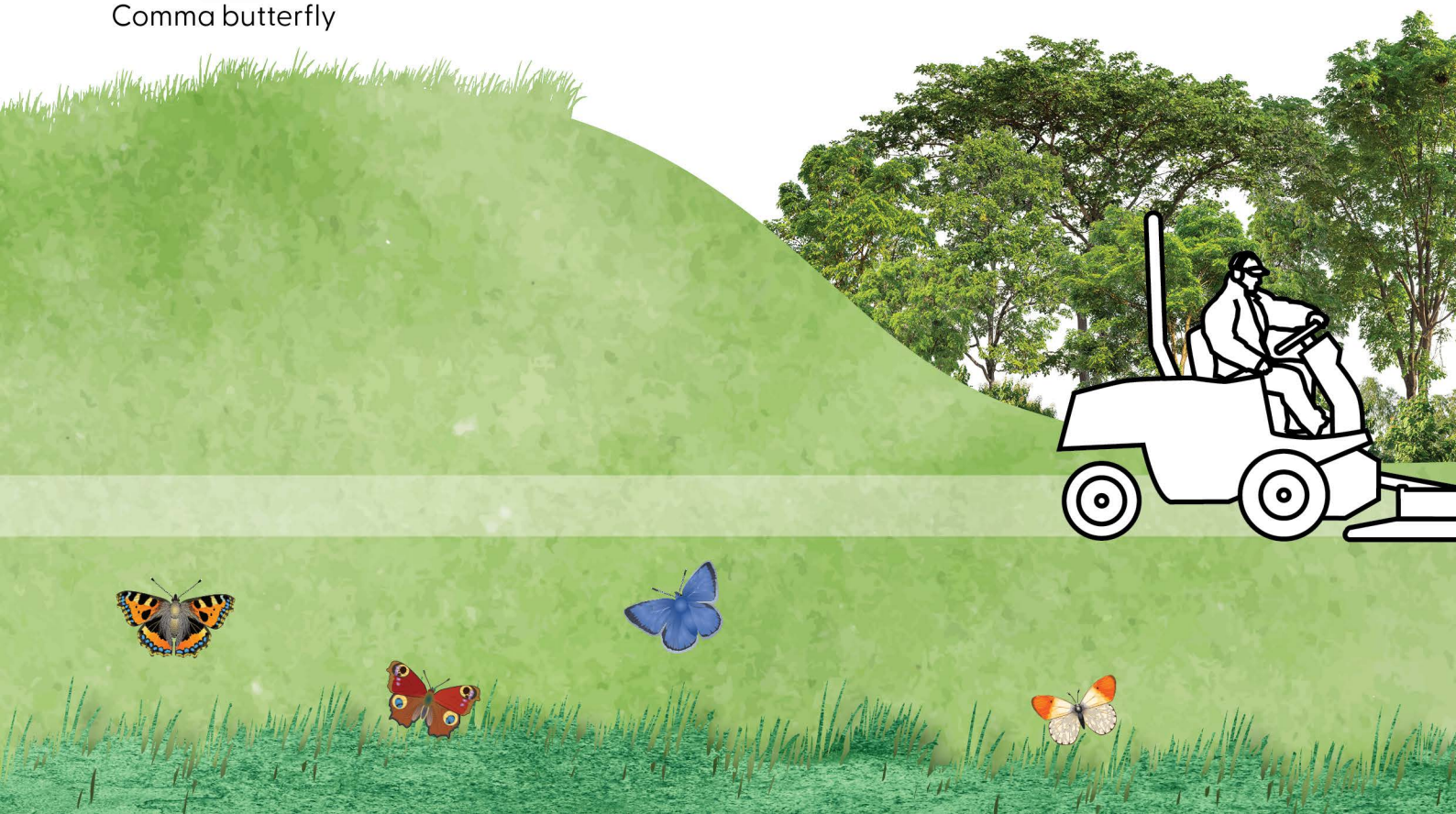
In Bristol, grasslands form the dominant habitat across many of our parks and green spaces. Some of these grasslands are ancient and have been managed for nature over many years, whilst others have been created and managed specifically for recreation. In response to the ecological emergency, we are introducing new grass cutting regimes to support nature's recovery across the city.

Our main aims of managing grassland for nature are to:

- Increase the diversity of wildflowers
- Make nectar and pollen available for pollinators over a longer time
- Provide an enhanced habitat for insects, amphibians, reptiles and small mammals, which in turn provide food for other wildlife
- To provide increased access to nature.

