

3 Vegetation Overview

The fact sheets under the umbrella of Vegetation focus on manipulating the plant communities to;

- reduce the dominance of unpalatable plants like mat grass and purple moor-grass
- increase the diversity of dwarf shrubs
- increase the cover of dwarf shrubs

All these can increase the productivity of more digestible species on the moor, and thus benefit stock in the long term. Such changes have the additional benefits of improving the biodiversity, enhancing the sporting interest and the visual landscape, and thus being more sustainable for the uplands as a whole. The recommended approaches are derived from the project on sustainable and economically viable grazing systems in the uplands.

Vegetation Types Covered

The study has focussed on a range of vegetation types located at four geographically separated sites in England and Wales. Each site was also varied, which typifies the situation in extensive moorland. The main vegetation types tested were:

- Heather¹ dominated dry heath
- Degraded dry heath dominated by mat-grass with other grasses and some remaining bilberry
- Wet heath dominated by dwarf shrubs including heather, bilberry and cross-leaved heath with bog mosses and a range of grasses, sedges and rushes
- Degraded wet heath dominated by purple moor-grass along with mosaics of heather and purple moor-grass and rushes
- Blanket bog with cotton grass, cross-leaved heath and *Sphagnum* spp. and degraded areas with mat grass, sedges and rush spp

Dwarf shrub vegetation

What are dwarf shrubs?

Dwarf shrubs are

- short, woody species forming a key component of upland heathland and bog

¹ Scientific names are given at the end of this fact sheet

- heather, bell heather (in the drier areas), cross-leaved heath (in wetter peat usually) bilberry (also called blaeberry), crowberry, cowberry (an evergreen relation of bilberry) and western gorse

Why dwarf shrubs are important?

- A good dry heathland vegetation will have 50% or more cover of dwarf shrubs of a mixture of species
- A good wet heath (on less than 0.5m of peat) should support some 25% of dwarf shrubs
- Blanket bog (over 0.5m peat) is best with about 25% cover of dwarf shrubs

These UK habitats are of international conservation significance. If your site is of national (SSSI) or international importance, the above levels form the criteria for favourable condition, and will be targets to work towards.

Also associated with these vegetation types are many other plant species, invertebrates and characteristic moorland bird communities.

What goes wrong?

Grasses like mat grass (drier areas) and purple moor-grass (wetter soils), heath rush, other rushes or sedges like cottongrasses have replaced dwarf shrubs in many areas as a result of intensive grazing, often over many decades; frequent burning (e.g. annual treatment); heather beetle outbreaks and increased atmospheric deposition – the extra nitrogen can increase the growth of the more competitive grasses like purple moor-grass.

In extreme cases, heath or bog has been transformed to extensive areas of acid grassland dominated by matt or purple moor-grass of low biodiversity, grazing, sporting and visual value.

A primary aim of restoration in these situations is to re-establish and expand dwarf shrub cover at the expense of the indigestible grasses.

Purple moor-grass (*Molinia*)

What is purple moor-grass?

Purple moor-grass is

- a tussock-forming grass which is strongly competitive in early summer
- widely distributed in UK moorlands especially in high rainfall regions, on peaty soils with some groundwater movement
- deciduous, growing from April to late summer and shedding its leaves in autumn
- useful for summer nutrient intake for cattle and sheep (provided there are not more preferred species available at the same time); and
- a natural component of the moorland ecosystem

What goes wrong?

Purple moor-grass is invasive and has encroached on moorland at the expense of dwarf shrubs and other plant species under certain management regimes, as explained under dwarf shrubs above. A shift from dwarf shrubs, cottongrass or bog-mosses to a purple moor-grass - heather mosaic or complete purple moor-grass domination indicates degradation of moorland or bog from the grazing and biodiversity point of view.

Mat grass (*Nardus*)

What is mat grass?

Mat-grass is

- a narrow-leaved low tussock-forming grass
- common in the northern and western uplands of the UK
- found in high rainfall areas but on relatively free-draining soils
- is slow-growing and a poor coloniser, and mainly regenerates vegetatively by short rhizomes
- not favoured by most livestock, but tolerates defoliation and can dominate moorland subjected to heavy grazing
- moderately nutritional for cattle in early summer

What goes wrong?

Mat grass has increased substantially at the expense of dwarf shrubs and other plant species as a result of changes in grazing regimes, including increased numbers of breeding ewes and a reduction in cattle and wethers. Frequent burning (such as every 1 to 3 years), debilitation of heather from heather beetle outbreaks and increased atmospheric deposition have also resulted in mat grass encroachment.

Finding out the potential of your land

- Assess the abundance of the different undesirable (purple moor-grass, mat grass, rushes and dominance by cottongrasses) and desirable species (dwarf shrubs, sedges, mosses, more palatable grasses)
- Do some seed bank tests – collected soil down to 5cm under the vegetation, spread onto a seed tray, cover with a polythene bag to prevent contamination and drying out, see what grows, and persuade a botanist to identify the seedlings if you can't
- Assess the topography and access to see what sort of machines can gain access to the areas to restore
- Remember to check that you have no features of archaeological value that would need to be avoided if the ground is to be disturbed

Other Vegetation Types and Information Sources

Other vegetation that occurs extensively on moorland but not specifically covered by the project include:

- For bracken (*Pteridium aquilinum*) see [English Nature Upland Management Handbook Information Note 6](#)
- For south-western heath containing western gorse and other dwarf shrubs; other acid grasslands; upland calcareous grassland; other bogs and wetlands: see [English Nature Upland Management Handbook: Chapter 6. Moorland](#)
- For montane vegetation see [English Nature Upland Management Handbook: Chapter 5. Montane areas](#)

Glossary of Scientific names

Vernacular name	Scientific name	Vernacular name	Scientific name
Heather	<i>Calluna vulgaris</i>	Mat grass	<i>Nardus stricta</i>
Bell heather	<i>Erica cinerea</i>	Purple moor-grass	<i>Molinia caerulea</i>
Cross leaved-heath	<i>Erica cinerea</i>	Common cottongrass	<i>Eriophorum angustifolium</i>
Bilberry/blaeberry	<i>Vaccinium myrtillus</i>	Hare's tail cottongrass	<i>Eriophorum vaginatum</i>
Cowberry	<i>Vaccinium vitis-idaea</i>	Rushes	<i>Juncus species</i>
Cowberry	<i>Empetrum nigrum</i>	Western gorse	<i>Ulex gallii</i>
Tormentil	<i>Potentilla erecta</i>	Heath bedstraw	<i>Galium saxatile</i>

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