

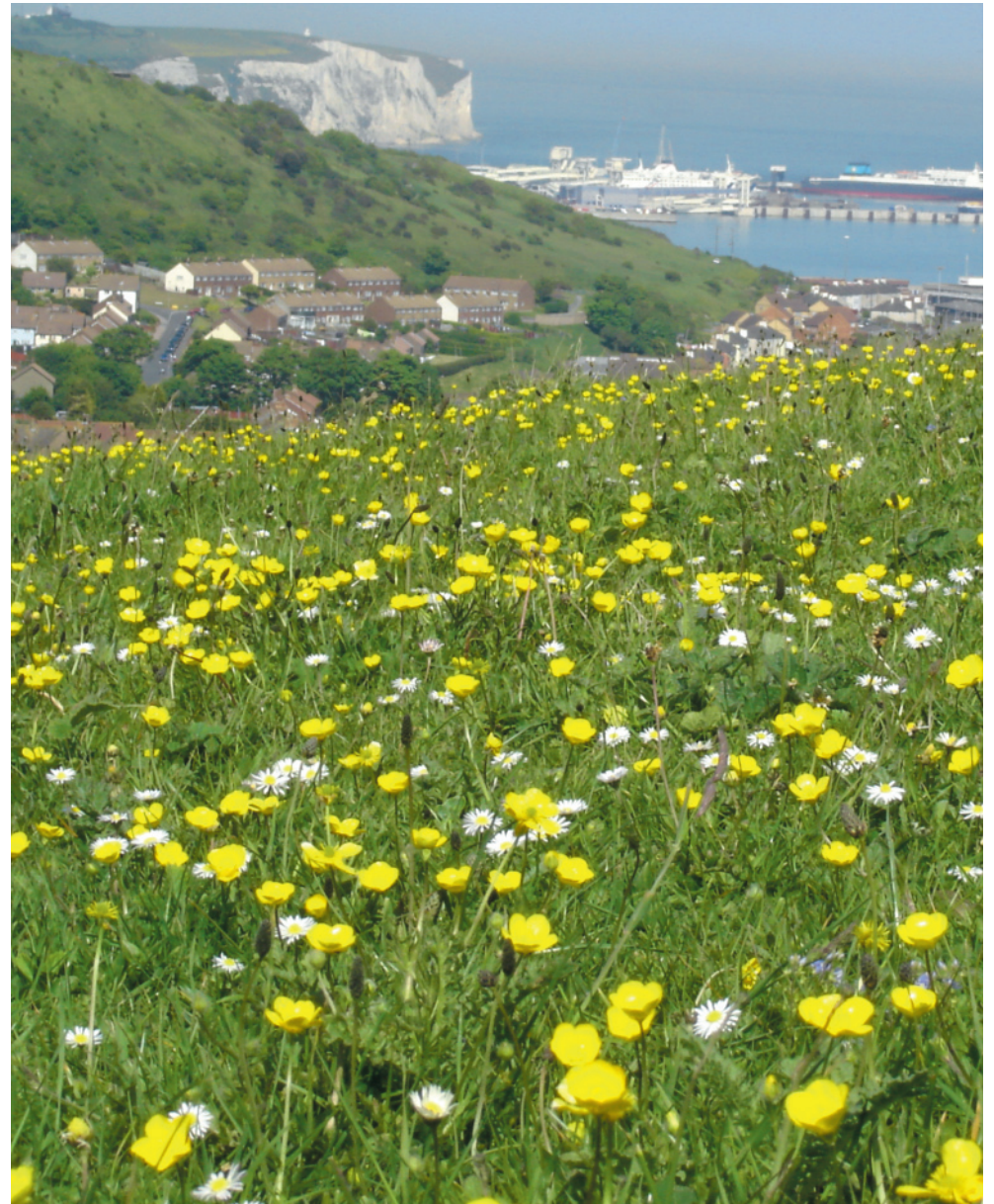
Chalk grassland in the Kent Downs landscape

Chalk grassland was once prevalent throughout much of the Kent Downs as large areas were under permanent sheep or cattle grazing at the time. The combination of continual grazing and the nutrient poor conditions of the downlands produced a short turf (or sward) and allowed a variety of herbs, flowers and grasses to flourish.

