Lowland Derbyshire LBAP

Wetland Habitats
- Background Information -

Wollen Meadow wetland, Creswell. Credit: Debbie Alston

Prepared by the Lowland Derbyshire Biodiversity Partnership

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

Last updated November 2011

Wetland Habitats in Lowland Derbyshire

Contents

1. Introduction

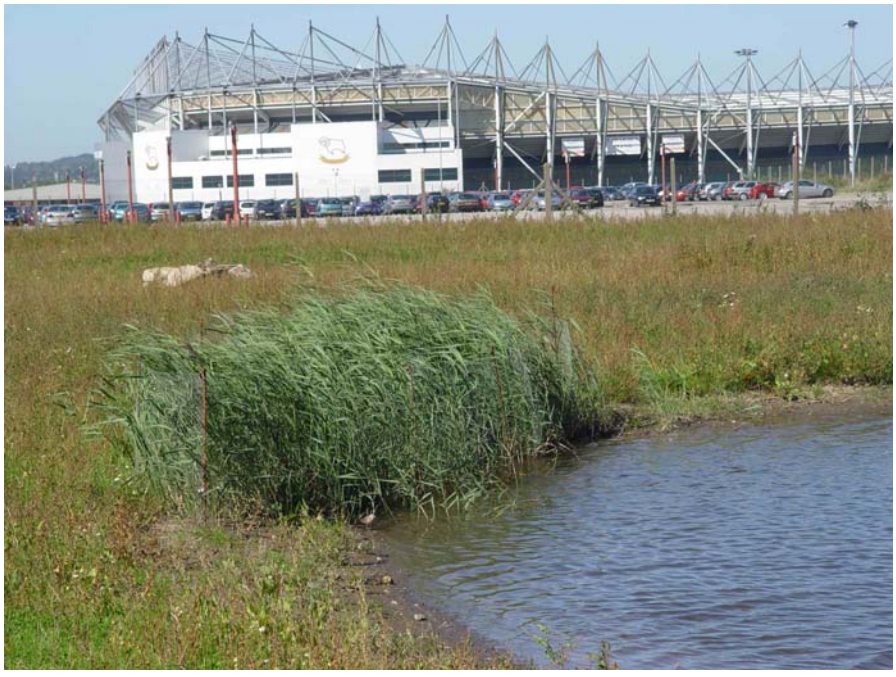
Wetlands are of great importance. Around 3,500 of the UK's invertebrate species live in fresh water and up to half of these live in ponds. There are a number of wetland Priority Habitats listed in the UK Biodiversity Action Plan. The following are present in Lowland Derbyshire: eutrophic standing waters, fens, lakes (mesotrophic , oligotrophic and dystrophic), ponds, reedbeds and rivers. Floodplain grazing marshland is referred to in the Grassland Habitats section).

1.1 Wetland types in Lowland Derbyshire

There are a number of different wetland habitat types in the LBAP area. Table 1 shows the national priority wetland habitat types, whilst Table 2 shows the National Vegetation Classification habitat types which have been recognised within the Lowland Derbyshire area.

Table 1: Lowland Derbyshire BAP Wetland types – definitions

Priority Habitats types	Definition
Eutrophic Standing waters	Lakes and large water bodies which have a high nutrient level
Lowland fens	Peatlands which receive water and nutrients from the soil, rock and groundwater as well as rainfall. Characterised by short vegetation with a high proportion of big mosses.
Mesotrophic Lakes	Lakes and large water bodies which have a middle range nutrient level. Lakes which have a very diverse aquatic plant community.
Oligotrophic and Dystrophic Lakes	Lakes and large water bodies with a very low nutrient level
Ponds	Permanent and seasonal standing water up to 2 hectares in size
Reedbeds	Wetlands dominated by stands of common reed *Phragmites australis*
Rivers	Linear water bodies with associated features, a dynamic flow of water and sediment



The Sanctuary LNR, Pride Park, Derby.
Credit: Nick Moyes

Table 2: Wetland National Vegetation Classifications habitat types within Lowland Derbyshire

Wetland type	National Vegetation Classifications occurring in Lowland Derbyshire
Swamp	S3 Greater tussock-sedge (*Carex paniculata*) – *Caricetum paniculatae* swamp S4 Common Reed *(Phragmites australis*) swamp and reedbed S5 Reed Sweet Grass (*Glyceria maxima*) swamp S6 Greater pond sedge (*Carex riparia*) swamp S7 Lesser pond sedge (*Carex acutiformis*) swamp S8 Common Club-rush (*Scirpus lacustris ssp lacustris*) swamp S10 Water horsetail (*Equisetum fluviatile*) swamp S12 Common reedmace (*Typha latifolia*) swamp S14 Branched bur-reed (*Sparganium erectum*) swamp S15 Sweet Flag (*Acorus calamus*) – *Acoretum calami* swamp S16 Arrowhead (*Sagittaria sagittifolia*) swamp S17 Cyperus sedge (*Carex pseudocyperus*) swamp S18 False-fox sedge (*Carex otrubae*) – *Caricetum otrubae* swamp S19 Common spike-rush (*Eleocharis palustris*) swamp S20 Grey club-rush (*Scirpus tabernaemontani*) swamp S22 Floating sweet-grass (*Glyceria fluitans*) swamp S23 Other water-margin vegetation S25 Common reed (*Phragmites australis*) – Hemp-agrimony (*Eupatorium cannabinum*) tall-herb fen. S26 Common reed (*Phragmites australis*) – Common nettle (*Urtica dioica*) tall herb fen S28 Reed Canary grass (*Phalaris arundinacea*) tall herb fen
Mires and fens	M6 Star Sedge (*Carex echinata*) - *Sphagnum recurvum/auriculatum* mire M10 Dioecious sedge (*Carex dioica*) – Common Butterwort (*Pinguicula* vulgaris) mire M22 Blunt-flowered rush (*Juncus subnodulosus*) – marsh thistle (*Cirsium* palustre) fen-meadow M23 Rush (*Juncus effusus / acutiflorus*) - Marsh bedstraw (*Galium palustre*) mire M25 Purple moor-grass (*Molinia caerulea*) – Tormentil (*Potentilla erecta*) M27 Meadowsweet (*Filipendula ulmaria*) – Angelica (*Angelica sylvestris*) mire
Standing open water	A5 Rigid hornwort (*Ceratophyllum demersum*) community A8 Yellow water-lily (*Nuphar lutea*) community A8c White Water-lily (*Nymphaea alba*) sub-community A9 Broad-leaved pondweed (*Potamogeton natans*) community A10 Amphibious bistort (*Persicaria amphibia*) A11 Fennel Pondweed (*Potamogeton pectinatus*) – Spiked water-milfoil (*Myriophyllum spicatum*) community A15 Canadian pondweed *(Elodea canadensis*) community A19 Common Water-crowfoot (*Ranunculus aquatilis*) community A20 Pond water-crowfoot (*Ranunculus peltatus*) community.