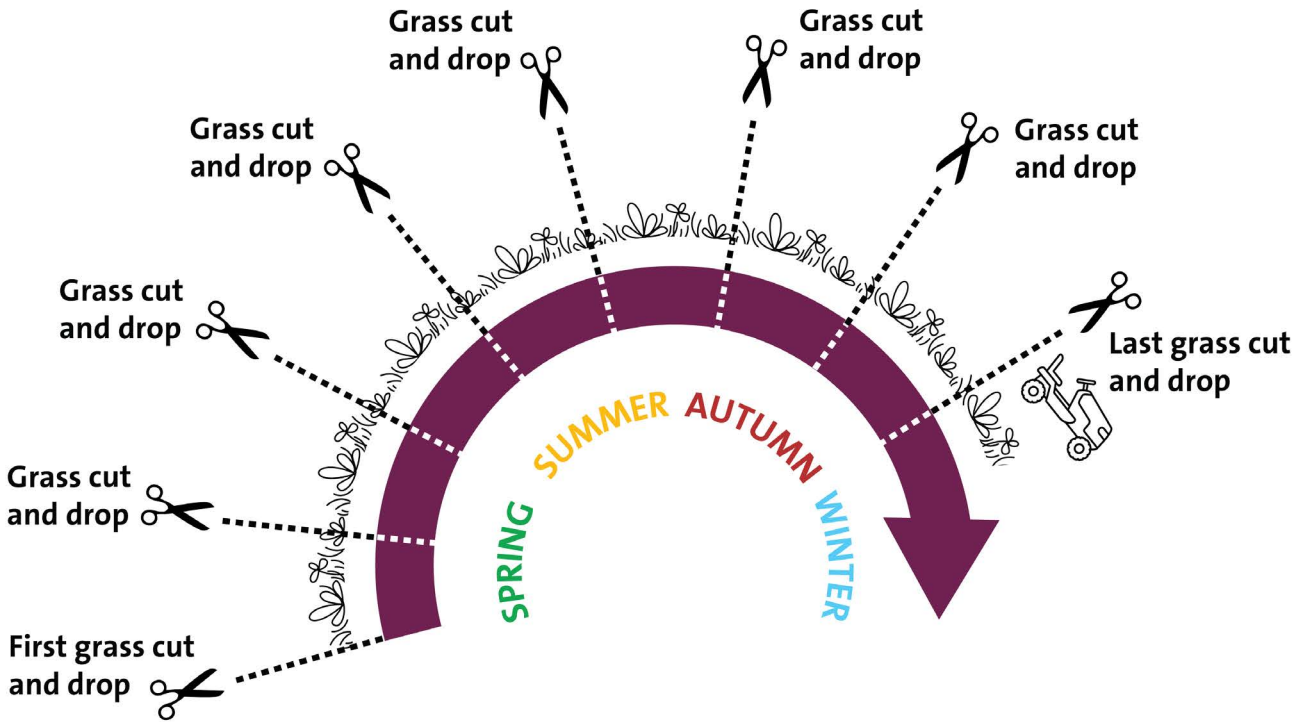
As we introduce more nature-friendly grass management, some parks will have more than one cutting regime. This helps create a mix of habitats while still keeping areas for recreation, creating attractive landscapes and allowing communities to benefit from access to nature. Making changes to how we manage our grasslands, so they become progressively better for nature, takes time. The following pages will provide further information on the different cutting regimes and how these support nature.

Comma butterfly



Amenity grassland

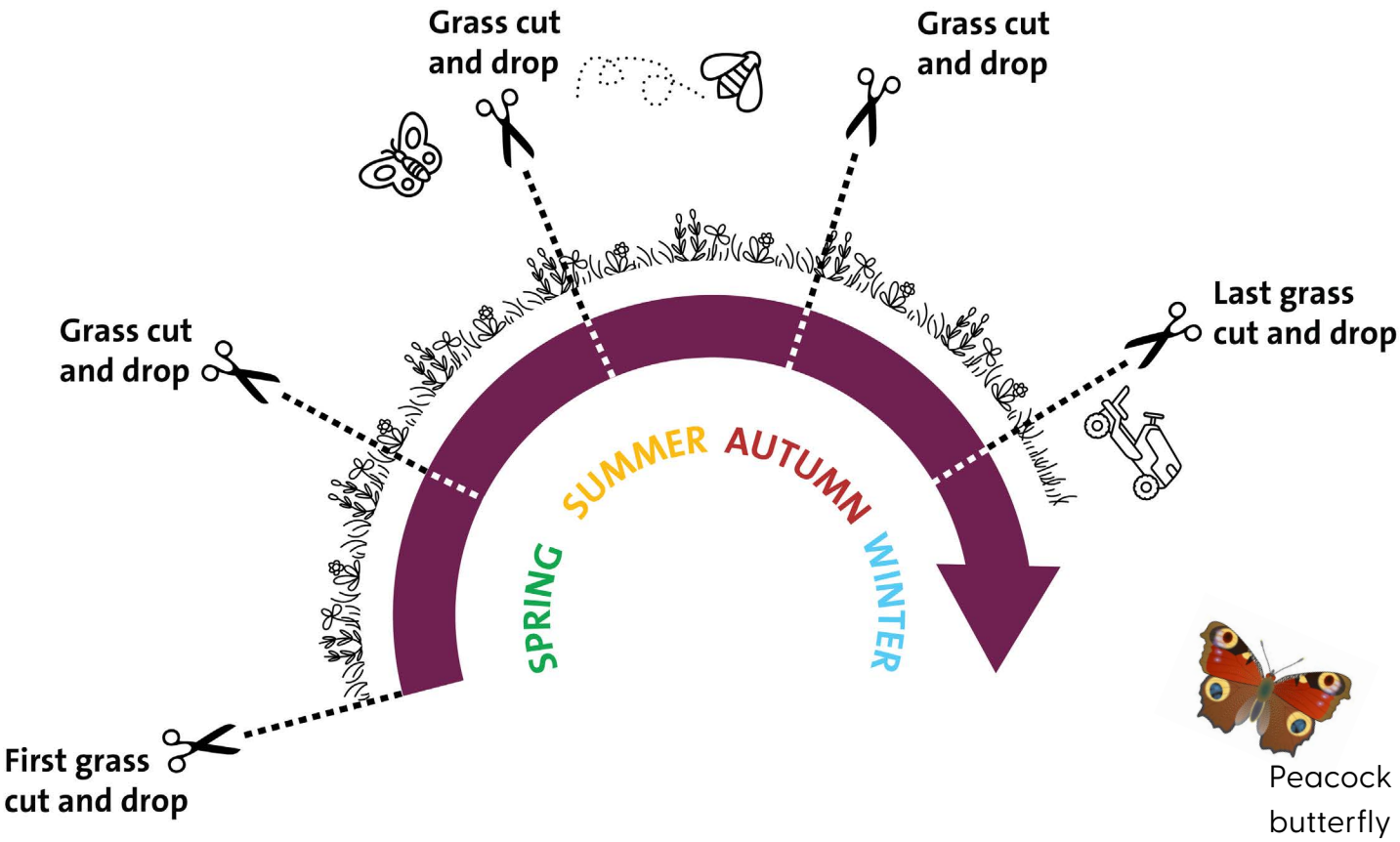
Amenity grassland is grassland that is kept short via regular cutting (usually eight or more cuts per year) to provide areas for recreation and sport. The grass cuttings are usually dropped (left in place) after mowing, which puts nutrients back into the soil. These grassland areas will be dominated by a few coarse grass species with a low diversity of wildflowers, therefore providing very limited opportunities for insects and pollinators. This is because most of our native wildflowers thrive in low-nutrient soils and the regular cutting prevents many plants from flowering and producing seed. Due to the consistently short grass, these areas also do not provide sufficient cover to be used by reptiles, amphibians, and small mammals.



