Local Biodiversity Action Plan

Floodplain wetland

Action plan objectives

- **Create new floodplain wetland in the Soar, Wreake, Welland and Trent valleys**
- **To maintain all existing floodplain wetland sites**
- **Compile and maintain register of sites of local BAP quality**

Introduction

River floodplains are important for wildlife. They encompass a range of wetland habitats including old sections of river, cut-off from the main channel and often surrounded by trees, especially willows *Salix spp.*, marshy ground caused by the water table being at or near the surface, flooded gravel pits, wet woodland, drainage ditches along field margins, field ponds, the river channel and reedbeds. The river channel, wet woodland, reedbed and field pond habitats are covered by separate action plans.

The largest areas of floodplain wetland habitat in Leicestershire and Rutland are associated with the Soar, Trent and Wreake valleys and to a lesser extent are also found along the Welland and other, smaller, rivers and brooks.

Current extent

A desktop Inventory was compiled in 2005 for Leicestershire County Council by Derek Lott, identifying 259 sites (see attached map). Data was collated from 3 sources: SINC [*now called LWS*] schedules; the Wildlife Trust's Phase 1 survey data; and wetland beetle records held by the County

Recorder (at the time, this was Derek Lott at the time). There is also reference to a survey of the Welland from the Northamptonshire Wildlife Trust. The sites cover 107 hectares.

Derek concludes that the habitat is under-represented in the Inventory, due to the lack of recent survey information along watercourses. The Trent is identified as being particularly under-surveyed, and the Welland as having a scarcity of good quality habitat.

Some characteristic species

A wide range of wildlife can be found in floodplain wetlands including Otter (*Lutra lutra*), Water Vole (*Arvicola terrestris*), (both covered by species action plans), and birds such as Snipe (*Galinago galinago*), Redshank (*Tringa totanus*) and Sand Martin (*Riparia riparia*). Wetlands are also an important habitat for a wide range of invertebrate species. In particular the Soar and Wreake valleys contain known sites for a number of nationally rare beetles. The habitat is associated with few locally scarce plants. However, many watercourses are fringed by tall reed-like plants including Common Club-rush (*Schoenoplectus lacustris*), Grey Club-rush (*Schoenoplectus tabernaemontanii*), Bulrush (*Typha latifolia*) and Bur-reed (*Sparganium erectum*).

Local Wildlife Site criteria

'Floodplain wetland' is broad category, covering open water, ponds, marsh, fen, wet woodland, wet grassland, reedbed, ditches and the river channel. These habitats are covered by individual sets of LWS criteria within Woodlands, Wetlands and Grasslands.

Most important factors affecting the habitat

- Land drainage schemes.
- Infilling.
- River engineering schemes.
- Siltation as a result of agricultural cultivation.
- Road building and other developments which increase run-off and alter the catchment characteristics.
- Recreational pressures.
- Eutrophication caused by fertiliser application.

Opportunities

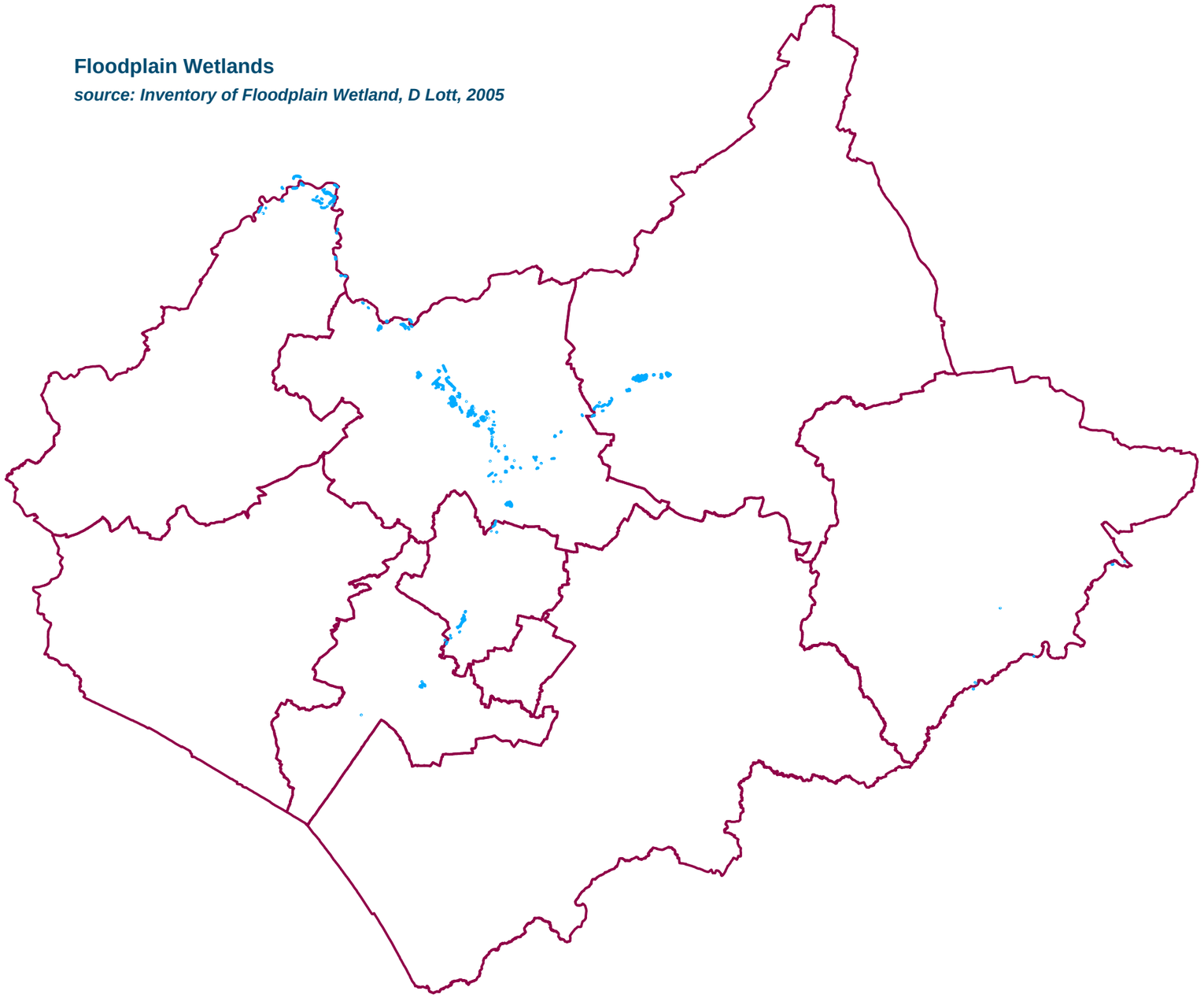
- Flood prevention and catchment management plans

Leicestershire & Rutland Environmental Records Centre

Leicestershire County Council

Map 8.1: Floodplain Wetland

Leicester, Leicestershire and Rutland BAP 2016



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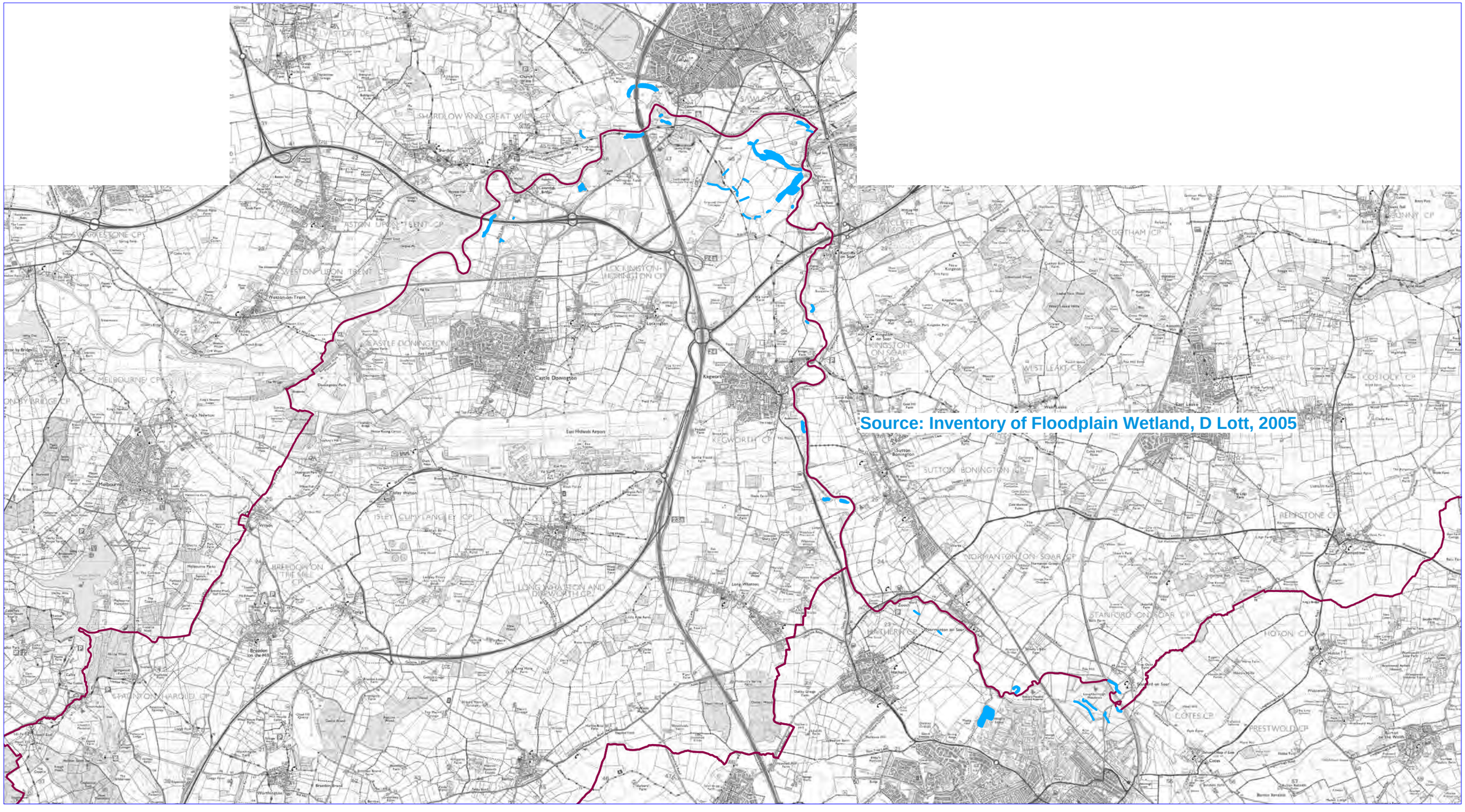
Map 8.2: Trent and Soar Valley North of Loughborough

