

Meadow grassland in the Kent Downs landscape

As a result of the ease in which meadow grassland can be converted for agricultural use, meadow grassland has become a rare and declining landscape feature with 97% being lost in the UK since the 1930s.

Meadow grassland accounts for 20% of all semi-natural habitats in Kent but the quality and extent of these vary considerably especially where meadows have become isolated. Most meadow grassland has been 'improved' leading to true semi-natural 'unimproved meadows' becoming rare.

For many, the traditional management of hay cutting in late summer for winter feed is an iconic picture of meadows. 'Improved' meadow grassland is still of great value in the AONB and as land usage changes grasslands used for horse pastures are key features on the Downs.

Grassland is an important habitat for many species of plants and animals ranging from the green-winged orchid and fox sedge to the marsh fritillary butterfly. They hold great value for the landscape, wildlife and local communities of the Downs. These guidance sheets provide management advice for the maintenance and enhancement of your grassland whether predominantly for grazing or wildlife benefit.

Meadow grassland is the dominant landscape feature in the Low Weald LCA, both 'improved' and 'unimproved'. Because of the rare nature of 'unimproved' meadow grasslands, their presence in the Low Weald is very important in the context of the Kent Downs landscape.



How do I know if I have meadow grassland?

Meadow grassland can cover a wide variety of different semi-natural grassland types that form on thicker, more productive soils than chalk grassland. These are often found in valley bottoms and within enclosed field systems but can include overgrazed horse pasture, lush fields and even lawns! Traditionally, a meadow was grassland cut for hay in early summer and then grazed for the rest of the year though this is less common today. The relatively thick, productive soils of meadow grassland when compared to chalk or acid grassland account for the taller vegetation types associated with meadows.

Meadow grassland management

What type of meadow do I have?

Traditional unimproved meadow grassland

'Unimproved' meadow grassland is grassland in its natural and original state that has not had significant amounts of fertiliser added (particularly inorganic fertiliser). Plant species have adapted to low fertility levels. It is characterised by a colourful mix of finer grasses, wildflowers and herbs and has become a fragmented habitat. Any area of 'unimproved' meadow grassland is considered rare and it is important to manage it sensitively.

Improved meadow grassland

'Improved' meadow grassland is where the land has been sown for agricultural or recreational purposes and fertilisers applied. It normally has a poor variety of species, often dominated by ryegrass, and possesses dominant grass species. It is much more common than 'unimproved' grassland. One of our commonest types of grassland. If left uncut or ungrazed, appears as thick lush growth of a deep green colour during the summer. During the winter, will remain a deep green but looks uniform, sometimes with thick tussocky growth even if grazed or cut. Grassland can be 'improved' by reseedling, applying fertiliser and spraying for weed species where the aim is to produce high calorie grassland for maximising meat or milk production

'Semi improved'

Semi-improved grassland is in-between improved and unimproved! It may have been ploughed in the past and had some artificial fertiliser added. They have reduced species diversity but retain a number of native grasses and wildflowers and can therefore still be of high conservation value.



Well managed unimproved meadow grassland



Improved meadow grassland

Scrubbed grassland

Scrub can give an unkempt look and is normally a sign of under grazing. It can however be extremely valuable for wildlife. Clumps of scrubby growth are most obvious during the summer, thickening over the years to form young woodland. It is often associated with tall grass growth, but may sometimes be found on heavily grazed grassland where the shrubs have become too big for animals to graze.

Marshy grassland

Often found close to a river, but can be found anywhere where springs come to the surface or there is poor drainage. Grassland may not appear marshy during the summer, but with high rainfall in the winter, conditions may become wet underfoot, and standing water may sometimes be seen. Can be extremely valuable for wildlife, and may also signify the site of an historic water meadow.

