

# Grassland Habitats

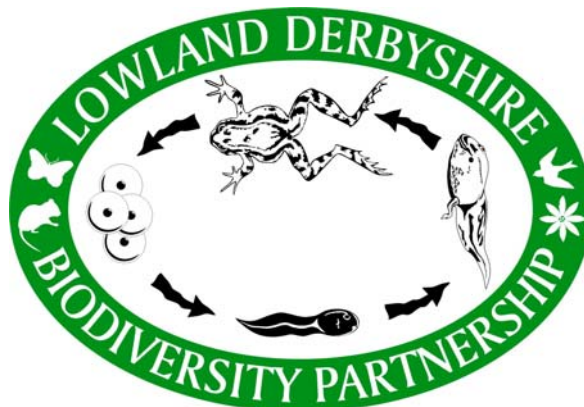
## - Background Information -

### Lowland Derbyshire LBAP



The Lawns at Calke Abbey. Credit: Debbie Alston

Prepared by the Lowland Derbyshire Biodiversity Partnership



This document provides the background information for the Lowland Derbyshire Biodiversity Action Plan 2011-2020.

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# Grassland Habitats in Lowland Derbyshire

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## 1. Introduction

### 1.1 Definition of semi-natural grassland

Semi-natural grasslands are plant communities where the vegetation consists of a mixture of native grasses, wild flowers, sedges and mosses. The species composition has not been substantially modified by cultivation or regular use of fertilisers or herbicides. These grasslands are kept open by the activities of grazing animals, usually domestic livestock, but often complemented by wild herbivores such as deer and rabbits. More rarely, fire can play a role in maintaining grassland vegetation. Grasslands tend to vary in height from a few centimetres to a metre or so depending upon the local physical conditions and the timing and intensity of grazing. Lowland semi-natural grasslands are generally enclosed meadow or pasture land occurring at altitudes of less than 300m in the UK. Today, all meadows and pastures are best viewed as semi-natural. They have developed in close association with pastoral farming practices which began in north-western Europe 6000 years ago. However, they have their origins in the natural grasslands of tundra, mountains, coastlines and woodlands that would have existed after the last Ice Age and been maintained by a combination of wild grazing animals, fire and harsh environmental conditions.

### 1.2 Grassland habitats in the European and UK biodiversity context

Semi-natural grasslands rich in wild flowers, comprising both **grazed pastures** and **hay meadows**, have historically dominated much of the farming landscape in north-west Europe. These grasslands, close to farms and settlements, were traditionally managed with extensive low input livestock and mixed farming systems that favoured the maintenance of diverse grasslands.

**Grazed pastures** are typically grazed at various times through the year. The vegetation is often kept quite short, so taller plants often found in meadows are absent. Species able to thrive and dominate the sward include various grasses and rosette or creeping herbs as well as small blue-green sedges. The choice of grazing animal affects plant composition of the sward, in the different characteristic heights of grazing and the selection of preferred species. Plants have different degrees of tolerance of repeated defoliation. Light, mixed grazing, (cattle and sheep) produces a variety of sward height, allowing some plants to flower and set seed, whilst most other plants spread vegetatively, by roots and runners. Very heavy grazing will damage or eliminate plants by overgrazing and trampling.

Management of **hay meadows** allows plants to grow tall, flower and set seed before cutting. Shorter plants of grazed pasture are less frequent in hay meadows. The process of making hay helps to ripen and release seed. Shedding of seed is essential for plants such as the annual yellow-rattle, which must grow from seed each year. After mowing, when re-growth is adequate, the hay meadow is grazed. Hay meadow species include late summer invertebrates like bees and hoverflies; mammals such as the brown hare; birds such as skylark, grey partridge and tree sparrow, plus barn owls which need diverse grasslands for hunting prey, and fungi like the pink waxcap. All depend on unimproved grassland; all are key aspects of biodiversity. These species have all been adversely affected by the change from flower-rich hay meadows to the so-called '**improved**' meadows, which are actually species-poor and cut for silage.



### 1.3 Grassland types in Lowland Derbyshire

Due to its complex geological composition, Lowland Derbyshire has a number of priority grassland types. Table 1 below provides details on the different types, and their relevant National Vegetation Classifications.

**Table 1: Lowland Derbyshire BAP Grassland types – definitions**

National Broad Habitat types and Priority Habitats	Definition	National Vegetation Classifications occurring in lowland Derbyshire
<b>Lowland Meadows</b>	Neutral grassland on soils neither too acid nor alkaline or on limestone & gritstone if sufficient depth of soil to mask chemical character of underlying rock.	MG4, MG5, MG8
<b>Calcareous Grassland</b> Lowland calcareous grassland (includes magnesian limestone grasslands)	Developed on basic soils; may contain a percentage of bare soil and rock and an open sward.	CG2, CG3, CG4, CG5 CG7
<b>Acid Grassland</b> Lowland dry acid grassland	On acidic soils with pH lower than 5.5 and on areas where leaching creates acid conditions.	U1, U2, U4
<b>Calaminarian Grassland</b>	On substrates characterised by high levels of heavy metals such as lead, typical in former leading mining areas.	OV37
<b>Purple moor grass and rush pasture</b>	On poorly drained, usually acidic soils in areas of high rainfall.	
<b>Coastal and Floodplain Grazing Marsh</b>	On periodically inundated pasture or meadow with ditches which maintain water levels	Can include MG9, MG10 and MG11



## 1.4 Major influences on biodiversity in Lowland Derbyshire grasslands

Between 1930 and 1984 semi-natural lowland grassland has decreased by around 97% in England and Wales. There are less than 15,000ha of unimproved species-rich neutral grassland in the UK. In Derbyshire it is estimated that there has been an 80 to 91% decline between 1984 and 1999. Some species-rich grassland was previously cultivated (as ridge and furrow remnants indicate) but may have remained as pasture for several centuries. Modern ploughing has removed much ridge and furrow over the past thirty years.

Today most farmland grassland is 'improved' species-poor grassland, temporary (**ley**) or permanent grasslands resulting from ploughing and re-seeding, and the widespread use of inorganic fertilisers or slurry. Worming compounds adversely affect dung beetles, dung flies and other creatures which decompose animal droppings, and so further reduce food availability to other species. These grasslands are very limited in terms of biodiversity. Where management changes from hay-making to silage, the crop needs to be consistent in quality to provide good winter fodder; therefore agriculturally improved grassland or re-seeded pasture containing only a few grasses like perennial rye-grass, Yorkshire fog and timothy with common herbs like dandelion, clover and buttercups are preferred by farmers. Early and frequent cuts further reduce the value of grasslands for many species, either through loss of shelter, breeding habitat or food resources. For example, ground-nesting birds have insufficient time to breed successfully before the grass is cut and their nests destroyed.

## 1.5 Landscape Character Assessment

In 2003 Derbyshire County Council carried out a Landscape Character Assessment for the county, excluding large urban areas, such as the built parts of Derby City and Chesterfield. The project identified where grassland habitats would be most appropriate in maintaining landscape character and local distinctiveness. The Assessment promotes the creation and management of grassland types that would be most appropriate in maintaining landscape character and local distinctiveness. This approach has been largely reflected in the landscape scale approach within the Lowland Derbyshire Biodiversity Action Plan. Table 2 shows the relationship between landscape character type and grassland type.



