

Supporting guidance for Restoration of Species-rich Grassland

Date published: 14 September, 2023

For recent changes to this guidance, please see the [bottom of the page](#) .

Introduction

Use this item to restore botanical diversity to existing species-rich grasslands where diversity has been reduced by practices such as the application of lime, fertiliser or farmyard manure, or the use of herbicides. This item must be taken alongside the [Species-rich Grassland Management](#) option.

Where should I locate this option?

The restoration of species-rich grasslands can be difficult and it is important to choose suitable sites. Restoration sites must only be considered on unimproved grassland that has less than 30% rye-grass, white clover or other agricultural grasses such as Cocksfoot and Timothy. Fields must have retained areas of species diversity with at least 10% cover of wildflowers (not including white clover, creeping buttercup or injurious weeds).

Low soil fertility is important. High residual nutrient levels (especially phosphate) encourage competitive grasses to grow fast and crowd out smaller species. If in doubt, it is worth doing a simple soil analysis first. Weeds such as creeping thistle and broad leaved dock, can be a problem if you do not control them.

This item will support the restoration of species-rich grassland below the hill dyke only.

Which species should I sow?

Choose native Scottish species that naturally grow in your area. They should be of UK origin and preferably of Scottish origin. Since you are diversifying existing grassland, you can sow either a grass-wildflower mixture (not including productive agricultural grasses) or a pure wildflower mixture. Sow the seed at a minimum rate of 5–10kg/ha for a grass / wildflower mixture or 1–2kg/ha of pure wildflower mixture.

A range of seed mixtures are available from reputable wildflower seed merchants, including grazing meadow mixtures, hay meadow mixtures and upland grassland mixtures. The species present in adjacent unimproved areas such as road verges and field margins may help to identify a suitable mixture. Consider also the management planned for the site (cutting or grazing). We recommend you seek advice to help select an appropriate seed mixture.

Yellow rattle

Sowing yellow rattle can help to sustain the diversity of the sward. Yellow rattle is semi-parasitic and takes nutrients from grasses and other nutrient-demanding plants in the sward, making them less vigorous.

This creates a more open sward which allows other, less competitive meadow plants, to grow. It is native to the UK and can be found in a range of semi-natural grasslands but particularly species-rich, neutral hay meadows.

Yellow rattle is an annual plant which needs to be sown in autumn. Therefore, while the bulk of the mix should be sown in spring, you should over-sow yellow rattle separately in Autumn.

It can dominate but is controlled by cutting or grazing in summer. It is mildly toxic and can taint milk.



Yellow rattle (Rhinanthus minor) – © Laurie Campbell, Scottish Natural Heritage

Establishing wildflowers

Prepare the ground before over-sowing it with a wildflower seed mix.

Sowing onto a closed sward is likely to fail because seed does not come into contact with the soil and any seedlings which germinate are out-competed by the existing sward.

First create a short sward by cutting (with cuttings removed) or grazing. Then aim to create 50 per cent bare ground, using discs or tined harrows to reduce competition from the existing sward. Within a few months the sward will recover and very little bare ground will remain. As a guide, the sward should have gaps of at least 10 centimetres in diameter.

Broadcast the seed on to the surface using suitable machinery such as a grass seed box, fertiliser spreader or arable seed drill. Seed can also be sown by hand. If you are working with small amounts of seed you may want to bulk-up the mix with sawdust or fine sand to help distribution. Keep it well mixed in the hopper while spreading.

It is important to bed the seed in. You can do this with a tined harrow, ridged roller or by using sheep or cattle to tread it in.

An alternative source of establishment is to use green hay from a nearby species-rich meadow. Cut the hay before its seed begins to fall, then transfer it immediately to the prepared ground. Spread it across the site and allow the seed to drop for at least a week, then remove the hay before it smothers the sward. Bed it in as above.

Managing the grassland

Keep the sward short immediately after sowing the wildflower mix to allow seeds to germinate. This is best done by cutting the sward and removing cuttings.

Aftermath grazing following cutting may be beneficial but in the first year, this should be a short period of grazing from late August/September to reduce the risk of seedlings being selectively grazed. If in doubt, seek specialist advice.

Any perennial weeds which have colonised should be controlled, for example by spot treatment with herbicide. This requires prior written approval. You must request this from your case officer. Any annual weeds should be controlled by the regular cutting or grazing outlined above.

Subsequent management should be tailored to the needs of the site. Refer to the [Species-rich Grassland Management](#) or [Habitat Mosaic Management](#) item guidance for further information.

Further information

- [Sward Enhancement: Diversifying Grassland by Over Sowing and Slot Seeding](#) (Natural England)
- [Sward Enhancement: Diversifying Grassland by Spreading Species-rich Green Hay](#) (Natural England)
- [Guide to Types of Species-rich Grassland](#)
- [Grasslands](#)

Recent changes

Section	Change
Where should I locate this option?	Text revised covering eligible fields

Previous versions

[Previous versions of this page](#)

Download guidance

Click 'Download this page' to create a printer-friendly version of this guidance that you can save or print out.