Horse paddock

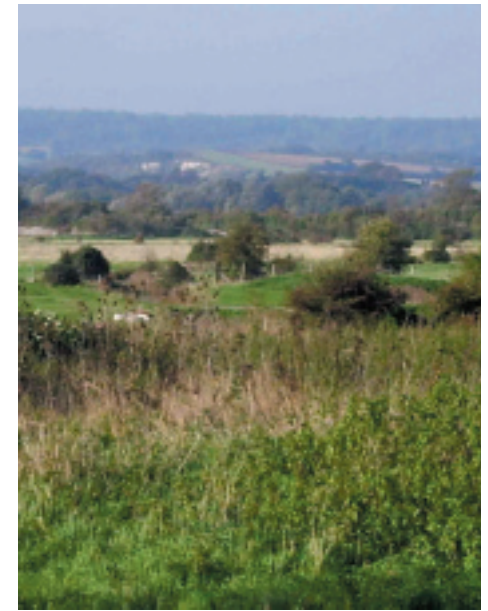
Horse paddocks are typically grazed with close cropped grassland, and often bare earth. Scrub and trees often remain, but with no low growth. Problem species such as nettles, docks and ragwort can sometimes survive, and sometimes give the appearance of a very degraded landscape if the land is not sympathetically managed. Horse grazing, with suitable stocking rates can be a valuable grassland management tool. For more information on Horse Guidance [click here](#).

Lawns

Lawns vary considerably in nature. Many recently laid lawns are of one of two species of grass, and are of little interest for biodiversity or landscape. However, older lawns can often hide a considerable population of wildflowers despite regular cutting. Those that have been converted from old meadows can often have a show of sometimes uncommon meadow plants if left uncut for a few weeks.



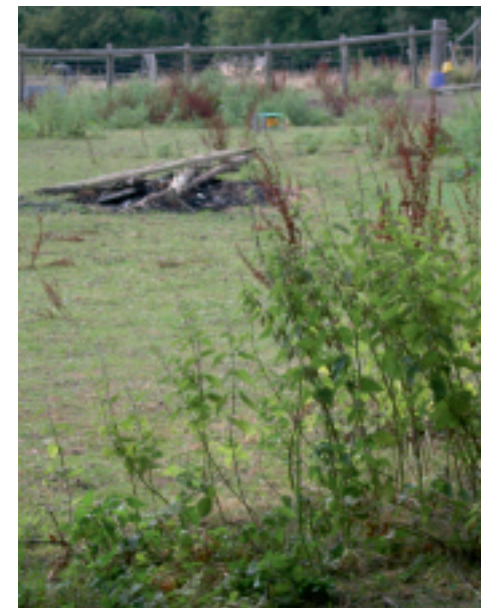
Wet grassland



Scrubbed grassland



Horse paddock – good practice



Horse paddock – bad practice

Caring for and maintaining meadow grassland

What is the best type of management for my meadow?

The management of grassland is essential, otherwise over time coarser vegetation will grow and the more fragile species will disappear. In a process called succession, this will lead to scrub dominating and a loss of the traditional grassland. The following pages will help you manage and enhance your meadow grassland.

Factors to consider

Current state of site

- Are grasses and flowers struggling to grow, or is growth strong and scrub beginning to take over?
- What are the dominant types of plant including height, thickness and extent of cover? Are weeds such as dock, thistle and bramble a problem? Strong weed growth is often a sign that management is not right on a site.
- Are there any rare wildlife species on the site? Kent and Medway Biological Record Centre can provide help (see Contacts). Management should aim to maintain any rare species.

Past management

- How has the site been managed in the past? Has this been done by grazing or cutting? It is often best to continue previous management. Plants and wildlife are likely to have adapted to this. For example, long term grazing may be suggested by the presence of large anthills.
- Is the area 'unimproved' or 'improved' meadow?
- Farm records, historical information and aerial photographs could be used to establish previous management.

Current management

- Is the site currently being managed and what form does this take? Knowing what the current management is and the current state allows you to make an informed decision on whether to change it.



- If grazed, what type and how many grazing animals are used, and for how long?
- If cut, when is the grass cut, what machinery is used and is it cut for hay or silage?