1.2 Major influences on biodiversity in Lowland Derbyshire wetlands

Derbyshire's varied landscape and geology has led to the distribution of the main clusters of wetland habitats that we see today in the LBAP area. The water and mineral extraction industry is, in part, responsible for the creation of much of the reedbed and many of the large water bodies here. Biodiversity on many of the large water bodies is coming under increasing recreational pressure. In part this pressure is leading to an increase in nutrient status and therefore a reduction in species diversity, especially aquatic plant species. Increasing demands for access to watersides and open water increasingly puts wildlife in conflict with other users.

The increase in nutrient and soil run-off from agricultural land is also having an influence on wetlands, especially ponds and lakes. Increased rainfall, especially following periods of dry weather is resulting in flash floods.

Invasive species are considered to be a major problem for wetland habitat biodiversity. Invasive plants are a particular problem as they spread quickly along rivers and streams.

1.3 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 wetland habitats would be most appropriate in maintaining landscape character and local distinctiveness. The Assessment promotes the creation and management of wetland 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 this Lowland Derbyshire LBAP. Table 3 shows the relationship between landscape character type and woodland type.

Wyver Lane, Belper.
Credit: Debbie Alston

Table 3: Semi-natural wetland 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
L Locally Significant - unusual, often a minor characteristic

Action Area name within this LBAP	Character Area	Landscape Character Type	Reed-beds	Lowland Fen meadows	Standing open water and canals	Rivers and streams
Peak Fringe	Derbyshire Peak Fringe and Lower Derwent	Enclosed Moorland				S
		Wooded Slopes and Valleys	S		S	P
		Wooded Farmlands	S	S	P	P
		Gritstone Heaths & Commons				
		Settled Farmlands		S	S	
		Riverside Meadows	P	P	P	P
Rother and Doe Lea Valleys Erewash Valley	Notts, Derbyshire & Yorkshire Coalfield	Wooded Hills & Valleys	S		S	P
		Coalfield Village Farmlands	S		P	P
		Estate Farmlands			S	P
		Wooded Farmlands	S		P	P
		Coalfield Estatelands	S	L	P	P
		Riverside Meadows	P	P	P	P
		Plateau Estate Farmlands				S
Magnesian Limestone	Southern Magnesian Limestone	Limestone Farmlands		L	S	P
		Limestone Gorges	S	L	S	P
Claylands	Needwood & South Derbyshire Claylands	Settled Farmlands	L	S	P	P
		Settled Plateau Farmlands			S	
		Sandstone Slopes & Heaths		L		
		Estate Farmlands	S	L		S
		Riverside Meadow				

Action Area name within this LBAP	Character Area	Landscape Character Type	Reed-beds	Lowland Fen meadows	Standing open water and canals	Rivers and streams
Trent and Dove Valleys	Trent Valley Washlands	Lowland Village Farmlands			S	S
		Wet Pasture Meadows		P	P	
		Riverside Meadows	P	P	P	P
National Forest area	Melbourne Parklands	Estate Farmlands			S	S
		Wooded Estatelands		S	P	P
		Sandstone Slopes & Heaths			S	S
		Riverside Meadows	P	P	P	P
	Leicestershire & Derbyshire Coalfield	Coalfield Village Farmlands	S		P	P
	Mease & Sence Lowlands	Village Estate Farmlands			S	P
		Riverside Meadows	P	P	P	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.

1.4 Associated Wetland Species

There are many species associated with wetland habitats, some of which are UK Priority Biodiversity Action Plan species. Appendix 1 to 3 list both Priority, other important and local Red Data Book species associated with wetland habitats.

1.5 Extent of wetland habitats in Lowland Derbyshire

The diverse nature of the LBAP area means that there is a range of wetland habitats, varying in extent from large complex ones within the Trent and Dove Valleys to single ponds.
Table 4 and Figure 1 show the range and extent of the different wetland habitats found within all eight of the Action Areas in the Lowland Derbyshire LBAP area.

Table 4: Distribution and extent of wetland habitats within the LBAP area

LBAP Action Area	Reedbed	Fen and Mire	Swamp	Lakes and canals	Ponds
Magnesian Limestone	0.5ha	1.78ha	0.2ha	3 lakes	> 485
Rother and Doe Lea valleys	18.45ha	2.81ha	5.79ha	6 lakes 1 canal	> 1350
Peak Fringe	1.36ha	2.91ha	10.01ha	8 lakes 1 canal (part of)	> 2610
Erewash valley	3ha	8.95ha	32.28ha	5 lakes 3 canals	> 1220
Claylands	-	9.4ha	13.31ha	6 lakes	> 3960
Derby	-	-	13.04ha	2 lakes	> 460
Trent and Dove Valleys	46.92	-	27.45ha	27 lakes 1 canal	> 1105
National Forest area	0.58ha	-	5.62ha	3 lakes	> 1635
Totals	70.81ha	25.85ha	107.7ha	60 lakes	> 12825

