Northern Ireland Priority Habitat Guide: Lowland dry acid grassland

What is Lowland dry acid grassland?

Lowland dry acid grassland typically occurs on nutrient-poor, mainly free-draining soils that over lie acid rocks or superficial deposits such as sands and gravels. However, it may also occur over calcareous parent material where leaching has been sufficiently intensive to lead to the development of nutrient-poor acid conditions.

Lowland dry acid grassland is often a species-poor derivative of former heathland, however if it has a species richness it should be retained as grassland rather than restored to heathland.

Table 1: Linking Habitat types with Annex 1, ASSI features and NI Priority Species

Northern Ireland Priority Habitat type: Lowland dry acid grassland		
Habitat Directive Annex 1 habitats (SAC Features)	**ASSI features**	**NI priority species**
None	None	Skylark, Irish Hare

Definition

The Lowland dry acid grassland in Northern Ireland is defined as grasslands which are:

- Species-rich (generally more than 20 species per 2m x 2m square)
- Include a suite of characteristic plant species, which vary according to the underlying geology and location.
- Less than 25% cover of scrub or dwarf shrub
- Includes both enclosed and unenclosed acid grassland below the upland limit of enclosure (generally c300m) that is managed within enclosed field units.

It excludes swards in old and non-functional enclosures in the upland fringes, which are managed as free-range rough grazing in association with unenclosed tracts of upland. The presence of only common moorland species such as Tormentil, Heath Bedstraw, Lady's Bedstraw, Heather and Bilberry would not meet the priority habitat, regardless of their frequency in the sward.

This habitat can be difficult to define as they comprise a wide range of species, determined by local factors. The National Vegetation Classification (NVC) codes are useful in determining which habitat types fall within Lowland dry acid grassland priority habitat. NVC codes are provided in Appendix 2.

Where are they found?

Lowland dry acid grassland occurs on thin, well-drained acid soils in the enclosed agricultural lowlands. These sites vary from areas of level ground to steep slopes. The steeper examples tend to be broken up by rock outcrops and are particularly common on south-facing slopes. At some sites this priority habitat occupies large areas of steep, rocky slope, grading into other grassland communities (especially neutral grasslands) on deeper soils on more gentle terrain further downslope.

At some other sites on more base-rich rocks and soils, Lowland dry acid grassland occupies the upper parts of slopes (in some cases just a narrow zone along the very top of the slope), giving way lower down to calcareous grassland which in turn pass into neutral grasslands on deeper soils where the slope gradient slackens. Patches of scrub, especially Gorse scrub, are common among these grassland mosaics.

There are no large areas of Lowland dry acid grassland in Northern Ireland with probably less than 700 ha remaining. The habitat tends to be scattered in distribution, small in extent and generally occurs on rocky knolls as a minor component of larger habitat mosaics such as lowland heathland, lowland meadow, and maritime cliff and slopes.

It is rare to find a field of Lowland dry acid grassland and it is more likely to be found in very small patches in a mosaic with other grassland types. Individual parcels would seldom account for more than 0.25 ha. Small concentrations of the habitat occurs in Counties Down and Armagh.

Earth banks associated with hedgerows may also provide the same habitat setting as rocky knolls acting as refuges for acid grassland. The habitat can also occur as lawns of old gardens, church yards and other amenity areas where regular cutting and absence of nutrient inputs has resulted in very leached and relatively acidic soils.

DAERA hold priority habitat and species data on the NIEA Natural Environment Map Viewer. See https://appsd.daera-ni.gov.uk/nedmapviewer/ (and link to video tutorial). Note that the Map Viewer indicates areas which hold NIEA records of habitat / species data, but does not infer the complete coverage of these environmental assets in Northern Ireland.

Why are they important to wildlife?

These grassland contain a rich diversity of wildflowers and grasses which make them an important reservoir for their associated invertebrates, pollinators, bird and mammal species. Lowland dry acid grassland is characterised by a range of plant species such as Heath Bedstraw, Sheep's-fescue, Common Bent, Sheep's Sorrel, Pill Sedge and Tormentil. Dwarf shrubs such as Heather and Bilberry can also occur but at low abundance. This habitat can also have a high cover of bryophytes such as *Rhytidiadelphus squarrosus* and *Pleurozium schreberi*. Parched Lowland dry acid grasslands can also be rich in lichens, however this is scarce and is restricted to small areas of shallow soils over rock, mainly along the coast. A number of rare and notable fungi such as Crimson Waxcap *Hygrocybe punicea* is also associated with Lowland dry acid grassland.

The variety and abundance of flowering plants within semi-natural habitats provide good sources of pollen and nectar for many of our pollinating insects such as bumblebees, hoverflies, butterflies and moths. For further information on habitat management for pollinators, refer to the All-Ireland Pollinator Plan resources: www.pollinators.ie. While most of these are widespread and common, some are much more local in their distribution. However, no species are thought to be confined to this habitat in Northern Ireland. In agriculturally improved lowland landscapes, the Lowland dry acid grassland can hold outlying populations of typical upland species. Skylark and the Irish Hare are characteristic vertebrates.