Area of amenity grassland with low diversity of wildflowers.

Floral lawn

For areas used for recreation or where grass needs to be kept short for access or safety reasons (such as sightlines), the floral lawn regime can be introduced. Under this regime, cutting can be reduced to five cuts per year, leaving cut grass in place after mowing. This regime should still maintain short grass, but allows some flowering plants (such as clovers, selfheal, and bird's-foot-trefoil) to flower and provide nectar and pollen for longer between cuts. This can increase the value of these grassland areas for nature, particularly for pollinators.



Peacock butterfly

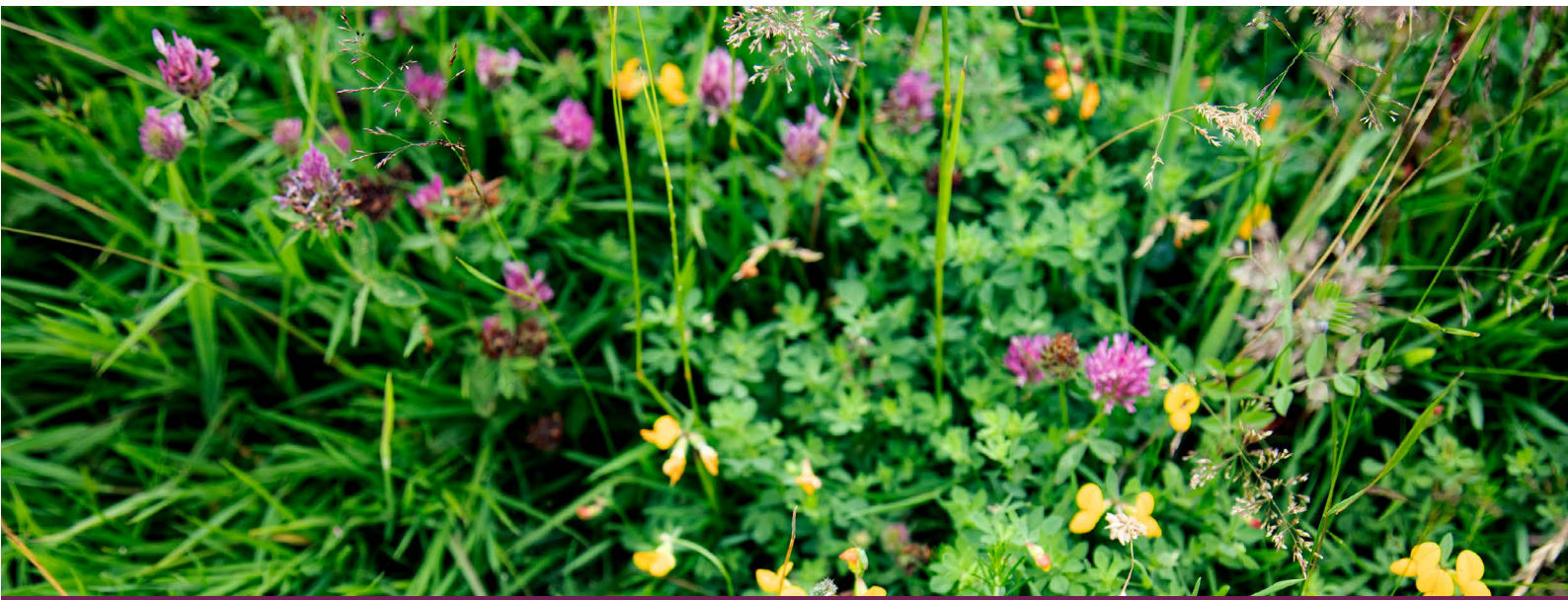
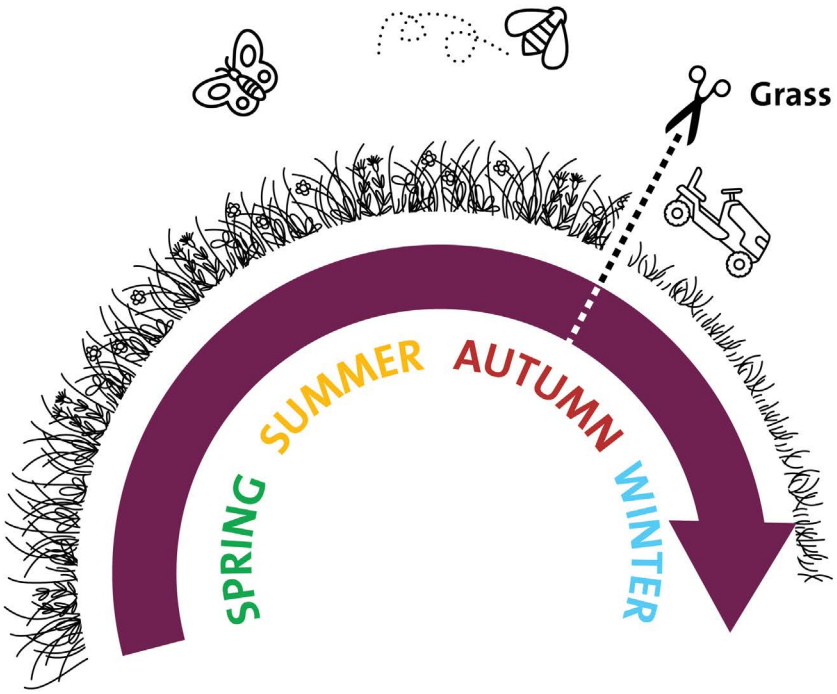


