

Farmland Habitats

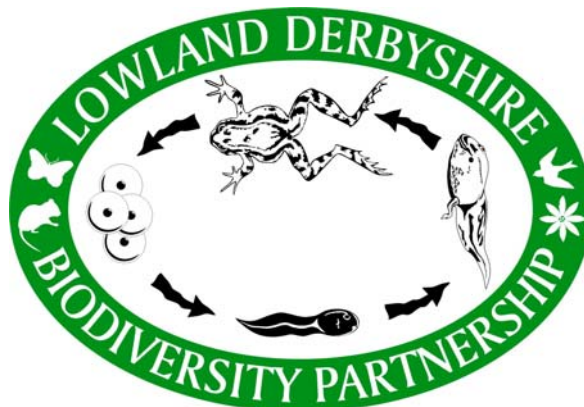
- Background Information -

Lowland Derbyshire LBAP



Arable field with scattered poppies. Credit: Debbie Alston

Prepared by the Lowland Derbyshire Biodiversity Partnership



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

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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. Even in large areas of arable fields the boundary features are important as wildlife corridors for associated species of birds, mammals and invertebrates linking different habitats and biodiversity.

1.1 Landscape Character

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 farmland habitats would be most appropriate in maintaining landscape character and local distinctiveness. The Assessment promotes the planting and management of farmland 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 LBAP.

Table 1 shows the relationship between landscape character type and farmland type.

1.2 Associated Farmland Species

There are many species associated with farmland habitats, some of which are UK BAP Priority Species.

Appendix 1 and 2 lists Priority Species as well as a range of locally important and local Red Data Book species found in farmland habitats.



Field margin. Credit: Natural England

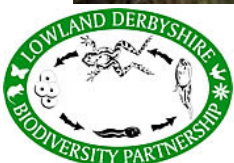


Table 1: Farmland habitats characteristic and appropriate within each Landscape Character Type

P Primary (main) habitat - prominent, and a key characteristic
 S Secondary habitat - variable, and a local characteristic

Action Area name within this LBAP	Character Area	Landscape Character Type	Hedgerows	Cereal Field Margins
Peak Fringe	Derbyshire Peak Fringe and Lower Derwent	Enclosed Moorland		
		Wooded Slopes and Valleys	P	
		Wooded Farmlands	P	S
		Gritstone Heaths & Commons		S
		Settled Farmlands	P	S
		Riverside Meadows		
Rother and Doe Lea Valleys Erewash Valley	Notts, Derbyshire & Yorkshire Coalfield	Wooded Hills & Valleys	P	
		Coalfield Village Farmlands	P	S
		Estate Farmlands	S	P
		Wooded Farmlands	P	S
		Coalfield Estatelands	P	S
		Riverside Meadows		
		Plateau Estate Farmlands	S	P
Magnesian Limestone	Southern Magnesian Limestone	Limestone Farmlands	P	P
		Limestone Gorges	S	
Claylands	Needwood & South Derbyshire Claylands	Settled Farmlands	P	S
		Settled Plateau Farmlands	P	S
		Sandstone Slopes & Heaths	P	
		Estate Farmlands	S	P
		Riverside Meadow		
Trent and Dove Valleys	Trent Valley Washlands	Lowland Village Farmlands	S	P
		Wet Pasture Meadows	S	P
		Riverside Meadows		



Action Area name within this LBAP	Character Area	Landscape Character Type	Hedgerows	Cereal Field Margins
National Forest area	Melbourne Parklands	Estate Farmlands	S	P
		Wooded Estatelands	S	S
		Sandstone Slopes & Heaths	P	
		Riverside Meadows		
	Leicestershire & Derbyshire Coalfield	Coalfield Village Farmlands	P	S
	Mease & Sence Lowlands	Village Estate Farmlands	P	P
		Riverside Meadows		

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 such 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.



Living bird table. Credit: Derbyshire County Council



2. 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

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 different native woody species on average in a 30 metre length, or 4 or more in northern England, upland Wales and Scotland. Those hedges that contain fewer woody species but which do support a rich associated field flora of herbaceous plants should also be included, although 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. Around 600 species of vascular plant having been recorded from this habitat, 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 very 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 significantly affects its biodiversity value. Traditionally this was done 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. This may no longer be of concern for keeping in stock, but it is important for nesting birds. Structure is an important factor in the value of hedges for wildlife, but the adjacent field margins are also critical for some species. Modern, mechanised hedge-trimming enables a similar treatment of all hedges at the same time, resulting in over-uniformity. It contrasts strongly with the rotation of traditional management round the farm over several years, which was important for wildlife.