Leicester, Leicestershire and Rutland BAP 2016: Floodplain Wetland

Scale 1: 60,000



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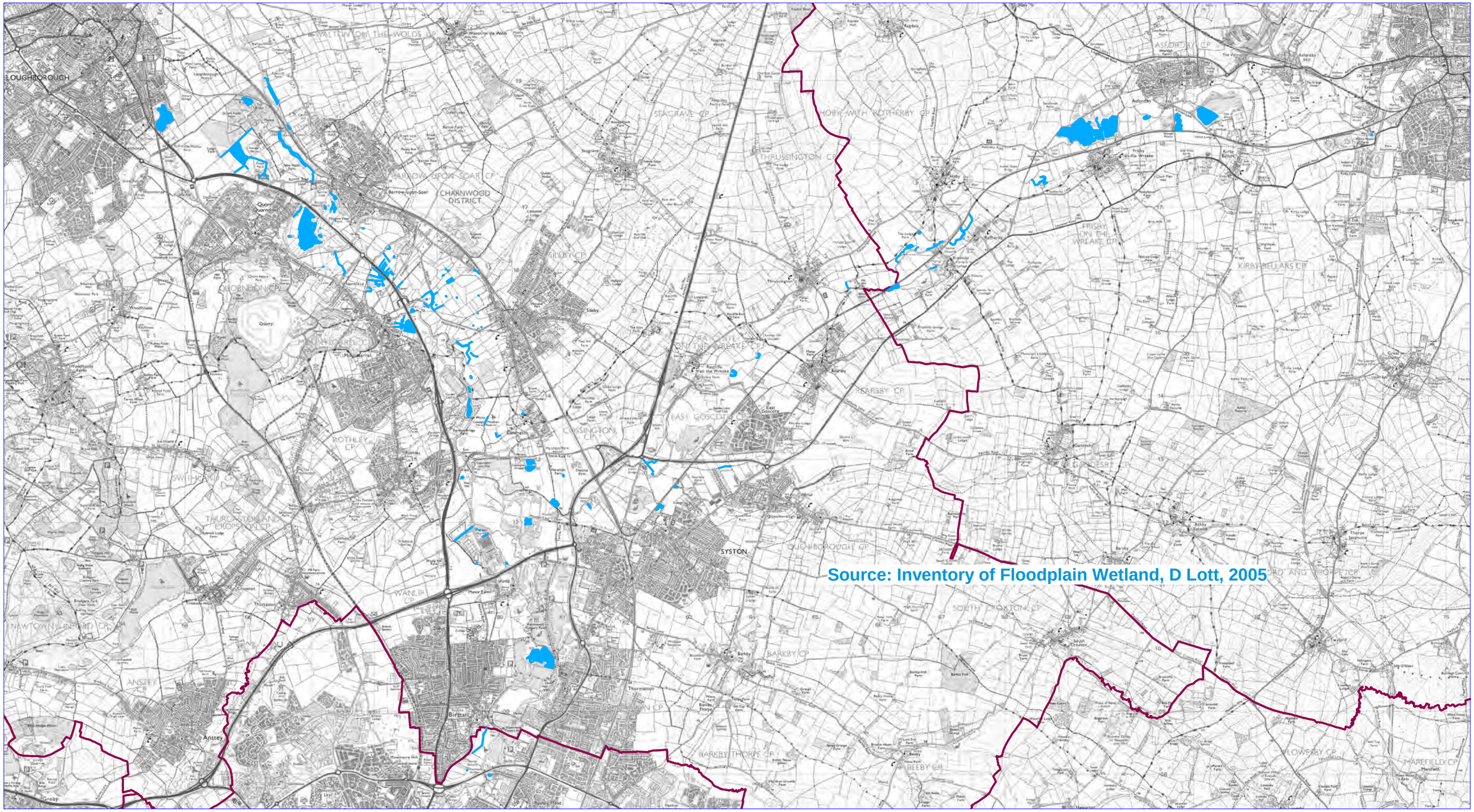
Map 8.3: Soar Valley Leicester to Loughborough Wreake Valley W of Melton Mowbray

Leicester, Leicestershire and Rutland BAP 2016: Floodplain Wetland

Scale 1: 60,000



Source: Inventory of Floodplain Wetland, D Lott, 2005

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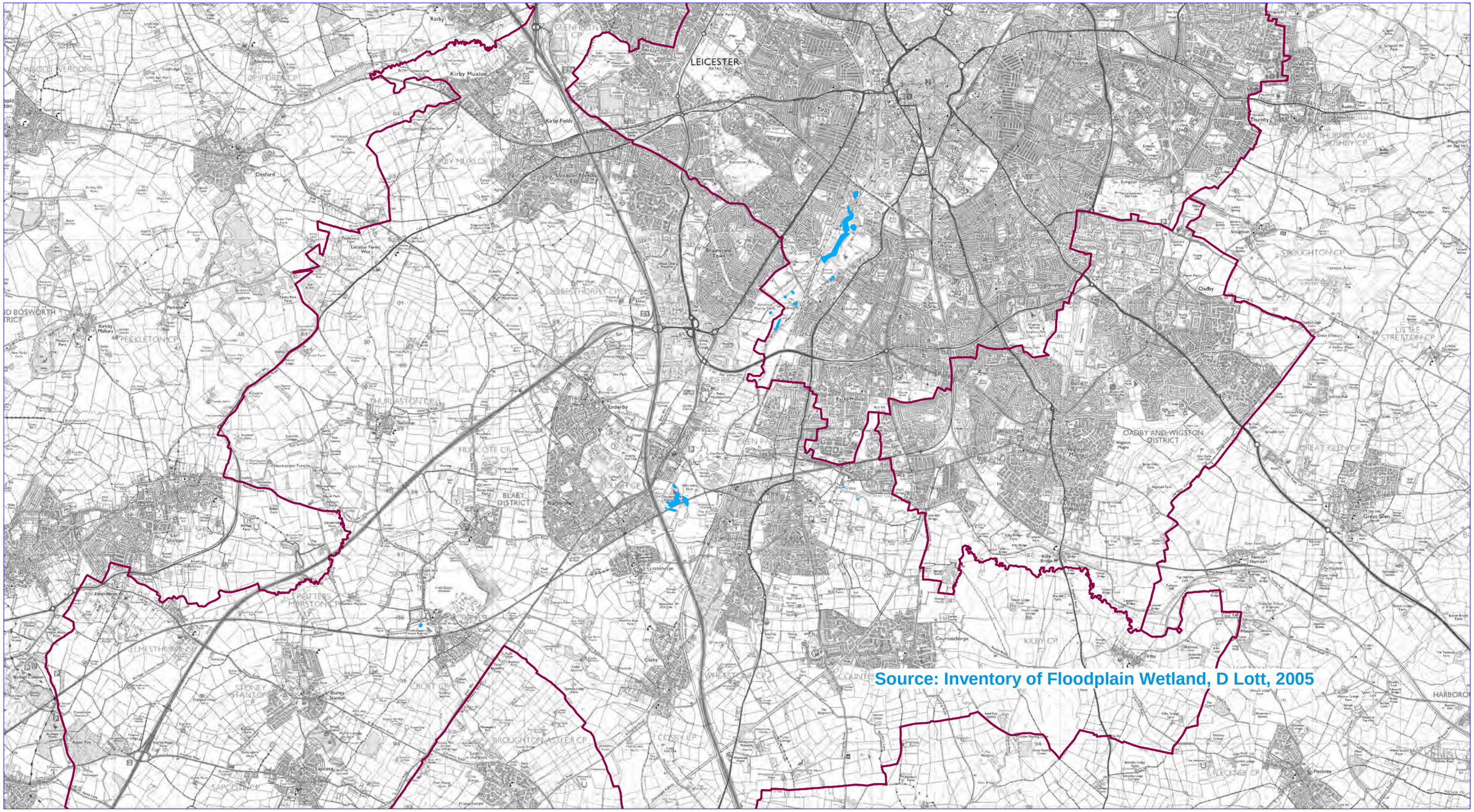
Map 8.4: Soar Valley
Leicester and south

Leicester, Leicestershire and Rutland BAP 2016: Floodplain Wetland

Scale 1: 60,000



29/12/2016

Local Biodiversity Action Plan

Reedbed

Action plan objectives

- **Create new reedbeds, prioritising site adjacent to existing reedbeds and wetlands**
- **Compile and maintain register of sites**

Introduction

Reedbeds are wetlands dominated by, but not necessarily composed purely of, stands of the Common Reed *Phragmites australis*. Historically, Leicestershire and Rutland has never had extensive areas of reedbed. The largest remaining areas are associated with man-made habitats, including Groby Pool, Cave's Inn Pits and the Grantham Canal, all of which are SSSIs, at least in part. More recently, large reedbeds have been created at Rutland Water and Cossington Meadows Nature Reserve.

A large part of Narborough Bog SSSI was formerly reedbed but this is now drying out, as a result of works carried out on the adjacent River Soar.

Current extent

A draft Inventory was compiled in 2006, by Leicestershire County Council, but was never finalised. This has been revisited, and a draft list of sites and a map is appended. Sources are

- Wildlife Site Register
- SSSI citations

- Notes provided by LRWT for the 2006 Inventory
- Habitat Surveys of the Soar Valley in Watermead and Lockington, by Geoffrey Hall and Uta Hamzaoui for the LRWT.

Note that although these sites contain reeds, the extent of reed bed is not always clear, but the documents referred to all indicate at size approaching that required to meet LWS criteria.

There will be other reed-beds that have not been identified; for example, within former minerals workings.

New reedbeds are usually created by planting small clumps of reeds, which then expand and coalesce to form a single larger unit. They can develop quite rapidly in certain conditions, and it is hard to pin down their actual size while they are at this early stage of development.

Given these uncertainties, the estimate of c. 30ha in extremely tentative, and deliberately conservative; the actual extent is likely to be significantly more.

Some characteristic species

In the UK four species of birds are highly dependent on reedbeds for their survival: Reed Warbler (*Acrocephalus scirpaceus*), Bearded Tit (*Panurus biarmicus*), Marsh Harrier (*Circus aeruginosus*) and Bittern (*Botaurus stellaris*).

Reedbeds also provide roosting and feeding sites for migratory species: Swallow (*Hirundo rustica*); Sand Martin (*Riparia riparia*); Yellowhammer (*Emberiza citrinella*) and Corn Bunting (*Miliaria calandra*) and roost sites for several raptor species in winter such as Hen Harrier (*Circus cyaneus*). Locally, five Red Data Book invertebrates are closely associated with reedbeds including the Twin-spotted Wainscot moth (*Archanara geminipuncta*).

Local Wildlife Site criteria

Phragmites reedbeds are included in the *Standing water bodies, swamps, fens and ditches* set of criteria, with a size threshold of 500m^2 to meet LWS criteria.

Most important factors affecting the habitat

- The small total area and fragmented distribution of the habitat.
- Lack of or inappropriate management of existing reedbeds leading to drying out.
- Drainage works on surrounding land causing a lowering of the water table.
- Unsympathetic restoration of gravel pits.
- Pollution by toxic chemicals causing loss of fish and amphibian prey for key species and accumulation of poisons in the food chain.

Opportunities

- Flood prevention and catchment management plans.
- Sand, gravel and claypit restoration and regeneration.

Reedbeds in Leicestershire and Rutland

Site	Source	Date on source	Designation	Area (hectares)
Narborough Bog reedbed	LRWT	2005	SSSI/LRWT Reserve	1.35
Lucas Marsh reedbed	LRWT	2005	LRWT Reserve	0.54
Kelham Bridge reedbed	LRWT	2005	LRWT Reserve, LWS	0.76
Watermead S reedbed	LWS (City)	2005	LWS	1.26
Cossington Meadows reedbed	LRWT	2005	LRWT Reserve, LWS	0.99
Rutland Water, reedbed	LRWT	2005	SSSI/SPA	7.04
Groby Pool reedbed	SSSI citation/aerial photo	2011	SSSI	1.12
Cave's Inn Pits reedbed	SSSI Citation/aerial photos	2011	SSSI	0.29
Watermead N reedbed	G Hall, Habitat survey	2013	LWS, Country Park	2.89
Stanford Reservoir reedbed	LWS (LRERC)	2006	LWS 56872	1.35
Ullesthorpe Old Manor reedbed	LWS (LRERC)	2006	LWS 57769	0.30
Hermitage Estate reedbed	LWS 49423 (CBC)	2004	LWS 49423	0.37
Nook Farm Great Glen reedbed	cLWS, LRERC P1 Survey 2015	2009/2015	cLWS 90349/	0.44
Grounds Farm pit reedbed	G Hall/U Hamzaoui, Habitat Survey	2008	not designated	0.43
Winterfield Spinney reedbed	LWS (LRERC)	2007	LWS 60109	0.37
Syston Marsh Extension reedbed	LWS (CBC)	2002	LWS 25513	0.22
Grantham Canal	SSSI Citation/cLWS (LRERC)	2010	SSSI, cLWS 90604, 90605, 90608, 90610	Est. 6ha (canal is c.20km and 12ha, but not all is reedbed)