Since the early 19th century, much land has been converted to arable. In other areas, farming intensification has led to the widespread use of inorganic fertilisers to improve the quality of grazing so that more livestock can be reared than would be possible under natural conditions. Unfortunately, this has allowed more vigorous grasses to dominate, upsetting the previous delicate balance of vegetation.

Today, there are now only 700 ha of unimproved chalk grassland left within the Kent Downs AONB, of which 60 per cent are designated Sites of Special Scientific Interest (SSSIs). These few remaining areas occur primarily on the steep scarp slopes where cultivation is not always possible, though even these are under threat. With time limitations and facing cheaper imports from abroad, it has become less viable to rear sheep and, today, the British wool market is desperately in need of restoration. With the lack of grazing, coarse grasses and scrub begin to dominate (a process known as vegetation succession) until the chalk downland is lost to scrub.

Unimproved chalk grassland is a unique, specialised and fragile ecosystem. Many of the plants are specifically adapted to survive in the poor alkaline soils, where the porous chalk underneath results in localised drought conditions in the summer. As a result, such plants find it hard to live anywhere else. Perhaps the most famous are the rare and beautiful orchids. These include the fragrant, pyramidal, bee and man orchids, all regularly found in the Kent Downs.



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As well as the flora, this specialised habitat also supports a wide variety of fauna, especially insects and butterflies – many of which rely on the chalk grasslands to survive. Plant feeding insects are abundant on chalk grassland and include an array of beetles, particularly weevils and leaf beetles.

Chalk grassland when in full bloom is truly beautiful, being both a riot of scent, colour and sound as insects go about their business. Grass height is rarely uniform and gives rise to a diversity of different invertebrate habitats. It is managed through careful grazing. The use of livestock (typically sheep and cattle) as a control measure is therefore common on chalk grassland.

Large areas of grassland were created when early man carried out extensive woodland clearance. These areas were developed for grazing and hay production and have to be managed carefully to be kept in good condition. In fact it may only take one or two years for an ideally structured chalk grassland to fall into neglect and be of less value for wildlife.

Over-grazing versus under-grazing is a key issue, though the resultant effect on wildlife is damaging in both cases:

- Overgraze, and habitat is lost due to uniform sward (vegetation) height.
- Undergraze, and scrub begins to dominate and shade out other species.

How do I know if I have chalk grassland?

Chalk grassland usually occurs on steep chalk slopes with thin soils. In good condition it is characterised by short, springy turf, rich in grass and wildflower species. However with lack of appropriate management, may have significantly longer grass, often with large patches of scrub.



Pyramidal orchid



Man orchid

Chalk grassland management

What are the basics of chalk grassland management?

A rigid management regime is rarely suitable for maintenance of a chalk grassland sward. What is required is a clear picture of the ideal structure of the grassland at all times of the year and a manager who ensures that the structure is maintained.

Good chalk grassland management relies on the creation of a mosaic habitat. This simply means that a patchwork of different habitats is created throughout the sward to ensure that the maximum number of species is encouraged. It should also be recognised that the scrub itself is an integral part of the chalk grassland and benefits many different birds and invertebrates — particularly butterflies that use it during part of their lifecycle. Scrub should therefore not be completely eradicated from the site, rather a balance sought between the scrub and the chalk grassland. This practice enables a greater range of species to thrive than either vegetation type alone could support.

For management of chalk grassland it is recommended that independent advice be sought from your local Countryside Management Project, FWAG or Natural England (in the case of SSSIs) if you are in any doubt in order to assess the current habitat and ecology of the area. This will help ensure that no lasting ecological damage is done by any planned maintenance operations.

What is a sward?

A sward is simply referred to as 'a grassed area composed of short grasses giving a continuous cover, with no trees or shrubs present.'