Cromford Canal.
Credit: Debbie Alston

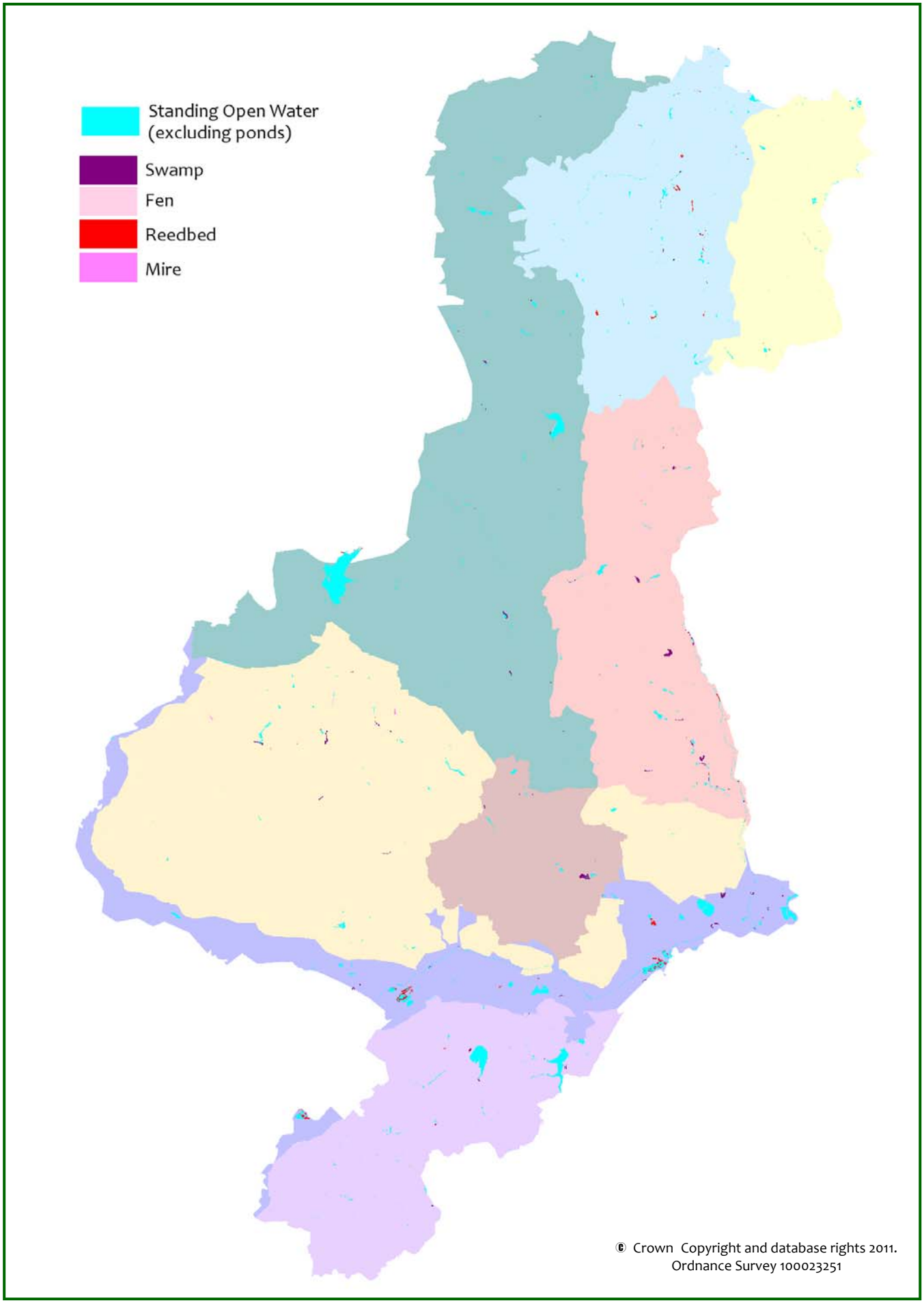


Figure 1: Wetland habitats in the LBAP area

2. Rivers and Streams

2.1 Introduction.

Rivers, streams and their floodplains form wetland corridors through our countryside. They have the potential to provide habitats for large numbers of Priority Species including otters, water vole and white-clawed crayfish. The best watercourses are those that exhibit the natural channel features typical of lowland watercourses. These include a variety of flow patterns (riffles, runs, glides, pools and marginal deadwater) and a variety of exposed riverine sediments (ERS) (side bars, point bars, channel bars, silt deposits and islands). ERS is an extremely important habitat, particularly for specialist invertebrates, as well as some bird and fish species and its presence is an indicator of rivers with natural channel features. In the past ERS were routinely removed from rivers like the Dove; the long-term effect of this is unknown.

2.2 Rivers and streams in Lowland Derbyshire

The main rivers in Derbyshire are shown in Figure 2. Lowland Derbyshire lies almost entirely within the catchment of the River Trent. However, several rivers located in the north of the Derbyshire (including the Doe Lea, Rother and Hipper) drain northwards into the River Don, which reaches the Humber Estuary via the tidal Ouse. The River Poulter (not shown in Figure 2), in the Magnesian Limestone Action Area , is within the Meden catchment.

After rising in north Staffordshire, the River Trent flows south and east before joining with the Tame and flowing northwest. Between its confluences with the Rivers Dove and Erewash, the Trent passes north and eastwards through southern Derbyshire. Then it heads north towards the Humber Estuary via Nottingham, Newark and Gainsborough. In addition, several major tributaries of the Trent are located in Lowland Derbyshire; these include the Rivers Derwent, Dove, Erewash, Amber (a tributary of the Derwent) and a small section of the river Mease.

A significant number of rivers and streams have been severely modified by re-sectioning, straightening or deepening and diverting. Since the Second World War this was mainly carried out for agricultural land drainage. In addition, some activities were carried out to alleviate flooding or when constructing new roads and other development. In most of these cases, in-stream habitat diversity has been virtually eliminated. Many rivers have become divorced from their natural floodplain, and wetland habitats such as wet grassland, wet woodland, fens and reed beds.

Water quality was once the major limiting factor influencing biodiversity in the county rivers. Urban rivers, and the River Trent especially, have significantly improved in recent decades but diffuse pollution particularly from agriculture remains a serious problem in more rural rivers and streams. The Environment Agency carries out monitoring of watercourses throughout the county.

