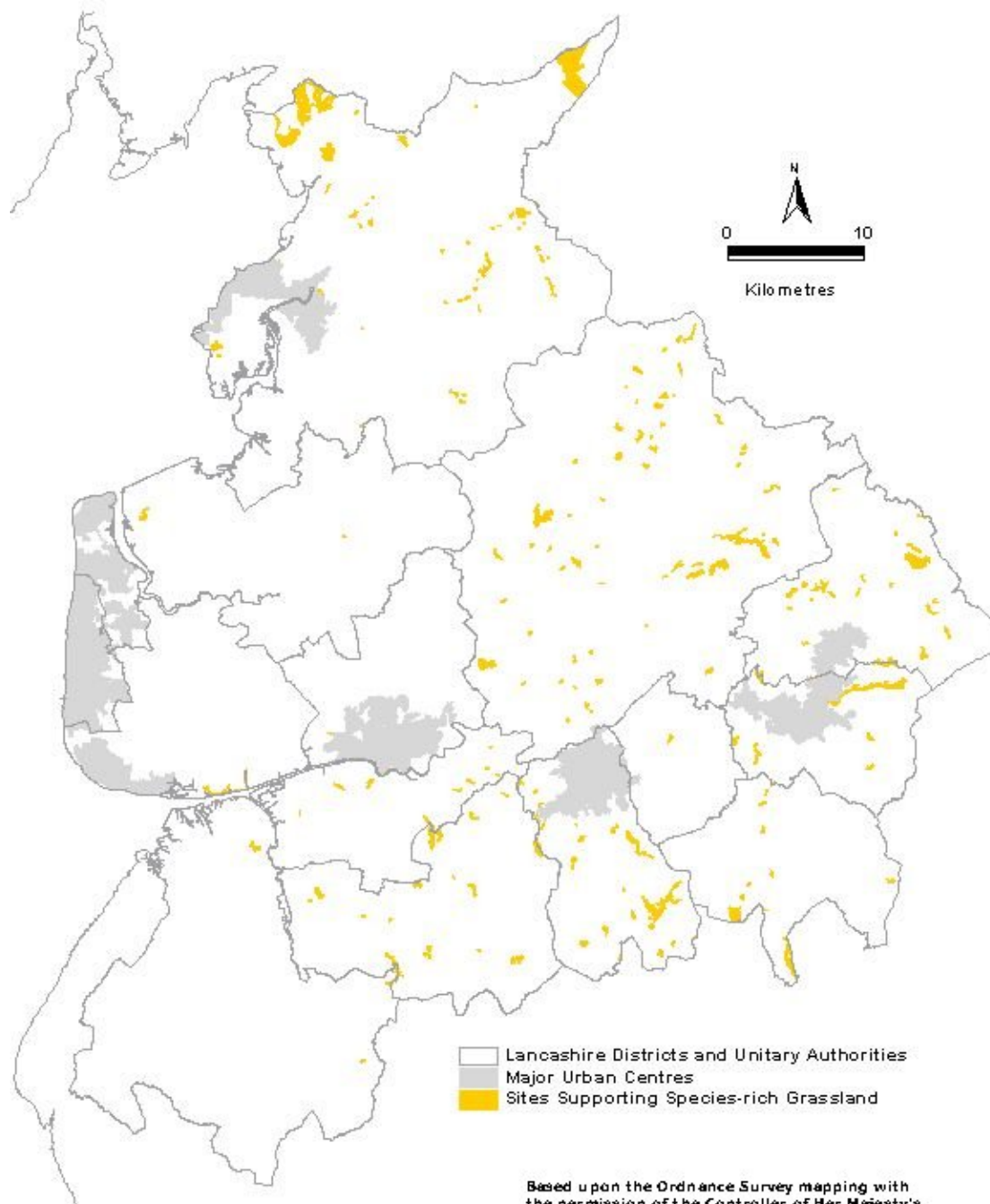


Calcareous Grassland



Species rich Calcareous Grassland at Jack Scout SSSI, Silverdale.
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Remaining Species-rich Grassland in Lancashire



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Lancashire County Council 100023 320 2007

Habitat Description

This broad habitat category incorporates two UK BAP 'priority habitats'^(1,2) namely:

- lowland calcareous grassland;
- upland calcareous grassland.