The sward height describes how tall the grass actually is.

Chalk grassland is a very special asset that should be conserved if possible. If you think you have chalk grassland, the important thing is to know what you are doing and why, and to bear in mind the following principles:

Think before you act

- Each site is different and will have unique requirements.
- Get expert help to assess your area for its conservation and commercial value.
- Consider as many options as possible drawing on expert advice.
- Draw up or commission a management plan to maximise opportunity for wildlife, however brief.
- Monitor changes in the area, good and bad and record them for future reference.
- Be prepared to change and adapt your plans as necessary.

In brief, the three best options for chalk grassland maintenance include:

- Grazing.
- Cutting or mowing.
- Scrub clearance – scrub cutting and use of herbicides, stump grinding and removal.

A management plan will explain clearly how a combination of grazing, mowing and scrub clearing may be used to develop an ideal grassland sward.

Chalk grassland management by grazing

Grazing is generally considered to be the best conservation management option available at present for most grassland types, though large sites can often be more grazed than small ones. Grazing should be gradual so that wildlife can adjust gradually to the changing habitat. Also the disturbed ground is valuable for creating opportunities for seed germination and for the growth of annual herbs (plants).

These factors are important when considering grazing

- Aims of grazing.
- Number and density of livestock.
- Time of grazing.
- Type of stock used or available.
- Local conditions and topography of land.
- Diligence of landowner in ensuring overall objective.

Successful conservation grazing is dependent on many factors from when to graze and the type of livestock which are explained in more detail below. If you would like further details please seek further advice from your local CMP (see Contacts).

What am I aiming for my chalk grassland to look like?

Natural England recommends that chalk grassland be managed by grazing for at least ten weeks in each year without damaging the sward. The aim is to remove last years growth to achieve an average sward height of 75mm (3 inches) by the end of the summer. This should be achieved through winter grazing to leave shorter sward, the 3 inches height is the result of spring and summer re growth.

How much stock should I put on my land to achieve this?

The intensity of grazing is all important. As mentioned previously it should be heavy enough to create a patchy short turf, but light enough to enable the survival of plants which are sensitive to grazing and to allow the development of tall tussocky grassland in some areas. As a very rough guide, 0.75 Livestock Units (LU) per hectare.



What is a Livestock Unit?

Different types of livestock graze at different intensities and therefore will have varying effects on chalk grassland. Below is a guide which helps to determine stocking rates.

	LU
● Lowland ewe and lamb	0.15
● Beef cow (excluding calf)	1.0
● Cattle over 2 years old	1.0
● Cattle 6 months to 2 years	0.6
● Dairy cow	1.0

What type of livestock should I use for grazing?

Sheep and cattle are the two most common grazing animals employed in Britain, though sheep are the most frequently used conservation grazers. This may be more down to economics (and local topography) than conservation as cattle tend to be employed on more fertile grasslands to encourage maximum milk yield. However, cattle usually provide better management for diversity as they graze less evenly than sheep, pulling up the vegetation rather than nibbling the sward closely. Dexter cattle have been used to great effect on some chalk grassland sites in East Kent to achieve conservation objectives.

Goats have also been used for conservation land management where scrub encroachment has been a particular problem. They tend to be very selective feeders and if given the choice will only eat trees and shrubs so are ideal to restore former chalk downland overtaken with scrub. In West Kent there has been great success at Preston Hill near Otford, where Kashmir Great Orme goats were employed for this very purpose. In the east of the county on Down Bank at Chilham they have been employed for this purpose. However, they can be problematic if used near the public and are not always easy to keep enclosed.

Special care needs to be taken if using horses for grazing. Horses can be used to conserve grasslands, a sympathetically managed pasture is a sign of good horse management. The herb rich grass is beneficial to grazing and hay making, however over grazing and latrine areas can increase problem weeds if managed incorrectly. Contact the Kent Downs AONB Unit for more advice on positive management of horse pasture.