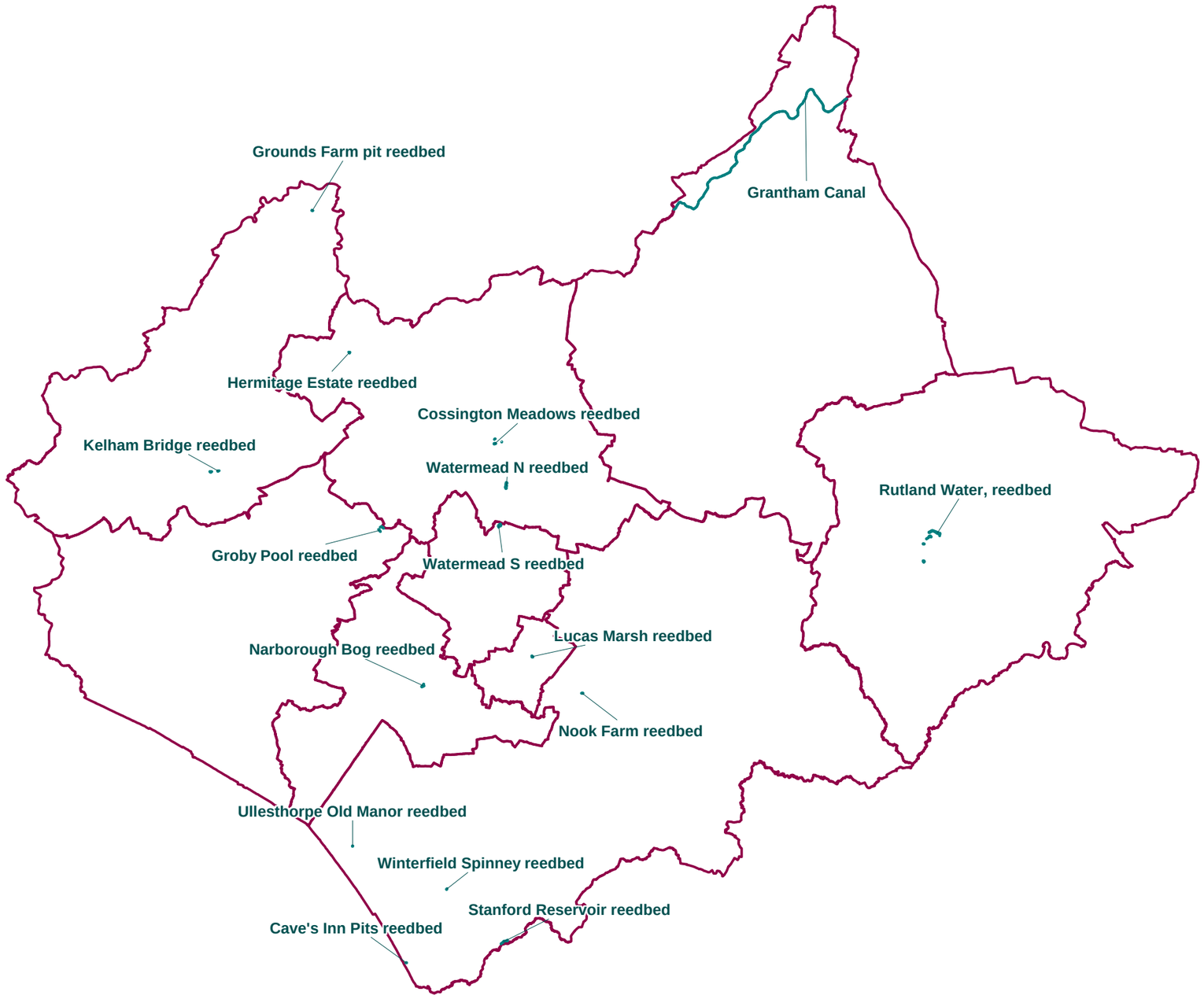
Complied by LRERC, February 2016

Leicestershire & Rutland Environmental Records Centre

Leicestershire County Council

Map 9: Reedbeds

Leicester, Leicestershire and Rutland BAP 2016



29/12/2016

Local Biodiversity Action Plan

Fast-flowing streams

Action plan objectives

- **Promote the restoration of degraded stream habitats**
- **Compile and maintain register of sites**

Introduction

Fast flowing streams are for the purposes of this plan defined as any stream flowing over a substrate mainly composed of gravel or coarser particles. Fast flowing streams are found throughout Leicestershire and Rutland from the hard rock relatively nutrient poor areas of Charnwood Forest to the nutrient rich lowland reaches in the rest of the counties. The streams are often narrow; some are only a few kilometres in length whilst others comprise the headwaters of main rivers. Streams of importance for their specialist fauna are concentrated in the Charnwood Forest, and include the River Linn, Wood Brook and Grace Dieu Brook. In Rutland the River Chater and Eye Brook also have significant flora and fauna.

Grace Dieu Brook is unique in Leicestershire and Rutland for flowing through a small ravine with outcropping rocks in the stream bed and sides of the ravine. The mossy cliffs and boulder are known to be especially good for bryophytes and some ferns.

Current extent

An Inventory of these sites has not been compiled, and the current extent is not known.

Some characteristic species

Fast flowing streams support a number of specialist plants and animals including 22 key species. Amongst these are White-clawed Crayfish (*Austropotamobius pallipes*), Bullhead (*Cotus gobio*), Brook Lamprey (*Lampetra planeri*) and native Brown Trout (*Salmo trutta*). *Tinodes pallidulus*, a nationally rare Caddis fly, has been recorded from the Wood Brook in Charnwood Forest.

Local Wildlife Site criteria

There are no specific LWS criteria for fast-flowing streams; however, streams can be designated for the following features, all of which may be associated with fast-flowing streams:

Feature	Size threshold
• Riffle and pool system	none
• Gravel substrate	20m stretch
• Earth cliff eroded by water course	1m high
• Waterfall	1.5m high
• Moss-covered bedrock or boulders	none

Most important factors affecting the habitat

- Land drainage increasing storm flow and fine sediment load.
- Nutrient-rich run-off from agricultural land leading to eutrophication.
- Channel straightening resulting in removal of important habitat features.
- Diffuse and point source pollution.
- Drought and water abstraction leading to slow flows.

Opportunities

- Flood prevention and catchment management plans
- Pollution control and enforcement

Local Biodiversity Action Plan

Sphagnum ponds

Action plan objectives

- **No further loss of existing *Sphagnum* ponds**
- **Compile and maintain register of *Sphagnum* ponds**

Introduction

Sphagnum ponds are now a rare habitat in Leicestershire and Rutland, though they were once probably widespread in Charnwood Forest before the Enclosures. These ponds are usually small, covering only a few square metres. They contain varying quantities of acid water, and some are dry or only damp for part of the year. While most are open, trees heavily shade others. The habitat is nearly always in association with heath-grasslands.

Most of the known sites are in Charnwood Forest, and on designated SSSIs – Beacon Hill, Charnwood Lodge, Bradgate Park, Buddon Wood and Lea Meadows, for example. There are some regenerated on former coal-mining land in North-west Leicestershire. Great Bowden Borrow Pit SSSI is one of the few outside Charnwood Forest or North-west Leicestershire.

Current extent

Derek Lott and Dennis Ballard (then County Recorder for Bryophytes) compiled an *Inventory of Sphagnum ponds* in 2000, to inform the first local BAP. This is attached, with updated site

designations. It is based on survey data between 1985 and 1999; the data can be found in LRERC files S16 004.

It is not known how many of these sites are still present, but where known, the Inventory has been updated. Several ponds have either been destroyed or are in poor condition, and probably now lost; there is evidence that this habitat is in serious decline.

Since the 2000 Inventory, 7 of the Inventory sites have been designated as Local Wildlife Sites. The presence of a *Sphagnum* pond was given as a reason for designation on only two sites (Bath Lane, Moira, and Benscliffe Wood), leading to doubt about whether the *Sphagnum* is still present on these sites.

Some new ponds discovered since 2000 have been added to the Inventory.

Some characteristic species

Sphagnum ponds are an important habitat for many species of mosses, especially *Sphagnum* spp., as well as numerous invertebrates, including several species of Leicestershire Red Data Book beetles. A number of associated plant species are also locally scarce, including Common Cotton-grass (*Eriophorum angustifolium*), Bog Pondweed (*Potamogeton polygonifolius*) and Floating Water-plantain (*Luronium natans*).

Local Wildlife Site criteria

All ponds with *Sphagnum* species can be designated as LWS; there are no size thresholds.

Most important factors affecting the habitat

- Drought and lowered water tables resulting from land drainage
- Colonisation by trees, leading to drying out and shading.

Sphagnum ponds in Leicestershire and Rutland

Based on 2000 Inventory compiled by Derek Lott and Dennis Ballard.

Updated status/designation notes, and additional records marked '*', by Sue Timms Feb 2016

Site name	Grid Ref	Dates of survey	District	Management status (where known)	Site Status (updated 2015)
*Beacon Golf Course	SK524146	1989	Charn	Grid ref is not on golf-course- possibly Hangingstone Hills, SK524159?	Within SSSI
Beacon Hill	SK519145	1989	Charn		SSSI
Benscliffe Wood	SK512121	1989	Charn		SSSI/LWS 25404
Benscliffe Wood	SK518125	1989	Charn		SSSI/LWS 25404
Benscliffe Wood	SK515125	1987	Charn		SSSI/LWS 25404
Benscliffe Wood	SK513123	1988	Charn		SSSI/LWS 25404
Bradgate Park	SK535109	1989	Charn		SSSI
Bradgate Park	SK525105	1993	Charn		SSSI
Bradgate Park	SK539105/7	1993	Charn		SSSI
Bradgate Park	SK529119	1992	Charn		SSSI
Bradgate Park	SK541115	1986	Charn		SSSI
Bradgate Park	SK537111	1986	Charn		SSSI
Bradgate Park	SK539118	1985	Charn		SSSI
Bradgate Park	SK533108	1986	Charn		SSSI
Bradgate Park	SK531115	1986	Charn		SSSI
Bradgate Park	SK536115	1985	Charn		SSSI
Bradgate Park	SK523106	1989	Charn		SSSI
Bradgate Park	SK526107	1985	Charn		SSSI
*Buck Hill	SK508165	1988	Charn	Pond not referred to in LWS citation, 2002	LWS 25391/25392
Buddon Wood	SK577152	1988	Charn		SSSI
Buddon Wood	SK558153	1988	Charn		SSSI
Buddon Wood	SK556151	1988	Charn		SSSI
Burley Wood	SK890098	1986	Charn	unfavourable	SSSI
Lea Meadows	SK506113	1992	Charn		SSSI, LRWT Reserve
Ulverscroft Reserve	SK489131	1988	Charn	Not referred in LWS citation	LWS 54199, LRWT Reserve
Ulverscroft Reserve	SK486130	1987	Charn	Not referred in LWS citation	LWS 54199, LRWT Reserve
*Benscliffe Wood	SK513128	1999	Charn		SSSI – record in LWS 25404 notification, CBC
Altar Stones	SK484109	1999	H&B	Not referred to in LWS citations	LWS 80053, LRWT Reserve
Lawn Wood, Groby	SK507094	1988	H&B		None
*Martinshaw Wood	SK509072	1988	H&B	Not referred to in LWS citation, 2004	LWS 25883
*Bagworth Heath Country Park	SK457074	2009	H&B	Favourable (ST, 09).	cLWS 90370
*Great Bowden Pit	SP743898	1992	Harb	Favourable (NE, 2009)	SSSI
The Mot, Gumley	SP676898	1990	Harb		none
Stapleford Park	SK821184	1990	Melt		none

*Bardon Rise Rocks Farm	SK469120	1989 1999 2008	NWL	Site given quarry permission in 2011. Not present in 2008 (Pedley)	none
*Bath Lane, Moira	SK307157	1991 2014	NWL	Not re-found in 2014 survey by WYG; drying out and tree-shading	LWS 26225
*Cademan Moor	SK437171	1988	NWL	The grid ref is just outside SSSI, but may be error: in a plantation.	SSSI?
Charnwood Lodge	SK465151/2	1988	NWL		SSSI, LRWT Reserve
Charnwood Lodge	SK465157	1988	NWL		SSSI, LRWT Reserve
Charnwood Lodge	SK467154/5	1986	NWL		SSSI, LRWT Reserve
Charnwood Lodge	SK470153	1986	NWL		SSSI, LRWT Reserve
Charnwood Lodge	SK476154	1991	NWL		SSSI, LRWT Reserve
Charnwood Lodge	SK463154	1985	NWL		SSSI, LRWT Reserve
Grace Dieu Wood	SK435179	1997	NWL		SSSI
Moira	SK307166	1988	NWL	Site of Conkers?	none
*Newfield Colliery	SK320154	1992 2009	NWL	In 2009, poor – drying out and shaded by trees (ST). Not referred to in LWS citation (2014) or surveys by Pedley, 2014	LWS 62500
*Newfield Colliery	SK321155	1993	NWL	Not referred to in LWS citation (2014) or Pedley 2014	LWS 62500
Spring Wood, Staunton Harold	SK380228	1986	NWL		Derbyshire WT
*Bardon Hill, Plantation pond	SK461136	2008	NWL	Found by Pedley, 2008, in survey for Quarry planning application; not referred in LWS notification	LWS 64294
*Hick's Lodge, Moira	SK327152	1994	NWL	Pond destroyed during coal-mining activities (see 2000 aerial photos). Site is now open space	None

Compiled by LRERC, February 2016

Local Biodiversity Action Plan

Springs and flushes

Action plan objectives

- **Compile and maintain register of springs and flushes that meet LWS criteria**
- **Provide advice on management**

Introduction

Springs occur where water wells up to the surface from underground aquifers, while flushes are areas of sloping ground with impeded drainage that are wet as a result of surface run-off. Most flushes of conservation interest are associated with springs that give them a long history of hydrological continuity. They usually have a mineral substrate and so are a type of 'marsh' habitat, but on gently sloping ground, such as at Botcheston Bog SSSI, local peaty deposits can build up and give rise to a 'bog' habitat.

