



Management of Neutral Grassland

This leaflet is designed to give owners of neutral grassland some general recommendations on how to manage their land and assumes that the primary objective is to manage the land for nature conservation purposes. Other advice sheets are available and are listed in the Further reading section.

Species-rich neutral grassland: the typical image of a traditional hay meadow

In Kent, there are several different types of species-rich grassland, which are closely linked to soil and geology: acid grassland, neutral grassland and chalk grassland. Species-rich neutral grassland is found on neutral clay and alluvial soils with a pH between 5.5 and 6.5, mainly in the Weald, North Kent Marshes, and parts of the Blean. It is now a rare and fragmented habitat, of which only several hundred hectares are left in the county. Hay meadows as we tend to think of them are traditionally associated with species-



Grassland management course
© Kent Wildlife Trust

rich grasslands in the Weald of Kent. All species-rich grasslands in Kent are listed in the Kent Biodiversity Action Plan.

Up until the Second World War, traditional grazing practices ensured that grasslands were grazed in a low intensity, wildlife-friendly manner, resulting in habitats which were botanically very diverse – as many as 40 plant species per square metre could build up in the vegetation (or sward, as it is sometimes referred to) over many years or even decades.

From the 1940s onwards, more efficient farming techniques such as better drainage and chemical inputs, together with farming subsidies, all contributed to change the way our grasslands were used: many areas were either ‘improved’, ploughed up for crops, or left ungrazed and gradually taken over by scrub and woodland. Other areas were lost to development, quarrying, road construction and tree planting. Since then, traditionally managed wildflower-rich grasslands such as neutral, acid and chalk grasslands have declined nationally by 97%; their disappearance is thought to have led to the drastic decline of many species including bumblebees, butterflies, farmland birds and wildflowers.

Grassland falls into three categories:

- improved grassland (contains very few species and is generally dominated by rye-grass and white clover, buttercups, dandelions and cock’s-foot)
- semi-improved grassland (contains a wider array of species, generally between 8 to 15 per square metre)
- species-rich grassland contains over 15 species per square metre

This advice sheet contains information about the following topics:

- importance of species-rich neutral grassland
- plants and animals associated with this habitat
- choosing a management regime
- increasing the number of plant species
- implications of using fertilisers
- choosing livestock and finding a suitable grazier
- dealing with ragwort and other problem plants
- scrub and tussocky grassland
- references and further reading
- further advice



The Trust’s reserve at Marden Meadow, a traditionally managed hay meadow – a display of green-winged orchids © Kent Wildlife Trust



Glaucous sedge © G.Tysoe



Ragged robin © R.I Moyse



Adder's tongue fern © David Nicholls

Flora and fauna associated with neutral grassland

Neutral grassland is host to a number of rare plants and animals, many of which have unique associations with this habitat and cannot survive elsewhere. The fragmentation of many areas of species-rich grassland has resulted in populations of a number of species being isolated and prone to local extinctions.

The wildflower species listed below provide a rough guide as to plants which are indicative of unimproved, species-rich neutral grassland, but botanical diversity will depend on many factors including past management, drainage, aspect, stocking density and timing of grazing. In some instances, over 100 different plant species can occur in any one field.

- grass and sedge species include crested dog's-tail, sweet vernal grass, bents and fescues, and small blue-green sedges (glaucous, common, carnation)
- wildflower species include: agrimony, autumn hawkbit, betony, bird's-foot trefoil,

bittervetch, black knapweed, bugle, burnet saxifrage, common bistort, common meadow-rue, cowslip, devil's-bit scabious, dropwort, dyer's greenweed, eyebright, field scabious, goat's-beard, greater bird's-foot-trefoil, lady's bedstraw, lady's-mantle, marsh/fen bedstraw, marsh marigold, marsh valerian, meadow vetchling, meadowsweet, milkwort species, narrow-leaved water dropwort, orchids such as green-winged orchid, ox-eye daisy, pepper-saxifrage, pignut, ragged robin, rough hawkbit, salad burnet, saw-wort, sneezewort, tormentil, water avens, water mint, wood anemone, yellow rattle

- lower plant species such as adder's-tongue (a fern)
- ground-nesting birds such as skylarks and meadow pipits will use this habitat unless it is too heavily grazed or the site is dominated by trees and tall scrub
- many species of invertebrate rely on wildflowers for pollen and nectar, lay their eggs on certain species of wildflower and overwinter in grass tussocks

Choosing a management regime for your site

If you have the option to get the site grazed at certain times of the year, then this is preferable to not grazing the site at all: livestock tend to allow areas of tall, short and tussocky grassland to develop, whereas mechanical cutting will create a very uniform sward. If you only intend to graze, then please read *Management of Small Pastures*.

There are many reasons why it may not be practical to graze the land. However, finding a local contractor who will take hay from a small site is not always easy and you are advised to look into possibilities before deciding on a particular management regime.

Cutting for hay and then grazing - the preferred option:

- exclude any livestock from early March to mid-July and then do a hay cut. By this time, many of the plants will have set seed. When the hay is cut, the seed drops down into the sward.
- graze from late September to December, depending on how wet the land is, and aim for a sward height of 5cm/2 inches.
- only do spring grazing (April-May) if there is a problem with scrub, as this is when livestock is most likely to tackle such species



Oxeye daisy, knapweed, bird'-foot trefoil, dyers greenweed © F. Weston



Small copper © Beth Hukins



Meadow pipit © Amy Lewis



Buff-tailed bumblebee on common knapweed © R.I.Moyse

Cutting for hay – no grazing:

If you are not doing the hay cut yourself, remember to tell the contractor that you want a late hay cut, not a silage or early hay cut:

- cut for hay from late July to mid-August. The later you leave it, the more plants will get a chance to set seed. However, the quality of the hay will decrease as well. For very small areas, you can cut with brushcutters or a pedestrian mower and then rake up.
- do a cut towards the end of October
- do another cut in February, if necessary, to ensure that the sward is approximately 5cm high



Hay cut using a pedestrian mower – only suitable for small sites © Kent Wildlife Trust



Cuttings left on creating a dead vegetation thatch © Kent Wildlife Trust

Ensure all the cuttings are removed annually, or at least every two or three years. This is particularly important if no grazing is taking place, since any dead vegetation (or 'thatch') will smother any seeds trying to germinate and will also allow nutrient to build up on site. Sheep will not eat the cuttings; cattle and horses may do so.