Poulter Country Park Nature Reserve.  
Credit: Debbie Alston



Hebredian sheep grazing at Foremark Reservoir.  
Credit: Debbie Alston



**Table 2: Semi-natural grassland habitats characteristic and appropriate within each Landscape Character Type**

P Primary habitat - prominent and a key characteristic  
 S Secondary habitat - variable and a local characteristic  
 L Locally Significant - unusual, often a minor characteristic

Action Area name within this LBAP	Character Area	Landscape Character Type	Neutral grassland. Lowland meadows	Lowland calcareous grassland (including Magnesian limestone)	Lowland dry acid grassland
<b>Peak Fringe</b>	Derbyshire Peak Fringe and Lower Derwent	Enclosed Moorland	P		P
		Wooded Slopes and Valleys	P	L	S
		Wooded Farmlands	P		S
		Gritstone Heaths & Commons	P		P
		Settled Farmlands	P		
		Riverside Meadows	P		
<b>Rother and Doe Lea Valleys</b>  <b>Erewash Valley</b>	Notts, Derbyshire & Yorkshire Coalfield	Wooded Hills & Valleys	P		S
		Coalfield Village Farmlands	P		S
		Estate Farmlands	S		S
		Wooded Farmlands	P		S
		Coalfield Estatelands	P		
		Riverside Meadows	P		
		Plateau Estate Farmlands	S		S
<b>Magnesian Limestone</b>	Southern Magnesian Limestone	Limestone Farmlands		P	
		Limestone Gorges	S	P	
<b>Claylands</b>	Needwood & South Derbyshire Claylands	Settled Farmlands	P		S
		Settled Plateau Farmlands	P		S
		Sandstone Slopes & Heaths			P
		Estate Farmlands	S		S
		Riverside Meadow	P		
<b>Trent and Dove Valleys</b>	Trent Valley Washlands	Lowland Village Farmlands	P		
		Wet Pasture Meadows	P	S	
		Riverside Meadows	P		

Table 2 outlines appropriate semi-natural grassland habitats by LBAP action area, Character Area and Landscape Character Type. This information can be used by a variety of interest groups including developers, planners, farmers and wildlife groups when considering the appropriateness of particular developments, planting and habitat creation schemes in a specific area.



Action Area name within this LBAP	Character Area	Landscape Character Type	Neutral grassland. Lowland meadows	Lowland calcareous grassland (including Magnesian limestone)	Lowland dry acid grassland
National Forest area	Melbourne Parklands	Estate Farmlands	S		P
		Wooded Estatelands	P		P
		Sandstone Slopes & Heaths			P
		Riverside Meadows	P		
	Leicestershire & Derbyshire Coalfield	Coalfield Village Farmlands	P		S
	Mease & Sence Lowlands	Village Estate Farmlands	P		
		Riverside Meadows	P		

**Note:** Derby is omitted from this list because it is not, in itself, a Character Area. The administrative boundary of the city of Derby actually straddles four Character Areas: the Needwood and South Derbyshire Claylands, the Trent Valley Washlands, the Derbyshire Peak Fringe and Lower Derwent, plus the Notts, Derbyshire and Yorkshire Coalfield.

## 1.6 Species associated with semi-natural grassland

There are many species associated with semi-natural grassland habitats. Appendices 1 and 2 list UKBAP Priority Species as well as Red Data Book and other locally important species associated with grassland habitats.

## 1.7 Extent of semi-natural grassland in Lowland Derbyshire

Lowland Derbyshire still retains a grassland assemblage important throughout the East Midlands region. It contains a wide variety of types of semi-natural grassland, but the extent of all these types has declined rapidly in recent years as farming practices have changed.

Throughout Lowland Derbyshire semi-natural grasslands of different types can occur in close proximity to one another, irrespective of the underlying substrate. Major influences include the position on a slope, the type of management, the aspect and altitude. Semi-natural grasslands may also grade very quickly into wetter grassland and mire habitats, where rushes are often characteristic.

Derbyshire Wildlife Trust's audit of semi-natural grassland in Lowland Derbyshire (1997-2003), estimated that in 2003 there were 1,746 hectares of semi-natural grasslands here. Since that report was published, further survey has divided them into different grassland types, and whether or not they have Priority or Sub-priority status. Currently it is understood that there are 708 hectares of Priority grassland habitats and 3426 hectares of semi-improved (Sub-priority) grassland in the LBAP area. Table 3 and Figure 1 both list and map the distribution of the different grassland types across this LBAP area.

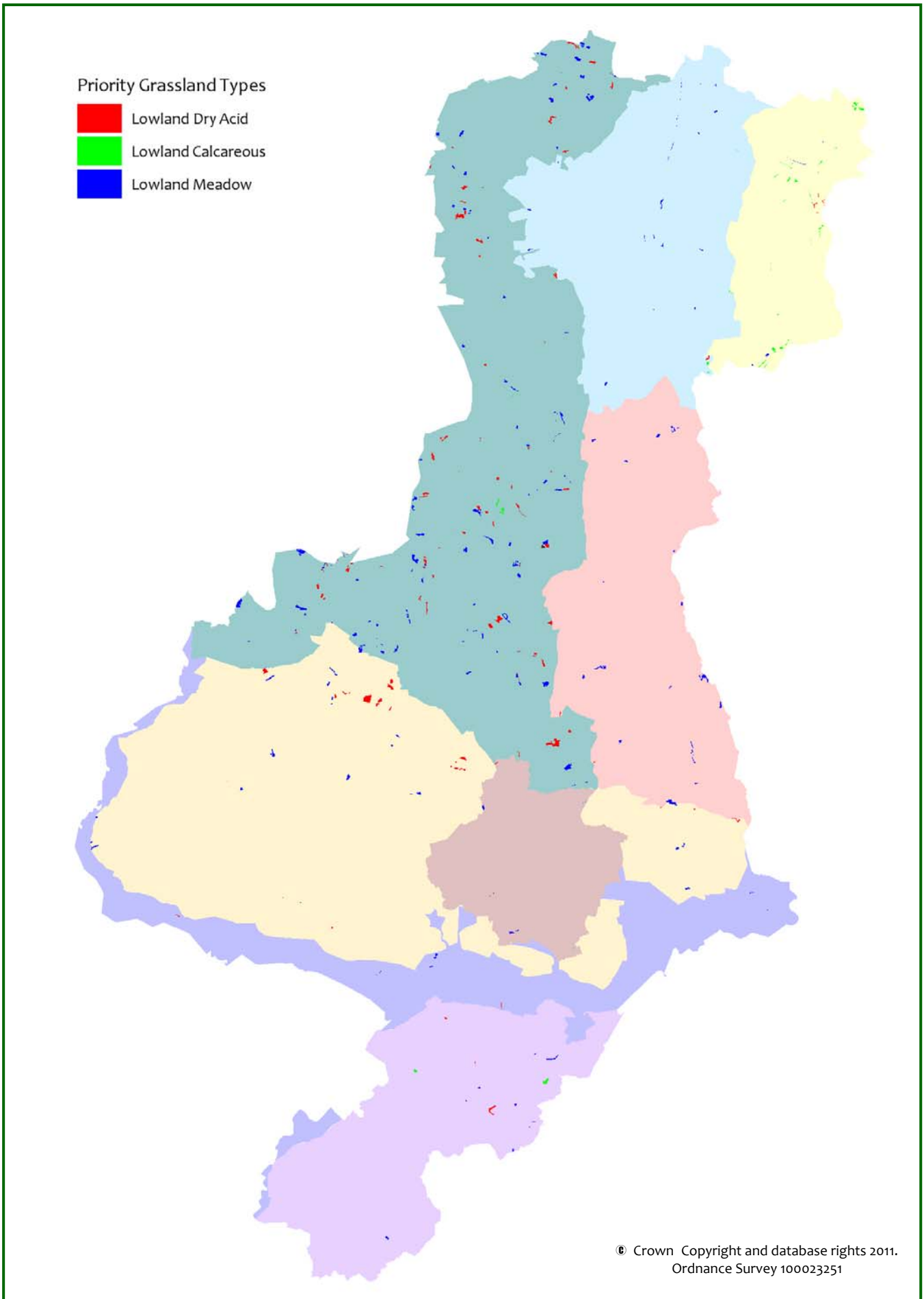


**Table 3: Distribution and extent of grassland within the LBAP area.**  
**(This table does not include newly created grassland)**