When should I graze my chalk grassland?

The nature of the grassland and the type of grazing animals available dictates the timing of grazing. Although grazing throughout the year is acceptable, too much summer grazing may result in flower heads being destroyed and seeds not being sown. Generally, aim to graze for some or all of the period between late autumn and spring and consider removing stock for the summer months. This removes old growth,

poaches the ground and leaves plants and ground undisturbed during the main growing season, providing good opportunity for seed germination and a good population of flowering plants. However summer grazing may be needed if tor grass is a problem.

Where can I get livestock to graze my chalk grassland?

If you don't have your own livestock then there are a number of options. A neighbouring landowner or farmer may have their own stock and be prepared to put them on your grassland. Alternatively graziers sometimes look for suitable sites for their stock. One final option is a conservation grazing ring. Contact your local Countryside Management Partnership or RAMSAK for more details (see Contacts).



Chalk grassland in the AONB

Chalk grassland management by cutting

When should I cut rather than graze chalk grassland?

Cutting or mowing is a very effective way of maintaining grassland, as anyone with a lawn can testify. Unfortunately, it has reduced benefit to wildlife and particularly insect populations due to the uniform nature of the sward created. However, if a site has traditionally been cut and is in good condition, there is little reason to discontinue. In fact, cutting may be the only management option available due to the nature of the site. It may be impossible to fence, in an area where stock is not easily obtainable, or too narrow a strip perhaps along a main road.

What should I aim for when cutting chalk grassland?

On the larger landscape level, cutting will maintain the general appearance of chalk downland. However, as it tends to produce a uniform sward, and both insect and wildflower conservation requires variety, any cutting regime used should ensure variation in vegetation structure is introduced and maintained.

General guidelines can be given, but there are no firm rules as every site is different. Flexibility and imagination may be a site manager's most important assets in planning a cutting regime.

What type of machinery can be used to undertake cutting?

Tools used are many and varied and again depend on the local topographical conditions. If the site is small or difficult to access, a pedestrian operated power scythe can be used. In most cases it is important to remove the cuttings to prevent the accumulation of nutrients in the soil which is detrimental to many downland plant species. If practical assistance is required contact your local countryside management project. However, if the site is large and accessible to machinery it may be more viable to have a contractor cut and collect the sward with tractor mounted machinery.



Power scythes can be effective on small sites



Managing chalk grassland

Should cutting follow a pattern?

Chalk grassland presents some problems if conservation issues are to be addressed. To achieve a varied sward structure the cut should be undertaken at different times and frequencies by sectioning off (compartmentalising) the grassland. These compartments can then be cut on rotation.

Some patches of grassland can therefore be left and remain uncut to provide habitat for insects. It is worth thinking about creating habitat islands and corridors around patches of scrub so that insects can migrate as required. Harsh boundaries around scrub should be avoided. Rather, you should aim for a more gradual transition between medium length grassland through long grassland to thick shrub. Chalk grassland around the field margin can also be scalloped to introduce yet more conservation interest.

When should I cut?

Cutting at different times of the year will affect different species of plants and insects. The best general rule if there is to be an annual cut, is that it should be as late in the summer as possible, when most species will have completed their reproductive cycles. If at all in doubt, seek professional advice.

Scrubbing up is a natural consequence of insufficient, inappropriate or complete lack of grazing. If the landscape character and ecological value of chalk grassland are to be maintained scrub on chalk grassland needs to be carefully managed.

What should I aim for with managing scrub on chalk grassland?

The aim of scrub clearance is to arrest further scrub encroachment and provide a balance between chalk grassland and scrub. This will benefit a greater range of species than either vegetation type alone could support. In addition, on a landscape level, the aim is to achieve the appearance of lightly scrubbed downland. Depending on the thickness and type of scrub present different methods are applicable though the two most commonly used include scrub cutting and treatment with herbicides or stump grinding and removal.

How do I control scrub by cutting?