Calcareous grassland develops on shallow, lime-rich soils. In Lancashire, such soils overlie carboniferous limestone but in other parts of the UK, this habitat is found also in association with other types of limestone rocks and on chalk.

Species-rich calcareous grassland is maintained by grazing livestock, particularly where low-intensity farming practices have survived. It is also found on roadside verges, old limestone quarries, earthworks and railway cuttings.

Calcareous grasslands support a remarkable diversity of plant-life including many species that are in decline. Indeed, botanically, this habitat is one of the richest of any in the British Isles. They are of immense nature conservation importance, enhance landscapes and are of high amenity/intrinsic value.

Calcareous grassland may support a rich diversity of invertebrate species. This is particularly so where it forms an integral part of a varied mosaic with other habitats such as scrub, limestone pavement, rock outcrops as well as bracken. Habitat mosaics with these elements in Lancashire support nationally important populations of some scarce invertebrate species including: northern brown argus, high brown fritillary, pearl-bordered fritillary; the hoverfly *Doros profuges*; and the wall mason bee *Osmia parietina*.

National status

There is estimated to be approximately 65,000 ha of calcareous grassland in the UK^(1,2). The habitat is restricted to those areas of the country that have a suitable geology for the development of lime-rich soils. Most of the resource in the lowlands occurs on chalk with major concentrations in Wiltshire, Dorset and the South Downs. Carboniferous limestones in the north of England, are another significant source of lime-rich soils particularly in parts of the north Pennines, Cumbria and north Lancashire.

Regional status⁽⁷⁾

Lowland calcareous grassland in north west England is largely confined to the carboniferous limestone around Morecambe Bay. Elsewhere, there are smaller areas on the northern fringes of the Lake District and the Yorkshire Dales, on the Orton Fells in Cumbria and on the edge of the Forest of Bowland.

Local status

In Lancashire, lowland calcareous grassland is restricted to the Morecambe Bay limestone and to the Hodder and Ribble valleys. Upland calcareous grassland occurs in the Leck Fell and Ease Gill area near the county boundary with Yorkshire.

In the county, these habitats are associated with Carboniferous limestone hills found in the Silverdale area and on the knoll reefs near Clitheroe, Rimington, Chipping, Tosside and Slaidburn. According to the Lancashire Phase I Habitat Survey⁽⁶⁾, 95% of Lancashire's calcareous grassland lies within two boroughs: Lancaster City and Ribble Valley.

The Lancashire Phase 1 Habitat Survey 1988-1992 recorded 84 ha of herb-rich calcareous grassland⁽⁶⁾. In addition, the Phase I Habitat Survey recorded 33 ha of semi-improved calcareous grassland. This represents just 0.02% of the county by area. A later survey, conducted specifically to identify the extent of the resource, estimated the area at 153 ha⁽¹¹⁾. This latter figure is probably the most accurate available. Despite the data upon which it is based being ten years old it is unlikely that the amount has significantly decreased given that

in Lancashire this habitat is now restricted to steep, infertile land which is difficult to improve agriculturally.

Important Sites ⁽⁵⁾

Sites containing important examples of the habitat in the county are listed below.

cSAC: Morecambe Bay Pavements.

SSSIs include: Coldwell Farm Pasture; Cringlebarrow and Deepdale; Eaves Wood; Gait Barrows; Hawes Water; Jack Scout; Warton Crag; Silverdale Golf Course; Thrang End & Yealand Hall Allotment and Leck Beck Head Catchment.

Biological Heritage Sites (BHSs) include: Silverdale Golf Course (non-SSSI); New Laund Hill; Salthill Quarry; Cross Hill Quarry; Clitheroe Knoll Reefs (Worsaw Hill, Warren Hill, Crow Hill & The Ridge).

Calcareous grassland BHSs coincide with geological SSSIs at Salthill Quarry and Clitheroe Knoll Reefs and Trowbarrow Quarry.

