

## How to identify the type of grassland you have

It can be quite difficult to identify the type of grassland that you have; from whether it is species-rich or species-poor, improved or semi-improved or whether it is calcareous, neutral, marshy or acid grassland. Fortunately Natural England developed some keys that can be used to work through this process.

The first thing you need to do is a structured 'W' walk through your grassland stopping at regular intervals or random points to assess whether 'indicator' species are rare, occasional or frequent. For most grasslands, stopping 10 times will be enough to gather sufficient information.

Each time you stop, look at the vegetation within the square metre in front of you and note which plant species are present with a yes or no. Indicator species vary depending on the type of grassland, and there are lists for each type of species-rich grassland at the end of this document.

The frequency of indicator species can be judged as:

- **Rare** if it occurs in 1-2 stops out of 10 (less than 20% of stops).



Hay meadow © Cath Shellswell

- **Occasional** if it occurs in 3-4 stops out of 10 (20-40% of stops).
- **Frequent** if it occurs in more than 5 stops out of 10 (50% or more stops).

It is best to do the survey in the middle of the flowering period during June and July to ease identification of species.

### Is your grassland species-rich or species-poor?

The first key ([key 2a](#)) helps to identify the broad type of grassland. Answer the questions with a yes or no to follow the arrows through to a conclusion. If the result of the key is that the grassland is species-rich, then you may want to find out what type of grassland is present using your list of indicator species in the next key ([Key 2b](#)) and the [grassland descriptions](#).

If the grassland is semi-improved it might be possible to rehabilitate the grassland using management, such as grazing livestock or reinstating a hay making and aftermath grazing regime (see [How can I manage my grassland?](#)). This is particularly the case where there has been, for example, a lack of recent management and many of the characteristic species are still present but at lower frequencies (see the [timescales for recovery for rehabilitating lowland grassland](#)). There may also be opportunities to restore semi-improved grassland, using more interventionist methods such as seed or green hay introduction, to a species-rich grassland (see [key 2c](#), [Is my land suitable for restoring or creating a wildflower meadow?](#) and [How can I restore or create a meadow?](#)).

## Key 2a - key to identify species-rich, semi-improved and improved grasslands

Do at least two of the following apply<sup>1</sup>:

- Cover of rye-grasses and white clover is less than 10%?
- The sward is species-rich? (more than 15 vascular plant species / sq m, including grasses)
- There is a high cover of wildflowers<sup>2</sup> and sedges (more than 30%), excluding white clover, creeping buttercup and injurious weeds<sup>3</sup>?

A wide range of grass species may be present, inc. blue moor-grass, crested hair-grass, heath-grass, meadow oat-grass, sheep's fescue, tor-grass, upright brome, quaking grass and yellow oat-grass in addition to more commonly occurring grasses typical of semi-improved grassland.

Yes →

The field holds **species-rich grassland** and is likely to be a **priority habitat** or restorable to a priority habitat (see the **timescales for recovery of existing lowland grassland** for more information about rehabilitating the condition of priority grasslands).

Refer to key 2b to identify the type of grassland.

No ↓

Do at least two of the following apply:

- Cover of rye-grasses and white clover is less than 30%?
- The sward is moderately species-rich? (9-15 vascular plant species/ sq m, including grasses)
- There is a high cover of wildflowers<sup>2</sup> and sedges, excluding white clover, creeping buttercup and injurious weeds<sup>3</sup>, is 10% or more?

Typical grass species are cock's-foot, common bent, crested dog's-tail, false oat-grass, meadow fescue, meadow foxtail, red fescue, sweet vernal grass, timothy and tufted hair-grass.

Yes →

The field holds **semi-improved grassland**. Although this grassland may not be as rich in wildflowers and wild grasses as priority habitats, it may still have wildlife benefits and if there is rough or rushy grassland there may be the potential value for breeding waders.

Refer to key 2c to find out the potential for restoration to a priority grassland habitat.

No ↓

Do at least two of the following apply:

- Cover of rye-grasses and white clover is more than 30%?
- The sward is species-poor? (up to 8 vascular plant species/ sq m, including grasses)
- There is low cover of wildflowers<sup>2</sup> and sedges (less than 10%), excluding white clover, creeping buttercup and injurious weeds<sup>3</sup>?

Typical grass species are cock's-foot, Italian rye-grass, perennial rye-grass, rough-stalked meadow grass, timothy and Yorkshire-fog<sup>4</sup>.

Yes →

The field holds **species-poor improved grassland**.

Refer to key 2c to find out the potential for restoration to a priority grassland habitat.