Photo showing red clover and bird's foot trefoil which can cope well in a floral lawn regime

Longer summer grass

The frequency of grassland cutting can be reduced further to just once a year during late summer. This allows some plants to flower for longer and set seed, and the longer grass provides cover for insects and other wildlife over the spring and summer. However, as the grass cuttings are 'dropped' (left in place), this will not encourage a higher diversity of wildflowers.

This regime can also be applied to grassland under trees as it helps to reduce compaction of soil and tree roots, which can occur from regular mowing.



Common blue butterfly

Photo showing an area of longer summer grass

Wildflower meadow creation

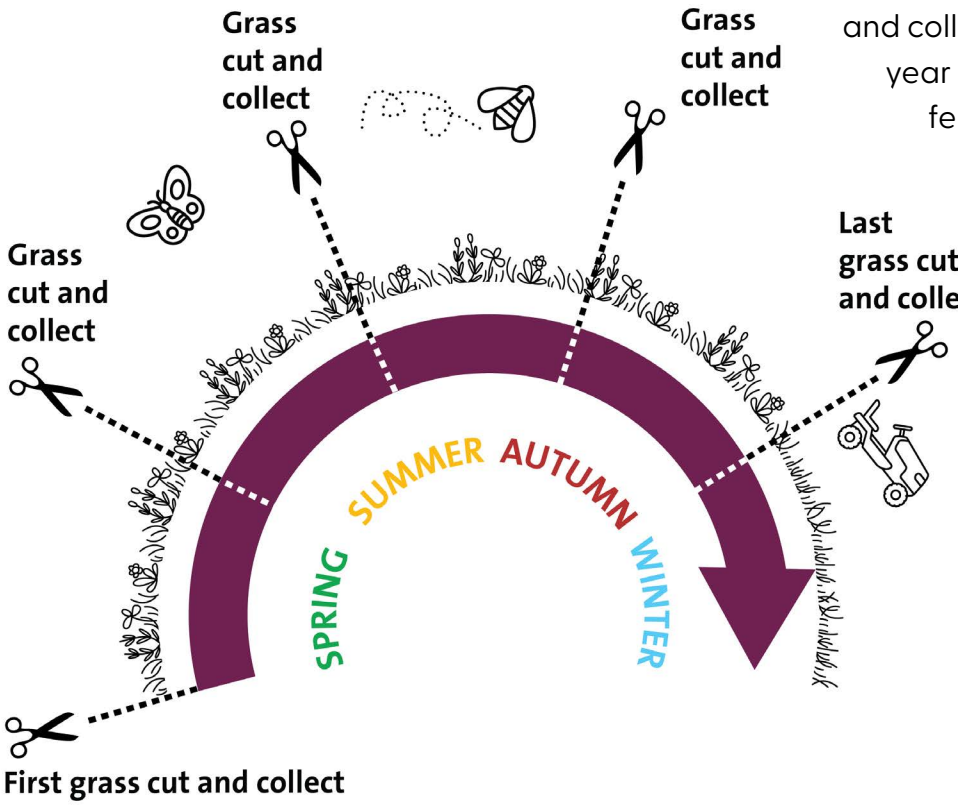
Grasslands that have many native wildflowers and few coarse grasses are often referred to as wildflower meadows. Such meadows can take several years or decades to establish, depending on local conditions and management history.

A key aim when enhancing or creating a new meadow is to reduce the nutrient levels of the soil. This can be achieved by a method known as 'cut and collect', where the cut grass is removed and taken away.

Most nutrients are removed if the 'cut and collects' are carried out during the main grass growing season (spring and summer).

Many of the meadows in Bristol have clay soils beneath them which retain nutrients quite well. This means that if the cutting is regularly delayed until the autumn when nutrients from the plants go back into the soil as they die-back, the grasslands will gradually be colonised by coarse grasses and the species-richness declines.

Our approach to creating new wildflower meadows is to apply five cut and collect cycles in the first year where the soil is more fertile, such as areas previously managed as amenity grassland. This is our **wildflower meadow creation regime**.