Current extent

There is no Inventory of sites.

In 1998, John Kramer carried out some detailed survey work on 15 representative sample spring/flush sites, with the aim of evaluating value of the habitat through analysis of dipterous fauna as key indicator species of quality.

He identified and visited c.46, estimating that this represented 10% of the entire habitat resource in Leicestershire and Rutland. The 46 sites are listed in the report's Appendix 4, with some brief notes.

Kramer's list of 16 sites is attached, with some additional information on site status and Cranefly species-richness and site quality, taken from his subsequent proposal for 'Rapid Monitoring' of springs and flushes. All but one are identified as being of LWS quality.

The reports are held at LRERC, archive reference S80-32-010.

Sources: J. Kramer. A Preliminary Evaluation of some Leicestershire Springs and Flushes using their Dipterous Fauna, 1998 (LCC)
J Kramer. Rapid Monitoring Methodology – Site Evaluation (no date)

Some characteristic species

Typical plants of springs and flushes include Marsh-marigold *Caltha palustris*, Tussock Sedge *Carex paniculata*, Great Horsetail *Equisetum telmateia*, Soft Rush *Juncus effusus* and Marsh Valerian *Valeriana dioica*. The moss *Calliergon cuspidatum* is characteristic of many calcareous flushes in the East Midlands. The subterranean parts of springs support the water beetles *Hydroporus obsoletus* and *Agabus biguttatus* and probably other specialist invertebrates, although these have not been fully investigated in Leicestershire and Rutland.

Local Wildlife Site criteria

All unmodified woodland springs and flushes can be designated, as long as they have been established for over 50 years. This has proved to be a difficult criterion to use, and springs and flushes have more often been designated in association with other habitats, such as mesotrophic/wet grassland, swamp and wet woodland.
Following his survey and evaluation of some spring and flush sites (see 'Current extent', above), John Kramer devised a 'Rapid Monitoring System' based on Cranefly species richness and rarity.

Most important factors affecting the habitat

Drying out due to:

- Drainage for agricultural purposes or development.
- Lack of appropriate management leading to scrub invasion and natural succession to woodland.
- Groundwater abstraction leading to lowered water table
- Drought

Other factors:

- Inappropriate pond excavation leading to loss of spring and flush fauna and flora.
- Eutrophication from fertiliser application to surrounding land.
- Overgrazing leading to excessive poaching and removal of cover.

Springs and flushes in Leicestershire and Rutland

1. Identified in J. Kramer: A Preliminary Evaluation of some Leicestershire Springs and Flushes using their Dipterous Fauna, 1998 (LCC)

Also see *J Kramer: Rapid Monitoring Methodology – Site Evaluation (no date)* – 'Any Site having a Species Richness of 8 or more, or a Site Quality Index of more than 2 should be designated as a [LWS].'

Table 8.1

Ref	Site	Grid ref	District	Habitat	*SR	**SQI	Site designation/note
S1	Bradgate Pond	SK52941154	Charn	Pond margin	12	4.17	SSSI
S2	Poultney Wood	SK49501327	Charn	Pond margin	21	2.57	LWS 54199. Spring not referred to in citation
S3	Croxton Kerrial	SK83262898	Melt		28	2.5	none
S4	Scam Hazel Spring	SK33601832	NWL	Brook source	37	4.24	LWS 61217. Spring not referred to in citation
S5	Saltby Swallet	SK83842770	Melt	Temporary brook	13	1.62	none
S6	Shacklewell Spinney	SK97610741	Rutl	Temporary trickle	22	3.09	SSSI
S7b	Barsby Brook Spring	SK69561111	Melt	Brook in ditch	10	1.6	none
S7a	Barsby Field Spring	SK69581108	Melt	Man-made field spring	4	1.5	Does not meet LWS on species richness and site quality
S8	Skeffington Wood	SK75570371	Harb	Brook source	23	3.0	SSSI
F9	Swithland Wood	SK53861242	Charn	Seepage-fed carr	43	4.4	SSSI
F10	Ulverscroft Priory	SK50131260	Charn	Spring-fed flush	20	3.2	SSSI
F11	Scam Hazel Marsh	SK33681832	NWL	Spring-fed marsh	45	3.93	LWS 61217. Flush not referred to in citation
F14	Empingham Meadow	SK95740896	Rutl	Spring-fed flush	40	3.83	None - ? grid ref?
F15	Noseley Copse	SP73209970	Harb	Spring-fed carr	43	4.02	none
F16	Hallaton Meadow	SP78279662	Harb	Seep-fed flush	11	2.09	none

***Species Richness**. The number of separate cranefly species recorded

**** Site Quality Index** - A Rarity Index was produced for each cranefly species by allocating it a score that depended on the number of sites where it was recorded during this study.

Then Site Quality Index (SQI) = *Total of Species Rarity Indices* divided by *Species richness value*

2. Wildlife Sites designated with reference to 'unmodified spring in woodland'

Table 8.2

	Ref no	Site	Grid ref	Survey date	District	Description
LWS	56374	Clinker Line, Cosby	SP544929	2006	Blaby	Woodland and spring-fed flush.
LWS	25283	Fields south of Ulverscroft Wood	SK490108	2005	Charn	Mesotrophic grassland with spring-fed flush.
LWS	25390	Nowell Spring Wood, Ulverscroft	SK502120	1999	Charn	Ancient semi-natural woodland and several unmodified woodland springs.
LWS	25367	Lubcloud Alder Woodland, Shepshed	SK474164	2002	Charn/NWL	Wet woodland, unmodified springs and brook.
LWS	23326	Tilton Grassland	SK760062	2007	Harb	Mesotrophic grassland and Red Data Book species, with spring-fed flush.
LWS	53651	Sauvey Woodlands, Withcote	SK786052	2003	Harb	Woodland, with spring-fed flush.
LWS	56637	Quenby Wood, Hungarton	SK705059	2006	Harb	Woodland and spring-fed flush adjacent to other LWS.
LWS	56646	Kicklewell Spinney, Laughton	SP656876	2006	Harb	Woodland, mature trees, spring-fed flush and scrub.
LWS	57060	Stackley Barn Scrub/ Stream/ Grassland, Great Glen	SP660988	2006	Harb	Wet grassland, unmodified spring, stream and mature trees - 1 Salix fragilis, 1 Fraxinus excelsior.
LWS	57909	Bushby Spinney, Thurnby	SK660033	2006	Harb	Woodland, with spring-fed flush.
LWS	60108	Rye Close Spinney, Misterton	SP561843	2007	Harb	*Carex acutiformis* swamp, with spring-fed flush and woodland.
LWS	60109	Winterfield Spinney, Misterton	SP564844	2007	Harb	*Phragmites australis* reedbed, with spring-fed flush and woodland.
cLWS	56897	Fox Covert / Marsh, Bitteswell	SP540871	2006	Harb	Wet woodland, mature tree and spring

3. Other sites

Table 8.3

SSSI	Botcheston Bog	SK485046		H&B	Wet grassland/bog

Local Biodiversity Action Plan

Neutral Grassland

Action plan objectives

- **No further loss of existing neutral grassland**
- **Encourage positive management of neutral grassland**
- **Creation of new neutral grassland habitat, through wildflower seeding/green hay-spreading and natural regeneration**
- **Compile and maintain register of sites of local BAP and UKBAP quality**

Introduction

Leicestershire and Rutland were once renowned for their large area of species-rich, 'unimproved' neutral grassland. This grassland is easily damaged by agricultural practices such as ploughing and reseeding or by extensive fertiliser and herbicide treatments. Little of this habitat now remains. 97% was destroyed between 1930 and 1984 and the area remaining has continued to decline in the subsequent 20 years.

Unimproved neutral grassland within Leicestershire and Rutland can be divided into two major types: flood-meadow grasslands and grasslands in drier areas. Flood meadow grasslands are managed traditionally as hay-meadows, while the traditional management of grasslands in drier areas is either as hay-meadow or as pasture.

The habitat also regenerates naturally on some post-industrial, post-mineral and railway land, often in a matrix with other grassland types and habitats; this can be extremely species-rich.

Relatively species-rich habitat meeting the LWS criteria for this grassland has been successfully created on some sites.

Current extent

The most recent register has 928 sites, covering c. 2550 hectares, but it is important to note that it is not based on comprehensive survey, and is inevitably under-estimated. Of this known resource, less than 500 hectares or c.20% are assessed as of high quality and likely to meet UKBAP criteria for this habitat. The register includes SSSIs, Local Wildlife Sites and sites that meet the criteria for designation, and LRWT Nature Reserves. The majority of the information is based on survey data between 2000 and 2012.
Source: K Headley & S Timms (2013) Leicester, Leicestershire and Rutland (VC55) Mesotrophic/Wet Grassland Register, Leicestershire and Rutland Environmental Records Centre (LRERC)

Some characteristic species

Common Knapweed (*Centaurea nigra*), Cowslip (*Primula veris*), Pepper-saxifrage (*Silaum silaus*), Yellow-rattle (*Rhinanthus minor*), Adder's-tongue Fern (*Ophioglossum vulgatum*) and Green-winged Orchid (*Orchis morio*) were all characteristic of species-rich neutral grasslands in Leicestershire and Rutland. All are declining. Many have shown a continuous loss since the 1930s, which has accelerated in recent years. In the 1933 Flora of Leicestershire and Rutland, Green-winged Orchid was described as locally abundant and generally distributed with 79 localities named. By the 1970s this had fallen to 16 sites, of which only 5 remain to the present day. This reflects the steady decline in this species nationally.

The abundance of flowering plants in these meadows provides nectar sources for many invertebrates including butterflies such as the Common Blue (*Polyommatus icarus*) and Meadow Brown (*Maniola jurtina*) and the Chimney Sweeper moth (*Odezia atrata*).

Local Wildlife Site criteria

The Local Wildlife Site grassland criteria have been set to include fairly species-rich semi-improved grasslands. This is because of the known decline in the extent and quality of species-rich grasslands in our area, which in some areas is extremely severe – many Parishes now have negligible amounts of conservation value grassland. Many parts of Leicestershire and Rutland are now largely arable, and much remaining grassland has been heavily improved for pasture or silage.

As an example, grassland can be designated as a LWS if it contains 7 indicator species at an occurrence of Occasional or more. These indicator species may be common grassland species such as Meadow Vetchling, Sorrel, Meadow Buttercup, Field Woodrush, Pignut, Birdsfoot Trefoil, Red Clover, Great Burnet and Meadowsweet. It is disturbing that many parts of Leicestershire and Rutland lack LWS-standard grassland exhibiting even this common range of species.

For this reason, not all the LWS quality grasslands could be considered to be of UKBAP quality and importance, but all LWS quality grasslands are priority local BAP habitats.

Most important factors affecting the habitat

- Agricultural improvement including application of herbicides and fertilizers, ploughing and re-seeding.
- Switch from hay making to silage production and conversion to high production grasslands, through applications of fertilisers and herbicides.
- Lack of management resulting in changes to rank grassland and eventually scrub.

- Change of hay-meadow management to intensive grazing.
- Conversion to arable.
- Loss of sites to built development.