Boundaries to the grassland site

- Are there crops or livestock in neighbouring fields? Could fertiliser drift from these fields be a concern for the site? Problem species can establish if fertiliser gathers in one area.
- Note the location and condition of boundaries such as fences or hedgerows, as secure boundaries are needed for livestock.
- How easy is it to access the site for livestock and machinery?

Reasons for management

- What are your aims? Financial, for nature or landscape conservation, grazing land or a combination? This will vary how you manage your land.
- Ask yourself what you actually want from the land.

Local conditions

- Consider all local conditions.
- Note location of areas of wet ground, ponds, anthills etc.
- Is there a water supply to the site? Animals, particularly cattle, need a constant supply of drinking water.

Costs

- Consider any financial constraints that you may have.
- Do you have access to livestock/machinery?

Monitoring

- How has the changes in management affected your meadow?
- Record any changes in the plants growing over time following changes in management.

Local conditions to consider

- Climate (rainfall and temperature). These factors will influence stock to use. Is the area too wet for heavy livestock as muddy ground will result?
- Slope and aspect. Is the site on a slope? Is it possible for livestock to graze this area? If vegetation growth is greater on a south-facing slope, more livestock may be needed.
- Land use of adjacent land. Is it likely that fertilisers could drift over from neighbouring fields?
- Drainage. Is drainage on the site good or poor? Does the site become waterlogged?
- Size of site. This will influence the cost of grazing and quantity of livestock required.

An important note about SSSIs

Natural England will have notified you if part or all of your land is within a Site of Special Scientific Interest (SSSI). Owners of SSSIs must give Natural England (contact in appendix) written notice if any operations listed in the original notification are likely to damage the features of special interest.

Meadow grassland management by grazing

Grazing is often the most common and most effective choice of management. It is a gradual process, maintaining species richness and promoting the 'traditional' look of grassland in the surrounding landscape. It can be very useful in restoring neglected areas to meadow or to conserve a site that just requires minimal grazing such as one with archaeological features. Grazing should remove the year's grass growth to ensure the area is maintained as meadow.

Factors to be considered when opting for grazing

- **Aims of grazing** Are you aiming to conserve wildlife and the landscape or is it for a financial return? Grazing for conservation landscape objectives does not generate as good a financial return due to the reduced stocking densities required. However, grants such as Environmental Stewardship do compensate for this gap and can make grazing for conservation objectives viable financially.
- **Local conditions** Is grazing suitable for my site? If your site has been traditionally managed for a long period by cutting, changing to grazing could cause many species to be lost and have an adverse effect on the landscape.
- **Size of the area to be grazed** Larger sites obviously need larger numbers of livestock, whereas it may be awkward to find a small number of animals for small sites. Larger sites can perhaps be split and grazed in rotation.
- **Stock type and availability** Careful consideration should be given to the type of animal that will graze your meadow, as each has different effects on the vegetation. If you do not have your own animals, where can you get some?
- **Time of grazing** Now you know what type of plants and wildlife can be found in your meadow, when is the best time to graze it to ensure their populations are maintained?

Every area of meadow grassland will be different from the next, and therefore professional advice is often needed. However, these notes provide a useful starting point before seeking advice.

Which animals are most suitable for grazing?

Each animal will have a different effect on the grassland due to varying feeding habits. Choice will depend on what you want from your site, financial constraints and availability of livestock.

Remember mixing the type of livestock used could be most feasible for your site. This may assist financially as well as benefiting the site from a landscape and biodiversity point of view. If you are unsure which livestock type would be most suitable for grazing, you can obtain further advice from the organisations listed in the appendix.

What is a sward?

A sward is simply referred to as 'a grassed area composed of short grasses giving continuous cover, with no trees or shrubs present.'
The sward height describes how tall the grass actually is.

Sheep

- Create a very short sward.
- Eat low lying grassy plants but will avoid taller plants.
- Can be used on slopes.
- Easiest of all grazers to manage, need a fence or stock-proof hedgerow.
- Need less water than cattle.
- Not useful for restoration as prefer shorter grassy plants than taller plants.