Orange-tip butterfly

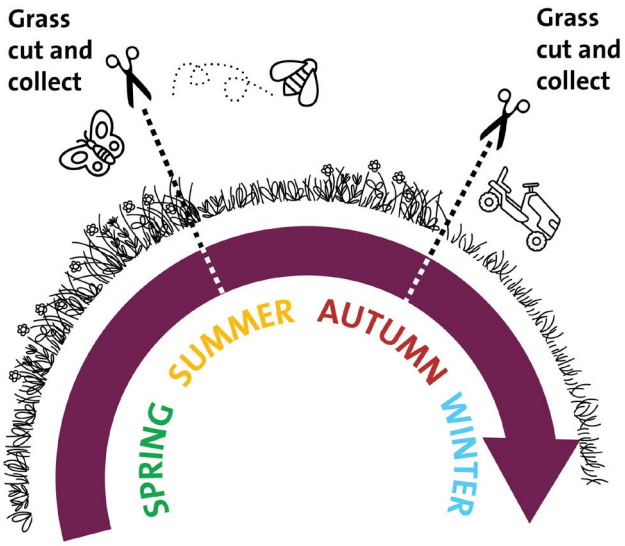
Photo showing a patch of red clover, which can cope well in the regular cut and collects carried out at meadow creation sites

Spring and Summer Wildflower Meadows

As soil fertility drops, the frequency of cut and collects can be reduced to twice a year. The timing of grass cutting can then be varied to ensure that flowering species are present and providing nectar/pollen at different times of the year, these then become our spring or summer wildflower meadow:

- **spring wildflower meadow**: two cut and collects will be undertaken each year, one in July and another in October. The two cut and collects will continue to reduce the nutrient levels, leaving a period to allow Spring-flowering wildflowers to flower and drop seed. This will also be applied where Spring-flowering bulbs have been planted.
- **summer wildflower meadow**: two cut and collects will be undertaken each year, one in March/early April and another in August/September. The two cut and collects will continue to reduce the nutrient levels, leaving a period over the Summer to allow wildflowers to flower and drop seed.

Spring wildflower meadow



Summer wildflower meadow

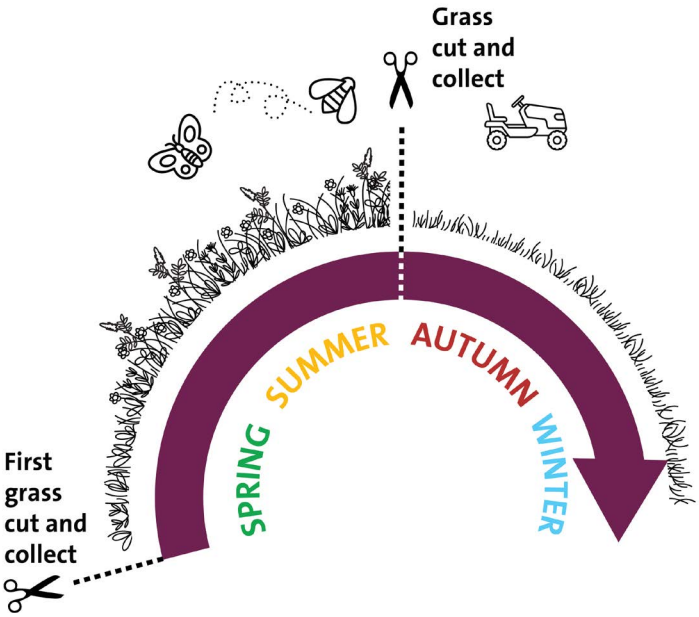


Photo showing a spring wildflower meadow

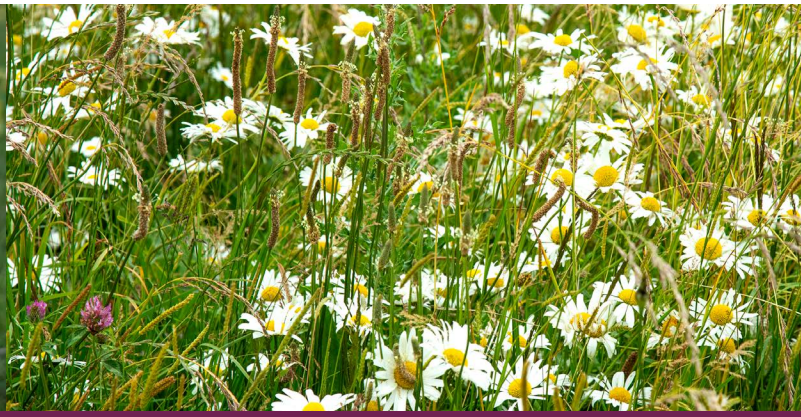
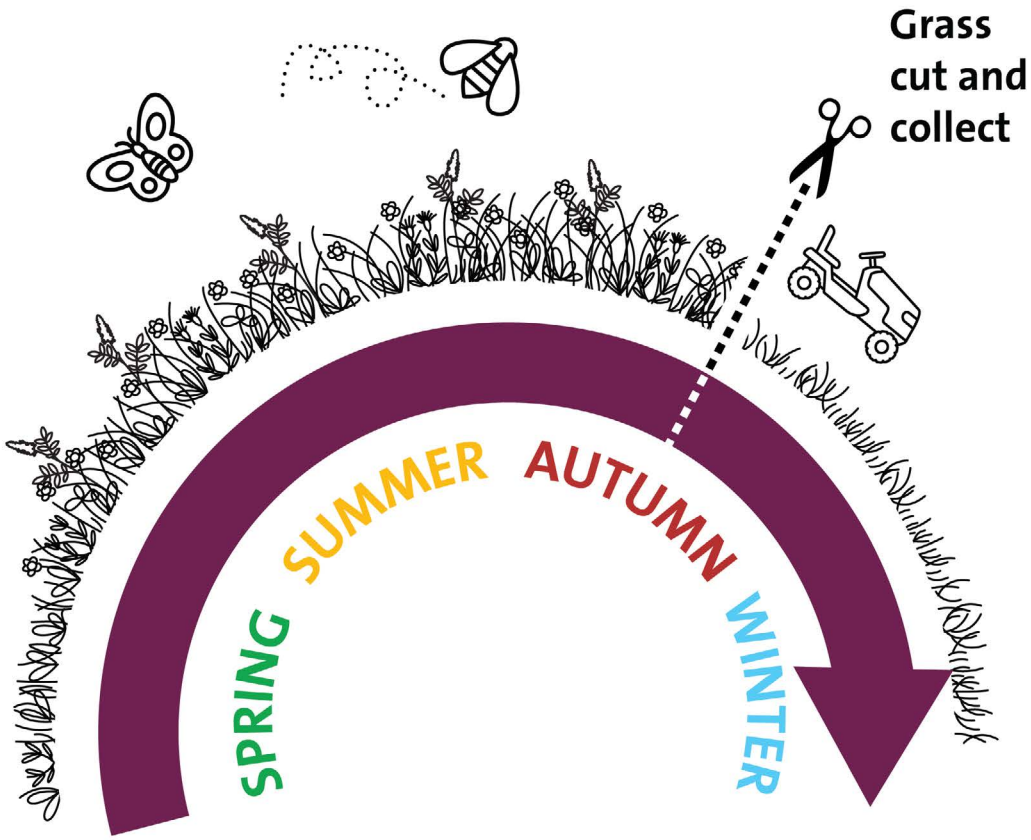