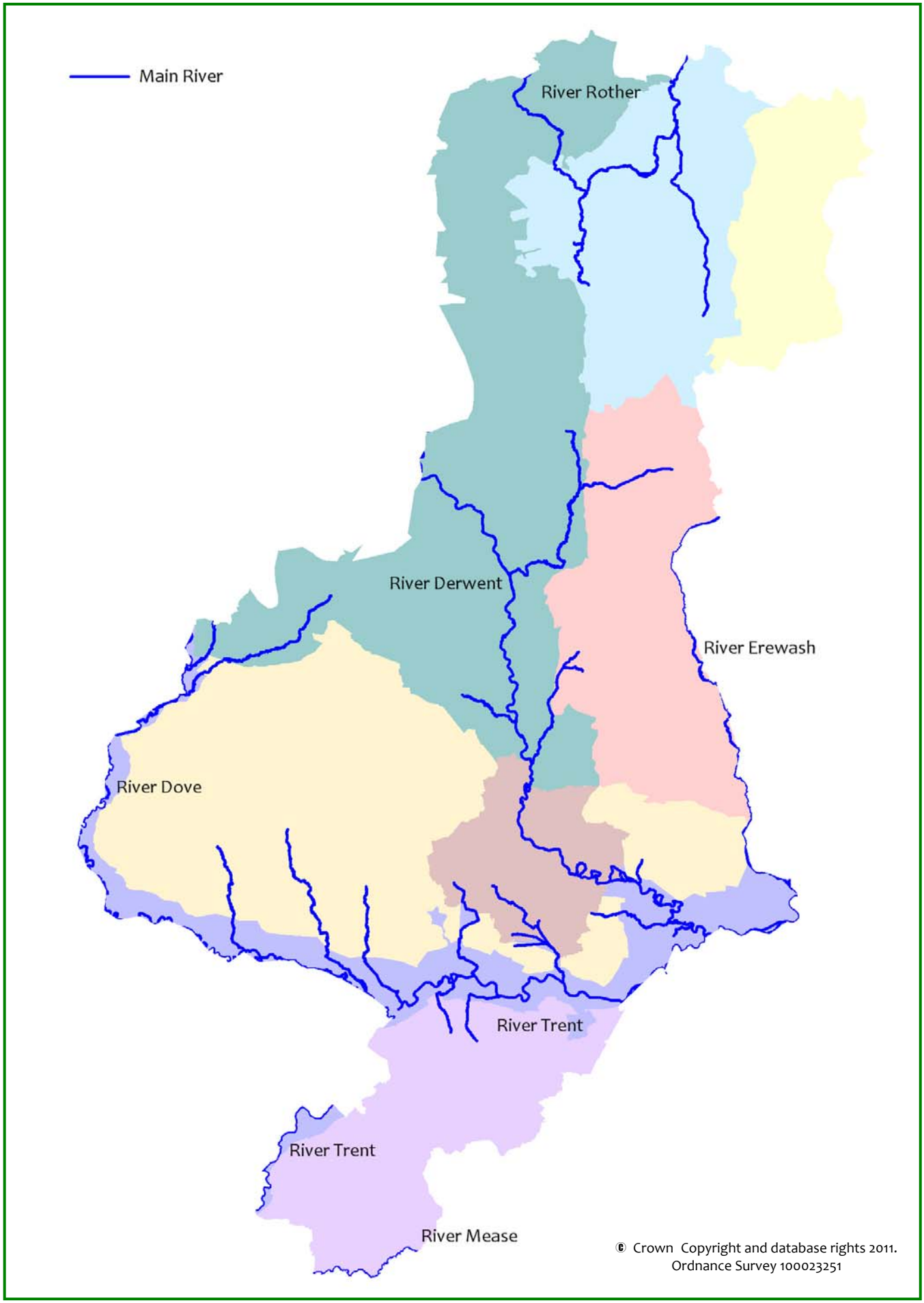


Figure 2: Derbyshire's main rivers

The Peak Fringe, the Claylands and the Trent and Dove Valleys Action Areas all contain flat flood plains with meandering rivers. The grassland is low-intensity, permanent pasture with localised patches of rushes in damp hollows. Adjacent to the rivers are scattered, locally dense willow and alder trees. In the Coalfield area the rivers are narrower, meandering along floodplains of variable width lined by trees. The remnant riverside vegetation includes wetland and some unimproved grassland and the pastures are dominated by dairy farming. The Riverside Meadows in the Melbourne Parklands Character Area are defined as being in flat floodplains containing meandering rivers and streams, and are of traditional pasture which has now changed to intensive mixed farming. The Riverside Meadows in the Mease and Sense Lowlands are in flat floodplains with tight meandering rivers. The pasture is moderate intensity permanent pasture.

Top left: River Dove at Hatton. Credit: Debbie Alston
Top right: River Dove. Credit: Debbie Alston
Bottom: River Derwent at the confluence with the River Ecclesbourne. Credit: Debbie Alston

3. Standing open water

3.1 Introduction

The term **'standing open water'** refers to natural systems such as lakes, meres and pools, as well as man-made waters such as reservoirs, canals, ponds and gravel pits. It includes the open water zone which may contain submerged, free-floating or floating-leaved vegetation and water fringe vegetation. It also includes adjacent wetland habitats with contiguous water levels that are less than 0.25 ha. Ditches with open water for at least the majority of the year should also be included. Small areas of open water in a predominantly terrestrial habitat such as bog pools or temporary pools on heaths should be included in the appropriate terrestrial habitat.

For the purposes of the LBAP, **ponds** are defined as any waterbody between one square metre and two hectares in area, which holds water for 4 months of the year or more. A **lake** is any waterbody of more than 2 hectares. **Canals** are included here as standing open water, although many have a slight flow caused by the use of locks. Most canals were built between 1750 and 1800.

Any area of open water can be important for biodiversity. Its value, however, is dependent upon a number of factors including level of disturbance, water quality and the species that are present in, on and around the waterbody.

3.2 Standing open water in Lowland Derbyshire

3.2.1 Magnesian Limestone

Most standing water exists as large lakes which were mostly mill ponds or as canal feeders and are now usually managed for fishing. Because of the free-draining geology, field ponds are rare.

3.2.2 River Rother and Doe Lea Valleys

There are a number of reservoirs within this Action Area. Some are associated with the mining industry such as Williamthorpe and Carr Vale. Ornamental lakes exist at Queens Park in Chesterfield and at Hardwick Park. Ponds are common in this area, especially where the land is close to rivers or has been effected by subsidence.

3.2.3 Peak Fringe

The standing water habitat in this area includes several large reservoirs including Carsington, Ogston and Linacre. There are also a number of ornamental lakes within the area including Stubbing Court. Ponds are relatively few and far between and are usually used for fishing or drinking ponds for grazing animals. The Cromford Canal, a disused canal, is very shallow in places and includes swamp and substantial marginal vegetation. In addition, old mill ponds - some going back to Medieval times - are a feature in the northern part of the area e.g. within the Moss Valley.

3.2.4 Erewash Valley

The development of the railways and the canal system resulted in a number of **borrow pits** in this area. These can be found along the Erewash Canal and nearby railway and the Chesterfield Canal. **Subsidence flashes** occur beside the Erewash at Aldercar and Brinsley. In the south and central part of the area there are relatively few field ponds, but there are some ponds within woodlands. The Erewash Canal was restored from a derelict state in the 1970's and flows between Langley Mill and the River Trent at Trent Lock. This Action Area also includes in-filled sections of the Cromford, Nutbrook and Derby Canal.