No ↓

The field may not be a grassland habitat, i.e. a lowland heath or fen

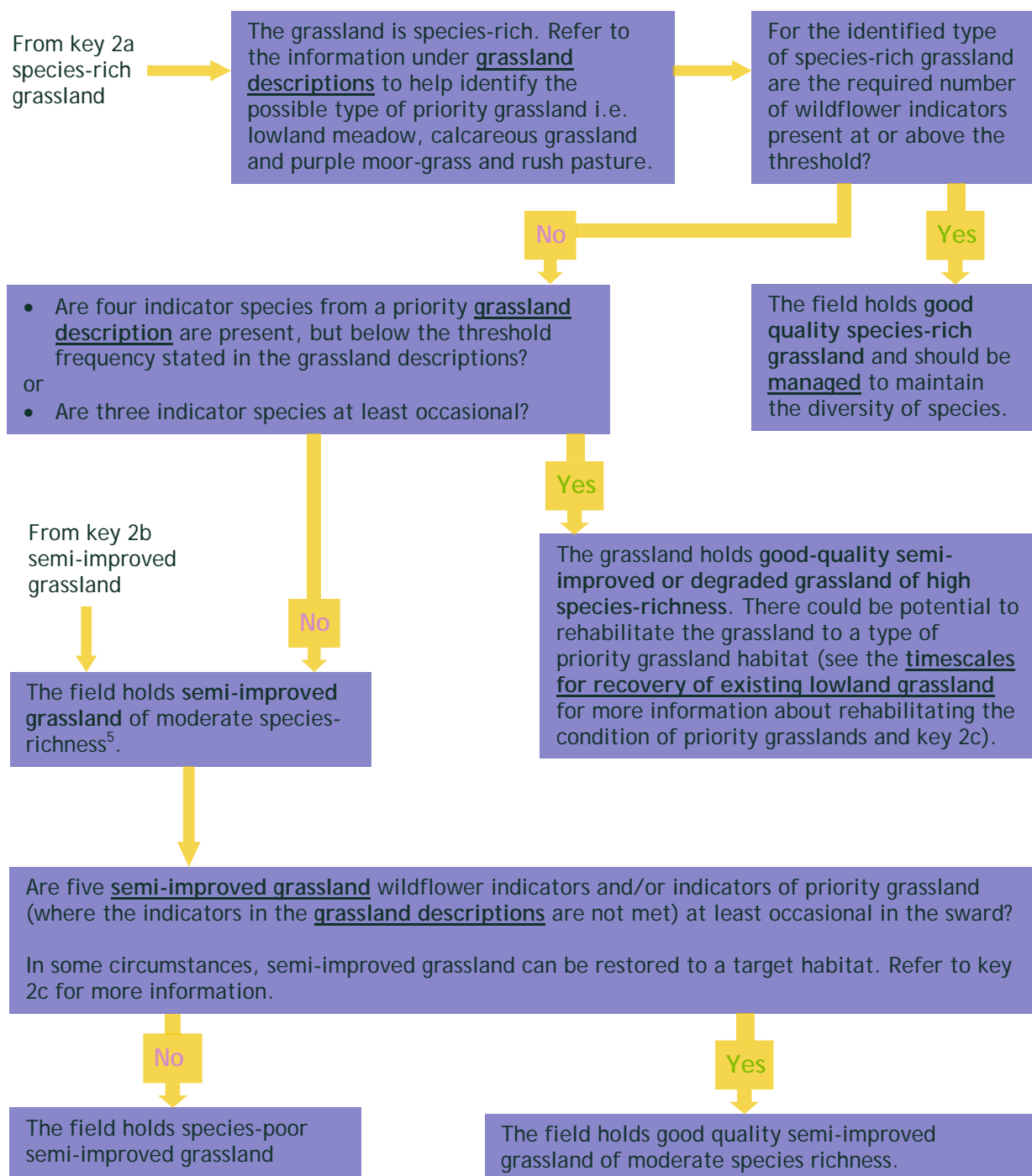
<sup>1</sup> Whilst these criteria generally hold true for most types of grassland, some lowland acid grasslands may be naturally species-poor or dominated by grasses and lower plants. Some purple moor-grass and rush pasture swards may not meet these criteria especially when grazing is intermittent or has been abandoned. If on soils where these habitats might occur, check whether indicator species are present and frequency thresholds for **lowland dry acid grassland** and **purple moor-grass and rush pastures** are met.