Nature Reserves: Gait Barrows NNR, Warton Crag (WT/LCC/RSPB), Salthill Quarry LNR (WT) & Cross Hill Quarry LNR (WT) and Trowbarrow Quarry LNR (Lancaster City Council).

Current factors affecting the Habitat

Historical losses of this habitat have occurred in the county as a result of scrub invasion, quarrying and agricultural intensification. Today, the habitat is restricted to areas that are less economical to farm intensively so that any current losses are primarily due to scrub invasion. Generally, calcareous grasslands are far less at risk from agricultural activities than herb-rich neutral grasslands as the latter are far more readily improved in agricultural terms.

Sites suitable for grazing with commercial livestock have generally been overgrazed. Continuously high levels of grazing prevent herbs from flowering and setting seed such that they eventually die out and are lost from these grasslands.

Conversely, rocky and inaccessible sites that are unsuitable for grazing with commercial livestock have generally been undergrazed or abandoned. This results in coarse grasses out-competing and smothering flowering herbs followed by invasion of scrub and bracken.

Invasion by scrub (hawthorn, blackthorn, briars, etc) and bracken causes grassland plants to be shaded out such that they eventually die out. An element of scrub and bracken, however, is beneficial for some species of invertebrates and birds since it can provide shelter, nesting places and taller-growing flowering plants at the scrub/grassland interface. Areas of scrub and bracken should be controlled therefore to maintain plentiful areas of open grassland, but should not be entirely eradicated.

Current Action / Mechanisms

SSSIs and BHSs receive appropriate levels of protection through the development control system. SSSIs are also subject to a regulatory system for land management operations under the Wildlife & Countryside Act 1981 (as amended). English Nature (EN) promotes the conservation of important habitats, including calcareous grassland, through Natural Area profiles ^(8,9).

A number of conservation grazing and scrub control projects are underway on nature reserves in the Silverdale area.

MAFF's Countryside Stewardship Scheme provides potential sources of payment for appropriate land management on a range of habitats, including calcareous grassland.

The Biological Heritage Sites (BHS) Project offers advice to BHS land managers and promotes agri-environment schemes. EN provides advice to SSSI land managers. The Farming & Wildlife Advisory Group (FWAG) offers advice to farmers on any land irrespective of designations. Although none of these is specific to calcareous grassland, all incorporate the habitat where it occurs. The BHS Project prioritises grasslands of conservation importance for giving advice to land managers.

No comprehensive monitoring scheme exists in Lancashire for this habitat although SSSIs are subject to regular monitoring and condition assessment.

The restoration of good-quality calcareous grassland may be technically possible on sites (e.g. quarries, improved grassland) where it previously existed. However, the opportunities to restore this habitat are more limited than those for, say species-rich neutral grassland. This is simply because candidate sites are necessarily restricted to the few areas of limestone surface geology in the county which are not already occupied by habitats of nature conservation value.

Indicators of Habitat Quality

For conservation purposes calcareous grassland is moving towards favourable condition when there is:

- An abundance of flowering herbs amongst fine-leaved grasses;
- A good number of the indicative species listed in Table 1 present;
- The lack of agricultural improvement (particularly the absence of use of artificial fertilisers);
- A mosaic with scrub habitats providing structural variety supporting a diversity of invertebrates. (Scrub encroachment, however, will reduce the area of open grassland to the detriment of the habitat. A balance between these habitat types needs to be attained.)

NVC Communities ⁽³⁾

In the Silverdale area CG9 (*Sesleria albicans* - *Galium sternerii* grassland) is the main type of calcareous grassland encountered. This NVC community is also found at one site in the Ribble valley.

In the Bowland area calcareous grasslands are mostly CG2 (*Festuca ovina* - *Avenula pratensis* grassland) with some CG9

Heavily leached limestone soils may also support U4c (a variant of *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland).

All of these communities are nationally rare (i.e. there are less than 10,000 ha of each).

Table 1a: Vascular plant species associated with unimproved calcareous grassland in Lancashire.