LBAP Action Area	Priority Grassland resource	% of total LBAP priority grassland resource	Priority Lowland Meadow	Sub-priority Lowland Meadow	Priority Lowland Dry Acid Grassland	Sub-priority Dry Acid Grassland	Priority Lowland Calcareous Grassland	Sub-priority Calcareous Grassland	Priority Calaminarian Grassland	Priority Rush Pasture
Magnesian Limestone	56 ha	7.9%	4 ha	60 ha	3 ha	-	31 ha	36 ha	-	14 ha
Rother and Doe Lea valleys	27 ha	3.8%	19 ha	186 ha	3 ha	21 ha	5 ha	57 ha	-	-
Peak Fringe	415 ha	58.6%	235 ha	706 ha	164 ha	731 ha	8 ha	4 ha	1 ha	7 ha
Erewash Valley	51.2 ha	7.2%	50 ha	210 ha	1.2 ha	31 ha	-	6 ha	-	-
Claylands	115 ha	16.2%	42 ha	238 ha	58 ha	140 ha	-	-	-	15 ha
Derby	8 ha	1.2%	7 ha	115 ha	0.8 ha	2.1 ha	0.2 ha	2 ha	-	-
Trent and Dove Valleys	8 ha	1.2%	6 ha	61 ha	2 ha	3 ha	-	-	-	-
National Forest area	28 ha	3.9%	12 ha	647 ha	8 ha	45 ha	8 ha	-	-	-
<b>Totals</b>	<b>708.2 ha</b>		<b>375 ha</b>	<b>2,348 ha</b>	<b>240 ha</b>	<b>973.1 ha</b>	<b>52.2 ha</b>	<b>105 ha</b>	<b>1 ha</b>	<b>36 ha</b>







**Figure 1: Priority Grassland types in Lowland Derbyshire**

## 2. Lowland Meadows

Traditionally managed as hay meadows or pastures, Lowland Meadows contain a high proportion of broad-leaved flowering species relative to grasses, especially if undisturbed for long periods. These grasslands are characteristically composed of the following grass species: crested dog's-tail, red fescue, Yorkshire fog, yellow oat grass, meadow foxtail, sweet vernal grass and creeping bent. Distinctive and frequently encountered herbs include: common knapweed, ox-eye daisy, cat's-ear, meadow vetchling and bird's-foot-trefoil, and occur with the **MG5a** National Vegetation Classification (NVC) sub-community type. Where lowland meadows overlie calcium-enriched soils, species like lady's bedstraw, salad burnet and quaking grass may occur; this is characteristic of the **MG5b** NVC sub-community. Over calcium deficient, more acidic soils, species like heath grass, devil's-bit scabious, tormentil, betony and bitter vetch are to be found (NVC: **MG5c**).

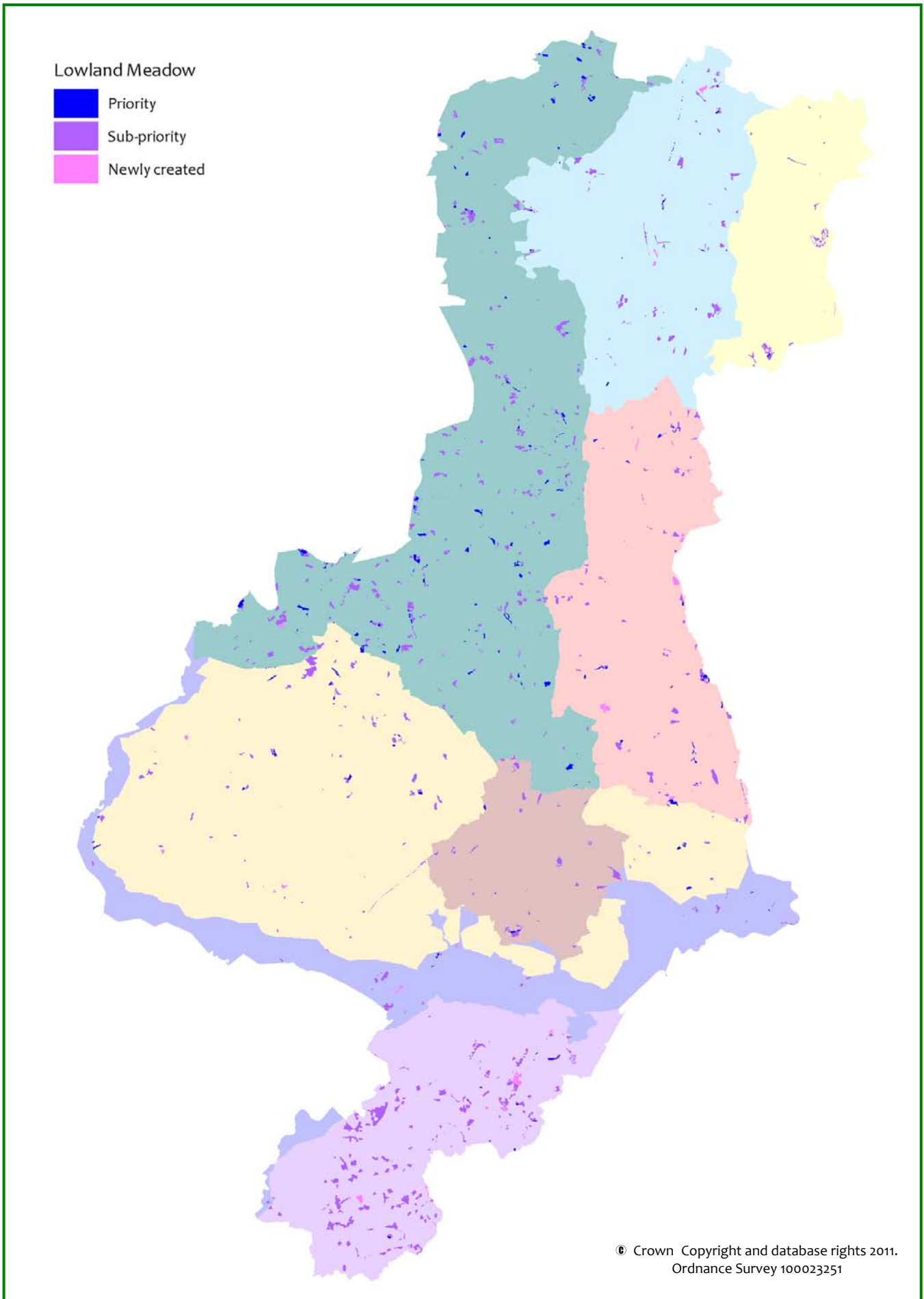
There is therefore a degree of overlap both with acid and calcareous grassland types. On deeper soils growth can be quite luxuriant with many herbs prominent. Typically, Lowland Derbyshire's lowland meadows can contain many species of rare or local occurrence, including greater butterfly orchid, adder's tongue fern, pepper saxifrage, water avens, cowslip, sneezewort, meadow barley, twayblade and lesser hawkbit. In valley bottoms and wet, north facing slopes where soils are still relatively neutral, a number of rarer grassland communities may occur. The **MG4** NVC community is characterised by great burnet, meadowsweet, autumn hawkbit and meadow foxtail, whilst the **MG8** community has ragged robin, marsh marigold, lady's mantle, marsh bedstraw and a variety of sedges. Lowland meadows are estimated to comprise 53% of the remaining priority grassland resource.

Unimproved lowland meadow amounts to 375 ha, located mainly in the Peak Fringe. In addition, there is 2,348 ha of species-rich semi-improved lowland meadow grasslands that retain sufficient floristic diversity to be of nature conservation value. They remain of high value and importance as they have the potential for restoration and act as reservoirs for genetic diversity which can facilitate the colonisation of adjacent countryside.