Pressures & Threats

Lowland dry acid grassland has undergone a substantial decline over the past century. Factors which have led to the decline:

- Agricultural improvement: cultivation, fertiliser and pesticide application, ploughing and re-seeding have all been major causes of habitat loss and continue to be a threat.
- Grazing: appropriate levels of grazing are necessary to maintain the habitat by preserving a relatively low nutrient status and by keeping competitive species in check. Overgrazing, particularly by sheep, can reduce species diversity as stress-tolerant species dominate. Overgrazing which results in poaching and infestation by weeds and Soft Rush, can lead to loss of forage and dominance of these undesirable species. Supplementary feeding can lead to nutrient enrichment, as well as localised poaching.
- In a Lowland dry acid grassland / heathland mosaic, the balance of heath to grass species is influenced by the level of grazing.
- Abandonment: in the absence of management by cutting or grazing, Lowland dry acid grassland undergoes vegetation change leading to rankness and the development of scrub and woodland.
- Recreation - recreational pressure bringing about floristic change associated with soil compaction and damage to the grassland sward may occur at certain sites, such as the coastal cliff tops of County Antrim.
- Erosion - natural processes as well as recreational pressure can lead to accelerated loss of thin acid soils, particularly where these are sparsely vegetated. This may occur in tandem with overgrazing and poaching of Lowland dry acid grassland.
- Afforestation: land dominated by Lowland dry acid grassland tends to be difficult to improve agriculturally and therefore afforestation can be an attractive option.
- Habitat fragmentation: reduction of grassland area and separation of semi-natural grassland parcels results in fragmentation.
- Airborne pollution: acidification and nitrogen enrichment from atmospheric deposition could potentially lead to vegetation change.

- Climate change: could potentially result in changes in the species composition and diversity of Lowland dry acid grassland communities and associated invertebrate populations.

Favourable management of Lowland dry acid grassland

These important grasslands should be protected and maintained where they occur, and should be restored where their condition has declined. Some of our most important grassland sites are protected through National and International legislation. In the wider countryside, grasslands are protected from development and increased agricultural productivity through planning policies and legislation such as the Environmental Impact Assessment Regulations.

Land reclamation techniques such as use of fertilisers, drainage and reseeding, can result in habitat loss or damage and should be prevented.

Lowland acid grasslands are best managed by light, extensive grazing (cattle grazing is preferred). Undergrazing and/or overgrazing should be avoided.

Organic and inorganic fertilisers should not be applied as this would reduce species-richness and diversity with a loss of nature conservation value.

Encroaching scrub and bracken should be controlled by cutting as these can spread at the expense of the priority habitat. Machinery should only be used where ground conditions permit.

Trees should not be planted on this grassland type and nor should it be used for supplementary feeding or storage areas.

On known or potential Marsh Fritillary sites please refer to Marsh Fritillary habitat guide (hyperlink).

How do we determine the "health" or condition of Lowland dry acid grassland?

The conservation status can be determined by the condition of the habitat. Favourable condition is defined by setting targets or target ranges for a series of different attributes. These are components or characteristics of the vegetation that are relatively easy to measure, but which are reliable indicators of the "health" of the habitat.

NIEA has developed Rapid Condition Assessments for several broad habitat types (grassland, moorland, woodland, coastal and wetlands). These will be made available online in the future. In the interim copies can be requested by contacting NIEA by E-mail: NIEA.EFSHigher@daera-ni.gov.uk.

Appendix 1: Lowland dry acid grassland Indicator species

Positive Indicators:

Agrostis capillaris	Common Bent
**Aira praecox*	Early Hair-grass
Calluna vulgaris	Heather
Carex pilulifera	Pill Sedge
Festuca ovina	Sheep's-fescue
Galium saxatile	Heath Bedstraw
Lathyrus linifolius	Bitter Vetch
**Pilosella officinarum*	Mouse-ear Hawkweed
**Polygala serpyllifolia*	Heath Milkwort
Potentilla erecta	Tormentil
**Rumex acetosella*	Sheep's Sorrel
Succisa pratensis	Devil's-bit Scabious
**Teucrium scorodonia*	Wood Sage
**Vaccinium myrtillus*	Bilberry
**Veronica officinalis*	Heath Speedwell

Negative Indicators:

Arrhenatherum elatius	False Oat-grass
Bellis perennis	Daisy
Cirsium arvense	Creeping Thistle
Cirsium vulgare	Spear Thistle
Deschampsia caespitosa	Tufted Hair-grass
Galium aparine	Cleavers
Holcus lanatus	Yorkshire-fog
Lolium perenne	Perennial Rye-grass
Phleum pratense	Timothy
Plantago major	Greater Plantain
Pteridium aquilinum	Bracken
Ranunculus repens	Creeping Buttercup
Rumex crispus	Curled Dock
Rumex obtusifolius	Broad-leaved Dock
Senecio jacobaea	Common Ragwort
Trifolium repens	White Clover
Urtica dioica	Stinging Nettle

*** Core indicators** – if 2 or more core indicator species are present, this will help to confirm the Lowland dry acid grassland habitat type. Please refer to the Grassland Indicator Key in the Grassland Rapid Condition Assessment.

Appendix 2: National Vegetation Classification codes

Lowland dry acid grassland in Northern Ireland encompass a range of plant communities that broadly reflect a number of those communities described in the National Vegetation Classification (NVC) of Great Britain (Rodwell, 1991a) where descriptions and codes are given to associations of plants that are characteristic of particular environmental and management conditions.

In Northern Ireland, the main NVC communities which make up Lowland dry acid grassland: U1, U2, U4 and U20a (all examples in agricultural lowlands).

U4 - *Festuca ovina - Agrostis capillaris - Galium saxatile* grassland,

U1 - *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland,

U20a - *Pteridium aquilinum - Galium saxatile* community

Lowland dry acid grassland often occurs in a mosaic with grasslands that approximate to CG10 *Festuca ovina - Agrostis capillaris - Thymus polytrichus* grassland, or base-rich grassland and occasionally MG5 *Cynosurus cristatus - Centaurea nigra* neutral grassland.