Opportunities

- Changes in management of parks, roadside verges and public open spaces
- Creation of new grassland through mineral restoration, by natural regeneration or habitat creation
- Planning conditions requiring creation or management of habitats within new developments
- Acquisition and beneficial management of land by conservation organisations, especially close to existing areas of habitat
- Advice to owners of sites and habitats

Leicestershire & Rutland Environmental Records Centre

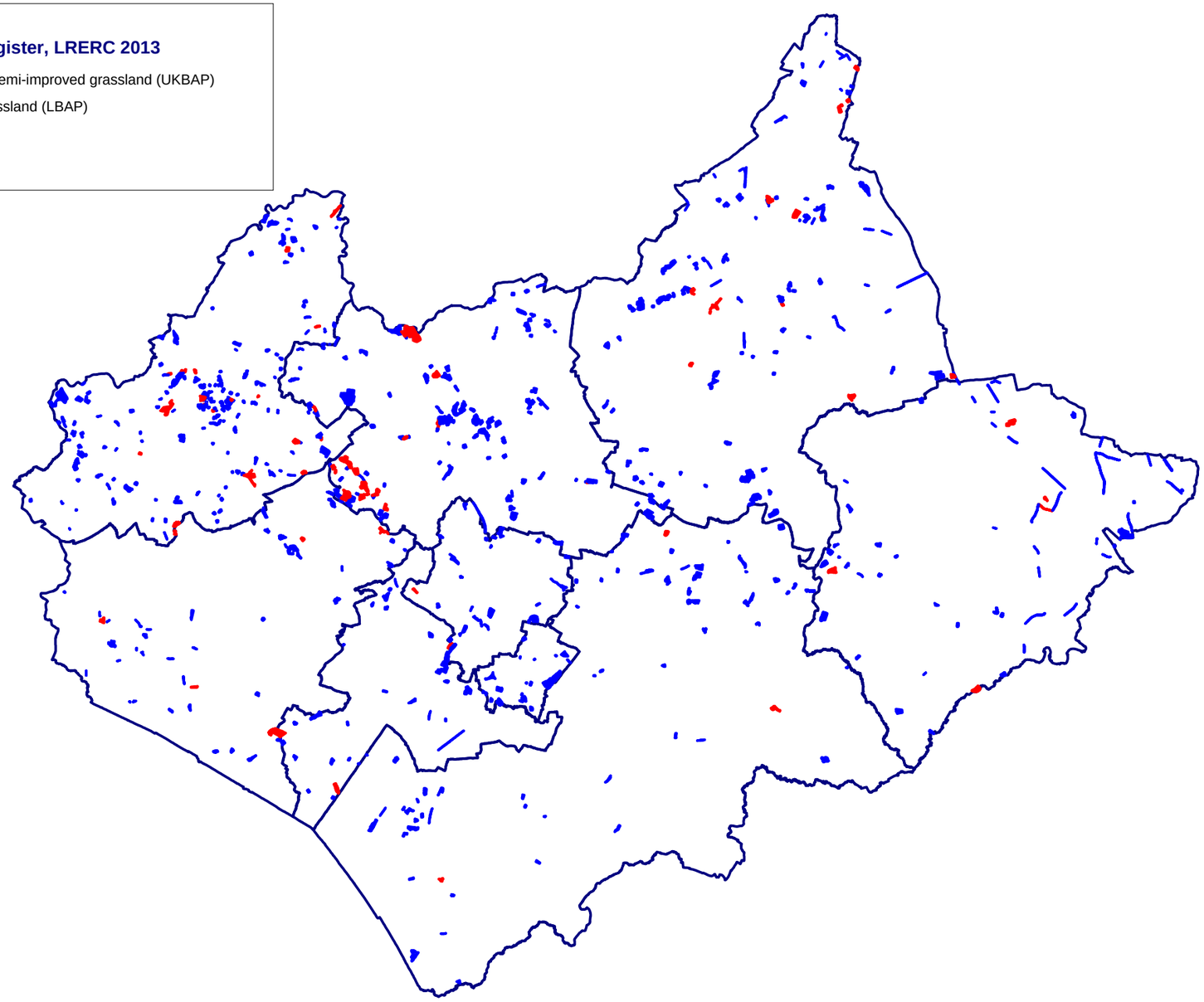
Leicestershire County Council

Map 13: Neutral grassland

Leicester, Leicestershire and Rutland BAP 2016

Neutral (mesotrophic) grassland
source: LL&R Mesotrophic grassland register, LRERC 2013

- High quality unimproved/very species-rich semi-improved grassland (UKBAP)
- Moderately species-rich semi-improved grassland (LBAP)



29/12/2016

Local Biodiversity Action Plan

Heath Grassland

Action plan objectives

- **No further loss of existing heath-grassland**
- **Restore existing heath-grassland by grazing, bracken control and scrub removal**
- **Create new heathland and heath-grassland**

Introduction

Heath-grassland was once widespread in northwest Leicestershire and east Rutland, but following land-use changes in the 19th century it has become almost entirely confined to Charnwood Forest, with small amounts clinging on at Burbage Common, Luffenham Heath and a few other sites. Heath-grassland contains a high proportion of Leicestershire Red Data Book species, which is a reflection of the rarity and importance of this habitat locally. Charnwood Lodge, Bardon Hill, Bradgate Park, Beacon Hill and Cademan Moor/High Sharpley all support some areas of have heathland and acid grassland, and are designated as SSSIs.

Heath-grassland includes true heathland, where dwarf shrubs such as Heather and Bilberry are prominent, and acid grassland which may contain heather and other ericaceous shrubs. It can also survive amongst bracken. It is often in association with S*phagnum* ponds, bare ground and rock outcrops – see separate Action Plans for these habitats.

Also included are acid grasslands on siliceous soils with areas of bare soil and rock, characterised by the presence of many annuals, as at Croft Hill. Quarry grasslands with a calcifuge flora are also

included, as found on many of the former hard-rock quarries in Charnwood and North-west Leicestershire such as at Hill Hole, Markfield.

Heathland has regenerated naturally on some post-industrial sites associated with former coal-mining and stocking in north-west Leicestershire. Newfield Colliery supports the best of this category; and Heather is an occasional constituent of naturally regenerated scrub/grassland on other sites, as at Lounge in Ashby de la Zouch. Small areas have also been successfully created at Bardon Hill and Bagworth Heath.

Current extent

An inventory was compiled in 2005 (. This has been updated to include acid grassland sites designated as Wildlife Sites. Very small sites (c.0.1ha) and sites where the habitats is scattered or confined to woodlands rides, as in Benscliffe Wood, have not been included, and sites where heath-grassland has now been lost (as at Moira Junction) have not been included.
Information has also been drawn from the national Priority Habitat Inventory (PHI, Natural England, 2014) to produce a distribution map (attached). Note that some sites on the PHI as heathland, lowland dry acid grassland or purple moor-grass/rush pasture have not been included, as they are incorrect.
Acid grassland formed on thin soil associated with hard rock quarries is likely to be under-represented in the Inventory.

Some 300ha of land with acid or heath grassland are designated as Wildlife Sites, usually in association with other habitats such as woodland, scrub and neutral grassland. A lot of grassland is transitional in nature between acid and neutral grassland, and the amount of true heath-grassland designated as LWS is probably closer to 100ha.
Some 400ha of heath-grassland is estimated to occur on SSSIs, and therefore the total resource may be less than 500ha.

Some characteristic species

Where bracken has not become dominant, heath-grassland in Leicestershire is characterised by grasses such as Common Bent (*Agrostis capillaris*), Purple Moor-grass (*Molinia caerulea*) and Matgrass (*Nardus stricta*). Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*) and Cross-leaved Heath (*Erica tetralix*) are uncommon. Bare ground on the drier heaths is particularly important for invertebrate species such as the Green Tiger Beetle (*Cicindela campestris*).
Where the soil is more poorly drained, rushes and sedges are frequent. Here also can be found pools containing *Sphagnum* moss, another BAP priority habitat, now mainly confined to Charnwood Lodge. Characteristic butterfly species include Small Copper, Brown Argus, Green Hairstreak, Wall and Small Heath.
Larger areas of heath-grassland, as at Bradgate Park, also support adder, and ponds within the habitat can have Palmate Newt, as at Beacon Hill. Both species are now rare in Leicestershire and Rutland.

Local Wildlife Site criteria

Heathland sites must cover an area of over 1 ha in which heather (*Calluna vulgaris, Erica cinerea, Erica tetralix*) or bilberry (*Vaccinium* sp.) either individually or in combination have at least 25% cover. Acid grasslands should be at least 1000m^2 in extent, in which at least 3 of the species below should be Frequent, Abundant or Dominant, or at least 5 species should be present.

Agrostis capillaris, Common bent	*Juncus squarrosus*, Heath rush
Calluna vulgaris, Ling	*Lathyrus linifolius* var. *montanus,* Bitter vetch
Campanula rotundifolia, Harebell	*Luzula multiflora,* Heath woodrush
Danthonia decumbens, Heath grass	*Nardus stricta*, Mat grass
Deschampsia flexuosa, Wavy hair-grass	*Potentilla erecta*, Tormentil
Erica tetralix, Cross-leaved Heath	*Rumex acetosella*, Sheep's sorrel
Festuca ovina, Sheep's fescue	*Vaccinium myrtillus*, Bilberry
Galium saxatile, Heath bedstraw	

Most important factors affecting the habitat

- Lack of management, especially grazing, leading to scrub invasion
- Spread of bracken
- Nutrient enrichment
- Recreation pressure

Opportunities

- Creation and natural regeneration of heathland and acid grassland on post-industrial and former minerals and coal industry sites.

Inventory of Acid grassland, heath grassland and heathland in Leicestershire and Rutland LRERC, 2016

Sources:
National Priority Habitat Inventory (NE, 2014)
Wildlife Sites Register (LRERC, 2016)
SSSI condition assessments (https://designatedsites.naturalengland.org.uk/)

Habitat	Site	District	Status	Source of info	Grid ref	Date last survey	Area (ha)	Condition
Acid grassland	Croft Hill	Blaby	SSSI	PHI	SP509966	2008	2	Favourable (NE) - cattle-grazed
Acid grassland	Croft Pasture	Blaby	SSSI	PHI	SK509958	2010	5.7	Favourable (NE)
Heath grassland	Longcliffe golf-course	Charn	LWS 25383	PHI/LWS Register	SK496174	2009	36.6	
Heathland	Hangingstone Hill	Charn	SSSI	PHI	SK521152	2014	15.77	Unfavourable, recovering (NE)
Heathland	Beacon Hill	Charn	SSSI/LCC Country Park	PHI	SK512147	2013	26.5	Unfavourable recovering; grazing introduced. Bracken needs control (NE)
Acid grassland	Bradgate Park	Charn	SSSI	PHI	SK5310	2015	195.3	Unfavourable, recovering with bracken control/deer management (NE)
Acid grassland	Ulverscroft	Charn	SSSI/LRWT Reserve	PHI	SK491128	2010/12	9.2	Unfavourable/recovering (NE) following tree removal
Acid grassland	Iveshead	Charn	SSSI (part)/ LWS	PHI/LWS Register	SK475170	2012	22.6	
Acid grassland	Roecliffe Manor grasslands	Charn	LWS 12751	LWS Register	SK530124	2005	2.9	
Acid grassland	Morley Quarry	Charn	LWS 25273	LWS Register	SK476179	2001	2.2	
Acid grassland	Morley Lane field	Charn	LWS 25281	LWS Register	SK477179	2005	1.9	
Acid grassland	Blackbrook Reservoir field	Charn	LWS 25365	LWS Register	SK467171	2002	6.5	
Acid grassland	Buck Hill	Charn	LWS 25392	LWS Register	SK507163	2002	25.1	