Common name	Scientific name	Status
Blue moor-grass	<i>Sesleria albicans</i>	NS, Ff2
Quaking grass	<i>Briza media</i>	
Meadow oat-grass	<i>Avenula pratensis</i>	

Downy oat-grass	<i>Avenula pubescens</i>	
Crested hair-grass	<i>Koeleria macrantha</i>	
Spring sedge	<i>Carex caryophyllea</i>	
Glaucous sedge	<i>Carex flacca</i>	
Lady's bedstraw	<i>Galium verum</i>	
Eyebrights	<i>Euphrasia</i> spp.	
Common rock-rose	<i>Helianthemum nummularium</i>	
Kidney vetch	<i>Anthyllis vulneraria</i>	
Common dog-violet	<i>Viola riviniana</i>	
Common spotted-orchid	<i>Dactylorhiza fuchsii</i>	
Salad burnet	<i>Sanguisorba minor</i>	
Common bird's-foot-trefoil	<i>Lotus corniculatus</i>	
Wild thyme	<i>Thymus drucei</i>	
Fairy flax	<i>Linum catharticum</i>	
Carlina thistle	<i>Carlina vulgaris</i>	
Rough hawkbit	<i>Leontodon hispidus</i>	
Small scabious	<i>Scabiosa columbaria</i>	
Mouse-ear hawkweed	<i>Hieracium pilosella</i>	
Bulbous buttercup	<i>Ranunculus bulbosus</i>	
Harebell	<i>Campanula rotundifolia</i>	
Dark red helleborine	<i>Epipactis atrorubens</i>	NS, Ff2
Spring sandwort	<i>Minuartia verna</i>	NS, Ff2
Spring cinquefoil	<i>Potentilla neumanniana</i>	NS, Ff2
Rare spring sedge	<i>Carex ericetorum</i>	NS, Ff2
Hoary whitlow-grass	<i>Draba incana</i>	Ff3
Squinancywort	<i>Asperula cynanchica</i>	Ff3
Field gentian	<i>Gentianella campestris</i>	Ff3
Autumn lady's-tresses	<i>Spiranthes spiralis</i>	Ff3

Green-winged orchid	<i>Orchis morio</i>	Ff3
Mossy saxifrage	<i>Saxifraga hypnoides</i>	Ff4a
Fragrant orchid	<i>Gymnadenia conopsea</i>	Ff4b
Hairy violet	<i>Viola hirta</i>	Ff4b
Horseshoe vetch	<i>Hippocrepis comosa</i>	Ff4b
Limestone bedstraw	<i>Galium sternerii</i>	Ff4b

Table 1b: Other species associated with unimproved calcareous grassland in Lancashire.

<u>Invertebrates</u>		
Northern brown argus	<i>Aricia artaxerxes</i>	UK & LSAP
High brown fritillary	<i>Argynnis adippe</i>	UK & LSAP
Pearl-bordered fritillary	<i>Boloria euphrosyne</i>	UK & LSAP
A hoverfly	<i>Doros profuges</i>	UK & LSAP
Wall mason bee	<i>Osmia parietina</i>	UK & LSAP
<u>Birds</u>		
Skylark	<i>Alauda arvensis</i>	UK & LSAP
<u>Fungi</u>		
An earth-tongue	<i>Microglossum olivaceum</i>	UK SAP, Fu1
Crimson waxcap	<i>Hygrocybe punicea</i>	

Objectives, targets and proposed actions for calcareous grassland in Lancashire

Broad Objective:	A. Prevent the loss of-calcareous grassland (current area estimated at c.153 ha)
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Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Confirm current extent of habitat & location of sites and keep under review.	1. Establish a definitive database of all sites over 0.5 ha with species-rich grassland to include estimates of total area of resource on each site (High)	LCC, WT, EN	S	RM
	2. Annually review BHS series and add/delete sites on database as appropriate (High)	LCC, WT, EN	O	RM
	3. Continue SSSI monitoring and amend database as appropriate. (High)	EN	O	RM
	4. By 2005 re-survey all BHS grassland sites to identify the scale of any losses within the county since 1984. (High)	BHS P/ship, WT, EN, LCC	L	RM
2. Encourage retention of species-rich grassland by owners and managers.	1. By 2005 liaise with all grassland BHS landowners and land managers to promote the importance of species-rich grassland. (High)	BHSP, FWAG, MAFF, EN	O	A, LM
	2. Lobby for reform of CAP and for more competitive rates on agri-environment schemes. (Medium)	WT, RSPB, EN, NFU, CLA	O	PR
3. Prevent loss of species-rich grassland through inappropriate development.	1. Ensure that all relevant planning authorities are aware of important sites and have development policies that take account of these (Medium)	LCC, LAs, EN, BHS P/ship	O	SS