Horses

- Harder to manage than sheep or cattle.
- Not appropriate for restoration as do not eat plants such as ragwort.
- Dung is dropped in one area leading to weeds.
- Consider grazing horses with sheep or cattle to create a varied sward.
- Create areas of tall vegetation and bare patches.
- Can eliminate some plants and leave others.
- Can cause bare patches leading to weeds such as thistle and dock.
(For more information and guidance notes please [click here](#)).

Cattle

- Create areas of tall and short vegetation.
- Eat low lying and taller plants.
- Can be used on slopes.
- Easy to manage using a fence or stock-proof hedgerow.
- Need a lot of drinking water.
- Can be used for restoration.

Goats

- Create a varied sward.
- Prefer scrub and taller vegetation than short grassy plants.
- Difficult to contain on site.
- Very useful for restoration as eat small trees and scrub plants including gorse and hawthorn.

When should I graze my meadow grassland?

The aim of grazing is to remove the grass growth of the year by light grazing. Light grazing over a longer period is favoured rather than heavy grazing over a shorter period, as it ensures that flowers can set seed and that certain species will not be eliminated by intense grazing. Light grazing for at least 10 weeks a year between April and November is recommended, aiming for a mixture of sward heights by the end of the summer. This will encourage a range of species of flora and fauna to inhabit the grassland and also enhance the landscape value of the grassland. The preferred time of year for grazing varies with each site, depending on local conditions and type of vegetation present, but professional advice is recommended.

If wildlife and landscape objectives are the only concern for your meadow grassland, graze the site briefly in April, allow vegetation to grow, flower and seed during the summer, and follow with further grazing in September and October. If the site is solely to be for livestock production, you may require the site to be grazed all year round. If this is the case a lighter stocking density should be considered to ensure the site does not become over-grazed and lose its landscape value. As a



very general rule, meadow grasslands should be grazed at a rate of 1 cattle or 4 sheep per hectare/year but this will vary considerably and further advice will be needed.

Where can I get livestock?

If you do not have your own livestock to use then there are a number of options available for example a neighbouring landowner may possess stock and be willing to graze them on your grassland. The RAMSAK Conservation Grazing Scheme is a useful alternative for those that do not have immediate access to livestock. Contact details can be found in the appendix.

Meadow grassland management by cutting

When should I cut rather than graze meadow grassland?

Cutting or mowing can be a very efficient and effective way of managing grassland and is why lawns are regularly mown although it too has its own issues.. However, it has reduced benefits for nature conservation because it is a sudden and unselective form of vegetation removal, resulting in the instant removal of wildlife habitats. However, cutting can be preferable where it has been the traditional form of management in the past and the vegetation and wildlife communities have formed around this regular management.

Cutting for hay is often the traditional method of management to produce winter feed for livestock. Cutting two or three times a year for silage, usually between May to September, has become a more popular choice of management of grassland due to a greater economic return. Cutting for hay or silage will influence the frequency of cutting of grassland with both having different effects on nature conservation and the landscape value of the grassland.

Cutting is often useful in an area that is impossible to fence for livestock. From a nature conservation point of view, cutting for hay is the preferred option. It is better for biodiversity than cutting for silage as there is only a single cut a year. This allows vegetation to flower and set seed, compared to three intensive cuts a year for silage. Hay should be cut in summer late enough in the year to allow plants to flower and set seed. Cutting after mid July is recommended, but if production of winter feed for livestock is not important then cutting in late August or early September is preferable.

Even with hay cuts an occasional spring out may reduce the dominance of certain species such as false oat grass.



What is my aim when cutting meadow grassland?

Ideally, you are primarily aiming to maintain traditional meadow grassland in the landscape of the Kent Downs AONB, maintaining as wide an array of plant and animal species as possible. This can be achieved by cutting once a year on a rotational basis and is much more favoured than cutting a whole area three times a year (as is the case with silage production). When cutting, leave an uncut area several metres wide along one edge of the meadow. This acts as a refuge for beneficial insects to repopulate the meadow as the vegetation grows again and important for mammals creating a safe corridor.

