Northern Ireland Priority Habitat Guide: Purple moor-grass and rush pasture

What is Purple moor-grass and rush pasture?

Species-rich semi-natural grassland which is generally found on poorly drained soils; soil type can be acidic, neutral or base-rich. Purple moor-grass and rush pasture is found in both the lowlands and upland fringes.

Rush pastures in the west (Counties Fermanagh and Tyrone) can often be flushed by base-rich waters flowing downslope, hence their occurrence on slopes around drumlins or hillsides. This is an important type of species-rich rush pasture and may be defined as fen meadow.

They generally have a component of Purple moor-grass and/or jointed rushes with a rich variety of wildflowers and sedges. They are one of our most flower-rich habitats which support numerous pollinators and priority species.

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

Northern Ireland Priority Habitat: Purple moor-grass and rush pasture.		
Habitat Directive Annex 1 habitats (SAC Feature)	**ASSI features**	**NI priority species**
H6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	Purple moor-grass and rush pasture	Curlew, Skylark, Snipe, Irish Hare, Marsh Fritillary Butterfly, Ground Beetle *Carabus clatratus*, Blue-eyed grass, Lesser Butterfly-orchid, Small-white Orchid, Melancholy Thistle.

Definition

Purple moor-grass and rush pasture in Northern Ireland is defined as being grasslands which are:

- Dominated by Purple Moor-grass *Molinia caerulea* and/or jointed rushes, predominantly Sharp-flowered Rush *Juncus acutiflorus;*
- Species-rich with a suite of characteristic plant species, which vary according to the habitat type, e.g. species associated with *Molinia*-rich pastures often include Devil's-bit Scabious *Succisa pratensis*, Meadow Thistle *Cirsium dissectum* and Tormentil *Potentilla erecta*, whilst rush-dominated sites may include Marsh Bedstraw *Galium palustre* and Wild Angelica *Angelica sylvestris*;
- Have less than 25% cover of scrub or dwarf shrub.

The priority habitat should not be confused with species-poor, rush-dominated flushes and semi-improved pastures where Soft Rush *Juncus effusus* is often the most abundant rush. Species-poor wet acid grassland, which lacks the wildflower indicator plants does not meet the Purple moor-grass and rush pasture priority habitat.

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 Purple moor-grass and rush pasture priority habitat. NVC codes are provided in the Appendix.

Where are they found?

Extensive areas of Purple moor-grass and rush pasture are found in enclosed farmland in the marginal uplands. The habitat can also be found fragmented in farmland as part parcels, often as wet hollows or field corners. Much of the Northern Ireland resource is found in County Fermanagh on poorly drained drumlin soils around Upper Lough Erne and extensively across West Fermanagh. There are large areas in South and West Tyrone, and on the edges of both the Antrim Plateau and the Sperrins. They often occur in a mosaic with other habitats such as heath, grassland, fen and woodland.

The vegetation grades into other types of agricultural grassland at low elevations and into poor fen and wet heath at higher elevation.

Northern Ireland has around 18,700 ha of Purple moor-grass and rush pasture and holds a large portion of the European resource. It is also thought to contain approximately one third of the estimated UK total. This equates to approximately 1.2% of the total land area with slightly over half this amount occurring within Co. Fermanagh.

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 grasslands contain a rich diversity of rushes, sedges, grasses and herbs which make them important reservoirs for wildflowers and their associated invertebrates, pollinators, bird and mammal species. Purple moor-grass and rush pastures are important for a range of Northern Ireland priority species as shown in Table 1. They provide a very important habitat for the European protected Marsh Fritillary Butterfly due to the abundance of Devil's-bit Scabious; the only food plant for caterpillars of the Marsh Fritillary and can form an important habitat for breeding waders such as Curlew.

Flowing water may create flushes which provide an exceptionally rich area for species such as Fairy Flax, Common Butterwort and the rare Lesser Clubmoss. On more acidic soils, Purple Moor-grass and rushes may be interspersed with tall herbs like Wild Angelica, Meadowsweet, Ragged Robin and Water Mint. Heath Spotted-orchid can also be found on more acidic sites.

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.

Pressures & Threats

The quality of Purple moor-grass and rush pasture is dependent upon the following conditions: wet or waterlogged soils, low nutrient levels and appropriate levels of management. Factors which have led to the decline of Purple moor-grass and rush pasture include, but are not limited to:

- Agricultural improvement: drainage, cultivation, fertiliser and pesticide application, ploughing and re-seeding have all been major causes of habitat loss and continue to be the most significant threat to this habitat.
- 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.
- Burning: burning can result in a loss of habitat structure and species diversity by allowing ruderals to dominate.
- Abandonment: in the absence of management by cutting or grazing, Purple moor-grass and rush pasture undergoes vegetation change leading to rankness and the development of scrub and woodland.
- Afforestation: land dominated by Purple moor-grass and rush pasture tends to be difficult to improve agriculturally and therefore afforestation can be an attractive option.
- Infilling: Purple moor-grass and rush pastures associated with wet corners and depressions are often in-filled to create level fields and increase the area suitable for cultivation.
- Habitat fragmentation: reduction of grassland area and separation of semi-natural grassland parcels results in fragmentation.
- Planning developments: the perception that unimproved grassland is of little value because of its low agricultural activity may result in its preferential development for housing.
- 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 Purple-moor grass and rush pasture communities and associated invertebrate populations.