Left: Southern marsh orchid. Credit: Debbie Alston  
Right: Cardales Meadow, Findern. Credit: Debbie Alston





**Figure 2: Lowland Meadow in Lowland Derbyshire**

## 2.1 Distribution of Lowland Meadow in Lowland Derbyshire

The distribution of lowland meadow is shown in Figure 2 and Table 3. Further commentary on their extent and location in the various LBAP Action Areas is given below:

### 2.1.1 Magnesian Limestone

The deeper soils of the limestone plateau are improved for arable production. Only in the grips and on areas such as railways embankments and derelict land where deeper soils have not masked the underlying rocks, can tiny areas of lowland meadow still be found.

### 2.1.2 Rother and Doe Lea valleys

In the north of this area the best priority lowland meadow occurs in places associated with the mining industry. These are fields which have been saved from mining activity, or those which have been sown during land restoration and managed subsequently and are now considered to be sufficiently species-rich. Good examples are to be found at Poolsbrook Country Park and Holmebrook Country Park. Elsewhere there is a relatively large resource of sub-priority quality grassland, much of which is currently under restorative management. Areas of newly created lowland meadow have been sown on former mining sites at Arkwright, Park Brook and Bolsover tip, which will help provide vital semi-natural corridors through large sites.

### 2.1.3 Peak Fringe

The Peak Fringe area supports over 58% of the remaining lowland meadow in the whole LBAP area. The varied topography and geology of the Peak Fringe together with a moister and cooler climate, promotes a more intimate landscape with typically smaller farms and fields. Lowland meadow is well represented, occurring in valley bottoms and across plateaus, or where deeper soils are present. Both hay meadows and pastures are present and, in places, relatively large sites still exist such as those surrounding and to the west of Carsington Water, south of Wirksworth, Brackenfield, South Wingfield, the Moss Valley and near Ambergate.

In addition to the large resource of Priority Habitat, there is a considerable area of semi-improved (sub-priority) lowland meadow which still retains botanical diversity and provides an important area for potential enhancement and a variety of opportunities for re-colonisation. In some places lowland meadow often occurs in a mosaic alongside acid and calcareous grasslands and also with mire communities and therefore can result in both wet and dry grasslands.

### 2.1.4 Erewash Valley

This is an area of intensive agriculture and extensive opencast coal extraction. Most lowland meadow occurs only as remnants in places which have been difficult to access. There are a number of urban fringe fields which are semi-improved in nature, some of which have been subject to mis-management, neglect or development. Along the Erewash and Nutbrook canals some semi-natural fields have become isolated and both dry and wet grasslands combine in important mosaics.

### 2.1.5 Claylands

Permanent pasture occupies much of this area but, because of agricultural improvements, very little is left that is priority. The remaining sites of Priority Habitat are scattered and small. They have often survived due to sympathetic management regimes or are on steep slopes and within inaccessible areas. There are few concentrations, but several sites occur near Ashbourne, Brailsford, Kirk Langley and Rodsley. There are several churchyards which retain species-rich grassland, and one or two commons and greens, for example Ashbourne Green.



There are areas of ridge and furrow, especially around Ashbourne, though these have declined in recent years. A feature of this area is the isolated hay meadows on small traditional family farms; farmers value the high herb content and hay in seasons when silage yields are poor. In some locations there are mosaics of grasslands, some managed as hay meadows, with yellow rattle in abundance, and others as pasture, with uncommon species such as burnet saxifrage and great burnet.

### 2.1.6 Derby

For such an urban area, Derby does have a surprisingly large lowland meadow resource. However this tends to be concentrated on a few key sites, many of which are now Local Nature Reserves, such as Allestree Park, Sinfin Moor, Mickleover Meadows and West Park Meadows.

### 2.1.7 Trent and Dove Valleys

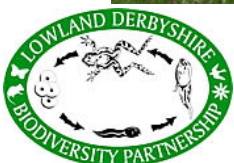
Large areas in the valley have been lost to gravel workings, horticulture and to housing, with the largest remaining area north of the Trent lost to, and fragmented by, road construction. Some lowland meadow is still left on disused railway lines and canal towpaths, but many of these have been affected by pressures from recreational development and a lack of recent management. The few remaining fields are adjacent to areas of arable production and are very isolated. There are also very small areas on the south side of the River Trent along lanes, and on steep scarps and on the north of the Trent near Twyford with remnants of semi-natural grassland along the river, where flooding discouraged improvement until recently. Lowland meadow has been created on some former gravel working along the valley as part of land restoration schemes.

### 2.1.8 National Forest area

Despite large-scale agricultural improvement of grassland in this area, there are still pockets of lowland meadow which have managed to remain species-rich. The majority of these are associated with either the National Trust or Severn Trent estates, and these continue to be managed in a sympathetic way. Additional restoration and creation of lowland meadow has occurred under the National Forest Company's 'National Forest Tender Scheme' and 'Changing Landscapes Scheme'.



Grassy Field  
Credit: Debbie Alston



### 3. Calcareous Grasslands

Calcareous grassland is an important habitat because of the wide range of plants and animal species it supports, although increasing isolation and fragmentation works towards reducing their species diversity. Some plants require bare earth for germination, whilst some of the invertebrates need mosaics of open ground and short turf.

Typically calcareous grasslands are characterised by a diversity of grasses. These include sheep's fescue, tor grass, upright brome, meadow oat grass and quaking grass. Associated herbs include common rock-rose, wild thyme, lady's bedstraw, quaking grass, greater knapweed, fairy flax, cowslip, hoary plantain, salad burnet and yellow wort where it occurs on magnesian limestone sub soils. These grasslands are typical of shallow soil conditions, often with bare soil/rock interspersed. They are covered by the National Vegetation Communities **CG2 CG3, CG4** and **CG5**.

The total resource within this LBAP area is tiny in comparison with lowland meadows and acid grasslands. Of all priority calcareous grassland (52.2 ha), 59% is magnesian limestone grassland which only occurs in the Magnesian Limestone area. The other significant resource of calcareous grassland within the Lowland Derbyshire LBAP area is on former railway lines, some of which are now incorporated into the expanding trails network. In addition, there are 105 ha of semi-improved (sub-priority) calcareous grasslands, of which 89% occurs within the magnesian limestone area, or on the scarp slope below Bolsover.

