

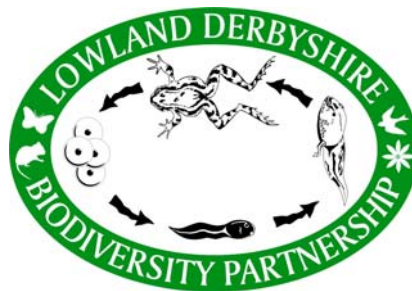
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**LOWLAND DERBYSHIRE**  
**LOCAL BIODIVERSITY ACTION PLAN**

**FARMLAND HABITATS IN LOWLAND DERBYSHIRE**



Prepared by the Lowland Derbyshire Biodiversity Partnership



Last Updated December 2005

This document provides the background information for the following farmland Habitat Action Plans:

- Ancient and species-rich hedgerows
- Cereal Field margins

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## Farmland Habitats in Lowland Derbyshire

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## 1. Introduction

Farmland is an essential part of our natural landscape. It can, if managed appropriately, support most of our native flora and fauna.

In Lowland Derbyshire we have two farmland habitat action plans which cover the main priority habitats present in the area:

- Ancient and species-rich hedgerows
- Cereal field margins

This document provides the background information for the habitats action plans.

### 1.1 Landscape Character

The Countryside Commission (now Countryside Agency) in partnership with English Nature has produced the 'Map of England', a map that depicts the natural and cultural dimensions of the landscape. At the national scale this work has defined English Nature's Natural Areas and the Countryside Agency's 181 Landscape Character Areas.

There are ten national Landscape Character Areas within Derbyshire. Derbyshire County Council has undertaken a detailed landscape character assessment for the county outside the Peak District National Park, which has further subdivided these ten broad character areas into thirty nine distinct Landscape Character Types (LCT). These have subsequently been described in 'The Landscape Character of Derbyshire'<sup>1</sup>.

As part of the assessment, the document has identified for each of the Landscape Character Types the habitats that naturally occur in these areas and the potential for protection and expansion of these habitats.

The Landscape Character Assessment (Table 1)<sup>1</sup> has identified where farmland habitats would be most appropriate in maintaining landscape character and local distinctiveness. Much of the wooded farmlands and wooded slopes and valleys within the Coal Measures and Derbyshire Peak Fringe and Lower Derwent are characterised by having irregular field patterns with mixed species hedgerows with scattered hedgerow trees. The farmland landscape types within the Southern Magnesian Limestone character area is characterised by having large regular field patterns bounded by hedgerows. The Needwood and South Derbyshire Claylands have small to medium field patterns surrounded by hedgerows. The estate farmlands are noted for having scattered oak and ash trees along the hedgerows. Thorn dominant hedges are more common in the medium to large field in the farmlands in the Trent Valley washlands area.

This information can be used by a variety of interest groups including developers, planners, foresters and wildlife groups when considering the appropriateness of particular developments, planting and habitat creation schemes in a specific area.

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<sup>1</sup> Derbyshire County Council (2003) *The Landscape Character of Derbyshire*.

**Table 1 Farmland habitats characteristic and appropriate within each Landscape Character Type**

P Primary habitat – prominent and key characteristic S Secondary habitat – variable and local characteristic

Natural area	Character Area	Landscape Character Type	Ancient and species-rich hedgerows	Cereal Field margins
Derbyshire Peak Fringe and Lower Derwent	Derbyshire Peak Fringe and Lower Derwent	Enclosed Moorland		
		Wooded Slopes and Valleys	P	
		Wooded Farmlands	P	S
		Gritstone Heaths & Commons		S
		Settled Farmlands	S	P
		Riverside Meadows		
Coal Measures	Notts, Derbyshire & Yorkshire Coalfield	Wooded Hills & Valleys	P	
		Coalfield Village Farmlands	P	S
		Estate Farmlands	S	P
		Wooded Farmlands	P	
		Coalfield Estatelands	P	S
		Riverside Meadows		
		Plateau Estate Farmlands	S	P
Southern Magnesian Limestone	Southern Magnesian Limestone	Limestone Farmlands	P	P
		Limestone Gorges	S	
Needwood & South Derbyshire Claylands	Needwood & South Derbyshire Claylands	Settled Farmlands	P	S
		Settled Plateau Farmlands	P	S
		Sandstone Slopes & Heaths	S	
		Estate Farmlands	P	P
		Riverside Meadow		
Trent Valley and Rises	Trent Valley Washlands	Lowland Village Farmlands	S	P
		Wet Pasture Meadows	S	P
		Riverside Meadows		
Trent Valley and Rises	Melbourne Parklands	Estate Farmlands	S	P
		Wooded Estatelands	S	S
		Sandstone Slopes & Heaths	P	
		Riverside Meadows		
Coal Measures	Leicestershire & Derbyshire Coalfield	Coalfield Village Farmlands	P	S
Trent Valley and Rises	Mease & Sence Lowlands	Village Estate Farmlands	P	P
		Riverside Meadows		