Habitat	Site	District	Status	Source of info	Grid ref	Date last survey	Area (ha)	Condition
Acid grassland	Newtown Linford, Christmas Tree field	Charn	LWS 25399	LWS Register	SK516107	2000	0.6	
Acid grassland	Hallgates covered reservoirs	Charn	LWS 57976	LWS Register	SK533115	2005	1.8	
Acid grassland	Blackbird's Nest	Charn	LWS 25405	LWS Register	SK513156	2002	0.6	
Acid grassland	Mountsorrel, Castle Hill	Charn	LWS 25498	LWS Register	SK581148	2001	0.4	
Acid grassland (in woodland)	Nanpantan Hall Wood	Charn	LWS 49415	LWS Register	SK500168	2004	0.4	
Created heathland	Bagworth Beacon Hill	Charn	cLWS 90365	cLWS Register	SK442085	2010	0.1	Created in early 1990s; needs management
Created heathland	Bagworth Heath	Charn	cLWS 90370	cLWS Register	SK463068	2012	0.1	Created in early 1990s; spreading
Acid grassland	Billa Barra	H&B	LWS 72527/LNR	PHI/LWS Register	SK467114	2008	1.2	
Acid grassland	Burbage Common	H&B	LWS 25865	PHI/LWS Register	SK4495	2003	20.9	
Acid grassland (quarry)	Hill Hole Quarry	H&B	LWS 72528	LWS Register	SK485102	2008	1.7	
Acid grassland	Altarstone/Raunscliffe	H&B	LWS 54201/80053	LWS Register	SK484108	2010	4.2	
Acid grassland	Croxton Park	Melt	SSSI	PHI	SK4828	2014	39.9	Significant part unfavourable, but recovering, due to undergrazing
Acid grassland	Dimminsdale	NWL	SSSI/LRWT Reserve	PHI	SK376215	2014	9.5	Unfavourable recovering (NE)
Acid grassland	Cademan Moor	NWL	SSSI	PHI	SK475131	2015	5.7	Unfavourable and declining, due to under threat from woodland/scrub invasion and lack of grazing. At risk of complete loss. (NE)
Heathland	Newfield Colliery/Hick's Lodge	NWL	LWS 62500	PHI/LWS Register	SK322156	2013	1.7	

Habitat	Site	District	Status	Source of info	Grid ref	Date last survey	Area (ha)	Condition
Acid grassland	High Sharpley	NWL	SSSI	PHI	SK446171	2015	12.2	Unfavourable, declining. Bracken/ scrub/woodland invasion. At risk of complete loss.
Heathland	Bardon Hill	NWL	SSSI	PHI	SK460131	2012	2.36	Unfavourable, recovering
Heath grassland	Charnwood Lodge	NWL	SSSI/NNR/LR WT Reserve	PHI	SK4615	2011	68.5	Unfavourable, recovering (NE)
Acid grassland	Stonepit Field/Stonerows	NWL	LWS 39270	LWS Register	SK318149	2008	3.9	
Acid grassland	Ratchet Hill	NWL	LWS 80086	LWS Register	SK446163	2012	1	
Created heathland	Bardon Hill, new heath	NWL	cLWS 90927	cLWS Register	SK463122	2014	1.2	Created in early 2000s; good condition.
Heathland	Luffenham Heath	Rutl	SSSI	PHI	SK959022	2009	32.8	Unfavourable (NE)

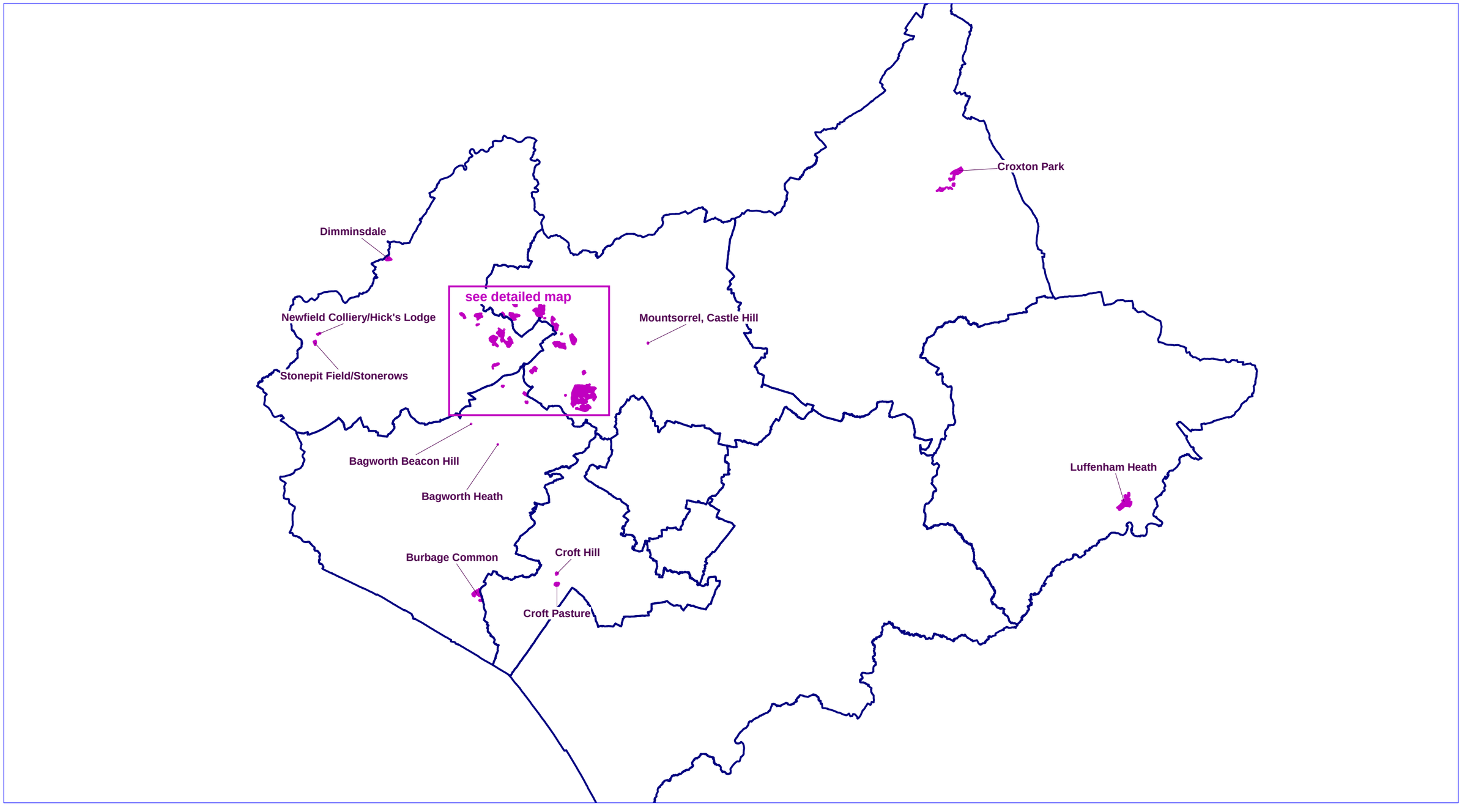
Compiled by LRERC, January 2016

Leicestershire & Rutland Environmental Records Centre

Leicestershire County Council

Map 14.1: Heathland and acid grassland

Leicester, Leicestershire and Rutland BAP 2016



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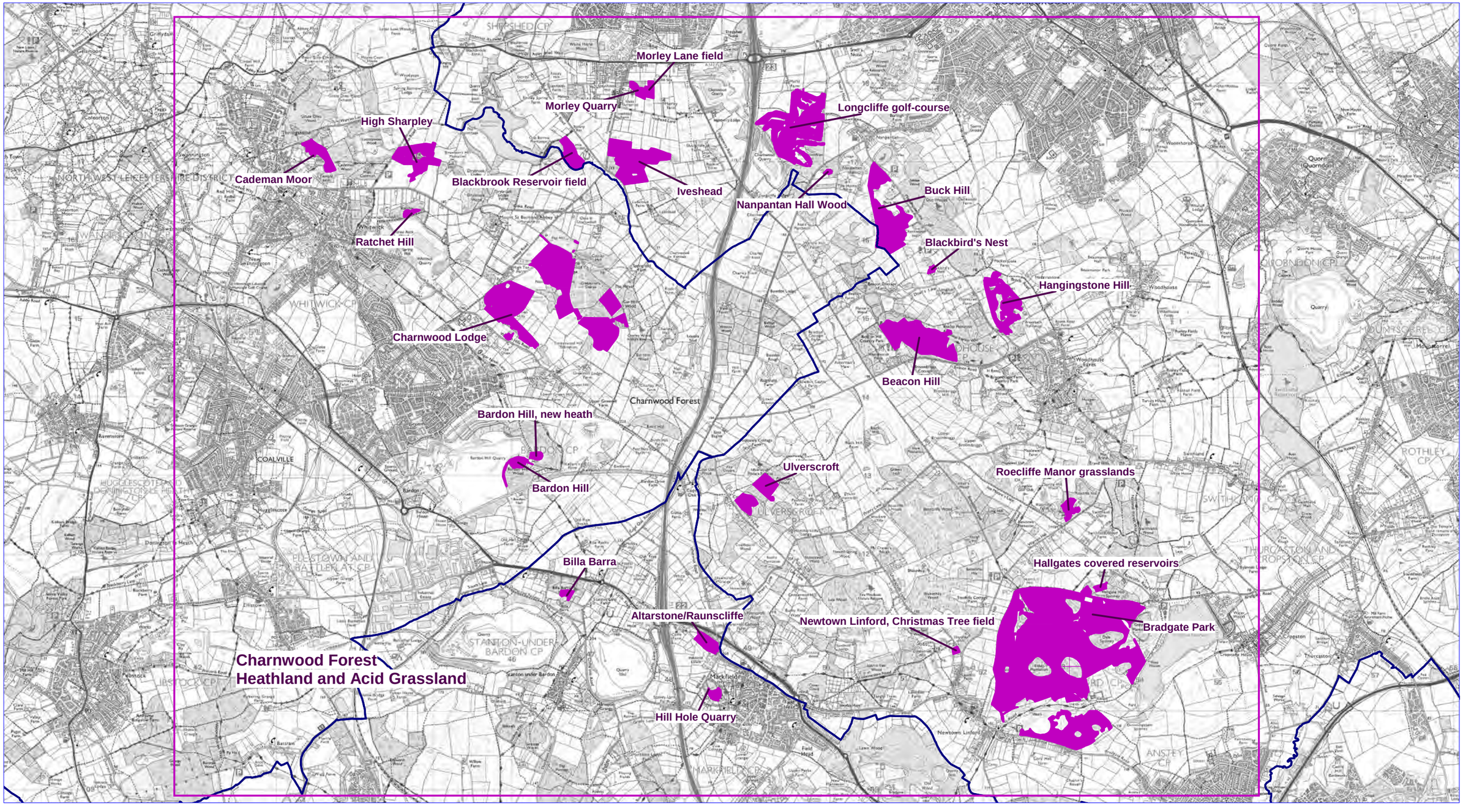
Map 14.2: Heathland and acid grassland Charnwood Forest

Leicester, Leicestershire and Rutland BAP 2016



29/12/2016

Local Biodiversity Action Plan

Calcareous Grassland

Action plan objectives

- **No further loss of existing calcareous grassland**
- **Encourage positive management of calcareous grassland**
- **Creation of new calcareous grasslands through natural regeneration in limestone areas**
- **Compile and maintain register of sites of local BAP and UKBAP quality**

Introduction

In Leicestershire and Rutland, calcareous grassland is largely confined to the Jurassic Oolitic limestone in east Rutland and northeast Leicestershire. There are important calcareous grasslands in former quarries – e.g. at Ketton, Geeston Quarry, Clipsham, Stonesby, and Stamford Quarry in Great Casterton. Some churchyards, as at Tixover, and many roadside verges in Rutland are calcareous grassland, and a significant amount of the habitat survives at Luffenham Heath golf-course. North of Melton, the habitat is mainly found in the Belvoir area, as at Terrace Hills. Large numbers of scarce species are associated with this habitat, particularly flowering plants, beetles and other invertebrates.

Outside the Jurassic limestone area, calcareous grassland is rare, but does occur occasionally on post-industrial sites, as at Asfordby, and on railway lines, as at Wigston Triangle. Breedon Hill is one of six inliers of the Peak Limestone Group (informally known as the Carboniferous Limestone) in North West Leicestershire, and limestone is quarried here and at nearby Cloud Wood.

Current extent

A draft Inventory is attached, compiled from LWS register and the Priority Habitats Inventory.

It is likely that most of the roadside verge grasslands on the Oolitic limestone with calcareous grassland have been designated as Local Wildlife Sites. Currently, over 60 kilometres, chiefly in Rutland, are identified. About 25 hectares of former quarry are also designated as LWS.

There are 11 SSSIs notified for this habitat: Ketton Quarry, Bloody Oaks Quarry, King Luds Entrenchments and The Drift, Breedon Hill, Luffenham Heath Golf-course, North Luffenham disused quarry, Ryhall pastures, Terrace Hills, Tolethorpe verges, Clipsham Old Quarry and Stonesby Quarry.