Photo showing a summer wildflower meadow

Wildflower meadow

The spring and summer wildflower meadows will be monitored and once they have become species-rich, the management will be reduced to just one cut and collect each year in August or September after the flowers have set seed. This is our **wildflower meadow regime**.

Wildflower meadow



Red admiral butterfly

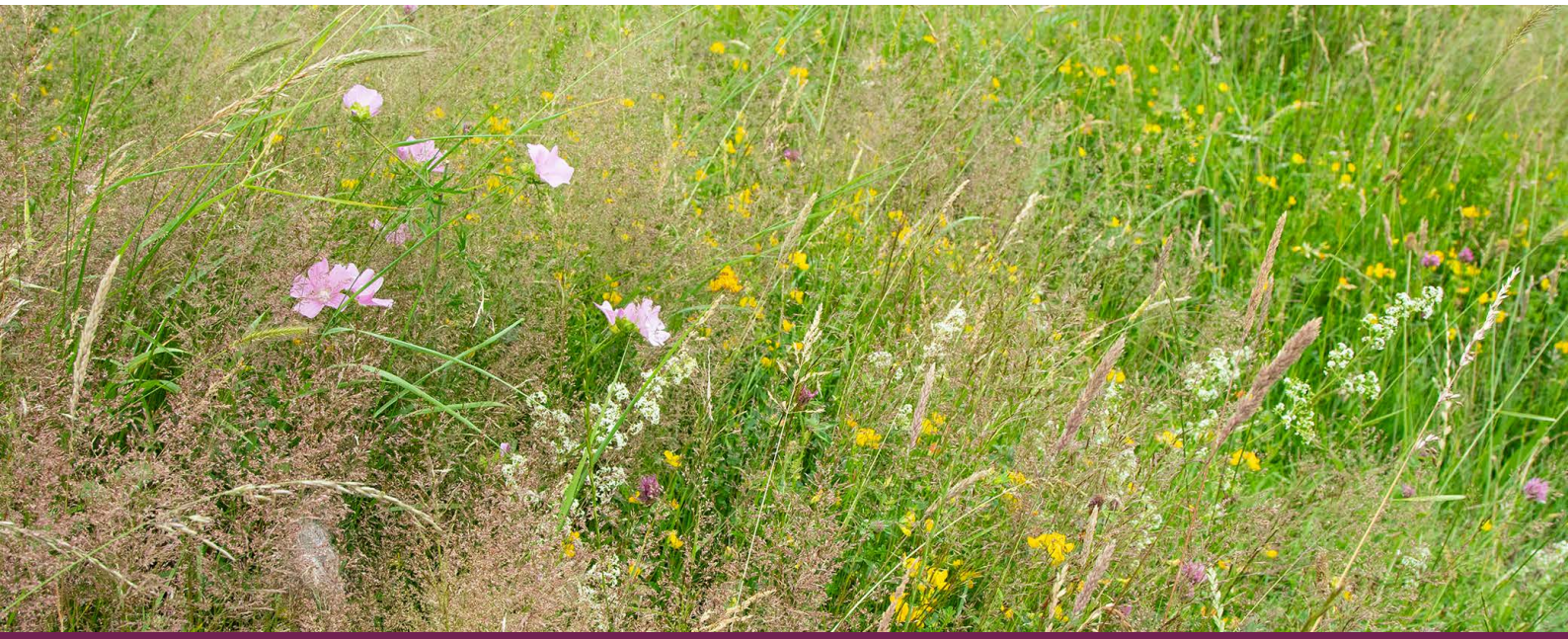


Photo showing a wildflower meadow

Hay meadow

Many of our existing wildflower meadows are managed traditionally as hay meadows. This means the areas are cut once a year between the middle of July and the end of August, and the cuttings are collected by being baled up as hay. This management is applied to our larger sites due to the size of the machinery required and includes our most species-rich grasslands. This work is carried out by a contractor, and we receive grants from Defra under Countryside Stewardship Scheme agreements for managing many of these grasslands in this way.