## 1.2 Associated Farmland Species

There are many species associated with wetland habitats, some of which are priority Biodiversity action plan species. Appendix 1-2 lists priority and locally important species associated with wetland habitats.

## 2. Ancient and species-rich hedgerows

### 2.1 Introduction

A hedgerow is defined as any boundary of trees or shrubs over 20m long and less than 5m wide, provided that at one time the trees or shrubs were more or less continuous. It includes an earth bank or wall only where such a feature occurs in association with a line of trees or shrubs<sup>2</sup>

Ancient hedgerows may be defined as those which were in existence before the Enclosure Acts, passed mainly between 1720 and 1840 in Britain and from the mid seventeenth century in Ireland. Species-rich hedgerows may be taken as those which contain 5 or more native woody species on average in a 30 metre length, or 4 or more in northern England, upland Wales and Scotland. Hedges which contain fewer woody species but support a rich associated field flora of herbaceous plants should also be included but practical criteria for identifying them have yet to be agreed. Many of the thin straight hawthorn hedges which characterise later parliamentary enclosures, as well as most hedges which consist mainly of beech, privet, yew or non-native trees, are excluded. Recently planted species-rich hedges are included.

A high proportion of the British flora and fauna can be found in hedges, with around 600 species of vascular plant having been recorded from this habitat<sup>3</sup>, though some only rarely. Generally the wildlife associated with hedges derives from woodland, since some of the older hedges were cut from woodland over a thousand years ago (these are known as assart hedges). Despite this, scrub and open ground species may also be found in the land under and beside the hedge. None of the species recorded in hedges are specific to this habitat, however the loss of their original or preferred habitat makes hedges important for their survival. This is particularly true of species typical of woodland clearings or edges, such as song thrush, which fare well in hedges. Species typically associated with areas of scrub, including linnet, tree sparrow, bullfinch, yellowhammer, turtle dove, garden warbler, blackcap and whitethroat, also fare well in hedges, whilst open ground species such as grey partridge use hedge bottoms for nesting. Well-managed hedgerows also provide habitat for butterflies including the meadow brown, gatekeeper and small skipper and for mammals such as dormice, stoats, weasels and shrews. Bats in particular rely upon hedgerows for navigation during flight and do not like having a gap of more than 10m in a hedge as it interferes with their hunting patterns.

The management of a hedge can affect its biodiversity value. Traditionally this was by laying on a rotation to maintain the structure of the hedge and periodic trimming so that it remained stock-proof. In the last ten years the amount of hedge-laying appears to have increased. Modern methods rely on trimming with a flail cutter which eventually leads to a loss of structure, which may no longer be necessary for keeping stock in, but which is important for nesting birds. Structure is an important factor in the value of hedges for wildlife, but the field margins and their management are also critical for some species. Modern hedge-trimming enables a similar treatment of all hedges at the same time, resulting in uniformity in contrast to the rotation of traditional management round the farm over several years, which was important for wildlife. Neglect leads to tall, overgrown hedges, which can temporarily be valuable for wildlife, but which soon deteriorate further, become gappy and eventually become just a line of mature hawthorns or individual trees.

Hedgerow trees are an important feature, not only for the habitat they provide and as song posts for birds, but also as a significant part of the tree resource generally; in 1980 the Forestry Commission estimated that there were 133,000 hedgerow trees in the whole county and although this figure will be lower now, there are still areas of the county where they form an important feature. Even where mature trees still occur there are very few new saplings appearing, unless positive action is taken, because the flail removes all young growth.