In total the area of calcareous grassland is estimated as less than 200 hectares.

Some characteristic species

Calcareous grassland is particularly noted for the large number of flowering plant species associated with it. Locally Pyramidal Orchid (*Anacamptis pyramidalis*) is declining, while Frog Orchid (*Coeloglossum viride*) is now known from only one site. Other species of conservation importance are Sulphur Clover (*Trifolium ochroleucon*), Chalk Milkwort (*Polygala calcarea*), and the easily overlooked grass, Mat-grass Fescue (*Vulpia unilateralis*). Greater Knapweed (*Centaurea scabiosa*), Knapweed Broomrape (*Orobanche elatior*), Small Scabious (*Scabiosa columbaria*), Clustered Bellflower (*Campanula glomerata*), Marjoram (*Origanium vulgare*), Salad Burnet (*Sanguisorba minor*), Purging Flax (*Linum catharticum*), Yellow-wort (*Blackstonia perfoliata*) and Hoary Plantain (*Plantago media*) are amongst the other species associated with the habitat.

More common species such as Bird's-foot Trefoil (*Lotus corniculatus*) and Creeping Cinquefoil (*Potentilla reptans*) are important nectar sources for moth and butterfly species. The two named are food plants for Dingy (*Erynnis tages*) and Grizzled (*Pyrgus malvae*) Skipper respectively. These two butterflies are declining as a result of loss of habitat due to development or lack of appropriate management. More details can be found the Species Action Plan for these butterflies. Similar factors affect the Glow-worm (*Lampyris noctiluca*). Other characteristic butterfly and moth species are Brown Argus, Marbled White, Chalk Carpet and Square-spotted Clay.

Local Wildlife Site criteria

Sites are designated under the following criteria:

Calcareous grasslands should be at least 2500m^2 or 200m of linear habitat in extent, in which at least 5 of the species in this list (J) should be present.

Agrimonia eupatoria, Agrimony	*Inula conyzae*, Ploughman's spikenard
Anacamptis pyramidalis, Pyramidal orchid	*Knautia arvensis*, Field scabious
Anthyllis vulneraria, Kidney vetch	*Linum catharticum*, Purging flax
Blackstonia perfoliata, Yellow-wort	*Ononis* sp., Rest-harrow
Campanula glomerata, Clustered bellflower	*Ophrys apifera*, Bee orchid
Centaurea scabiosa, Greater knapweed	*Origanum vulgare*, Marjoram
Clinopodium vulgare, Wild basil	*Orobanche elatior*, Knapweed broomrape
Echium vulgare, Viper's bugloss	*Pimpinella saxifraga*, Burnet saxifrage
Erigeron acer, Blue fleabane	*Plantago media*, Hoary plantain
Euphrasia sp., Eyebright	*Poterium sanguisorba*, Salad burnet
Gentianella amarella, Autumn gentian	*Scabiosa columbaria*, Small scabious
Helianthemum nummularium, Rock-rose	*Thymus* sp., Thyme

Most important factors affecting the habitat

- Small, isolated nature of remaining habitat
- Lack of management, especially grazing, leading to invasion by scrub and vigorous grasses
- Inappropriate management of roadside verge sites
- Nutrient enrichment

Opportunities

- Changes in roadside verge management, to include collection of arisings.
- Restoration and natural regeneration of former quarries and limestone workings.

Inventory of Calcareous grassland in Leicestershire and Rutland

LRERC, January 2016

Sources: WS Register held by LRERC; NE's Priority Habitats Inventory, 2014

*SSSI = Site of Special Scientific Interest
*LWS = Local Wildlife Site (c = Candidate)
*PHI - Priority Habitats Inventory
**RV= Roadside verge

*Design-ation	Site name	** RV	Ref No	District/ County	Last survey	Grid ref
cLWS	Dismantled Railway & Whetstone Gorse		60028	Blaby	2007	SP563944
cLWS	Sauvey Castle - grassland		91097	Harb	2009	SK787052
LWS	Evington Park - Ethel Road Verge	Y	26176	Leicester	2012	SK622035
part LWS	Asfordby, Holwell works		PHI/ 39275	Melton	2007	SK7219
LWS	Brown's Hill and Mineral Line		80052	Melton	2010	SK739235
SSSI	Terrace Hills Pasture		PHI	Melton	1986	SK795310
SSSI	Stonesby Quarry		PHI	Melton	1992	SK812251
SSSI	King Lud's Entrenchment		PHI	Melton	1992	SK865278
SSSI	The Drift	Y	PHI	Melton		SK865291
LWS	Skillington Verge	Y	80011	Melton	2008	SK872252
LWS	Thistleton north verge	Y	80059	Melton	2014	SK901186
SSSI	Breedon Hill		PHI	NWL		SK404232
cLWS	Castle Donington Pasture, Woodland & Stream		62239	NWL	2014	SK455272
LWS	Piper Wood Roadside Verge Nature Reserve	Y	39756	NWL	2014	SK475221
LWS	Wigston Triangle		26200	O&W	2002	SP592988
SSSI	Ryhall Pasture		PHI	Rutland	1990	SK026135
SSSI	Debdale Meadow verge		PHI	Rutland	1994	SK836394
LWS	Greetham Roadside Verge Nature Reserve	Y	33103	Rutland	2008	SK922159
LWS	Hooby Lane roadside verge, Stretton/Greetham	Y	37342	Rutland	2008	SK926164
LWS	Thistleton Roadside Verge Nature Reserve	Y	33357	Rutland	2006	SK926176
LWS	North Luffenham roadside verge (E), adj R Chater	Y	80113	Rutland	2014	SK929030
LWS	Exton RVNR (crossroads at S Exton to Loves Lane crossroads - both sides	Y	33102	Rutland	2007	SK929104
LWS	Hooby Lane verge, near Greetham	Y	80060	Rutland	2010	SK930164
cLWS	Barrowden/S Luffenham: A47 roadside verge	Y	90962	Rutland	2014	SK932003
LWS	Empingham to Exton road verges	Y	80061	Rutland	2010	SK946094
LWS	Barrowden Roadside Verge Nature Reserve (1)	Y	32984	Rutland	2007	SK947006
SSSI	Luffenham Heath		PHI	Rutland		SK9502
LWS	Normanton/ Edith Weston Verge N of Bluebottle cottage (south side)	Y	36945	Rutland	2008	SK955056
LWS	Normanton/Edith Weston Verge N of Bluebottle Cottage (north side)	Y	36946	Rutland	2008	SK955056
LWS	Empingham Verge N of Woodside Farm (E side)	Y	36954	Rutland	2008	SK955072
LWS	Normanton/Edith Weston Verge S of New Wood (east side)	Y	27281	Rutland	2008	SK956059
SSSI	Empingham Marshy Meadows		PHI	Rutland		SK956091
LWS	Empingham Estate Roadside verge	Y	80055	Rutland	2011	SK956103
LWS	Edith Weston Verge	Y	27279	Rutland	2008	SK957055
LWS	Empingham RVNR W of Cross Roads Farm (both sides)	Y	32993	Rutland	2008	SK959100
SSSI	North Luffenham Quarry		PHI	Rutland	1989	SK962036

*Design-ation	Site name	** RV	Ref No	District/ County	Last survey	Grid ref
LWS	Empingham verge (S of Crossroads Farm) west side	Y	36955	Rutland	2008	SK962094
LWS	Empingham Old Wood		PHI/ 38780/ 54401	Rutland	2012	SK962106
LWS	Rutland County golf-club (A1) verge - north	Y	80064	Rutland	2009	SK962123
cLWS	Clipsham/Woolfox tracks and species-rich grassland		91189	Rutland	2010	SK966140
LWS	Clipsham Bidwell Lane verge	Y	80065	Rutland	2010	SK966157
cLWS	Empingham Roadside Verge	Y	38365	Rutland	2008	SK967101
LWS	Grassland in 3-corner Plantation		49623	Rutland	2010	SK968107
cLWS	Big Pits Quarry		91088	Rutland	2005	SK968144
cLWS	Clipsham woodland track, Bidwell Lane		27287	Rutland	2008	SK968147
LWS	Empingham crossroads to Bloody Oaks verge	Y	80062	Rutland	2009	SK969105
LWS	Rutland County golf-club (A1) verge - south	Y	80063	Rutland	2009	SK970116
SSSI	Ketton Quarry		PHI	Rutland	1989	SK9705
SSSI	Bloody Oaks Quarry		PHI	Rutland	1989	SK971108
LWS	Empingham (Bloody Oaks) Roadside Verge Nature Reserve	Y	33019	Rutland	2007	SK972111
cLWS	Ketton disused quarry		36975	Rutland	2003	SK976025
SSSI	Shacklewell Hollow		PHI	Rutland	1990	SK977078
LWS	Ketton Roadside Verge Nature Reserve	Y	33355	Rutland	2006	SK978032
cLWS	Geeston Quarry		36976	Rutland	2003	SK981037
SSSI	Clipsham Old Quarry		PHI	Rutland		SK981153
LWS	Clipsham New Quarry (West)		58793	Rutland	2007	SK985159
LWS	Clipsham New Quarry (East)		58794	Rutland	2007	SK986159
cLWS	Church Bank Pickworth		38375	Rutland	2009	SK992137
LWS	Tinwell Roadside Verge (east side)	Y	36951	Rutland	2008	SK995078
LWS	Tinwell Roadside Verge (west side)	Y	36952	Rutland	2008	SK995078
LWS	A1 Old Gt N Rd slip-road, Great Casterton	Y	27277	Rutland	2008	SK995093
LWS	Pickworth Road RVNR east: N of Mounts Lodge	Y	37675	Rutland	2008	SK998123
LWS	Verge N of The Grange (east side)	Y	37673	Rutland	2008	SK998144
LWS	Pickworth Road RVNR (East) S of Mounts Lodge	Y	27275	Rutland	2008	SK999102
LWS	Pickworth Road RVNR (west) S of Mounts Lodge	Y	27276	Rutland	2008	SK999102
LWS	Tixover Church graveyard		37349	Rutland	2008	SP970997
LWS	The Drift, Pickworth (north side)	Y	37678	Rutland	2008	TF001134
LWS	The Drift, Pickworth (south side)	Y	37679	Rutland	2008	TF001134
LWS	Great Casterton A1-A606 verge	Y	80051	Rutland	2010	TF006073
LWS	Great Casterton A1-A606 verge (north)	Y	80066	Rutland	2011	TF007074
LWS	The Drift Verge, Ryhall (north side)	Y	37670	Rutland	2008	TF011132
cLWS	Stamford Quarry		91099	Rutland	2009	TF014081
LWS	The Drift Verge, Ryhall (south side)	Y	37669	Rutland	2008	TF015129
LWS	Little Casterton Verge (west)	Y	37360	Rutland	2008	TF016090
LWS	Little Casterton Verge (east)	Y	37355	Rutland	2008	TF017089
SSSI/LWS	Tolethorpe Rd verges	Y	PHI/ 80057/ 80056	Rutland	1990	TF017105
cLWS	Verge in Ryhall	Y	37665	Rutland	2003	TF020137
LWS	Ryhall RVNR: Crossroads to the Drift junction (west side)	Y	33356	Rutland	2007	TF030132
LWS	Ryhall verge (B1176): from crossroads to Ryhall Farm Cottage track (east side)	Y	37664	Rutland	2008	TF031130

*Design-ation	Site name	** RV	Ref No	District/ County	Last survey	Grid ref
LWS	Ryhall Verge: The Drift junction to Ryhall Farm Cottage track (west side)	Y	37663	Rutland	2008	TF032125
LWS	Carlby/Essendine verge	Y	80058	Rutland	2009	TF037132
LWS	Essendine, Dismantled Railway Embankment		37364	Rutland	2008	TF050118