What type of machinery can be used?

The type of machinery to use will again be influenced by the size of the site, local topography, financial constraints and accessibility to machinery. Tractor mounted machinery can be used to cut the grass and collect the cuttings which is often the most suitable option for larger sites. Flails can be used although these can be very damaging to mammal and reptile populations and can make collection of cuttings difficult. A strimmer or pedestrian motor scythe is suitable for small areas or ones that are difficult to access by larger machinery. Both are readily available from tool hire shops.

One option if you do not have access to machinery, is to contact RAMSAK, an agricultural machinery ring in Kent and Sussex (see Contacts).

In all cases, cuttings should be removed from a site to prevent the area becoming rich in nutrients. If not, the cuttings decay overtime and allow dominant types of vegetation such as bramble and nettles to develop and engulf the site. This can reduce the landscape value of the site as well as reducing the number of species of flora and fauna found on the site. Removal by machinery is best for larger sites whereas smaller sites can be raked manually.



Power scythe

What should I do with the cuttings?

The disposal of cuttings needs to be considered early on before cutting is undertaken. Cuttings are ideally used as a feed for livestock or taken away and composted, the latter often being the best option on smaller sites. However, disposal on site may be needed. If this is necessary, use a compost area of low biodiversity value and where nutrient accumulation will not cause problems. Although cuttings will decay very quickly, vigorous species such as nettles, docks and thistles will readily establish and may cause problems.

Restoring meadow grassland

Is it possible to restore my site to meadow grassland?

It is possible to restore an inappropriately managed grassland site, or one that has been left unmanaged for some time. However, it does require a little effort and you should therefore seek specialist advice, particularly if you are considering restoration on a large site.

Key points that will help you decide if restoration could be suitable for your site.

- Assess the current landscape value of the site. Does it fit in with the character of the area? Restoration can initially be a destructive process and the site may have high landscape value in its current state. Therefore it may be best not to restore it to meadow grassland.
- Assess the current wildlife value of the site. Are there particular species that need conserving and competitive species that need controlling? Are there rare species present that rely on the current habitat that could be lost if restoration is carried out?
- Look into the history, plants and wildlife of the site and the reasons for it being in its current state. This will indicate the likely success of future management and which technique to use.
- Can appropriate management such as grazing or cutting be maintained once restoration is complete?
- The type of grassland the site may support. Is it chalk, acid or meadow grassland? Is it feasible and worthwhile turning it into meadow grassland or is managing the site for acid or chalk grassland more appropriate? If you attempt to restore a habitat type that is not suitable for the site it is likely to fail.
- Consider neighbouring fields, as fertiliser drifting onto meadow grassland could be an issue for the site.



Problems with poorly managed grasslands

Thatch build-up

Partially rotted vegetation creates a mat just above ground level preventing new plants from establishing and growing. Chain harrowing is the answer here. This is effectively large scale raking using a tractor. It can cause damage to small mammals and birds and therefore should not be done during the bird nesting season (March to July).

Problem species

Includes ragwort, creeping thistle and nettles. These species establish very quickly and can dominate an area. Although most weeds can be cut, ragwort needs to be pulled out or chemically treated to prevent regrowth.

Scrub encroachment

As a general rule of thumb, if scrub has become so well established that only bare ground is found beneath, it is not appropriate to restore the site simply by its removal. Problem species such as creeping thistle will become established, and meadow vegetation will not return. Restoration is still possible but you should seek professional advice. If ground under the scrub has low grassy vegetation, converting the site to grassland may be feasible by removing the scrub. This can be undertaken by cutting, or in some areas by digging up the whole plant. It should however only be undertaken in the winter. Do however bear in mind that scrub can be a beneficial habitat in its own right, and there may be situations when it is better to retain some or all of it. For further advice on scrub management see 'The Scrub Management Handbook: Guidance on the management of scrub on nature conservation sites' available on the Natural England website www.naturalengland.org.uk

Overgrazing

This results in a very short sward and bare patches of ground across the site. Weeds may start to grow as other plants find the conditions hard. Lowering the number of animals on the site is the initial remedy, but problem species may establish themselves and need to be controlled.