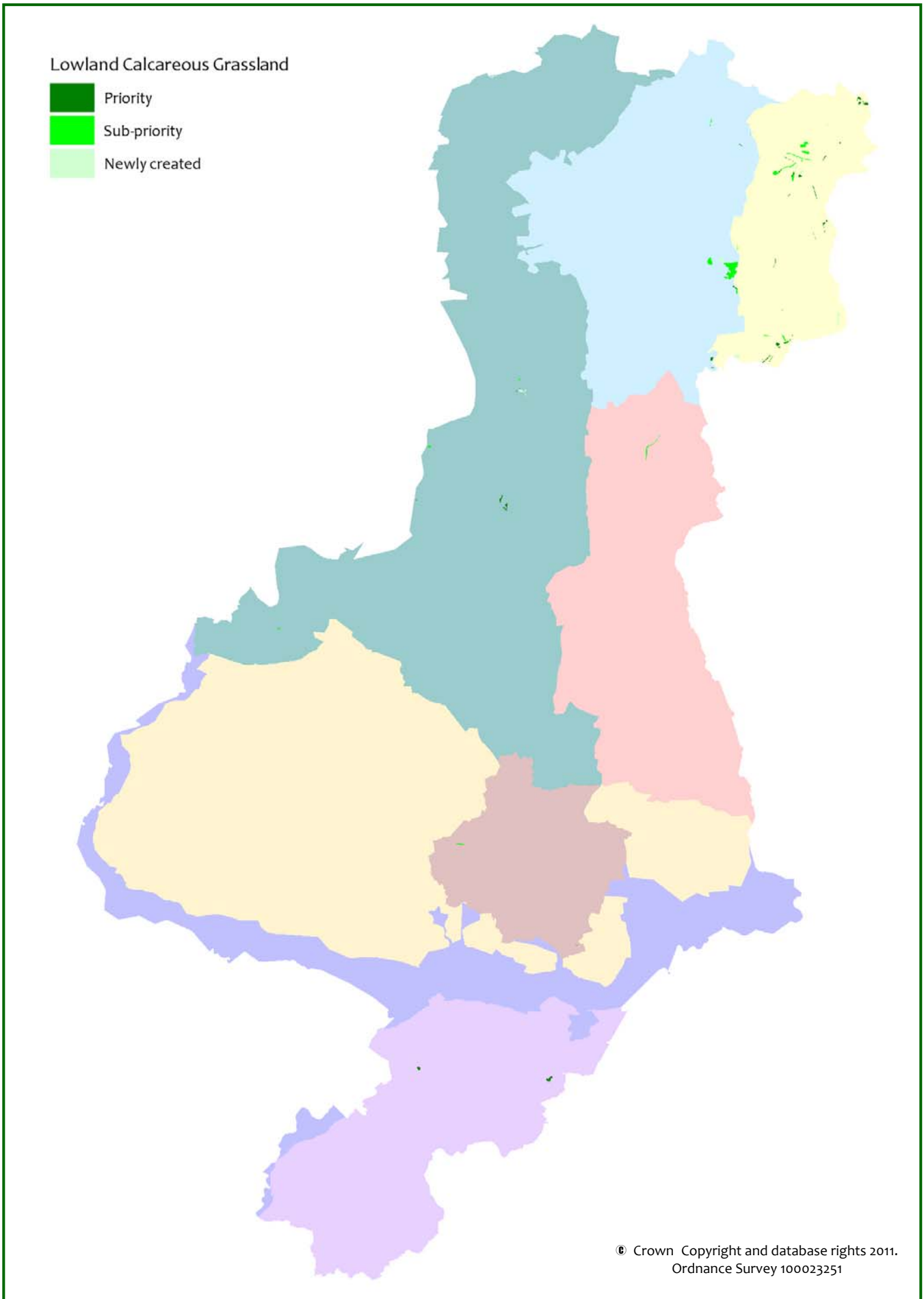
In addition to the magnesian limestone type of calcareous grassland, this LBAP area has a very small area of **calaminarian grasslands**. These are closely associated with the lead mining areas of Derbyshire. Calaminarian grassland is a Priority Habitat which has developed on soils rich in heavy metals, such as copper and lead. Vegetation succession is slowed by the toxicity of the minerals in the soil and these habitats are characterised by areas of bare ground and lead spoil heaps. Typical plants found on these areas include spring sandwort and alpine pennycress (both of which are known locally as 'leadwort') and mountain pansy. The majority of the county's calaminarian grassland resource is associated with the White Peak area.



Left: Leadwort near Ashover. Credit: Nick Moyes

Right: Magnesian Limestone grasslands at Poulter Country Park Nature Reserve. Credit: Debbie Alston





**Figure 3: Lowland Calcareous grassland in Lowland Derbyshire**

## 3.1 Distribution of Calcareous Grassland in Lowland Derbyshire

The distribution of lowland meadow is shown in Figure 3 and Table 3. Further commentary on its extent and location in the various LBAP Action Areas is given below:

### 3.1.1 Magnesian Limestone

The majority of calcareous grasslands in the LBAP area lie within the Magnesian Limestone Action Area. The landscape is characterised by plateaux intersected with steep sided valleys ('grips'). The deeper soils of the plateau have mostly been converted to arable production, so there is very little grassland left on farmland and most is 'improved' or of very low species diversity. Much of the remaining species-rich grassland is in small areas within the grips, at field edges, within the large woodlands, beside railway lines, (used and disused), or in roadside verges, on coal mine tips and in quarries. Magnesian Limestone grassland in Derbyshire is important for a number of species including yellow-wort (notable because in Derbyshire it occurs almost exclusively on the Magnesian Limestone and not on the Carboniferous limestone), bee orchid, fly orchid, dropwort, soft-leaved sedge and rare spring sedge. Rare and/or declining invertebrates such as the short-haired bumblebee, *Chrysolina violacea* (a leaf beetle), *Amara lucida* (a ground beetle) and dingy skipper are all associated with open grassland in the Magnesian Limestone area.

Some of the most diverse remaining grassland occurs on edges of towns and villages, sometimes associated with other features such as railways, for example at Creswell, Clowne, Whaley Thorns and Pleasley. Some of the biggest concentrations occurs around Markland and Hollinhill Grips SSSI, Pleasley and Poulter Country Parks. There are also small remnants in Pleasley Vale on both sides of the River Meden. Further losses continue to occur as grassland reverts to scrub because of a lack of cutting or grazing. Adjacent agri-environmental schemes occur at Markland and Hollin Hill Grips SSSI, which is managing the existing resource, restoring sub-priority grassland and creating additional grassland. More than 5 ha of calcareous grassland was created as part of land restoration at Shirebrook colliery. Priority grassland at Steetley Quarry remains under threat from proposed re-development of the site.

### 3.1.2 Rother and Doe Lea Valleys

Calcareous grassland can be found on the scarp slope below and adjacent to Bolsover Castle. This area of grassland is being increased by the addition of restoration and creation associated with one large Higher Level Stewardship scheme.

### 3.1.3 Peak Fringe

Calcareous grassland in this area is restricted to the limestone outcrops at Crich and Ashover. At Crich, the grassland is associated with Crich Quarry. Further areas of grassland will be created, or left to develop naturally, on this site as part of the quarry's restoration scheme. At Ashover, the grassland is associated with the Milltown area where areas have also been left to develop to calcareous grassland as part of the restoration scheme of Milltown Quarry. The Peak Fringe area has a long history of lead mining, which, in very restricted areas, has resulted in lead spoil and calaminarian grassland. Such areas can be seen at Black Rocks, at Bolehill and fields within the Milltown and Ashover areas.

### 3.1.4 Erewash Valley

The only area of calcareous grassland within this area can be found along the trails network at Newton.





### 3.1.6 Derby

A small area of calcareous grassland can be found at Chellaston Brickworks LNR. This is associated with the alabaster stone which was once quarried from the site. Other calcareous grassland can be found along the disused Mickleover railway line, and at former Friargate Railway Station. The latter has a very open grassland community which has developed on limestone ballast.

### 3.1.8 National Forest area

A Carboniferous Limestone outlier at Ticknall has resulted in calcareous grassland within the Ticknall Limeyards SSSI and the lawns at Calke Abbey. Another small area of calcareous grassland is found at Bretby, on the mound once occupied by Bretby Castle.



Calcareous grassland around Crich Quarry.  
Credit: Debbie Alston



## 4. Lowland Dry Acid Grasslands

Acid grassland develops mainly on acidic soils with a pH of 5 or lower, but may develop on areas where leaching has created locally acidic conditions. Though relatively species-poor compared to other semi-natural grasslands, it contains important communities with species that are rare and characteristic. Acid grasslands are transitional to other grassland types (neutral and calcareous) as well as other vegetation communities such as mires and lowland and upland heathland.

Derbyshire's lowland acid grasslands usually comprise of the following grasses: sheep's fescue, common bent and wavy hair grass, although mat grass is sometimes present. The more acidic sites can be quite poor with sheep's sorrel, heath bedstraw, tormentil, hawkbit and mouse-ear hawkweed amongst the commoner herbaceous associates. Richer sites can support a diverse range of species including heath milkwort, heath speedwell, violets, smooth hawk's-beard, common spotted orchid, pill sedge, devil's-bit scabious, field scabious, common restharrow, dyer's greenweed, burnet-saxifrage and common bird's-foot-trefoil. The grasslands resemble the National Vegetation Communities **U1** *Festuca ovina* – *Agrostis capillaris* – *Rumex acetosella* grassland, **U2** *Deschampsia flexuosa* grassland and **U4** *Festuca ovina* – *Agrostis capillaris* – *Galium saxatile* grassland. Where acid grasslands are derived from former heathland or occur in association with heaths, bilberry, heather and cross-leaved heath may occur. Where there has been limited agricultural improvement, Yorkshire fog, yarrow, white clover, meadow buttercup, daisy, and smooth-stalked meadow grass may occur. Though limited in plant species diversity, acid grassland is an important habitat because it supports other species, particularly ground nesting birds and invertebrates.