Favourable management of Purple moor-grass and rush pasture

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.

Rush pastures are best managed by light, extensive grazing (cattle grazing is preferred) during late spring, summer and autumn. Undergrazing and/or overgrazing should be avoided. Risk of poaching should be minimised and any livestock removed off site in very wet conditions.

Where the historical management of the habitat has been for hay production, this should continue. Cutting should be delayed until after mid-July, this will allow plants to flower and set seed. Aftermath grazing should be carried out in late summer and autumn to keep the sward low and assist seed germination.

Where hay is produced on rush pastures small amounts (less than 2.5 tonnes/ha/year) of farm yard manure may be applied. No other form of nutrient inputs should be applied as it would reduce species-richness and diversity with a loss of nature conservation value.

Encroaching scrub and tussock forming rushes 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 and breeding wader sites please refer to Marsh Fritillary and Breeding Wader habitat guides.

How do we determine the "health" or condition of Purple moor-grass and rush pasture?

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: Purple moor-grass and rush pasture Indicator species

Positive Indicators:

Achillea ptarmica	Sneezewort
Ajuga reptans	Bugle
Anagallis tenella	Bog Pimpernel
Briza media	Quaking Grass
Carex flacca	Glaucous Sedge
Carex hostiana	Tawny Sedge
Carex panicea	Carnation Sedge
Carex pulicaris	Flea Sedge
**Cirsium dissectum*	Meadow Thistle
Crepis paludosa	Marsh hawk's-beard
**Dactylorhiza maculata*	Heath spotted-orchid
Dactylorhiza sp.	Orchid sp.
Danthonia decumbens	Heath-grass
Epilobium palustre	Marsh Willowherb
Equisetum palustre	Marsh Horsetail
**Erica* sp.	Heath species
Euphrasia officinalis	Eyebright
Filipendula ulmaria	Meadowsweet
Galium palustre	Common Marsh-
Hydrocotyle vulgaris	Marsh Pennywort
Linum catharticum	Fairy Flax
Lotus pedunculatus	Greater Bird's-foot-
Lysimachia nummularia	Creeping Jenny
Mentha aquatica	Water Mint
**Nardus stricta*	Mat-grass
**Pedicularis sylvativa*	Lousewort
Pinguicula vulgaris	Common Butterwort
**Platanthera bifolia*	Lesser Butterfly Orchid
Primula vulgaris	Primrose
Ranunculus flammula	Lesser Spearwort
Selaginella selaginoides	Lesser Clubmoss
Silene flos-cuculi	Ragged Robin
Succisa pratensis	Devil's-bit Scabious

*** Core indicators** – the presence of core indicator species helps to separate Purple moor-grass and rush pasture from Fens. Please refer to the Grassland Indicator Key within the Grassland Rapid Condition Assessment.

Additional positive indicators for regularly flooded traditional managed grassland (MG8) or communities approaching lowland meadow (MG5)

Alchemilla sp.	Lady's-mantle
Carex nigra	Common Sedge
Centaurea nigra	Knapweed
Filipendula ulmaria	Meadowsweet
Galium palustre	Common Marsh-bedstraw
Lathyrus pratensis	Meadow Vetchling
Rhinantus minor	Yellow-rattle
Vicia cracca	Tufted Vetch

Negative Indicators:

Arrhenatherum elatius	False Oat-grass
Bellis perennis	Daisy
Cirsium arvense	Creeping Thistle
Cirsium palustre	Marsh Thistle
Cirsium vulgare	Spear Thistle
Deschampsia caespitosa	Tufted Hair-grass
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 aquaticus	Marsh Ragwort
Senecio jacobaea	Common Ragwort
Trifolium repens	White Clover
Urtica dioica	Stinging Nettle

Appendix 2: National Vegetation Classification codes

Purple moor-grass and rush pasture 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.

Purple moor-grass and rush pasture - priority habitat

The two main NVC communities which make up the priority habitat are:

M24 -Purple Moor-grass *Molinia caerulea* – Meadow Thistle *Cirsium dissectum* fen meadow often found on shallow peaty soils.

Species-rich **M23** -Soft Rush *Juncus effusus* / Sharp-flowered Rush *Juncus acutiflorus* – Common Marsh-bedstraw *Galium palustre* community "rush pasture", usually found on mineral soils.

There can be transitions to MG5d especially if it is rushy and MG8 hay meadows in the west.

Purple moor-grass and rush pasture - Species-poor

Species-poor communities which do not meet priority habitat quality, and which commonly exist as transitions to other habitats:

- Species-poor **M23** Soft rush *Juncus effusus* / Sharp-flowered Rush *Juncus acutiflorus* – Marsh Bedstraw *Galium palustre* rush-pasture, grading to marshy grassland
- **MG10** Yorkshire Fog *Holcus lanatus* – Soft Rush *Juncus effusus* rush pasture
- **M25** Purple Moor-grass *Molinia caerulea* – Tormentil *Potentilla erecta* mire grading to wet heath (**M15** Deergrass *Trichophorum germanicum* – Cross-leaved Heath *Erica tetralix*)
- **M16** Cross-leaved Heath *Erica tetralix* – Sphagnum moss *Sphagnum compactum* wet heath.