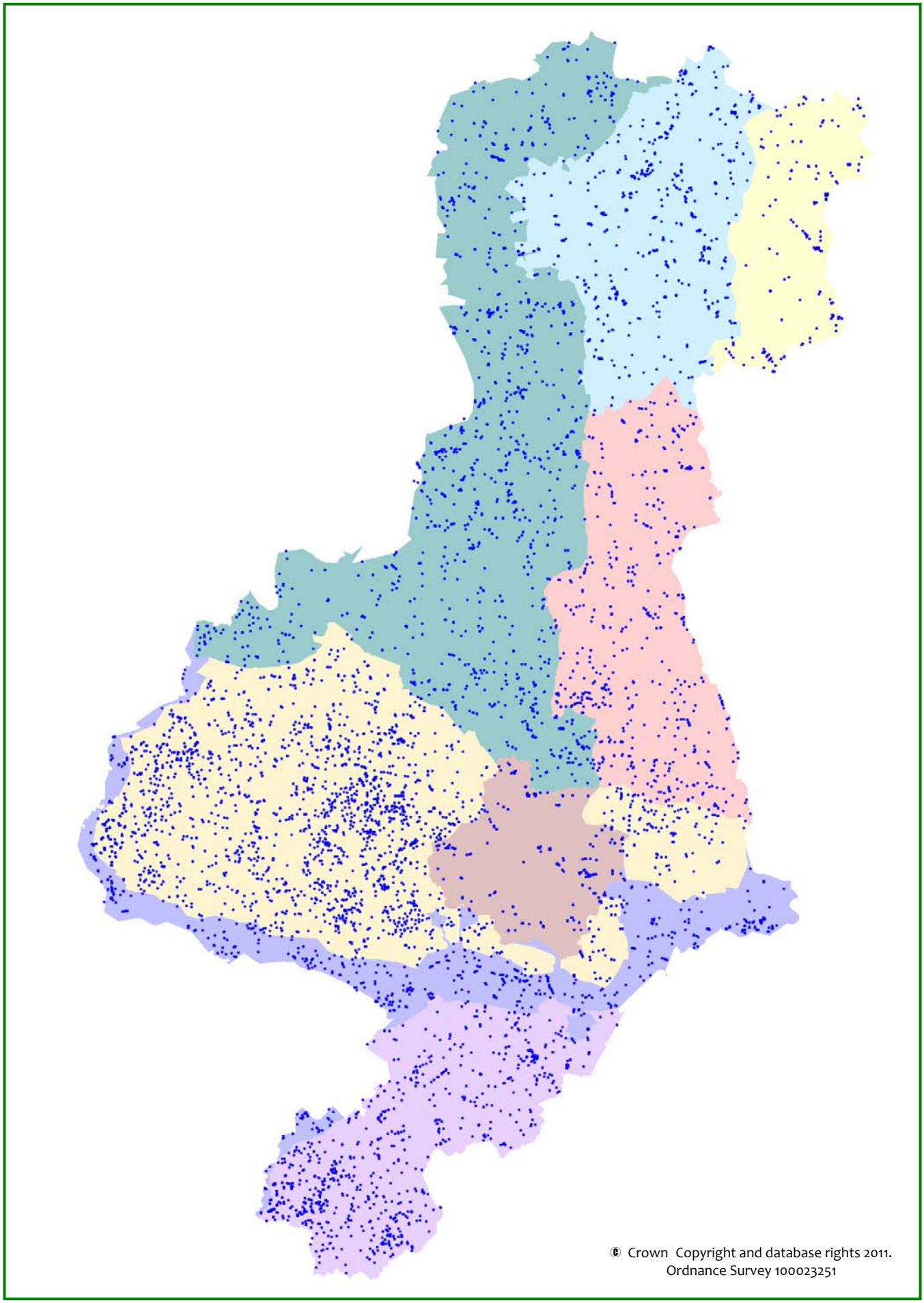


Figure 3: Pond distribution in Lowland Derbyshire

3.2.5 Claylands

There are a small number of gravel pits within this Action Area, some of which have naturally regenerated to form open water habitats after being extracted two or more decades ago, including Hilton Pits SSSI. The main feature of this area is the number of estate lakes, both small and large, at Osmaston Park, Meynell Langley, Kedleston Park and Sudbury Hall. Ponds are very common in this area, largely due to the underlying clay geology.

3.2.6 Derby

The historic properties within Derby have left a legacy of ornamental lakes and ponds, for example at Allestree Park and Markeaton Park. The WildDerby project carried out a survey of ponds which showed that there had been a significant decline, not only in number, but also in the quality of pond habitats.

3.2.7 Trent and Dove Valleys

There are a number of borrow pits in the Long Eaton area that were dug at the time of the construction of the railways. In addition several pits were dug during the construction of parts of the A50 during the 1990's. Gravel extraction has led to the creation of a number of large lakes, some temporary in nature during extraction. Lakes within completed restoration schemes include Witches Oak Water, Eggington Gravel pits and St Chads LNR at Church Wilne.

3.2.8 National Forest area

Two large reservoirs, Foremark and Staunton Harold, were constructed in the last forty years. The Trent and Mersey Canal, which in Derbyshire flows between Burton on Trent and the River Trent at Shardlow, has remained as a working canal. Ponds are a common feature of recent habitat creation schemes in this area.

Top left: Williamthorpe Nature Reserve LNR. Credit: Debbie Alston
Top right: River Trent. Credit: Debbie Alston
Bottom left: One of the 'Dragonfly ponds' at Pleasley Pit Country Park. Credit: Debbie Alston
Bottom right: New reedbeds at Carsington Reservior. Credit: Debbie Alston

4 Lowland Swamp, Mires, Fens and Reedbeds

4.1 Introduction

Swamps, mires, fens, and reedbeds are wetland habitats which together with wet woodland form a group that are often, but not always, associated with running and standing water. These different habitat types are to some extent transitional but an attempt can be made to draw some distinctions between them.

Swamps have a water table at or above the surface of the vegetation for most of the year. They tend to be composed of bulky sedges like lesser pond sedge; grasses such as reed sweet grass and common reed and species like branched bur-reed, common Reedmace and water horsetail. Typical associate herbs include water mint, marsh bedstraw, greater bird's-foot-trefoil, marsh marigold, lesser spearwort and wild angelica. A large number of swamp community types have been described within the National Vegetation Classification.

Mires can be found both in the uplands and in lowland valley bottoms. They are often associated with peat deposits and in these circumstance are often referred to as bogs. In the uplands bog habitats are often **'ombrotrophic'** which means they rely on solutes in precipitation and wind blown dust for their nutrition. In effect they are rain and dust fed. The two main types of bog are blanket bog and raised bog. Typical species are cotton grasses, heathers, cowberry, cranberry, sedges like star and carnation sedge, sundew and the sphagnum mosses. Lowland mire is exceptionally rare but does occur in a handful of sites usually associated with small springs on valley sides and valley bottoms, and contain a variety of rushes and small sedges such as star sedge with a base of moss dominated by Sphagnum. In lowland valleys, where ground is often waterlogged but grazing takes place, a type of vegetation known as **fen meadow mire** can develop characterised by rushes, short sedges and herbs such as water avens, ragged robin, meadowsweet and marsh marigold.

Fens however, are **'minerotrophic'** mires where groundwater, as well as precipitation and dust etc, contributes nutrients and water. Being more nutrient rich, lowland fens tend to support taller, denser vegetation characterised by common reed, hemp-agrimony, meadowsweet, reed canary grass, wild angelica, great willowherb and common valerian. The NVC recognises a number of community types, several of which occur within the LBAP area. Fen vegetation has declined in the UK and in Derbyshire. Britain is considered to have a high proportion of the remaining fen in Europe.