Regular over-cutting reduces the ability of species like hawthorn to produce flowers and fruit. It not only limits bird-nesting opportunities, but also the availability of hedgerow food in autumn and winter. By contrast, over-neglect leads to tall, overgrown hedges, which can temporarily be valuable for wildlife, but which soon deteriorate further. They become gappy and eventually end up as just a line of mature hawthorns or other 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 even lower now, there are still areas of Derbyshire where they form an important feature. Even where mature trees still occur there are very few new saplings appearing. Positive action is needed to reverse this situation because flail mowing removes all young growth.

In 2000 the Countryside Survey recorded 449,000km of complete hedges and 52,000km of remnant hedges across England and Wales. This represents no detectable change in the length of whole hedgerows, but a decline of 21% of the length of remnant hedgerow from surveys in 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. However, this does not reflect the loss of ancient hedgerows being replaced by new and less valuable ones.

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 were noted in the 1993 survey as being species-rich meaning that an estimated 173,880km were showing a decline of 25%.

2.2 Hedgerows in Lowland Derbyshire

Plant diversity within a hedgerow is dependant on the origin, history and particularly the continuity of the hedge. In general, the older the hedge, the greater the diversity. 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 originally planted, since that was what was available.

Dominant Species: 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 state. 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.

Even though the loss of hedges has been significant over much of this Local BAP area, they are still probably the single most important visual and wildlife features in much of the farmed landscape today, especially where intensification has decreased the diversity of the fields and removed other features such as ponds and wet areas. Where they do 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. Hedgerows are a critical element in linking other wildlife features together across the landscape into a coherent and connected network.

2.1.1 Magnesian Limestone

Agricultural intensification on the Magnesian limestone has removed many of its boundary features. Some of these were hedgerows and, although some of those remaining are species-rich, they are often on roadsides and are retained simply for that reason. Nevertheless there are still some good hedges in the area. A range of shrubs and trees may be found within them, including alder buckthorn, wild privet, holly, field maple, ash, wych elm. Holly hedges have previously been flagged up as characteristic within this Action Area.



2.2.2 River Rother and Doe Lea Valleys

The intermixing of urban and agricultural land is a feature of this 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 central section of the area where there has been no open-cast mining. But over large areas the only hedges are the single-species, single-age, straight lines of restoration scheme planting.

2.2.3 Peak Fringe

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. To the west of the Derwent and on the small limestone outlier around Crich there are sections where stone walls traditionally form the stock-proof boundary.

2.2.4 Erewash Valley

In this area hedges have suffered from the intensification of arable, with only small areas of pasture remaining. Many hedges have been removed to increase field size, or lost through coal extraction. Those that remain are often deteriorating in structure and as wildlife habitats.

2.2.5 Claylands

As a result of the emphasis on pasture and stock rearing in this Action Area there has not been such extensive boundary removal as in the other places, 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 better maintained. 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. In addition, new pressures are being imposed by an increase in arable farming with more intensive management and less need for stock-proof hedges.

2.2.7 Trent and Dove Valley

This area has seen hedgerow losses due to the improvement of drainage from recent agricultural intensification and also as an effect of mineral (gravel) workings.

2.2.8 National Forest area

This Action Area is an important agricultural region in Derbyshire. It is one of the remaining strongholds for farmland birds, though recent changes in agricultural policy have resulted in more intensive farming which reduces habitat availability for these species. Uptake in the field margin options of entry-level stewardship schemes could be increased by more targeted advice being available.



Hedgerow and hedgerow tree.
Credit: Debbie Alston



3. Field Margins

3.1 Introduction

For the purposes of the LBAP, the term 'field margin' refers to any strip of land lying between crops and the field boundary, 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

Field margins are described in the LBAP as providing 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 for wildlife, field margins have to be managed correctly, and this includes restricting the type and amount of herbicides applied.



3.2 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 one field margin in the National Forest area in 1996.

It is difficult to comment authoritatively on the distribution of field margins in Lowland Derbyshire as no audit has ever been carried out. It can be said, however, that there is more likely to be a greater amount of arable field margins within the Magnesian Limestone, Rother and Doe Lea Valleys, and National Forest areas as they are the main arable areas of Derbyshire.