The Countryside Survey 2000 recorded 449,000km of whole hedges and 52,000km remnant hedges in England and Wales. This represents no detectable change in the length of whole hedgerows and a decline of 21% of the length of remnant hedgerow from the 1980s. An interim survey in 1993 suggested that the losses sustained in the first part of the period were more than compensated for by the gains in the second part of the period. However, this does not reflect the loss of ancient hedgerows being replaced by new hedgerows.

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<sup>2</sup> Bickmore, C.J. (2002) *Hedgerow Survey Handbook - a standard procedure for local surveys in the UK*.

<sup>3</sup> Bickmore, C.J. (2002) *Hedgerow Survey Handbook - a standard procedure for local surveys in the UK*.

Random sampling showed that approximately 26% of hedges (130,260km) had 5 or more woody species within them and could be classed as 'species-rich'. An estimate of 42% of hedges was noted in the 1993 survey as being species-rich meaning that an estimated 173,880km showing a decline of 25%.

## **2.2 Ancient and species-rich hedgerows in Lowland Derbyshire**

Plant diversity within a hedgerow is dependant on the origin, history and particularly the continuity of the hedge. Generally, the older the hedge the greater the diversity. Dogwood occurs in some hedges in the south and west of this Local BAP area and may be an indicator of old hedges, hazel probably originated from the forest since, whilst it is easy to lay and forms a dense structure it is palatable and not always easy to maintain in a stock-proof condition. One tree species which survives almost exclusively in hedges is the native black poplar, several of the eleven sites for Wild service tree in the county are in hedges. The richest are assart hedges, which have a diverse, relict woodland flora and fauna. The oldest are often Parish boundary hedges, now over a thousand years old, but more recent ones may also be species-rich, depending on their origins. Enclosure hedges dating from the end of the eighteenth century may be diverse, but often only one or two species were planted, since that was what was available.

Even though the loss of hedges has been significant over much of this Local BAP area, they are still probably the single most important feature in much of the farmed landscape today, where intensification has decreased the diversity of the fields and removed other features such as ponds and wet areas. Where they survive they provide shelter, corridors, food, over-wintering and breeding sites for a variety of animals and a habitat for many plants unable to survive in the adjoining fields.

### ***Derbyshire Peak Fringe and Lower Derwent***

In the smaller valleys to the west of Chesterfield, there are diverse hedges often with holly and hazel as features, but here the fields are often traditionally managed and the field pattern retained. Further south there are areas where hedges have been removed or neglected and also to the west of the Derwent and on the limestone around Crich there are sections where walls form the stock-proof boundary.

### ***Coal Measures***

In the south of the Natural Area hedges have suffered from the intensification of arable, with only small areas of pasture remaining and many hedges have been removed to increase field size, those that remain are often deteriorating in structure and hence as wildlife habitats. The intermixing of urban and agricultural land is a feature of this Natural Area and in such situations the use of the fields means that hedgerow management is often a low priority. Hedgerow trees are a feature of the areas in the central section where there has been no open-casting, but over large areas the only hedges are the single-species, single-age, straight lines of restoration scheme planting.

### ***Southern Magnesian Limestone***

The agricultural intensification on the Magnesian limestone has removed many of the boundary features, some of which were hedges, and although some of those remaining are species-rich they are often on roadsides and are retained for that reason. A diversity of shrubs and trees may be found including alder buckthorn, wild privet, holly, field maple, ash, wych elm etc Still some good hedges in the area. Holly hedges have previously been flagged up as characteristic.

### ***Needwood and South Derbyshire Claylands***

As a result of the emphasis on pasture and stock rearing in this Natural Area there has not been such extensive boundary removal as in the other Areas, where mineral extraction and agricultural intensification has progressed. There is also a greater need to maintain hedges in a stock proof condition and hedges are more consistently maintained in a better condition in this Natural Area. However, the flood-plain of the River Dove and other flat valleys have seen levels of removal and neglect which are more common on the Coal Measures. This is one area where hedgerow trees are a feature of the landscape, but the number of replacements is very low and some of the mature trees are suffering from die-back as a result of lowering water tables.