<sup>2</sup> The term 'wildflowers' is used here to mean broadleaved herbs. Plants may not all be in flower at the time of the survey.

<sup>3</sup> Injurious weeds are creeping and spear thistles, broad-leaved and curled dock and common ragwort.

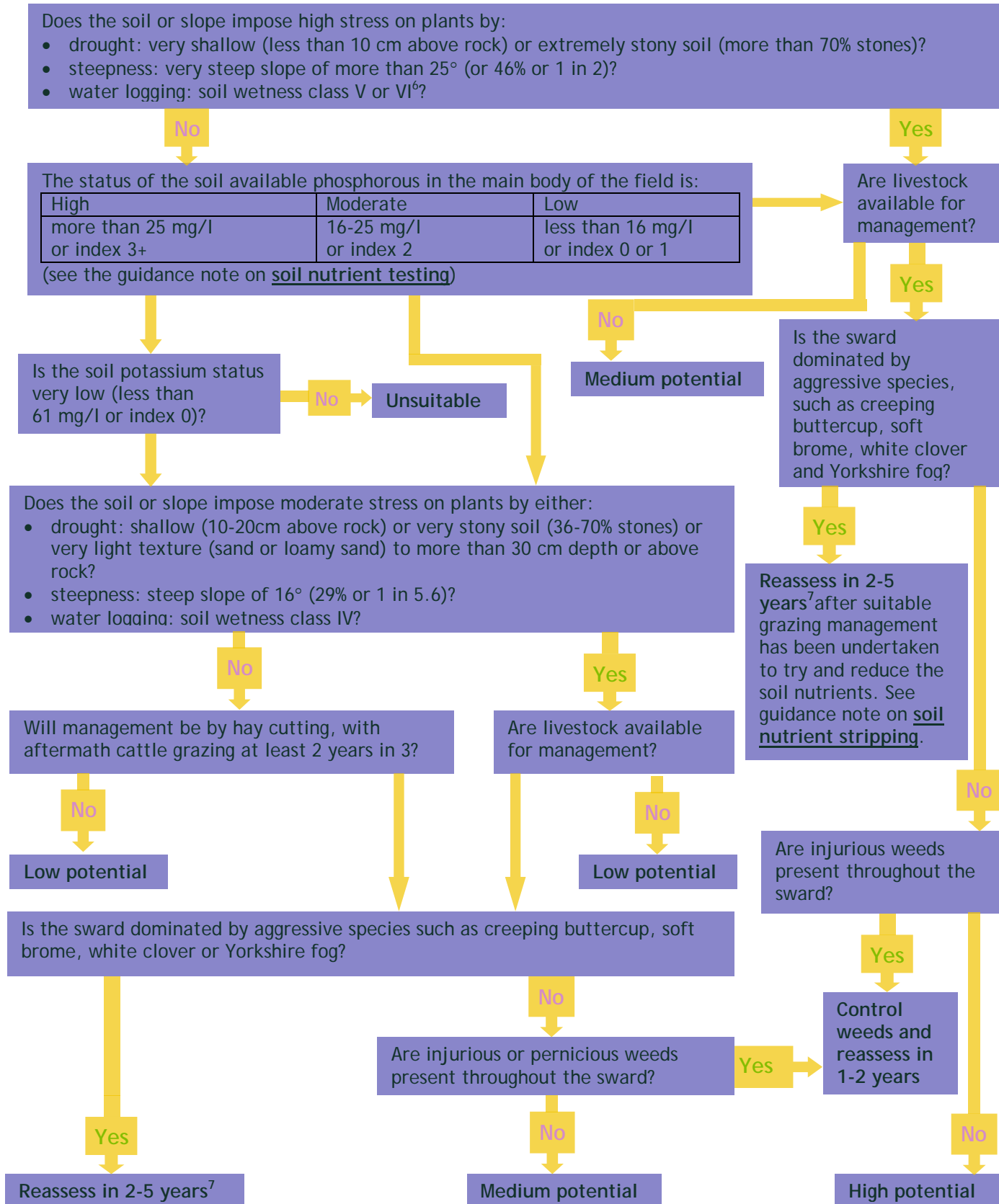
<sup>4</sup> Some re-seeded grasslands with 'agricultural grass-seed mixtures' may appear more diverse if a larger variety of species has been used (up to 15 species of grass may be included in a mix), but generally lack the wildflowers that are present in species-rich grassland.

