



Restoring European grasslands takes more than just sowing seeds

Using commercial seed mixtures to replant European grasslands tends to produce a smaller range of species than originally grew on the land. New research has identified several methods that successfully reproduce the original range of species, such as transferring of fresh hay or soil that contains seeds.

Grasslands with a good diversity of species are in decline in many parts of Europe, particularly in countries with intensive agriculture such as Belgium, France, Germany the Netherlands, and the UK. The restoration of these species-rich grasslands has been a conservation priority but, in the past, methods have tended to focus on re-seeding using commercial seed mixtures. These often do not contain the range of species originally present on the land.

The researchers reviewed existing research on the use of alternative “near-natural” techniques in Europe and complemented this with their own studies from Germany, which were funded by the EU Central Europe Programme¹. The techniques were:

Site-specific seed mixtures - These mixtures are created for the site by collecting seeds from areas with similar geographical and climatic conditions. In most studies 80 to 100 per cent of the species that were sown grew on the restored sites. However, the long-term establishment of species varied greatly, ranging from 32 and 96 per cent of the species. Success depended on how the site was prepared; removing turf almost doubled the number of species that became established.

Transfer of hay containing fresh seed – This involves cutting hay from a suitable area and spreading it over the area to be restored. For best results the hay should be cut when maximum seeding occurs and transported directly. The hay can also provide protection from erosion in some areas, such as steep slopes.

Transfer of turf and seed-containing soil – In most studies the pieces of turf were large (more than 0.5m by 0.5m) and laid over the whole area. The method was successful and, on the whole, better than transferring soil. However, the transfer of soil is more cost-effective and appeared to work better on wet soils.

Other techniques – The transfer of material raked from grasslands and dried chaff from hay-barn floors were also successful, as was stripping or vacuuming seeds from existing grasslands and planting them on the sites to be restored.

All studies demonstrated that successful restoration depended upon the species diversity of the land that provided the seeds or the seed-containing material. Success of all methods was enhanced if seeds or material were spread on the bare soil of ex-arable fields after tilling or top-soil removal, or on raw soils, such as in mined areas.

Topsoil removal improves the establishment of species by lowering the level of nutrients in the soil that cause eutrophication and hinder grass growth. Topsoil removal also reduces the amount of seeds from resident unwanted species.

For sustained restoration, there must be guaranteed long-term management of these newly-restored grasslands. This is supported by the positive impact of mowing or moderate grazing. The long-term results appear to be especially good if management is incorporated into agricultural systems where farmers can use the grassland for grazing animals or hay production. This benefits both conservation and agriculture.

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