Creation of new grassland

It is possible to re-create grassland on a site though it can be a major undertaking. The information below is for general guidance and you are advised to seek professional advice at an early stage. In all cases, ongoing management by cutting or grazing will be needed (and should be looked into in the initial stages). It is important to look at the existing resource and to ensure the project is appropriate to the landscape. New grassland creation can be especially beneficial if it links with other grassland sites and reduces fragmentation of existing grassland.

Factors to consider

Native origin seed

Sowing a seed mix suitable for the soil type is essential to obtain the right type of grassland and to get the best establishment. Seeds used should only be from native species and seeds collected from local stock are preferred. Using local seeds will increase the likelihood of successful restoration and maintains the local genetic variation of plants. A common seed rate for wildlife conservation grass and wildflower establishment is; grass seed 20 kilos/ha, wildflower seed 1 kilo/ha, at a ratio of 80% grasses : 20% wildflowers.

Good preparation

Aim to reduce any weed burden (the 'stale seedbed' technique of repeated cultivation before sowing is good). If significant levels of annual weeds are anticipated these should be allowed to germinate and be sprayed off before seeding.

Prepare the ground as well as feasible to get a good seedbed; autumn is the best time but spring sowing is possible. A grass only mix (or the grass element of a grass and flower mix) should be shallow drilled into a fine seed-bed free of perennial weeds. A grass/wildflower mix should be surface broadcast onto a slightly compacted / weathered 'closed' seed-bed to prevent loss of small seed down through crevices. This should



ideally be done as soon after the main grass sowing as soil conditions allow and followed by light rolling if possible.

Establishment and aftercare

No fertiliser is needed. Ryegrass is sometimes included in a mix to help more rapid establishment and ground cover. In the first year cutting up to four times is essential to prevent the ryegrass species seeding as this would out compete other more sensitive species. Cutting will also help to prevent annual weeds in the first year. Regular mowing and/or extensive grazing following establishment to keep the sward short from the start will help wildflower establishment. In following years manage the new grassland depending on your aims; for example short chalk sward grazed seasonally, flowering tall meadow cut in summer, or rough grass cut on a rotation every 2/3 years in autumn – get advice on your particular site. Pull or spot treat any problem weeds with a non residual herbicide and watch for scrub invasion on sites not frequently cut or grazed.

Frequently asked questions

How long do I need to manage the grassland for?

Once a management plan has been adopted for a site, plants and wildlife will begin to adapt. Certain species will dominate while others will be lost. It is important to maintain the same management for many years unless the site is required for other purposes.

How long will it take to restore my site to meadow grassland?

This will depend on factors such as the state of the site prior to restoration, the size of the site, local conditions and how you are managing the site. However on poor sites it may take several years.

How can I tell if my management plan is successful?

By looking at the changes in plants or animals on the site throughout the year, noting any bare patches that have occurred, vegetation cover and extent on the site will all help to build up a picture.

I have just moved into the area and do not know anything about managing land.

Don't worry! You are not the first person to be in this situation and will not be the last. This pack is designed to provide information and advice to all landowners within the AONB and has been done specifically to be jargon-free and an easy to use guide for landowners with knowledge of landscape management and those without. The organisations listed in the appendices are available to be contacted for further advice on any aspect of land management.

Where can I find more information on meadow grasslands?

There is a lot of literature available on meadow grasslands in books, specialist journals and on the internet. Suggested publications include The "Lowland Grassland Management Handbook" edited by A Crofts and R G Jefferson; and "Farming and Wildlife – A practical management handbook" by John Andrews and Michael Rebane (ISBN 0903138670). The organisations listed in the appendix can help provide further information on meadow grassland.