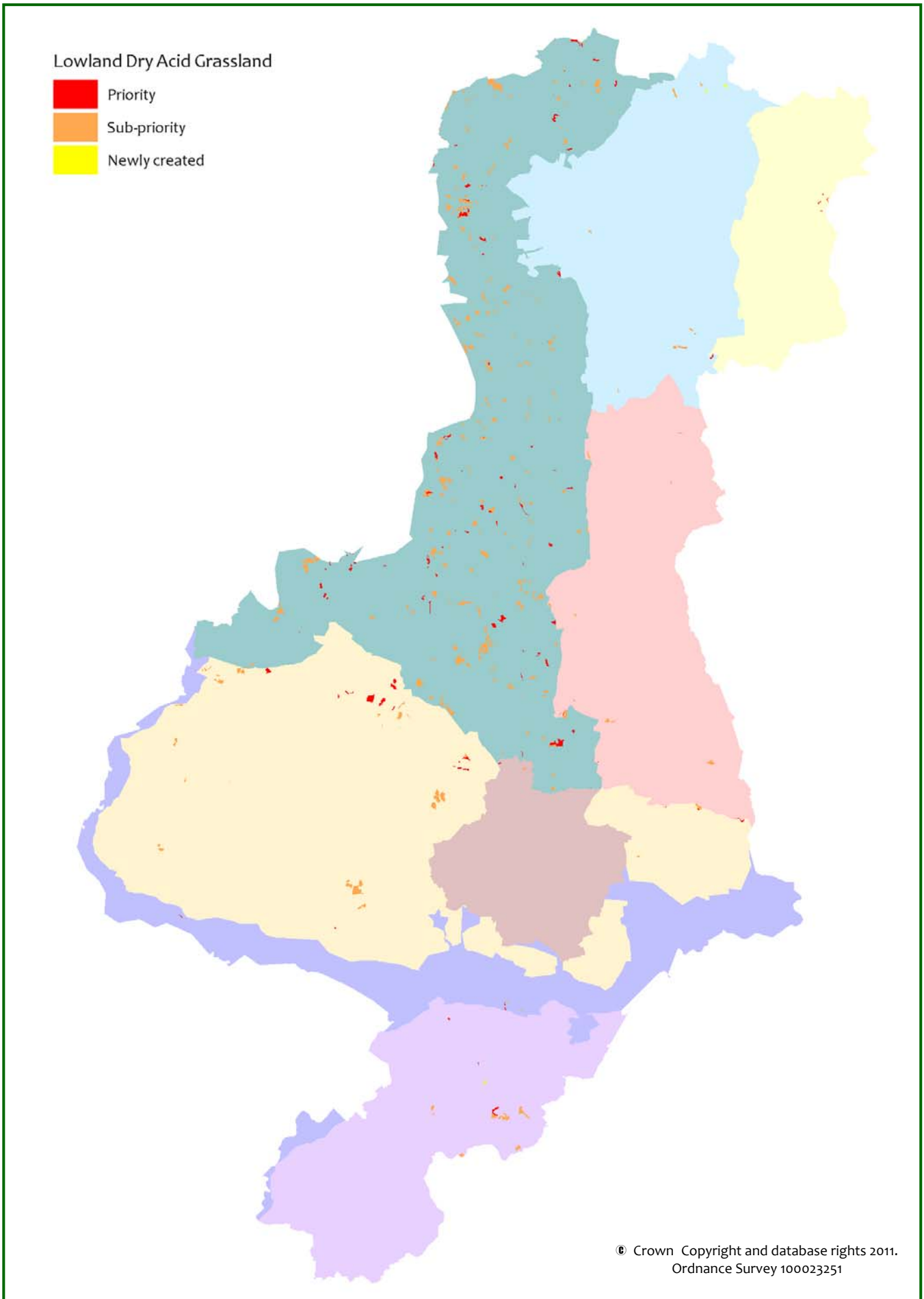
Remaining areas are located on steep valley sides and ridges and small parcels where agricultural improvement is uneconomic or difficult and locations such as road cuttings, where bedrock is not masked by more base-rich soil. In areas without appropriate management it is progressing to scrub, especially gorse.

Dry acid grasslands comprise 34% of the remaining priority grassland resource in the LBAP area. The total unimproved acid grassland resource is 240 ha, located almost exclusively in Peak Fringe and Claylands areas. In addition there is 973.1 ha of semi-improved, sub-priority acid grassland.



Meadow on the roundabout by junction 29 of the M1.  
Credit: Debbie Alston





**Figure 4: Lowland Dry Acid grassland in Lowland Derbyshire**

## 4.1 Distribution of Dry Acid Grassland in Lowland Derbyshire

The distribution of this grassland type is shown in Figure 4 and Table 3. Further commentary on its extent and location in the various LBAP Action Areas is given below:

### 4.1.1 Magnesian Limestone

Acid grassland in this area is restricted to acidic soil conditions associated with former colliery spoils. All of the resource in this Action Area occurs on the former Creswell colliery.

### 4.1.2 Rother and Doe Lea Valleys

This area's acid grassland resource is associated with sandstone outcrops at Hardwick Hall and the Westthorpe and Killamarsh areas. Acid grassland was created at the Park Brook site as part of the reclamation programme.

### 4.1.3 Peak Fringe

This Action Area contains 68% of the remaining priority acid grassland within the Lowland Derbyshire BAP area. These are generally associated with the tops of ridges where sandstone, gritstone and shales are more prominent. There are some particularly interesting series of acid grasslands/grass heaths occurring on ridges and high points to the west of Belper in a series of small fields, some of which are reverting, through neglect, to bracken and gorse dominated grassland.

### 4.1.4 Erewash Valley

Acid grassland in this Action Area is mostly concentrated along the sandstone ridge which runs between Breadsall and Sandiacre. Place names, such as Dale Moor, Morley and Sandiacre give clues as to its underlying geology and past habitats.

### 4.1.5 Claylands

This area has 24% of all the priority acid grassland in the LBAP area, which is largely associated with the permian sandstone and bunter sandstone (Sherwood sandstone) ridges. The band of permian sandstone around the Hlland Ward and Mercaston area provides suitable conditions for acid grassland. A ridge of bunter sandstone in the coal measure series, cuts across the various areas, between Breadsall Moor and Stoney Clouds. This ridge has a mixture of ancient woodlands interspersed with acidic grasslands with species such as lousewort, and heath bedstraw. This area is also known for its waxcap grasslands. There is a belt of sandstones running east of Ashbourne in the Henmore valley, which supports acid grasslands.

### 4.1.6 Derby

One of the best areas of grassland within Derby is Woodlands Field, a small acidic field at the western side of Allestree Park. The field has had a number of different waxcaps recorded there, plus the recent discovery of moonwort.

### 4.1.7 Trent and Dove Valleys

Acid grassland within this area is limited to the sandstone exposure around the Ingleby area and Sudbury Hall in the west. Elsewhere the area has suitable substrate in the form of free-draining gravels and sands, but other factors including silt deposited during floods may mask the underlying geology.

### 4.1.8 National Forest area

The acid grassland in this area is largely semi-improved in nature, the only priority areas are at Foremark Reservoir and Mount Pleasant.





Top: A species-rich lowland dry acid grassland near Shirland. Credit: Debbie Alston  
Bottom: Wessington Green. Credit: Debbie Alston



## 5. Floodplain Grazing Marsh

Floodplain is a term referring to seasonally waterlogged low-lying grassland where the drainage is poor or impeded. They often include small ditches and ponds as well as areas dominated by rushes. They are often 'improved' for agriculture and so can be botanically poor. Typical management may be grazing or cutting of hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of tall fen species like reeds; although they may abut with fen and reed swamp communities.

