

Acid Grasslands

Acid grassland communities occur on soils with a pH lower than 5.5. Species-rich acid grassland have grasses, rushes and sedges, but usually fewer flowers compared with neutral and calcareous grasslands. Grassland grading into mires and bogs are not considered below as they fall into wetlands.

Dry acid grasslands

Acid grasslands are characterised by grassy-mossy vegetation, including sheep's sorrel, tormentil, heath bedstraw, wavy hair-grass and sheep's-fescue. Heathers, such as ling, bell-heather and cross-leaved heather, may also be present, and the grassland may be a mosaic of herbs and shrubs. Rare plants that grow in acid grassland are heath lobelia and pale dog-violet. On slightly wetter sites where water may pool with shallow drawdown zones, chamomile,

yellow century and three-lobed water-crowfoot may grow. Parched acid grasslands on sandy soils support a very rare variation of this habitat with annual plants, such as slender bird's-foot-trefoil, smooth rupturewort, clustered clover and spring speedwell. Perennial plants include sticky catchfly and Spanish catchfly and a diverse assemblage of lichens. Nightjar and woodlark use acid grassland and heathland mosaic for breeding.

Acid grassland occurs on nutrient-poor, free-draining soils, usually over sands and gravels. Acidic windblown loess and shallow peat can build-up on wetter land, but deeper peat forms part of wetland mire and bog vegetation communities. Species-rich acid grassland falls under the National Vegetation Communities (NVC) 'U1 sheep's-fescue-common bent-sheep's sorrel grassland', 'U2 wavy hair-grass



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grassland', 'U3 bristle bent grassland' and 'U4 sheep's-fescue-common bent-heath bedstraw grassland'. The main areas of acid grassland fall in the uplands, and the exact extent is not known, partly as it is closely related to heathland mosaic vegetation. An estimated 30000 ha of acid grassland remains in the lowlands in the New Forest, Breaklands and Lizard Peninsular. Scotland is estimated to have 5000 ha of acid grassland on the upland fringe and Wales has recently classified a habitat called ffridd, which is the fringe of land grading between enclosed pasture and upland rough pasture.

Culm grassland / Rhôs pasture

Purple moor-grass and rush pasture is wetland acid grassland. It is called culm grassland in Devon and north Cornwall, rhôs pasture in Wales, and rough ground in Northern Ireland. It is flower rich with ragged-robin, wavy St John's-wort, three-lobed water-crowfoot, greater and lesser butterfly orchids, flowering rush and purple moor-grass. The marsh fritillary is particularly associated with rush pasture and devil's-bit scabious, which is the sole food plant for caterpillars.

An estimated 56000 ha of rush pasture remains across the UK. It has a western seaboard distribution stretching from north Cornwall and central Devon, south Wales and south-west Scotland, as far as northern Argyll, and Fermanagh in Northern Ireland. Rush pasture does not fit any single NVC category and is a mosaic of M16 cross-leaved heath-sphagnum moss wet heath, M23 soft-rush-blunt-flowered rush-marsh-bedstraw rush pasture, M24 purple moor-grass-meadow thistle fen-meadow, M25 purple moor-grass-tormentil and M27 meadowsweet-wild angelica mire. Over time the habitat has been fragmented as fields have been drained and agriculturally improved, or put under conifer plantation.

Calaminarian grasslands

Calaminarian grasslands develop on soils with heavy metals, particularly lead, chromium or copper, which limit the growth of plants. There are natural occurrences of calaminarian grassland covering metalliferous bedrock,





where the metals have been washed out and deposited in river gravels. It also occurs in some quarries and on mining spoil. The plants need to be able to cope with the highly acidic conditions and the habitat is very patchy, occurring as a mosaic within acid, neutral and calcareous grassland. Specialist plants present include spring sandwort, alpine pennycress, dune helleborine, Young's helleborine, Cornish path-moss and western rustwort.

Less than 450 ha of calaminarian grassland exists. It is present on arsenic and tin mining in Cornwall, lead mining on the Mendip Hills in Somerset, mining spoil in Derbyshire, Cumbria and Snowdonia Mountains in Wales, along watercourses in Northumberland, and serpentine rocks in the Scottish Highlands and Islands. The richest community is termed 'OV37 sheep's-fescue-spring sandwort' in the NVC classification which emphasises the nature of the grassland as open vegetation.

The main causes of decline in calaminarian grassland is under- or over-management. It may not be possible to graze the grasslands, as the high metal levels can poison livestock, and this lack of management can lead to the development of scrub. The fragile thin turf can be easily destroyed by livestock. The difficulties in managing calaminarian grassland can lead to problems maintaining the plant diversity, and open ground and individual site management plans may be necessary, including removing scrub. The scarcity of the correct soil conditions for this type of habitat makes it unlikely that it will be recreated. However, within suitable locations restoration of calaminarian grasslands can be achieved.

Management of Acid Grassland

Acid grassland is generally managed as low-intensively (termed extensively) grazed pasture. It is grazed by sheep and cattle, although the poor vegetation growth can make the habitat unsuitable for rearing commercial cattle breeds and traditional slower growing cattle breeds fare better. Wet acid grassland habitats are usually managed through extensive livestock grazing but the wet weather may require animals to be removed from sites before they are inundated by water. In areas

where the vegetation is very sparse, such as on shingle and dry sands, the habitat may be naturally limiting and little or no grazing may be required to maintain it. Due to the nature of this habitat, it can easily be damaged by over-grazing but, under-grazing may allow the growth of dense scrub, including gorse and birch.

Burning, or swaling, can be used as a management tool to clear away brash and woody vegetation. Quick burns of the litter layer encourage the herb layer to grow. However, this is only applicable to sites with a history of being burnt, and it can cause significant damage if the fire is able to penetrate peat soil destroying seeds present in the soil seed bank.

Historical management often broke larger sites into compartments separated by droves. The heavy trampling caused by cattle movement opened the vegetation creating bare ground. Many rare plants and wildlife require these open areas. Mixed grazing is essential to maintain patches of bare ground. Recently there has been a decline in cattle grazed and droving, leading to old trackways succeeding into scrub woodland. Restoration management, removing scrub woodland and reinstating droves, has enabled sudden increases in plants along these disused trackways, reinvigorating acid grassland communities.

Agricultural improvement is another cause for the loss of acid grassland. Lime has been applied to grasslands to neutralise acidity and agriculturally improve the pasture. Fertiliser has been used to boost competitive grass growth, out-competing the slower growing herbs and heather. Woodland plantations, often large blocks of conifers, have also been planted on acid grassland and heathland, shading out the herb layer and smothering any plants with a layer of pine-needles.

Acid grassland can be restored and recreated

where the soil chemistry is suitable. Usually, natural regeneration is used to restore dry acid grassland. Green hay and brush-harvested seed have been used successfully to recreate culm grassland. Successful restoration of acid grassland and heathland following timber extraction has also been undertaken, however further work may be required to remove the needle litter layer and, in some cases, the nutrient-rich topsoil.

Further Information

[JNCC \(2008\) UK Biodiversity Action Plan Habitat Descriptions: Dry Acid Grassland.](#) Last accessed 03-10-2014.

[JNCC \(2008\) UK Biodiversity Action Plan Habitat Descriptions: Calaminarian Grassland.](#) Last accessed 08-10-2014.

[JNCC \(2008\) UK Biodiversity Action Plan Habitat Descriptions: Purple Moor-grass and Rush Pasture.](#) Last accessed 03-10-2014.

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