Scrub cutting is usually done with the use of powered machines typically chainsaws and farming machinery (depending on the topography). The cut stumps are then painted with herbicide so that they do not grow again. However, stumps are inevitably missed and may require two or more applications at the start of each growing season to be successful.

How does stump grinding work?

This method is said to be extremely successful on larger stumps or stools as it removes the bulk of the growing medium. However it is costly and not particularly effective for saplings or strongly suckering species.

How do I decide which areas of scrub to remove?

Harsh boundaries should be avoided. Scrub edge should be 'scalloped' to create an undulating effect between the chalk grassland and the scrub. To appear more 'natural', scalloping should be sympathetic to the local topography. This is not only more aesthetically pleasing but is also more beneficial to wildlife. You should also aim for a gradual transition between grassland and scrub consisting of short to medium to long grassland until thick shrub is reached.

When should I remove scrub?

Ideally, scrub clearance should be undertaken during the winter when not actively growing to ensure disturbance to wildlife is kept to a minimum. Indeed, it should not be cut between 1 March and 1 September under Section 1 of the Wildlife and Countryside Act (1981), as it is an offence to intentionally damage or destroy the nest of any wild bird whilst it is being used or built. The ideal time to cut then is in January or February, as this allows any fruit to remain available for wildlife.

Chalk grassland maintenance and aftercare

A responsibility is placed on the owner in the subsequent years after initial clearance work to ensure that the downland is not lost to scrub once more, and is a continuing process. In the first few years, this may consist of further herbicide treatment, along with other weed control measures until a regular pattern of grazing has become established. The continued maintenance of the chalk downland will then become part of your annual management.

Can I use herbicides?

Other than treatment on individual plants and stumps, herbicides should not be used on chalk downland, as this is highly detrimental to the ecology of the area and can in fact allow more robust pest populations such as docks, thistles, nettles and bramble to become established.

Can I use fertilisers?

Chalk downland is not suitable for applications of fertiliser. As chalk downland flora is adapted to nutrient poor conditions, nutrient enrichment is extremely detrimental to the native chalk downland flora and fauna.

Should I allow trees to grow on chalk grassland?

During scrub clearance, areas may be found where the scrub has gained such a hold that all grassland vegetation below has been lost. If cleared, problem species such as creeping thistle often gain a foothold on the bare earth and can be difficult to eradicate. In these cases, either seek professional advice, or consider allowing to develop into woodland. If this is the case then you may need to protect your trees from grazing pressure. It is normally best to fence the area off completely to allow natural regeneration. This will prevent sheep using the trees as rubbing posts, gnawing at them, and therefore damaging the bark.

Some tree and scrub cover can provide a useful habitat in its own right such as hawthorn and field maple.

What should I do with wet areas and ponds on chalk grassland?

Dew ponds are most likely to be found towards the top of the valley sides on level ground. They are artificial ponds fed principally by rainwater, and were traditionally used as a drinking source for livestock. The exact distribution of these important landscape and wildlife features is unclear, so please contact your local CMP if you have one.

If you do have any, they should be retained. Such areas usually comprise wet flushes further downslope. This adds to the variety of habitat on your land, with specialised plants associated with it.

Is there anything else I should consider?

Your area of chalk grassland is an integral part of the Kent Downs AONB landscape, and should be considered as such. Try to manage it in keeping with this landscape character. Retaining and correctly managing chalk grassland is perhaps the most important element of protecting the Kent Downs. Speak to neighbours who have similar areas of land to find solutions to problems. However, if ever in doubt, contact your local CMP or one of the other organisations in Contacts for advice.

An important note about SSSIs

You will have been notified by Natural England if part or all of your land is within a Site of Special Scientific Interest (SSSI). Owners of SSSIs must give Natural England written notice if any operations of listed in the notification are likely to damage the special interest features. This may include operations such as scrub removal, fires or using herbicides.

Please note: it is an offence for anyone to intentionally or recklessly destroy or damage the special features of any land that they know is a SSSI, or to intentionally or recklessly disturb any animal which is notified as being of special interest.