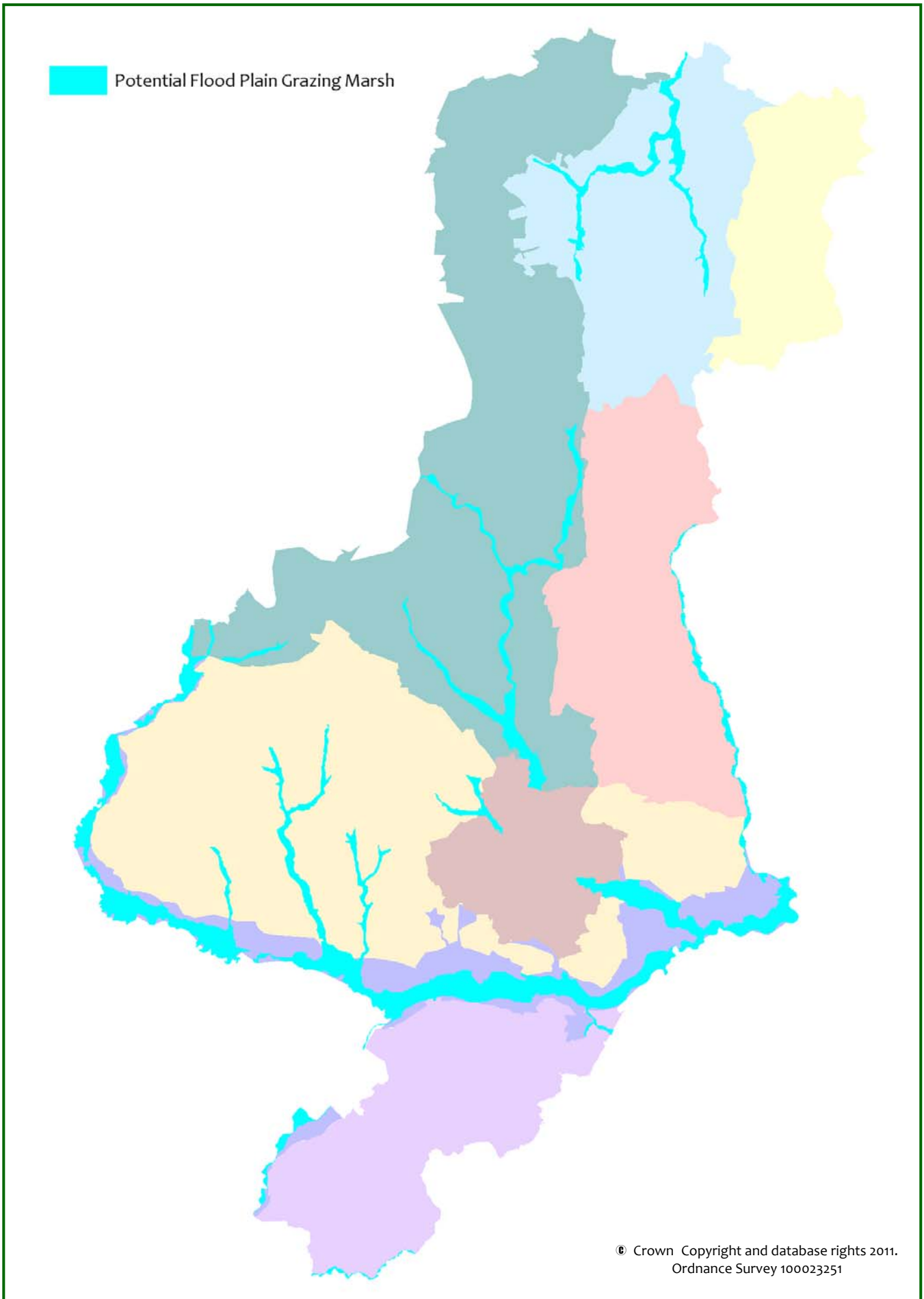
The UK Biodiversity Action Plan states that the exact extent of floodplain 'grazing marsh' in the UK is not known, but it is possible there may be a total of 300,000 hectares. In England and Wales the remaining wet grassland is now approximately 220,000 hectares left (from a historic resource of 1.2 million hectares). England holds the largest proportion, with an estimated 200,000 ha remaining by 1994. However, only a small proportion of this grassland is semi-natural, which is necessary to support a higher diversity of native plant species (Perhaps only 5,000 hectares remain in England, with around 10,000 ha across the whole of the UK).

Floodplain grasslands may be botanically poor, often dominated by Yorkshire fog and tufted hair-grass, equating to the National Vegetation Classification (NVC) **MG9** or Yorkshire fog and soft rush, equating to the NVC **MG10**. Floodplain grasslands are important for a number of breeding waders such as snipe and lapwing. They are also important for invertebrates, amphibians and reptiles as well as mammals such as water voles.



Wyver Lane reserve in flood.  
Credit: Richard Taylor





**Figure 5: Potential floodplain grazing marsh in Lowland Derbyshire**  
(taken from the Riverside Meadows character type in the Landscape Character of Derbyshire)



## 5.1 Floodplain grazing marsh in Lowland Derbyshire

We do not know how much floodplain grazing marsh there is in lowland Derbyshire. The best guide we have is the amount of land identified within 'The Landscape Character of Derbyshire' which geographically has the *potential* to form floodplain grazing marsh.

The distribution of this potential floodplain grazing marsh, is shown in Figure 5. Further commentary on its extent and location in the various LBAP Action Areas is given below:

### 5.1.1 Magnesian Limestone

Wet grassland, but not necessarily floodplain grazing marsh is scarce on the limestone. It occurs where drainage is impeded and seepages occur including areas within two SSSIs: Ginny Spring and Hollinhill and Markland Grips. In the latter, mining subsidence is the cause.

### 5.1.2 River Rother and Doe Lea Valleys

The river valleys of the Rother and Doe Lea still retain some areas of wet grassland and although much of it is not particularly species-rich, it is important for birds, both as residents and on passage, along the north-south migration routes. One of the main causes of wet grassland was mining subsidence, often creating areas with standing water, known locally as flashes. These occurred particularly in the Doe Lea and Rother Valleys and are locally very important for birds and insects.

### 5.1.3 Peak Fringe

The River Derwent and its floodplain dominates this Action Area. The river flows southwards in a relatively flat bottomed narrow valley. Between Milford and Ambergate there are a number of wet meadows on both sides of the river. Although most are no longer particularly species-rich, they are nevertheless important for waders. Further north, between the Peak District, Chesterfield and Sheffield, there are several small valley systems with wet meadows, some of which have not been drained or improved. In addition there are pastures developed on the normally free-draining shales/gritstone where clays have impeded drainage and wet, rushy fields have developed. There are also areas around operational and disused reservoirs, including Carsington, Ogston and Linacre, which continue to survive providing the water levels do not drop significantly and over long periods.

### 5.1.4 Erewash Valley

The River Erewash and its floodplain form the western boundary of this Action Area, and the land between the river and the canal is often wet, too. This Action Area, however, does not include the lowest reaches of the River Erewash where it joins the River Trent, as this falls within the Trent and Dove Valleys area. Other examples include the series of wet meadows at Hilcote/South Normanton, but these were changed significantly with the creation of fishponds. There are good examples of wet grasslands/marshes in such locations, but they are not always managed appropriately and are progressing to carr. As with the other river valleys there has been a lowering of water levels as land drainage and flood protection works, carried out in the 1960's, 1970's and early 1980's proceeded and this has dried out some wet meadows.

### 5.1.5 Claylands

A number of wet meadows still survive along some of the small brooks in this area. However, there are examples where the integrity of the wet grassland has been lost, due to their proximity to mills buildings, many of which have now been converted to dwellings with their gardens landscaped.