Haymaking is weather dependent and requires 3 consecutive dry days before the hay can be bailed and removed. If we wait until the end of August to cut all the sites, there is a risk that the weather becomes too unsettled, and we would not be able to complete the hay cuts.

Where possible we try to vary the order in which hay meadow sites are cut each year, so that the same ones don't always get cut during the earlier part of this cutting window, however this isn't possible for all sites. Some earlier-cut sites will also allow later flowering species to flourish. For example, Autumn lady's tresses is a tiny orchid species found on the Downs; if this site is cut later in August or September then there is a risk of cutting it just as it starts flowering.

Within many of our hay meadows we are now aiming to leave 10% uncut each year to ensure that there is over-wintering habitat for insects such as butterflies. This uncut area will be different for each meadow each year, to try to prevent these areas from becoming dominated by coarse grasses and scrub.

Photo showing a hay meadow at Stoke Park

Tussocky grassland

Although annual cuts are important to maintain grasslands that are rich in wildflowers, other areas can be left uncut over a longer period of time to maintain a range of habitat conditions for wildlife.

Leaving grassland uncut for more than a year creates a grassland structure that provides cover and shelter for many animals. This also creates a much-needed habitat that allows some insects (including butterfly species) to complete their lifecycle by overwintering on grasses. These areas will have the most value for wildlife when connected to other habitats such as around the base of trees, or at the edge of scrub, hedgerows or woodland. It is this variety that is so valuable, and therefore management is still required to prevent the grassland being swallowed up by these adjacent habitats.

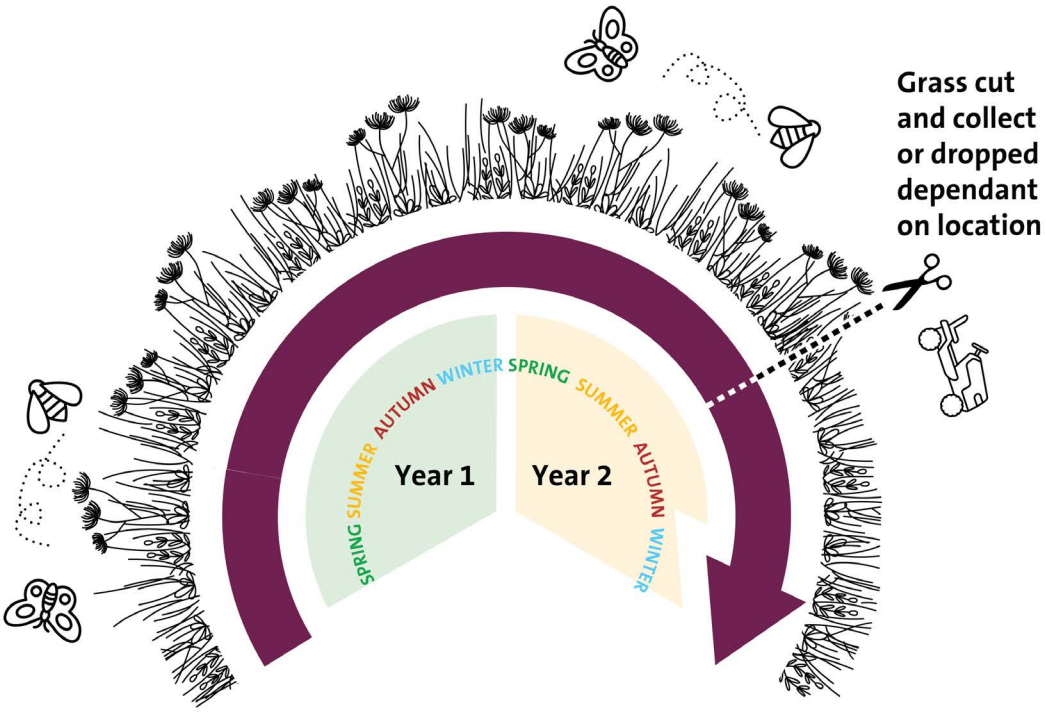
A range of management regimes will be used to maintain structural diversity in the habitat, and these are also dependent on the size and access requirements of the site:

- **Tussocky Grass (1 in 2 year cut)**; this method is used for areas next to existing shrubs and trees where there is a greater likelihood of these spreading into the grassland more quickly. The grass is cut every two years to prevent this. Where there is more than one section, each area will be cut on rotation so that there is at least one which is left uncut over winter.
- **Tussocky Grass (1 in 3 year cut)**; this method is used for areas next to a hedgerow or woodland, or under large trees. The grass is cut every three years. Where there is more than one section, each area will be cut on rotation so that there is at least one which is left uncut over winter.