Reedbeds are a special type of swamp dominated by stands of the common reed *Phragmites australis.* They are described within the National Vegetation Classification under the community type S4 *Phragmites australis*. The water table must be above ground level for most of the year to maintain the habitat. Reedbeds consist mainly of dense small areas of reed, but they may incorporate areas of open water and ditches and sometimes small areas of wet grassland and carr.

4.2 Swamps, mires, fens and reedbeds in Lowland Derbyshire

Derbyshire's lowland mires, fens and swamps support over 150 native plant species including several that are relatively rare or uncommon for example lesser skullcap, butterwort, marsh cinquefoil, tawny sedge, marsh pennywort, marsh arrow-grass, greater tussock sedge and fen bedstraw. These habitats are also important for birds like reed bunting, sedge warbler and snipe and support a number of rare and scarce invertebrates.

Reedbeds, swamps and tall-herb fens are scattered throughout lowland Derbyshire (Figure 4), but most are located within the Trent Valley and the Coal Measures, especially within the catchments of the Erewash, Rother and Doe Lea. In many locations these habitats occur at the edges of ponds, lakes and rivers, but they are also associated with subsidence flashes, storage lagoons and old canals. Many swamp and mire habitats were affected by the growth of Derby and, to a lesser extent, Chesterfield. Land drainage affected extensive tracts of land from the 1650s onwards and Derbyshire was probably no exception. Recent evidence for losses has been recorded within the Local Wildlife Sites system, though this has not been quantified. In addition many of the sites identified within the audit are thought to be in a poor state and in some cases may no longer support viable habitats. Many sites are no longer managed within agricultural holdings and have been fenced, resulting in willow and alder invasion and the dominance of coarser grasses and bulky species such as sedges, umbellifers and willowherbs. Wetland habitats have developed naturally in the subsidence associated with the coalfield areas. Wetland habitats, (including some areas of swamp and reedbed) have been created as part of large restoration schemes along the Trent valley. Some flood alleviation initiatives, such as the Erewash Flood Alleviation Scheme, incorporate areas of swamp and reedbed which are primarily an engineering tool, but are also managed for nature conservation. The concept of sustainable urban drainage (SUDS) is now being considered within large housing and industrial developments. Swamps reedbeds, mires and fens are threatened by development adjacent to these habitats as this can significantly affect the hydrology e.g. rate of run-off, quality of water etc, as well as an absence of sympathetic management.

4.2.1 Magnesian Limestone

Small mires are also found in the Magnesian Limestone area, and are associated with localised calcareous flushes and springs. Several of these are of sufficient interest to be Sites of Special Scientific Interest and still provide a home to many rare plant species.

4.2.2 Rother and Doe Lea Valleys

Reedbeds and swamps have developed in this area in subsidence flashes associated with former mining areas, and valley bottoms. The largest area of reedbed in the area is at Williamthorpe Nature Reserve, there is also a significant reedbed at Markham. Water voles thrive in the reedbeds, as they provide additional habitat to the ponds, canals and river channels. New reedbed was planted as part of a wetland complex at Avenue Washlands

4.2.3 Peak Fringe

The extent of lowland mires and fen-meadows in the LBAP area is small and scattered. They occur as small valley mires within the Mercaston Marsh and Muggington Bottom SSSI which lies over a narrow band of peat on the border between the Needwood and South Derbyshire Claylands and Derbyshire Peak Fringe Natural Areas. Fen meadow and rush-pasture mires occur in association with unimproved pastures and meadows especially in the Peak Fringe where they can significantly add to the overall diversity of sites. These mires usually occur towards the bottom of valley sides and alongside streams. More acidic mires occur in association with remnant areas of heath, for example at Wessington Green.

4.2.4 Erewash Valley
As in the Rother and Doe Lea Valleys, reedbed and swamp have developed in subsidence flashes associated with former mining areas. The largest area of swamp is along Bailey Brook.

4.2.5 Claylands
Swamps dominated by sedges tend to be very localised and can be found in the South Derbyshire Claylands alongside watercourses such as the Brailsford Brook and by the Derwent near Belper and a few locations elsewhere. Marginal stands of swamp occur at various points along the Cromford Canal.

4.2.6 Derby
Swamps are generally small within the Derby area, mostly on the edges of larger water bodies. The exception is a large area of swamp over 11ha on the former water treatment works on the banks of the River Derwent at Spondon.

4.2.7 Trent Valley
66% of reedbeds in Lowland Derbyshire are found in either Trent valley and are associated with gravel pits. All tend to be relatively small. The largest area of reedbed is 7ha and is found at Elvaston Quarry pit, another important reedbed is found at Drakelow Nature Reserve. There are examples of single species dominated swamps associated with the River Trent and the Trent Valley and Rises Natural Areas. There are larger examples of swamps within the Erewash valley, such as Golden Brook storage lagoon and Pewit Carr.

4.2.8 National Forest Area
Reedbeds and swamps are very small features in this area, mostly on the edges of large reservoirs and within small valleys .