The northern part of the Claylands is one of the richest in the LBAP area for lowland wet meadows away from large river systems, but they are small and increasingly fragmented. As drainage and lowering of the water tables proceeds, they have become even more threatened. Mercaston Marsh and Mugginton Bottoms SSSI, on the border between this and Peak Fringe area, shows the range of habitats within a mosaic, which formerly would have been more widespread in the several similar small valley systems.

### 5.1.6 Derby

The River Derwent is the dominant river within Derby, but due to canalisation and development, the river has not retained its natural floodplain. Fields adjacent to the River Derwent, but north of Darley Abbey are within the floodplain, but are used in the manufacture of turf. Opportunities exist at several development sites along the river for the creation of wet grassland within the natural floodplain.

### 5.1.7 Trent and Dove Valleys

This area has the greatest resource of floodplain grazing marsh as in many parts the River Dove has largely retained its natural floodplain features, and although the floodplain is wide on the River Trent, flood defence mechanisms have restricted the flow in parts. Gravel extraction has provided opportunities to put back some floodplain grassland and with a number of schemes due to be completed within the 2011-2020 plan period. Small pockets of wet grassland also exist between the main rivers and other linear features such as roads, railways and canals.

### 5.1.8 National Forest area

The River Mease is the main river and forms the southern boundary of the area. The majority of the natural floodplain, however, falls on the Leicestershire side of the border.



Floodplain grazing marsh at Wyver Lane Nature Reserve.  
Credit: Debbie Alston



# Appendix 1: Species for which semi-natural grassland is a key habitat in Lowland Derbyshire

## 1.1 Priority Species (ie. UK BAP Species recorded in this Habitat in Lowland Derbyshire)

### Birds

Curlew	<i>Numenius arquata</i>
Grey Partridge	<i>Perdix perdix</i>
Lapwing	<i>Vanellus vanellus</i>
Skylark	<i>Alauda arvensis</i>
Tree Sparrow	<i>Passer montanus</i>
Yellow Wagtail	<i>Motacilla flava</i>

### Mammals

Brown Hare	<i>Lepus europaeus</i>
Brown long-eared bat	<i>Plecotus auritus</i>
Harvest mouse	<i>Micromys minutus</i>

### Invertebrates

#### Butterflies

Dingy skipper	<i>Erynnis tages</i>
Grizzled skipper	<i>Pyrgus malvae</i>
Small heath	<i>Coenonympha pamphilus</i>

#### Moths

Argent and sable	<i>Rheumaptera hastata</i>
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### Amphibians

Great Crested Newt	<i>Triturus cristatus</i>
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### Reptiles

Slow worm	<i>Anguis fragilis</i>
Viviparous lizard	<i>Lacerta vivipara</i>
Grass snake	<i>Natrix natrix</i>
Adder	<i>Vipera berus</i>

### Vascular Plants

Burnt orchid *	<i>Orchis ustulata</i>
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\* only found prior to 2000



Top: Small heath . Credit: Debbie Alston  
Middle Top: Brown hares. Credit: Christine Gregory  
Middle Bottom: Grass snake. Credit Debbie Alston  
Bottom: Harvest mouse. Credit: Derbyshire Wildlife Trust



## 1.2 Locally Important Species

An important feature of Local BAPs is the selection of locally important, threatened, declining or rare species which add local distinctiveness—the so-called “Local Red Data Book” species. Using *Endangered Wildlife in Derbyshire* (Elkington and Willmot, 1996) plus the Red Data List of Derbyshire’s Vascular Plants (Moyes and Willmot, 2009), and with the help of county recorders, the following species have been selected for this category. Note: These lists identify only rare or locally distinctive species. Neither list should be interpreted as an inventory of ‘typical’ grassland species, or species characteristic of grassland habitats.

### Fungi

Pink waxcap                      *Hygrocybe calyptraeformis*

### Birds

Kestrel                              *Falco tinnunculus*  
Buzzard                              *Buteo buteo*  
Golden plover                      *Pluvialis apricaria*  
Snipe                                  *Gallinago gallinago*  
Redshank                              *Tringa totanus*  
Barn owl                              *Tyto alba*  
Meadow pipit                              *Anthus pratensis*  
Whinchat                              *Saxicola rubetra*  
Stonechat                              *Saxicola torquata*  
Wheatear                              *Oenanthe oenanthe*

### Mammals

Serotine bat                              *Eptesicus serotinus*  
Pipistrelle bat                              *Pipistrellus pipistrellus*  
Brandt’s bat                              *Myotis brandtii*  
Whiskered bat                              *Myotis mystacinus*  
Noctule                                  *Nyctalus noctula*  
Common shrew                              *Sorex araneus*  
Pygmy shrew                              *Sorex minutus*  
Badger                                  *Meles meles*

### Bryophytes

Strap-leaved  
earth-moss                              *Ephemerum recurvifolium*

### Invertebrates

#### Coleoptera – Beetles

Glow worm                              *Lampyrus noctiluca*

#### Diptera – Hoverflies

*Cheilosia mutabilis*  
*Cheilosia praecox*  
*Triglyphus primus*  
*Xylota florum*

#### Hemiptera – Bugs

*Megalonotus chiragra*

#### Lepidoptera – Butterflies

Dark green fritillary      *Argynnis aglaja aglaja*

#### Lepidoptera – Macro-moths

The forester                              *Adscita statices*  
Six-belted clearwing      *Bembecia scopigera*  
Grey scalloped bar      *Dyscia fagaria*

#### Mollusca – slugs and snails

*Leiostryla anglica*



Narrow-leaved Bird’s-foot-trefoil.  
Credit: Isidro Martinez



## 1.2 Locally Important Species (contd)

### Vascular Plants

Fragrant Agrimony	<i>Agrimonia procera</i>
Field Garlic	<i>Allium oleraceum</i>
Upright Brome	<i>Bromopsis erecta</i>
Clustered Bellflower	<i>Campanula glomerata</i>
Leers' Sedge	<i>Carex divulsa ssp. leersii</i>
Rare Spring-sedge	<i>Carex ericetorum</i>
Soft-leaved Sedge	<i>Carex montana</i>
Prickly Sedge	<i>Carex muricata ssp. lamprocarpa</i>
Pale Sedge	<i>Carex pallescens</i>
Common Calamint	<i>Clinopodium ascendens</i>
Frog Orchid	<i>Coeloglossum viride</i>
Hound's-tongue	<i>Cynoglossum officinale</i>
Early Marsh-orchid	<i>Dactylorhiza incarnata</i>
Small Cudweed	<i>Filago minima</i>
Common Cudweed	<i>Filago vulgaris</i>
Dyer's Greenweed	<i>Genista tinctoria</i>
Henbane	<i>Hyoscyamus niger</i>
Sheep's-bit	<i>Jasione montana</i>
Round-fruited Rush	<i>Juncus compressus</i>
Grass Vetchling	<i>Lathyrus nissolia</i>
Lesser Hawkbit	<i>Leontodon saxatilis</i>
Narrow-leaved Bird's-foot-trefoil	<i>Lotus glaber</i>
Spring Sandwort	<i>Minuartia verna</i>
Spiny Restharrow	<i>Ononis spinosa</i>
Green-winged Orchid	<i>Orchis morio</i>
Common Broomrape	<i>Orobanche minor</i>
Greater Butterfly-orchid	<i>Platanthera chlorantha</i>
Hoary Cinquefoil	<i>Potentilla argentea</i>
Spring Cinquefoil	<i>Potentilla neumanniana</i>
Saw-wort	<i>Serratula tinctoria</i>
Pepper-saxifrage	<i>Silaum silaus</i>
Common Meadow-rue	<i>Thalictrum flavum</i>
Subterranean Clover	<i>Trifolium subterraneum</i>
Marsh Arrowgrass	<i>Triglochin palustre</i>
Vervain	<i>Verbena officinalis</i>