Broad Objective:	B. Achieve favourable conservation status on all calcareous grassland SSSIs by 2010 and all BHS-qualifying sites by 2015			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type

1. Ensure that management of grassland SSSIs is contributing towards achieving favourable status on all sites by 2010.	1. Assess the condition of all grassland SSSIs by 2002. (High)	EN	M	RM
	2. Promote the uptake of Countryside Stewardship by SSSI landowners / managers (High)	EN, Land-owners, managers	O	A,PR
	3. Seek management agreements through WES on all remaining SSSIs in unfavourable condition to establish positive management by 2005. (High)	EN, MAFF	L	LM
2. Improve knowledge of invertebrates and fungi on sites with calcareous grassland	1. Undertake surveys for fungi and poorly-recorded invertebrate groups on all calcareous grassland SSSIs and nature reserves to ensure their habitat requirements are taken into account in site management (Medium)	EN, LCC, WT, RSPB	L	RM

Broad Objective:	B. Achieve favourable conservation status on all calcareous grassland SSSIs by 2010 and all BHS-qualifying sites by 2015			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
3. Achieve sympathetic management of at least 30% of species-rich grassland BHSs by 2005.	1. Continue to offer management advice to BHS owners and managers in order to promote grazing, and scrub clearance practices that benefit nature conservation. (High)	BHSP, FWAG, MAFF, EN	O	A, LM
	2. Promote the uptake of Countryside Stewardship by landowners / managers (Medium)	BHSP, FWAG, MAFF	O	A, PR

	3. Use planning obligations through the statutory planning process to require appropriate management of sites associated with development proposals. (Medium)	LCC, LAs, WT	O	A, LM
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Broad Objective:	C. Re-establish or restore 10 ha of new species-rich calcareous grassland by 2010**. (Total UK target is 1200 ha)			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Initiate creation / restoration schemes.	1. Identify potential sites and select candidates for habitat creation. (High)	LCC, EN, WT	S/M	LM
	2. Draw up a plan and implement. (High)	LCC, EN, WT, FWAG, MAFF, HA	M	LM

** - Concentrating on sites/localities which (a) have been lost from the Grassland Inventory for Lancashire (post-1980 survey data); or (b) would extend or link existing sites. Habitat re-creation should be achieved through establishing restoration management, possibly supplemented in some cases by re-introduction of native/local seed. Sites re-seeded with commercial 'wildflower' mixes will not be recognised as restoration projects for the purposes of this HAP.

The targets for restoration should be apportioned between the various Natural Areas in Lancashire in the following way:

NATURAL AREA	AREA (ha)
Forest of Bowland	5
Morecambe Bay Limestones	5
TOTAL	10

Broad Objective:	D. Promote the importance of the habitat and its conservation to the general public.			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type

1. Promote the species-rich grassland as a 'flagship' habitat to highlight the decline in certain key habitat types.	1. Work with community-based groups to raise awareness of grassland conservation issues amongst the general public and landowners. (Medium)	WT, EN,	O	PR
	2. Encourage public participation in monitoring certain sites. (Medium)	WT, EN	O	PR, RM
	3. Include information about species-rich grassland in press releases, newsletters and leaflets. (Low)	WT, EN	O	PR, RM

Other Action Plans:

- Limestone pavement HAP
- Species-rich neutral grassland HAP
- Northern brown argus SAP; High brown fritillary SAP
- Pearl-bordered fritillary SAP
- *Doros profuges* (a hoverfly) SAP
- Lancaster whitebeam SAP
- Lady's slipper-orchid SAP
- Wall mason bee SAP.

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