LOWLAND CALCAREOUS GRASSLAND

Nationally

Lowland calcareous grasslands are developed on shallow lime-rich soils generally overlying limestone rocks, including chalk. These grasslands are now largely found on distinct topographic features such as escarpments or dry valley slopes and sometimes on ancient earthworks in landscapes strongly influenced by the underlying limestone geology. More rarely, remnant examples occur on flatter topography such as in Breckland and on Salisbury Plain. They are typically managed as components of pastoral or mixed farming systems, supporting sheep, cattle or sometimes horses; a few examples are cut for hay.

Early purple orchids in Cressbrookdale

The definition of calcareous grasslands covers a range of plant communities in which lime-loving plants are characteristic. In the context of the UKBAP, lowland types are defined as the first nine calcareous grassland National Vegetation Classification communities, which straddles both lowlands and uplands, these communities are largely restricted to the warmer and drier climates of the southern and eastern areas of the United Kingdom. Lowland calcareous grassland sites occur in both enclosed and unenclosed situations but typically below the upper level of agricultural enclosure in any particular district.

The cover of lowland calcareous grassland has suffered a sharp decline in extent over the last 50 years. There are no comprehensive figures, but a sample of chalk sites in England surveyed in 1966 and 1980 showed a 20% loss in that period and an assessment of chalk grassland in Dorset found that over 50% had been lost between the mid-1950s and the early 1990s.

Lowland calcareous grasslands support a very rich flora including many nationally rare and scarce species such as monkey orchid (*Orchis simian)*, hoary rockrose (*Helianthemum canum)* and pasque flower (*Pulsatilla vulgaris)*. The invertebrate fauna is also diverse and includes scarce species like the adonis blue (*Lysandra bellargus)*, the silver-spotted skipper (*Hesperia comma)*, the Duke of Burgundy fritillary (*Hamaeris lucina)* and the wart-biter cricket (*Decticus verrucivorus)*. These grasslands also provide feeding or breeding habitat for a number of scarce or declining birds including stone curlew (*Burhinus oedicnemus)* and skylark (*Alauda arvensis)*.

Lowland calcareous grassland is an important habitat for a number of priority invertebrate, plant and bird species. The priority species include: leaf beetles, Northern brown argus (*Aricia artaxerxes)*, silver spotted skipper (*Hesperia comma),* adonis blue (*Lysandra bellargus)*, wart-biter grasshopper (*Decticus verrucivorous)*, a hover fly (*Doros profuges)*, several moths including the bordered gothic (*Heliophobus reticulate)*, pale shining brown (*Polia bombycina)* and the four spotted (*Tyta luctuosa).* Vascular plants include the prickly sedge (*Carex muricata* ssp. *Muricata)* and the early gentian (*Gentianella anglica* ssp. *Anglica).*

Extent in UK: 40,694 ha

In the Peak District

The grasslands of the limestone dales are very variable ranging from the predominantly calcareous grasslands to neutral and acid swards, tall herb grassland and lead rake communities. The geographical location, varying topography and underlying influence of the limestone results in a range of transitional communities. Furthermore, the Peak District Dales grasslands are renowned for the presence of plant species which occur at the edge of both their northern (e.g. globeflower, limestone bedstraw) and southern ranges (e.g. dwarf thistle, horseshoe vetch).

Globeflower © Paul Hobson

The calcareous grasslands of the lime rich soils in the dales are internationally important and can be incredibly species rich, with distinct plant communities on different slopes. Typically, the cooler and wetter north-facing slopes support damp-loving species such as grass-of-parnassus, in a sedge rich sward. On the thin drought prone soils of south facing slopes, some of the richest grasslands in the U.K. are found with many small and slow growing species co-existing, such as rockrose, salad burnet, small scabious, thyme, and fairy flax. This diversity is reflected in the rich and important invertebrate fauna found within the dales.