Beetle Bank.
Credit: Natural England



Appendix 1: Species for which Ancient and Species-rich Hedgerows are a key habitat in Lowland Derbyshire

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

Birds

Cuckoo	<i>Cuculus canorus</i>
Dunnock	<i>Prunella modularis</i>
Grey partridge	<i>Perdix perdix</i>
Lesser spotted woodpecker	<i>Dendrocopos minor</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 turtur</i>
Willow tit	<i>Parus montanus</i>
Yellowhammer	<i>Emberiza calandra</i>

Mammals

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

Amphibians

Great crested newt	<i>Triturus cristatus</i>
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Invertebrates

Square-spotted clay moth	<i>Xestia rhomboidea</i>
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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’ hedgerow species, or species characteristic of hedgerow habitats.

Birds

Barn Owl	<i>Tyto alba</i> (uncommon, needs trees within hedgerows)
Bullfinch	<i>Pyrrhula phrrhula</i>
Garden warbler	<i>Sylvia borin</i> (declining)
Hobby	<i>Falco subbuteo</i> (uncommon)
Kestrel	<i>Falco tinnunculus</i>
Stock Dove	<i>Columba oenas</i>

Mammals

Daubenton’s bat	<i>Myotis daubentonii</i>
Whiskered bat	<i>Myotis mystacinus</i>
Brandt’s bat	<i>Myotis brandtii</i>
Natterer’s bat	<i>Myotis nattereri</i>
Leisler’s bat	<i>Nyctalus leisleri</i>
Noctule bat	<i>Nyctalus noctula</i>

Vascular Plants

Wood Spurge	<i>Euphorbia amygdaloides</i>
Narrow-leaved everlasting-pea	<i>Lathyrus sylvestris</i>
Cat-mint	<i>Nepeta cataria</i>
Mountain Currant	<i>Ribes alpinum</i>
a bramble	<i>Rubus durescens</i>
Purple Willow	<i>Salix purpurea</i>
Stone Parsley	<i>Sison amomum</i>



Invertebrates

Beetles

Carabus monilis
Fleutiauxellus quadripustulatus
Ptinomorphus imperialis
Phyllotreta vittata
Psylliodes luteola
Hypera fuscocinerea
Ceutorhynchus rapae

Butterflies

White-letter hairstreak *Satyrion w-album*
Green hairstreak *Callophrys rubi*



Right: White-letter hairstreak butterfly. Credit: Martin Stubbs
Below: Living bird table in school grounds.
Credit: Derbyshire Wildlife Trust



Appendix 2: Species for which Field Margins are a key habitat in Lowland Derbyshire

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

Mammals

Pipistrelle bat *Pipistrellus pipistrellus*

Birds

Corn bunting *Miliaria calandra*
 Grey partridge *Perdix perdix*
 Reed bunting *Emberiza schoeniclus*
 Skylark *Alauda arvensis*
 Yellowhammer *Emberiza citrinella*
 Yellow Wagtail *Motacilla flava*

Vascular Plants

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

Non-vascular plants

Sausage-beard moss *Didymodon tomaculosus*

Amphibian

Common Toad
 Great Crested Newt

2.2 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’ field margin species, or species characteristic of field margin habitats.

Birds

Barn Owl *Tyto alba*
 Kestrel *Falco tinnunculus*
 Quail *Coturnix coturnix*

Mammals

Daubenton’s bat *Myotis daubentonii*
 Whiskered bat *Myotis mystacinus*
 Brandt’s bat *Myotis brandtii*
 Natterer’s bat *Myotis nattereri*
 Leisler’s bat *Nyctalus leisleri*
 Noctule bat *Nyctalus noctula*
 Harvest mouse *Micromys minutus*

Bryophytes

Beaked Beardless Moss *Weissia rostellata*
 Field Hornwort *Anthoceros agrestis*
 Floerke’s Phescum *Microbotryum floerkeana*
 Field Hornwort *Anthoceros agrestis*

Plants

Basil Thyme *Clinopodium acinos*
 Dwarf Spurge *Euphorbia exigua*
 Small Cudweed *Filago minima*
 Large-flowered hemp-nettle *Galeopsis speciosa*
 Henbane *Hyoscyamus niger*
 Sharp-leaved Fluellen *Kickxia elatine*
 Grass Vetchling *Lathyrus nissolia*
 Venus's-looking-glass *Legousia hybrida*
 Smith's Pepperwort *Lepidium heterophyllum*
 Field Gromwell *Lithospermum arvense*
 Cat-mint *Nepeta cataria*
 Bird's-foot *Ornithopus perpusillus*
 Prickly Poppy *Papaver argemone*
 Corn Buttercup *Ranunculus arvensis*
 Shepherd's-needle *Scandix pecten-veneris*
 Annual Knawel *Scleranthus annuus*
 Field Woundwort *Stachys arvensis*
 Grey Field-speedwell *Veronica polita*