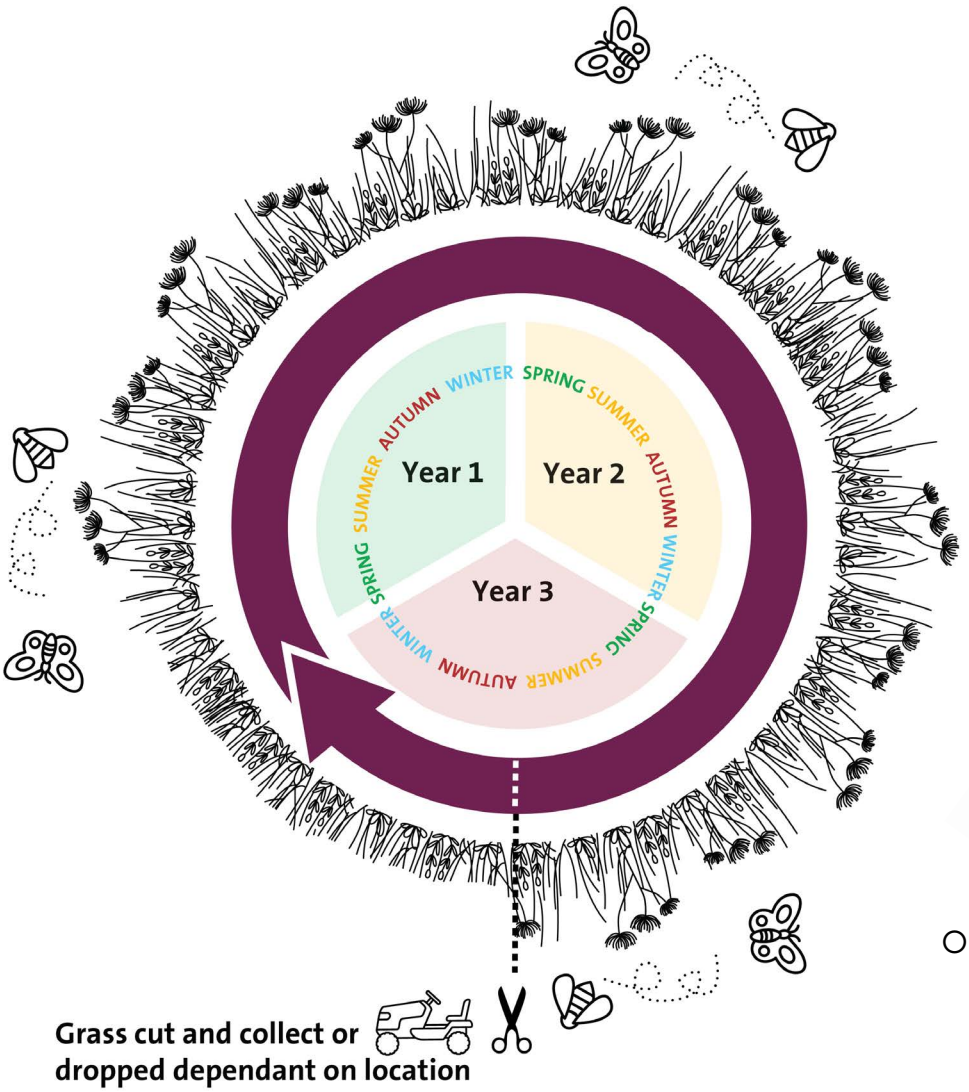
The cut grass will either be collected and removed, or dropped (left in place), depending on access for machinery, and whether the amount of cut grass means that removal is prohibitive.

Photos showing examples of tussocky grassland

Tussocky grassland (1 in 2 year cut)



Tussocky grassland (1 in 3 year cut)



Orange-tip butterfly

Other ways to enhance grassland for nature

There are additional steps that we may carry out on top of introducing a cut and collect regime to speed up natural processes and increase the number of wildflowers in a grassland. This will depend on the existing conditions of a grassland, such as soil condition, existing diversity of wildflowers, and history of previous management.
These interventions include:

- **Soil stripping**; this is an intensive process which involves removing the turf and top layer of soil (topsoil) which contains the highest amount of soil nutrients.
- **Soil inversion**; the topsoil is buried underneath the next layer of soil (sub-soil) which has lower nutrient levels.
- **Sowing yellow rattle seeds**; this plant will reduce the growth of coarse grasses and create more space for wildflowers. Yellow rattle seed are spread over areas that have been scraped (or scarified) to create patches of bare soil that allows the seed to grow. Yellow rattle is an annual (it needs to be able to set seed every year) and so areas where it has been sown should not be cut until late Summer. For this reason, we will not sow yellow rattle in areas which are still undergoing multiple cut and collects each year.
- **Wildflower planting**; additional wildflowers can be introduced to a grassland by planting 'plug' plants or sowing with wildflower seeds. The types of wildflowers selected should be appropriate to the type of grassland and be of local provenance. Creating bare ground by scarifying or removing existing turf should be undertaken before sowing or planting.
- **Green hay**; this technique involves taking a hay-cut from a species-rich 'donor' grassland site which is then spread onto a local recipient site, allowing the seeds of wildflowers to transfer. The recipient site should be recently cut and scarified to create bare ground before the green hay is spread. The amount of green hay harvested from a particular donor site should be restricted to avoid negatively impacting the grassland.

Peacock butterfly

Grazing

Conservation grazing, where it is possible, is one of the most sustainable and ecologically beneficial ways of managing grassland habitats. This can create the desired mosaic habitat with patches of grassland at different heights and different species composition. Minor disturbance and creation of bare ground can also enhance the habitat and encourage certain wildflower species to grow there.

With many of our parks and green spaces being located in urban areas and the need to balance recreational needs, there are currently few opportunities to graze our grasslands.

However, we do have grazing animals at some sites already; including Stoke Park (goats and cattle), the Avon Gorge (goats), Hengrove Mounds (goats) and Ashton Court (deer). We will continue to review further opportunities to introduce conservation grazing across more of our grasslands.

Comma butterfly

Conservation grazers – goats and cattle at Stoke Park