### ***Trent Valley and Rises***

This area has seen hedgerow losses due both to recent agricultural intensification as a result of drainage and also as an effect of mineral workings.

### 3. Cereal Field Margin

#### 3.1 Introduction

For the purposes of this Action Plan the term "cereal field margin" refers to strips of land lying between cereal crops and the field boundary, and extending for a limited distance into the crop, which are deliberately managed to create conditions which benefit key farmland species. They can take a variety of forms, the principal types being:

- A 'Wildlife Strip' 6m wide adjacent to a cereal crop, together with a 1 m Sterile Strip' between the wildlife strip and the crop. The wildlife strip is cultivated once a year but not cropped; the Sterile Strip is maintained so as to prevent aggressive arable weeds spreading into the adjacent cereal crop.
- A 'Conservation Headland' either 6m or 12m wide forming the outer margin of the crop and separated from an adjacent field boundary or other vegetation by a 1 m Sterile Strip. The Conservation Headland is cropped with cereals but is managed with reduced inputs of pesticides so as to favour wild arable plants and invertebrates.
- A combined wildlife strip and Conservation Headland, separated by a Sterile Strip and managed as described as above.
- Game crops, stubble or grassland fallows lying between annually cropped land and the field boundary.
- Beetle banks, which are tussocky grass banks about 2m wide. These link existing field margins by crossing the middle of an arable field

Cereal field margins as described in this plan provide nesting and feeding sites for game birds and some passerines. They also provide a shelter and habitat for butterflies, grasshoppers, and plant bugs as well as small mammals.

Once common but now rare and threatened arable plants such as cornflower *Centaurea cyanus*, and Shepherd's needle *Scandix pecten-veneris* can be found within cereal field margins. Arable plants are of conservation concern because of enormous national declines in their distribution and abundance. Overall, some 300 species of plants can occur in arable fields.

Field margins can be enhanced by sowing with an appropriate seed mixture or by allowing margins to develop for the natural seedbank. The species composition of the margin can be tailored for a particular species such as grey partridge. The structure of the margin is particularly important for the animal species, providing cover, nesting, breeding and feeding sites, as well as corridors for movement, although the diversity of plant species in a field margin is also clearly important for general biodiversity. Its proximity to boundary features and other habitats which are or can be of importance, is also an important factor in determining the specific value of each area and the need for more conservation directed management.

To be effective to wildlife field margins have to be managed correctly, including restricting the type and amount of herbicide used.

#### 3.2 Cereal Field Margins in Lowland Derbyshire

In Derbyshire, field margins form a transitory habitat for some species and are a key habitat for a number of national and local BAP species, which in the past would have survived the less frequent and intensive management in cropped fields. These species include grey partridge, quail, barn owl, stoat, weasel, shrews, harvest mouse and flowering plants such as cornflower, shepherd's needle and red hemp-nettle, bryophytes etc. Shepherd's needle, thought to be extinct in the county, was re-discovered in a field margin in the National Forest.

It is difficult to comment on the distribution of cereal field margins in Lowland Derbyshire as no audit has been carried out. It can be said, however, that there is more likely to be a greater amount of cereal field margins within the Magnesian Limestone, Needwood and South Derbyshire Claylands, and Trent Valley Rises Natural areas as they are the main arable areas of Derbyshire.

**Appendix 1: Species for ancient and species-rich hedgerows are a key habitat in Lowland Derbyshire**

**PRIORITY SPECIES**

**Mammals**

Pipistrelle bat	<i>Pipistrellus pipistrellus</i>
Brown hare	<i>Lepus europaeus</i>
Dormouse	<i>Muscardinus avellanarius</i>

**Amphibians**

Great crested newt	<i>Triturus cristatus</i>
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**Birds**

Bullfinch	<i>Pyrrhula pyrrhula</i>
Grey partridge	<i>Perdix perdix</i>
Linnet	<i>Carduelis cannabina</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Song thrush	<i>Turdus philomelos</i>
Tree sparrow	<i>Passer montanus</i>
Turtle dove	<i>Streptopelia turtu</i>

**Invertebrates**

Square-spotted clay moth	<i>Xestia rhomboidea</i>
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**LOCALLY IMPORTANT SPECIES**

An important feature of Local BAPs is the selection of locally important, threatened, declining or rare species which add local distinctiveness. Using Endangered Wildlife in Derbyshire (Elkington and Willmot 1996) and with the help of county recorders the following species have been selected for this category.