Key 2b- key to the type of species-rich grassland (also refer to the [grassland descriptions](#) for lists of indicator species present)



<sup>5</sup> In wet grassland with a bulky sward which includes a number of wildflowers and occasional to frequent rushes and sedges, and where cover of rye-grass and white clover is less than 10%, check for the number and frequency of indicator species of purple moor-grass and rush pasture, and lowland meadow and pasture and record as such if the criterion are met. Similarly, on short swards on sandy soils check the number and frequency of indicators of lowland dry acid grassland. In such swards, there may be fewer than 15 species per square metre, and less than 30% cover of wildflowers and sedges, so the grassland may be identified as semi-improved in key 2a.

## Key 2c- key to the botanical enhancement potential of species-poor grassland



<sup>6</sup> Soils with wetness class V and VI are wet for long periods into the growing season, or permanently waterlogged near the surface. Soils with wetness class VI are waterlogged for long periods in winter.

<sup>7</sup> Where these species dominate and there is no existing botanical interest, it may be more effective to remove the sward (taking into account historical, bird and other interests on the site, and the risk of soil erosion). See guidance note on [soil nutrient stripping](#).

## Grassland descriptions

The descriptions below can help identify the different types of grasslands.

### Lowland dry acid grassland

- This refers to semi-natural grassland, generally dominated by fine-leaved grasses on nutrient-poor, free-draining soils in the lowlands and enclosed upland fringe. It sometimes occurs in a mosaic with lowland heath. Mosses and/or lichens are sometimes frequent. Some sites may be naturally species-poor (dominated, for example, by bristle bent or wavy hair-grass). However, lowland acid grassland is a scarce resource and any site is likely to be considered of high value.
- Acid grassland is also widespread in the uplands where it exists largely as extensive species-poor communities on the open fell or in large enclosures above the moorland line. Species-rich

upland acid grassland sites are generally dominated by sheep's fescue and common bent, with a high proportion of herbs such as betony, devil's-bit scabious, bitter-vetch, harebell, heath bedstraw, lady's bedstraw and mountain pansy. Other moorland species such as tormentil, heath bedstraw, heather and bilberry show the gradation into upland heath.

- This grassland is managed primarily by grazing.
- Typical grasses include: common bent, early hair-grass, heath grass, sheep's fescue, sweet vernal grass and wavy hair-grass.
- Typical wildflowers include: common centaury, common stork's-bill, heath bedstraw, heath speedwell, mouse-ear hawkweed, rough/ lesser hawkbit, sheep's sorrel, tormentil, violets and wild strawberry.
- For more information see the advice sheet on [acid grassland](#).



## Purple moor-grass and rush pastures or marshy grassland

- This refers to species-rich, semi-natural grassland with abundant purple moor-grass and/or jointed rushes (sharp-flowered rush, jointed rush or blunt-flowered rush) on poorly drained neutral and acidic soils of the lowlands and upland fringe. Purple moor-grass and rush pasture is often associated with springs, seepage lines and slopes surrounding waterlogged depressions and hollows. In Devon and Cornwall, this type of grassland is called Culm grassland, in Wales it is referred to as Rhôs pasture while in Northern Ireland it's known as rough ground.
- Purple moor-grass and rush pasture can occur on the upland fringes and above the moorland line, but can easily be confused with species-poor, rush-dominated flushes and semi-improved pastures (where soft rush is often the most abundant rush).
- Typical grasses include: creeping bent, crested dog's-tail, purple moor-grass, quaking-grass, red fescue, sweet vernal grass, tufted hair-grass, velvet bent and Yorkshire-fog.
- Typical wildflowers include: devil's-bit scabious, marsh thistle, fen/marsh bedstraw, common knapweed, lesser spearwort and meadowsweet.
- For more information see the advice sheet on [acid grassland](#).

## Calaminarian grassland

- Calaminarian grassland generally has short, open vegetation of fine-leaved grasses, flowers, mosses and lichens on metal-rich exposures or substrates. It was originally associated with natural metal-rich outcrops but such occurrences are now exceptionally rare.
- Artificial sites (the vast majority) are found in the north Pennines, Yorkshire Dales, Derbyshire, Cornwall and the Mendips on spoil heaps from mineral extraction, or on riverine gravels that have been deposited downstream of historical mining areas with most having become stabilised as the river has migrated laterally. Some of these artificial sites have greater long-term viability than others. In particular, examples on riverine gravels may be eroded through natural river movement or undergo ecological succession due to declining metal toxicity of the surface soil.
- Typical grasses include: common bent, red fescue, sheep's fescue and sweet vernal grass.
- Specialist wildflowers (indicator species) include: alpine penny-cress, mountain pansy, Pyrenean scurvygrass, sea campion, spring sandwort and thrift.
- For more information see the advice sheet on [acid grassland](#).