Reedbed and swamp at Hilton Gravel Pits SSSI. Credit: Debbie Alston

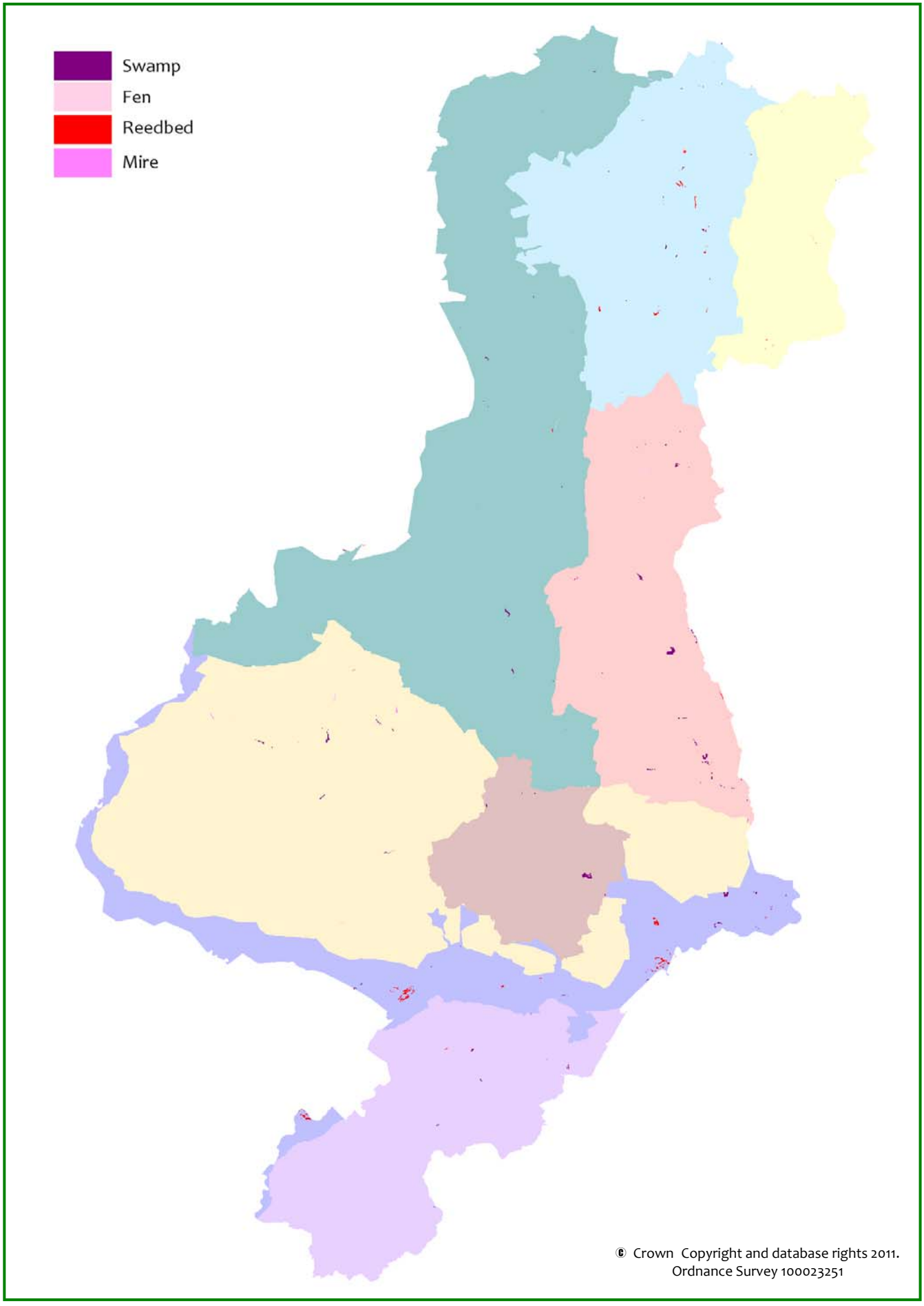


Figure 4: Swamps, mires, fens and reedbeds in Lowland Derbyshire

Appendix 1: Species for which Rivers and Streams are key habitats in Lowland Derbyshire

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

Birds

Reed bunting	*Emberiza schoeniclus*

Mammals

Otter	*Lutra lutra*
Water vole	*Arvicola terrestris*
Pipistrelle bat	*Pipistrellus pipistrellus*
Noctule bat	*Nyctalus noctula*

Invertebrates

White-clawed crayfish	*Austropotamobius pallipes*

Vascular Plants

Grass-wrack pondweed	*Potamogeton compressus*

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.

Invertebrates

Water Beetles
Brychius elevatus
Haliplus laminatus
Stictonectes lepidus
Scarodytes halensis
Agabus biguttatus
Gyrinus urinator
Helophorus arvernicus
Ochthebius bicolon
Hydraena rufipes
Riolus cupreus
Riolus subviolaceus

Water bugs

Aquarius najas
Aphelocheirus aestivalis
Micronecta poweri

Molluscs

Theodoxus fluviatilis

Birds

Common Tern	*Sterna hirundo*
Grey Wagtail	*Motacilla cinerea*
Kingfisher	*Alcedo atthis*
Mallard	*Anas platyrhynchos*
Sand Martin	*Riparia riparia*

Mammals

Daubenton's bat	*Myotis daubentonii*
Water shrew	*Neomys fodiens*
Whiskered bat	*Myotis mystacinus*
Natterer's bat	*Myotis nattereri*
Leisler's bat	*Nyctalus leisleri*
Brant's bat	*Myotis brandtii*
Pipistrelle bat	*Pipistrellus pipistrellus*

Vascular Plants

Lesser Water-plantain	*Baldellia ranunculoides*
Various-leaved Water-starwort	*Callitriche platycarpa*
Bladder-sedge	*Carex vesicaria*
Pale Willowherb	*Epilobium roseum*
Rough Horsetail	*Equisetum hyemale*
Fine-leaved Water-dropwort	*Oenanthe aquatica*
Tubular Water-dropwort	*Oenanthe fistulosa*
River Water-dropwort	*Oenanthe fluviatilis*
Small Water-pepper	*Persicaria minor*
Flat-stalked Pondweed	*Potamogeton friesii*
Shining Pondweed	*Potamogeton lucens*
Perfoliate Pondweed	*Potamogeton perfoliatus*
Long-stalked Pondweed	*Potamogeton praelongus*
Fan-leaved Water-crowfoot	*Ranunculus circinatus*
Narrow-fruited Water-cress	*Rorippa microphylla*
Purple Willow	*Salix purpurea*
Marsh Speedwell	*Veronica scutellata*
Horned Pondweed	*Zannichellia palustris*

Lower Plants

Dialytrichia mucronata
Orthotrichum sprucei

Appendix 2: Species for which Ponds, Lakes and Canals are key habitats in Lowland Derbyshire

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

Birds

Reed bunting	*Emberiza schoeniclus*
Bittern	*Botaurus stellaris*

Mammals

Otter	*Lutra lutra*
Water vole	*Arvicola terrestris*
Pipistrelle bat	*Pipistrellus pipistrellus*
Noctule bat	*Nyctalus noctula*

Amphibians

Great crested-newt	*Triturus cristatus*
Common toad	*Bufo bufo*

Invertebrates

White-clawed crayfish	*Austropotamobius pallipes*

Vascular Plants

Grass-wrack pondweed	*Potamogeton compressus*
Pennyroyal	*Mentha pulegium*

Non-Vascular Plants

Beaked Beardless-moss	*Weissia rostellata*

Reptiles

Grass snake	*Natrix natrix*

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.