**Mammals**

Daubenton's bat	<i>Myotis daubentonii</i>
Noctule bat	<i>Nyctalus noctula</i>
Wiskered bat	<i>Myotis mystacinus</i>
Natterer's bat	<i>Myotis nattereri</i>
Leisler's bat	<i>Nyctalus leisleri</i>
Brant's bat	<i>Myotis brandtii</i>

**Birds**

<u>Hobby (u)</u>	<i>Falco subbuteo</i>
<u>Barn Owl (u)</u>	<i>Tyto alba</i>
Cuckoo #	<i>Cuculus canorus</i>
Garden warbler #	<i>Sylvia borin</i>
Willow warbler #	<i>Phylloscopus trochilus</i>
Willow tit #	<i>Parus montanus</i>
Yellowhammer #	<i>Emberiza calandra</i>
<u>Lesser spotted woodpecker # (u)</u>	<i>Dendrocopos minor</i>

**Invertebrates**

**Beetles**

<i>Carabus monilis</i>
<i>Fleutiauxellus quadripustulatus</i>
<i>Ptinomorphus imperialis</i>
<i>Phyllotreta vittata</i>
<i>Psylliodes luteola</i>
<i>Hypera fuscocinerea</i>
<i>Ceutorhynchus rapae</i>

**Butterflies**

White- letter hairstreak	<i>Strymonidia w-album</i>
Green hairstreak	<i>Callophrys rubi</i>

**Plants**

Buckthorn	<i>Rhamnus catharticus</i>
Small-leaved lime	<i>Tilia cordata</i>
Large- leaved lime	<i>Tilia platyphyllos</i>
Wild Service-tree	<i>Sorbus torminalis</i>
Black poplar (native)	<i>Populus nigra ssp betulifolia</i>
Bay willow	<i>Salix pentandra</i>
Midland hawthorn	<i>Crataegus laevigata</i>
Spindle	<i>Euonymus europaeus</i>

**Key**

U	uncommon
#	declining
<u>Barn owl</u>	needs trees within hedgerow

**Appendix 2 Species for which cereal field margins are a key habitat in Lowland Derbyshire**

**PRIORITY SPECIES**

**Mammals**

Pipstrelle bat *Pipistellus pipistrellus*

**Birds**

Corn bunting *Miliaria calandra*  
 Grey partridge *Perdix perdix*  
 Reed bunting *Emberiza schoeniclus*  
 Skylark *Alauda arvensis*

**Vascular Plants**

Tower mustard *Arabis glabra*  
 Cornflower *Centaurea cyanus*  
 Red hemp-nettle *Galeopsis angustifolium*  
 Shepherd's needle *Scandix pecten-veneris*

**Non-vascular plants**

Sausage-beard moss *Didymodon tomaculus*

**LOCALLY IMPORTANT SPECIES**

An important feature of Local BAPs is the selection of locally important, threatened, declining or rare species which add local distinctiveness. Using Endangered Wildlife in Derbyshire (Elkington and Willmot 1996) and with the help of county recorders the following species have been selected for this category.

**Mammals**

Daubenton's bat *Myotis daubentonii*  
 Noctule bat *Nyctalus noctula*  
 Wiskered bat *Myotis mystacinus*  
 Natterer's bat *Myotis nattereri*  
 Leisler's bat *Nyctalus leisleri*  
 Brant's bat *Myotis brandtii*  
 Harvest mouse *Micromys minutus*

**Plants**

Chamomile *Chamaemelum nobile*  
 Chaffweed *Anagallis minima*  
 Grass vetchling *Lathyrus nissolia*  
 Venus's looking glass *Legousos hybrida*  
 Field Gromwell *Lithospermum arvense*  
 Corn buttercup *Ranunculus arvensis*  
 Field mouse-ear *Cerastium arvense*  
 Bird's foot *Ornithopus perpusillus*  
 Grey field-speedwell *Veronica polita*

**Birds**

Quail *Coturnix coturnix*  
 Yellow wagtail *Montacilla flava*