Whether you choose to cut or graze, remember that rotating the areas you cut or graze from year to year will enable different species, both early- and late-flowering, to set seed.

Re-creating neutral grassland

It is possible to re-create a meadow from arable land but the end result will depend on many factors, including nutrient levels, weed burden, availability of local seed sources, current species composition, soil type and geology. Further advice should be sought from the Trust if this is an option you would like to consider.

Increasing the number of plant species

It can take several years for seed from desirable plant species to come in from adjacent land, assuming that you have species-rich grassland nearby. However, it is possible to increase the number of species by introducing seed from newly cut hay (green hay). Green hay needs to be transferred within hours from the donor site or the heat generated by the hay can



Spreading green hay from another site onto a field which has been freshly cut for hay and then harrowed © Kent Wildlife Trust

damage seed viability. Once on the receptor site, it needs to be spread about and then removed at some point over the next few weeks, if possible, as for cuttings, or grazed off – livestock will also help by trampling in the seed.

An alternative is to introduce seed or young plants (plugs), although this is definitely a 'next best' option. If you do this, please ensure that the seed mixes or plugs are of local provenance (see Further Reading). For small areas, buying single species seed packs is often cheaper than buying mixes or alternatively, hand harvesting target species from a nearby meadow (with permission from the landowner) may be all that is required.

Implications of using fertilisers

If you have species-rich grassland or are aiming to restore or recreate species-rich grassland, do not apply artificial fertiliser since this will destroy the botanical interest of the site. If you do need the hay crop to be more productive, then apply some farmyard manure every three years or so; however, bear in mind that wildflower diversity increases as nutrient levels decrease, so this is not a good thing from a biodiversity point of view.

Choosing livestock and finding a suitable grazer

Many modern breeds are used for grazing on improved grassland, so it is worth considering using traditional breeds which will cope better with the lower nutritional value of species-rich grassland and – in the case of some breeds – will tackle scrub and young saplings. For further information about keeping livestock and finding graziers, please read our leaflet *A brief guide to choosing livestock for conservation grazing*.

If you are getting an outside grazer in you may be able to charge a small fee for the grazing. This may depend on the site and how difficult or easy it is to graze; similarly with the hay cut, you may be able to get someone to buy the hay from you and bale it themselves or possibly get it cut for free if you do not need to keep the hay yourself.

Dealing with ragwort and other injurious or invasive grassland species

Weeds such as ragwort, docks and thistles can be a problem, both for livestock but also because they reduce the hay yields. A major contributing factor to the presence of weeds is the presence of disturbed ground. This often arises from overgrazing, poaching around stock feeding areas, bonfire sites, or because a site has been

reseeded in the past and contains a weed species seed bank. It is very important to ensure that there is a closed sward and this can be achieved by encouraging grasses to tiller.

- graze hard in spring if you have a weed infestation. You can also harrow and seed but choose grass species which tiller fast (red fescue, creeping bent, common bent, wavy hair-grass, sheep's fescue).
- avoid overgrazing or grazing in extremely wet weather when livestock will churn up the soil
- please read the Trust's advice sheet *Control of ragwort, thistles and other problem plants*

Scrub and tussocky grassland

Scrub is a habitat in its own right and you should ensure that some is left on your site (at least around the edges) as it provides nesting sites for breeding birds, shelter for species such as invertebrates and reptiles, and berries for migrating and over-wintering birds. For further advice about managing scrub, please see Further Reading.

Tussocky grassland will develop when patches of grassland are left uncut for several years. Although this vegetation will be less interesting from a botanical point of view, it will provide excellent habitat for small mammals to burrow in, so it is worth keeping some areas around the margins of your field; high numbers of small mammals will in turn attract barn owls and kestrels.



Hawthorn and blackthorn providing shelter, nesting habitat, berries and nectar
© Kent Wildlife Trust

Further reading and references

Kent Wildlife Trust

Land Management Advice series

Management of small pastures;
Management of acid grassland;
Management of chalk grassland;
Control of ragwort, thistles and other problem plants;
A brief guide to choosing livestock for conservation grazing;
Scrub, its value for wildlife and how to manage it.

The Grazing Animals Project (G.A.P.)

downloadable publications and the G.A.P. discussion forum (Nibblers) cover a whole range of conservation grazing topics:
http://www.grazinganimalsproject.org.uk/nibblers_archive.html

Natural England (available to download from www.naturalengland.org.uk)

Technical Information Notes TIN060-TIN065 on diversifying grassland

Weald Meadows Partnership

<http://www.highwealdlandscapetrust.org/weald-meadows-initiative.html>

Further information about suppliers of British wildflower seed:

- Flora Locale
<http://www.floralocale.org/>
- The Conservation Volunteers
<http://shop.tcv.org.uk/shop/>

Obtaining further advice

For further information, please contact the Trust's Land Management Advice Service by calling 01622 662012 or by emailing info@kentwildlife.org.uk



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