Mammals

Daubenton's bat	*Myotis daubentonii*
Water shrew	*Neomys fodiens*
Whiskered bat	*Myotis mystacinus*
Natterer's bat	*Myotis nattereri*
Leisler's bat	*Nyctalus leisleri*
Brant's bat	*Myotis brandtii*

Birds

Common Tern	*Sterna hirundo*
Gadwall	*Anas strepera*
Kingfisher	
Little Grebe	*Tachybaptus ruficollis*
Little Ringed Plover	*Charadrius dubius*
Mallard	*Anas platyrhynchos*
Oystercatcher	
Ringed Plover	*Charadrius hiaticula*
Shelduck	*Tadorna tadorna*

Invertebrates

Molluscs

Theodoxus fluviatilis	Canals
Viviparus contectus	Canals
Viviparus viviparus	Canals
Bithynia leachii	Canals
Gyraulus laevis	Canals
Pisidium supinum	Canals
Pisidium hibernicum	Canals
Pisidium moitessierianum	Canals
Aplexa hypnorum	Sometimes in seasonal ponds

Water bugs

Mesovelia furcata
Gerris argentatus
Micronecta poweri
Corixa dentipes
Sigara scotti

Water beetles

Haliplus heydeni
Haliplus laminatus
Noterus crassicornis
Hygrotus quinquelineatus
Hydroporus neglectus
Hydroporus obscurus
Stictonectes Lepidus
Porhydrus lineatus
Scarodytes halensis
Ilybius aenescens
Ilybius subaeneus
Dytiscus circumcinctus
Helophorus dorsalis
Helophorus nanus
Enochrus coarctatus
Plateumaris rustica
Donacia marginata
Donacia crassipes
Hydraena testacea
Ochthebius nanus
Ochthebius bicolon
Berosus signaticollis
Hydrochus elongatus
Agabus unguicularis
Ilybius guttiger
Rhantus grapii
Dytiscus circumflexus
Helophorus longitarsis
Helochares punctatus

Bryophytes

Aphanorhegma patens
Didymodon
Ephemerum stellatum
Riccia cavernosa
Riccia fluitans

Vascular Plants

Narrow-leaved Water-plantain
Orange Foxtail
Lesser Water-plantain
Annual Water-starwort
Blue-fruited Water-starwort
Various-leaved Water-starwort
Short-leaved Water-starwort
Distant Sedge
Bladder-sedge
Needle Spike-rush
Pale Willowherb
Water-violet
Bogbean
Alternate Water-milfoil
Whorled Water-milfoil
Fine-leaved Water-dropwort
Tubular Water-dropwort
Small Water-pepper
Grass-wrack Pondweed
Flat-stalked Pondweed
Shining Pondweed
Blunt-leaved Pondweed
Fan-leaved Water-crowfoot
Narrow-fruited Water-cress
Purple Willow
Marsh Speedwell
Horned Pondweed
Alisma lanceolatum
Alopecurus aequalis
Baldellia ranunculoides
Callitriche hermaphroditica
Callitriche obtusangula
Callitriche platycarpa
Callitriche truncata
Carex distans
Carex vesicaria
Eleocharis acicularis
Epilobium roseum
Hottonia palustris
Menyanthes trifoliata
Myriophyllum alterniflorum
Myriophyllum verticillatum
Oenanthe aquatica
Oenanthe fistulosa
Persicaria minor
Potamogeton compressus
Potamogeton friesii
Potamogeton lucens
Potamogeton obtusifolius
Ranunculus circinatus
Rorippa microphylla
Salix purpurea
Veronica scutellata
Zannichellia palustris

Appendix 3: Species for which lowland Swamps, Reedbeds, Mires and Fens are key habitats in Lowland Derbyshire

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

Birds

Bittern (not breeding)	*Botaurus stellaris*
Cuckoo	*Cuculus canorus*
Marsh Harrier	*Circus aeruginosus*
Reed bunting	*Emberiza schoeniclus*

Mammals

Otter	*Lutra lutra*
Water vole	*Arvicola terrestris*
Harvest mouse	*Micromys minutus*
Noctule bat	*Nyctalus noctula*

Amphibians

Great crested-newt	*Triturus cristatus*

Reptiles

Grass snake	*Natrix natrix*

Vascular Plants

Marsh stitchwort *Stellaria palustris* *(not recorded post 2000)*

3.2 Locally Important Species i.e. Local Red Data Book (RDB) or important species recorded within this Habitat in Lowland Derbyshire.

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.

Mammals

Water shrew	*Neomys fodiens*
Daubenton's bat	*Myotis daubentonii*
Whiskered bat	*Myotis mystacinus*
Natterer's bat	*Myotis nattereri*
Leisler's bat	*Nyctalus leisleri*
Brant's bat	*Myotis brandtii*

Birds

Grasshopper Warbler	*Locustella naevia*
Little Grebe	*Tachybaptus ruficollis*
Reed warbler	*Acrocephalus scirpaceus*
Sedge warbler	*Acrocephalus schoenobaenus*
Snipe	*Gallinago gallinago*
Teal	*Anas crecca*
Water Rail	*Rallus aquaticus*

Invertebrates

Molluscs

Aplexa hypnorum
Ashfordia granulate
Vertigo antivertigo
Leiostyla anglica

Water bugs

Gerris argentatus

Water beetles

Noterus crassicornis
Hydroporus neglectus
Hydroporus obscurus
Porhydrus lineatus
Agabus unguicularis
Ilybius aenescens
Ilybius guttiger
Rhantus grapii
Dytiscus circumcinctus
Dytiscus semisulcatus
Gyrinus distinctus
Gyrinus paykulli
Hydrochus elongatus
Helophorus nanus
Helochares punctatus
Enochrus coarctatus
Hydraena britteni
Hydraena testacea

Vascular Plants

Orange Foxtail	*Alopecurus aequalis*
Bog Pimpernel	*Anagallis tenella*
Slender Tufted-sedge	*Carex acuta*
Dioecious Sedge	*Carex dioica*
Brown Sedge	*Carex disticha*
Tawny Sedge	*Carex hostiana*
Bladder-sedge	*Carex vesicaria*
Whorl-grass	*Catabrosa aquatica*
Early Marsh-orchid	*Dactylorhiza incarnata*
Narrow Buckler-fern	*Dryopteris carthusiana*
Needle Spike-rush	*Eleocharis acicularis*
Few-flowered Spike-rush	*Eleocharis quinqueflora*
Marsh Helleborine	*Epipactis palustris*
Fen Bedstraw	*Galium uliginosum*
Round-fruited Rush	*Juncus compressus*
Blunt-flowered Rush	*Juncus subnodulosus*
Bogbean	*Menyanthes trifoliata*
Fine-leaved Water-dropwort	*Oenanthe aquatica*
Narrow-fruited Water-cress	*Rorippa microphylla*
Purple Willow	*Salix purpurea*
Marsh Arrowgrass	*Triglochin palustre*
Marsh Valerian	*Valeriana dioica*
Marsh Speedwell	*Veronica scutellata*

Avenue Washlands near Wingerworth. Credit: Debbie Alston