Spring sandwort © Cath Shellswell



Moonwort © Cath Shellswell

## Lowland meadows

- Lowland meadows are species-rich, semi-natural grassland on free-draining, neutral soils in the lowlands and upland fringes, including species-rich flood plain grassland.
- They are managed by cutting (generally for hay or haylage in wet years) and/or grazing and may be called a number of different things such as hay meadows, floodplain meadows and grazing pasture.
- Typical grasses include: cock's-foot, common bent, crested dog's-tail, red fescue, meadow fescue, sweet vernal grass, yellow oat-grass and Yorkshire-fog.
- Typical wildflowers include: common knapweed, common bird's-foot-trefoil, common meadow-rue, marsh valerian, meadow vetchling, meadowsweet, narrow-leaved water-dropwort and ragged robin.
- For more information, see the advice sheet on [neutral grassland](#).

## Upland hay meadows

- This is enclosed land on moist or free-draining neutral soils in the Pennines and Dales of Yorkshire, Durham, Northumberland, Lancashire and Cumbria, and in the eastern Lake District.
- Meadows are usually cut annually for hay, usually with both spring and aftermath grazing. Sometimes, a small amount of farm yard manure is spread on the grasslands where this practice has historically been undertaken.
- Typical grasses include: cock's-foot, common bent, crested dog's-tail, red fescue, rough meadow-grass, soft brome, sweet vernal grass and Yorkshire-fog.
- Typical wildflowers include: common knapweed, eyebrights, hawkbits, meadow vetchling, meadowsweet, pignut and tormentil.
- For more information, see the advice sheet on [neutral grassland](#).



Lowland meadow © Cath Shellswell

## Lowland calcareous grassland

- This is species-rich, semi-natural grassland on chalk and limestone in the lowlands and upland fringe, generally below 300 m in altitude.
- The pasture is managed primarily by grazing.
- Typical grasses include: blue moor-grass, cock's-foot, common bent, crested hair-grass, downy oat-grass, meadow oat-grass, quaking-grass, sheep's fescue, tor-grass, upright brome and yellow oat-grass.
- Typical wildflowers include: common bird's-foot-trefoil, common rock-rose, cowslip, eyebright, greater knapweed, lady's bedstraw, milkworts, small scabious and wild thyme.
- For more information see the advice sheet on [calcareous grassland](#).

## Upland calcareous grassland

- This grassland is generally species-rich, semi-natural grassland, usually dominated by fine-leaved grasses, on calcareous soils over Carboniferous limestone in upland areas. It often occurs in parts of large-scale enclosures with other less species-rich grassland types, and is generally above 300 m in altitude. All calcareous grassland in Northern Ireland is considered to be upland calcareous grassland.
- It is managed primarily by grazing.
- Typical grasses include: blue moor-grass, common bent, crested hair-grass, meadow oat-grass, red fescue, sheep's fescue, sweet vernal grass and quaking-grass.
- Typical wildflowers include: common bird's-foot-trefoil, common rock-rose, eyebrights, fairy flax, harebell, horseshoe vetch and wild thyme.
- For more information see the advice sheet on [calcareous grassland](#).



Lowland calcareous grassland © Cath Shellswell



## Semi-improved grassland

- Semi-improved grassland occurs on a wide range of soils and may be derived from grassland priority habitats following agricultural improvement. It is not considered a priority habitat, but may still contain some wildlife value. Generally, these grasslands are poor in wildflowers as they are unable to compete with the grasses and flower, or the historical management has cut the sward prior to flowering and seed set, and the wildflowers have declined over time. Sometimes, the grassland may have some wildflowers such as common vetch, bush vetch and red clover, but it may still lack the diversity of indicator species present in a priority grassland, such as a lowland meadow.
- Occasionally, re-seeded grasslands that have been sown with a diverse grass mix (sometimes up to 12-15 species) and may resemble semi-improved grassland.

- Typical grasses include: cock's-foot, common bent, creeping bent, crested dog's-tail, false oat-grass, meadow fescue, meadow foxtail, red fescue, sweet vernal grass, timothy, tufted hair-grass and Yorkshire-fog.

Magnificent Meadows would like to thank Natural England for allowing much of this information to be reproduced from their Baseline Evaluation of Higher Tier Agreements Manual (BHETA Manual) for Countryside Stewardship applications (Second edition May 2016).



Bird's-foot-trefoil with a 6-spot ladybird © Cath Shellswell