The unusual drainage qualities of limestone have resulted in a number of important basic flushes within the dales. Such areas are characterised by a number of species which are uncommon in the White Peak, such as butterwort and flat sedge, and a rich invertebrate fauna. These rare habitats are found where springs occur, a result of impervious, volcanic rock layers forcing water to the surface on the dalesides, usually close to rivers. Monks Dale and the Wye Valley both have small but good examples of these communities.

Increased stocking levels and changes in types of stock will have affected the quality of some calcareous grassland sites. Losses to scrub encroachment through lack of grazing are known to have been significant since World War 2. In the past a small number of sites have probably been lost to plantation woodlands. Scattered across the small enclosed fields of the White Peak plateau are also a number of notable rocky outcrops and banks. These often support rich calcareous grasslands with lime-loving plants such as thyme and early purple orchid.

Song thrush © Paul Shaw

Scrub can be an important component of daleside habitats. Retrogressive hazel scrub is thought to derive from ancient ash woodland, consisting mainly of hazel with perhaps field rose, guelder rose and wild privet. Such scrub is a treasure trove of plants with remnants of woodland flora, such as lily of the valley and wood sage, growing with a variety of grassland plants. Important birds such as whitethroat and song thrush favour these areas. Elsewhere, hawthorn scrub, the commonest scrub type in the dales, may be well established, providing nesting sites for songbirds, and nectar and shelter for insects. However, encroaching hawthorn scrub is undesirable ecologically as it leads to the loss of important species-rich grassland. A third type of scrub, dominated by gorse, is often found where acid conditions prevail. These areas are important for birds such as linnet and a rich nectar source for insects.

Extent in PD: 1,026 ha

Current Factors Affecting the Habitat & Habitat Condition

The factors currently affecting calcareous grassland reduce the quality and quantity of the habitat, and its fragmentation brings increased risk of species extinctions in the small remnant areas. The factors include:

- Agricultural intensification by use of fertilisers, herbicides and other pesticides, re-seeding or ploughing for arable crops.
- Farm specialisation towards arable cropping has reduced the availability of livestock in many areas. The result is the increasing dominance of coarse grasses and invasion by scrub and woodland, leading to losses of calcareous grassland flora and fauna.
- Over-grazing is a less widespread problem, and is sometimes associated with supplementary feeding, which can also cause localised sward damage due to trampling and long-term nutrient enrichment.
- Development activities such as mineral and rock extraction, road building, housing and landfill.
- Recreational pressure bringing about floristic changes associated with soil compaction at some key sites.
- Atmospheric pollution and climate change, the influence of which is not fully assessed.

Recent Work

Much of the calcareous grassland in the Peak District is found within limestone dales, mostly classified as SSSIs, work to reach condition targets on SSSIs has helped to safeguard calcareous grasslands in these locations.

Associated BAP Species in the Peak District

Dingy skipper	*Erynnis tages*
Skylark	*Alauda arvensis*

Locally Significant Species in the Peak District

Globeflower	*Trollius europaeus*
Limestone bedstraw	*Galium sterneri*
Dwarf thistle	*Cirsium acaule*
Horseshoe vetch	*Hippocrepis comosa*

NVC Communities

The principal vegetation types (and their associated sub-communities) included in this habitat are:

CG1 - *Festuca ovina - Carlina vulgaris* grassland (except where these occur above the upper limits of enclosure)
CG2 - *Festuca ovina - Avenula pratensis* (except where these occur above the upper limits of enclosure)
CG3 – *Bromus erectus* grassland
CG4 – *Brachypodium pinnatum* grassland
CG5 – *Bromus erectus-Brachypodium pinnatum* grassland
CG6 – *Avenula pubescens* grassland
CG7 – *Festuca ovina-Hieracium pilosella-Thymus praecox/pulegioides* grassland
CG8 – *Sesleria albicans-Scabiosa columbaria* grassland
CG10 - *Festuca ovina - Agrostis capillaris - Thymus praecox* grassland