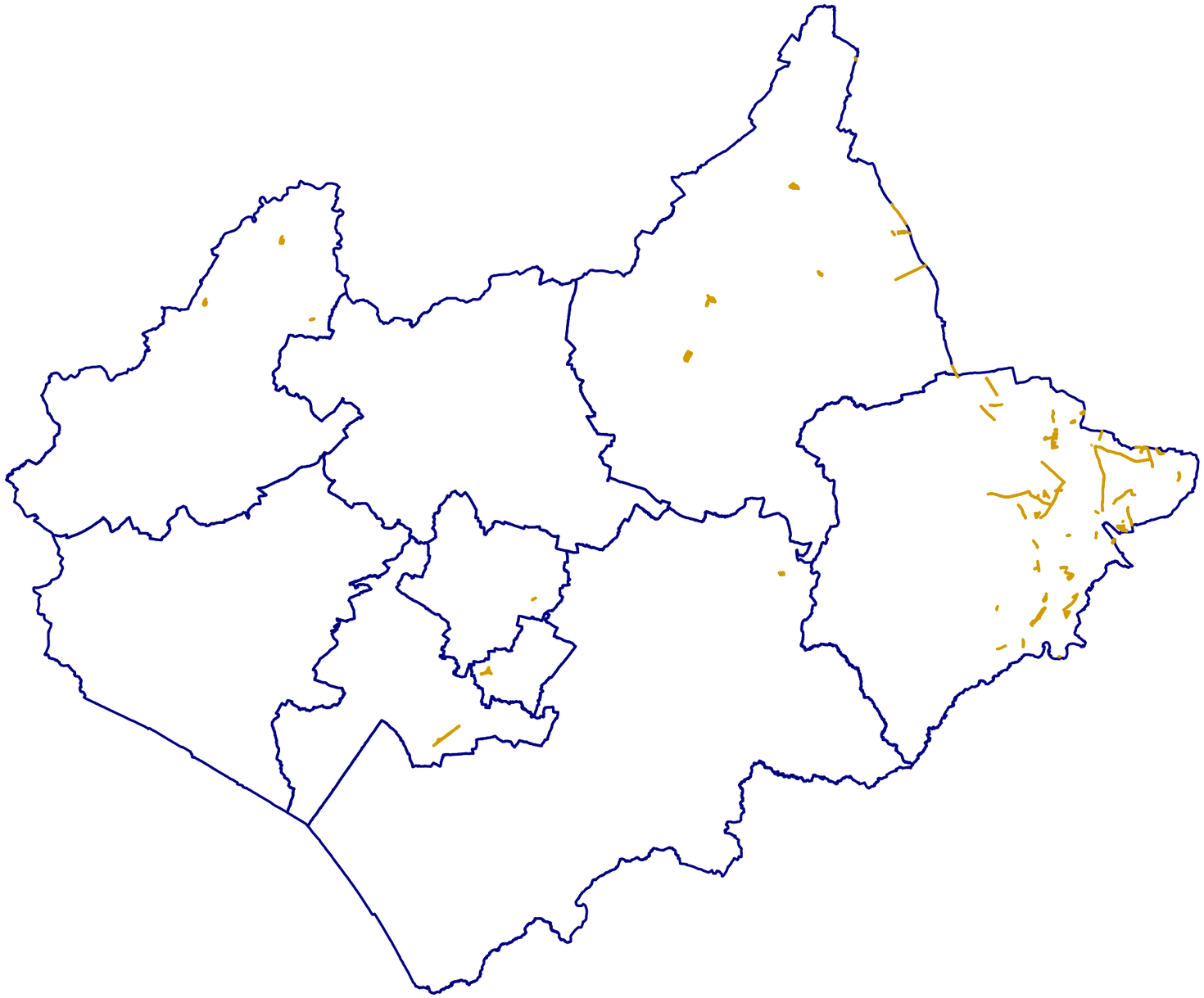
Compiled by LRERC, January 2016

Leicestershire & Rutland Environmental Records Centre

Leicestershire County Council

Map 15.1: Calcareous grassland

Leicester, Leicestershire and Rutland BAP 2016



05/01/2017

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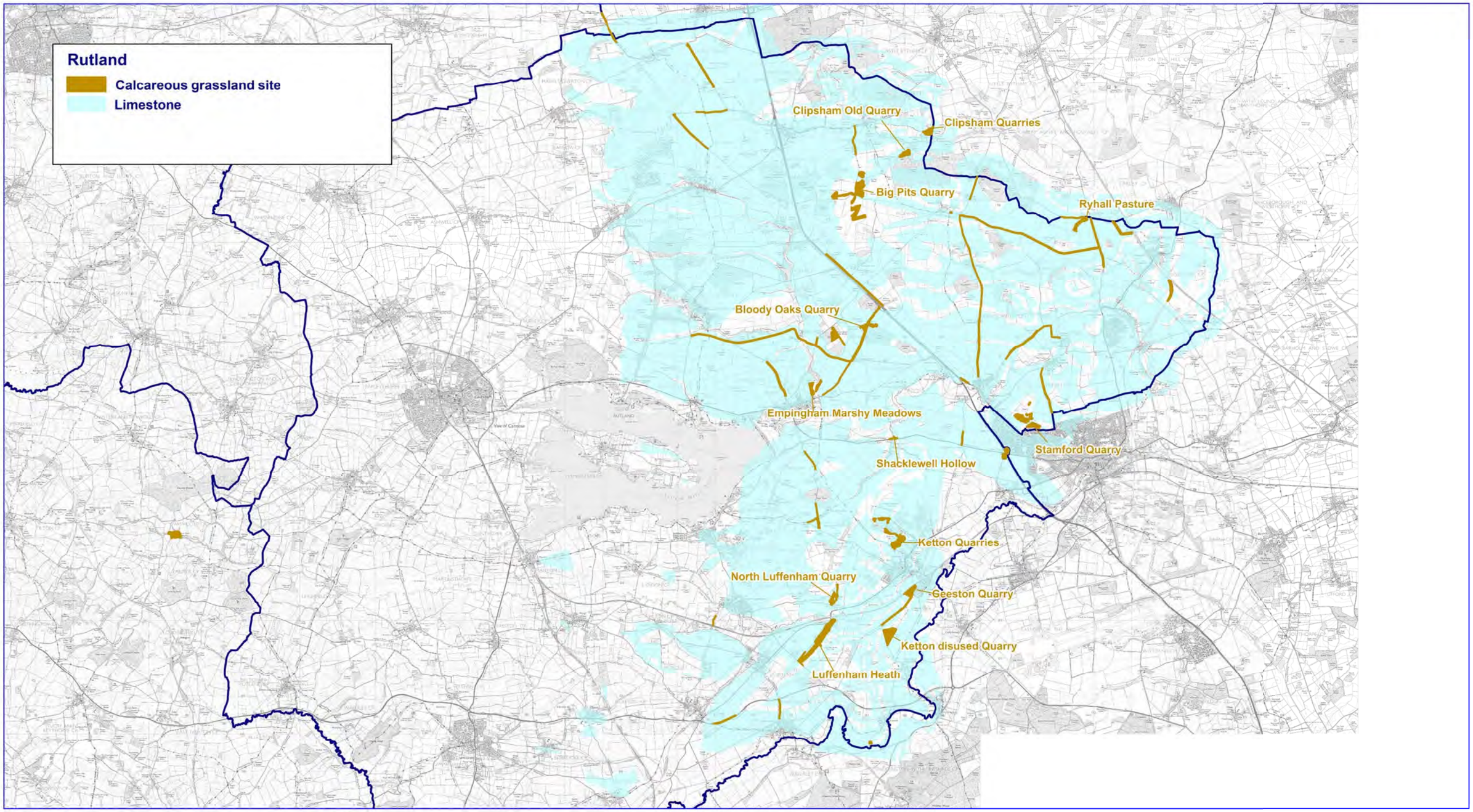
Leicestershire County Council

Map 15.2: Rutland limestone and calcareous grassland

Leicester, Leicestershire and Rutland BAP 2016

Scale 1: 100,000



05/01/2017

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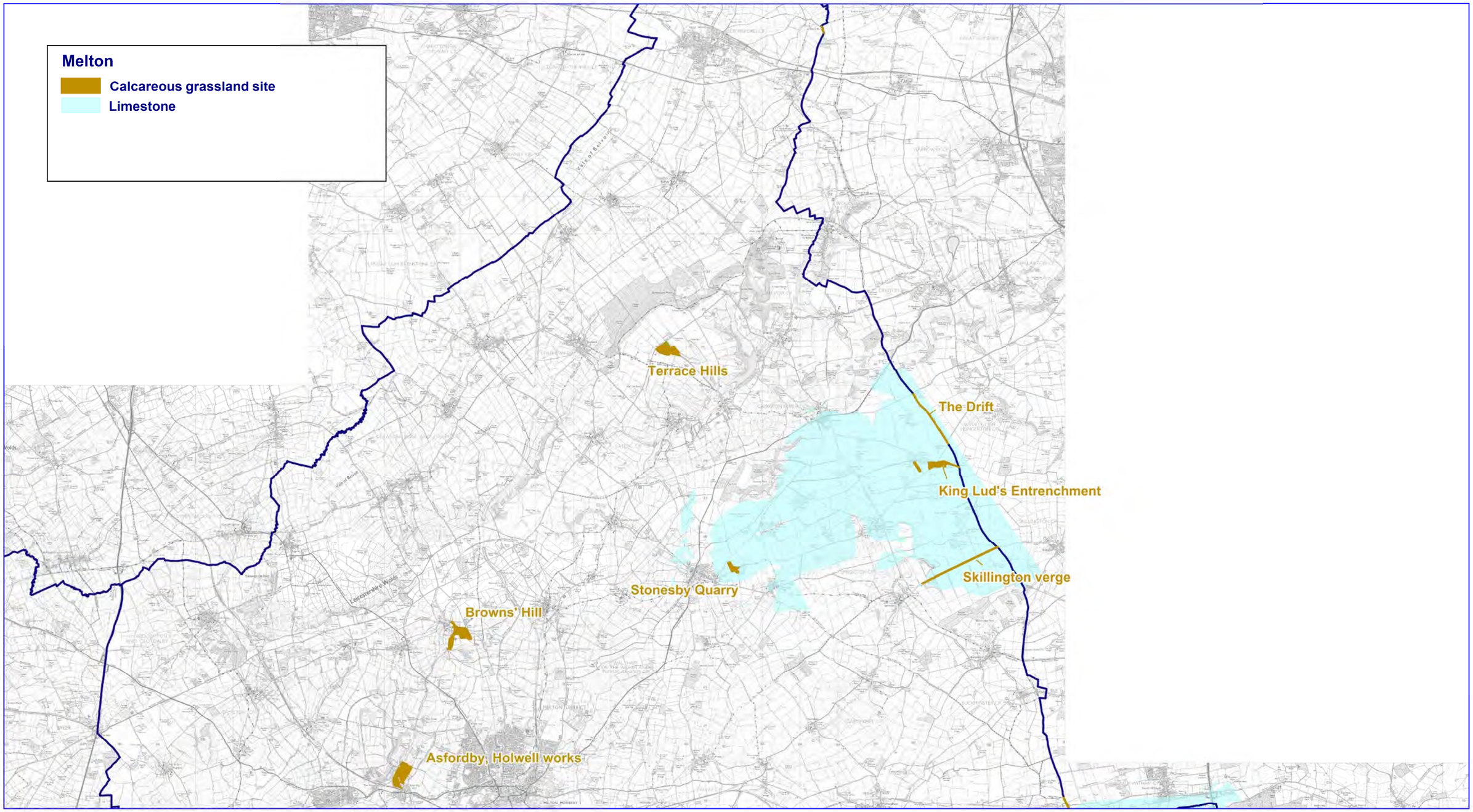
Leicestershire County Council

Map 15.3: Melton limestone and calcareous grassland

Leicester, Leicestershire and Rutland BAP 2016

Scale 1: 100,000



05/01/2017

Local Biodiversity Action Plan

Roadside verges

Action plan objectives

- **Promote sympathetic management of roadside verges meeting LWS criteria**
- **Compile and maintain register of verges meeting LWS criteria**

Introduction

A roadside verge is defined here as that part of the highway which lies on either side of a road and is confined by a boundary, usually a hedgerow, wall or fence and often incorporates a ditch of variable depth and width. In Leicestershire and Rutland it is calculated that there are about 10,200 km of roadside verge with a minimum area of over 2000 ha. Grassland verges can hold valuable communities of plants and animals. In many areas verges may represent the last remaining examples of unimproved neutral or calcareous grassland, (covered by separate Habitat Action Plans).

4 verges are SSSIs: Ryhall (Little Warren verges), part in Lincolnshire; Tolethorpe Road verges (both sides of road); and adjacent to Twenty Acre Piece.

Current extent

A recent Inventory has not been compiled.

A survey of 1992/93 by the Museums Services of Leicestershire County Council identified 199 roadside verges worthy of conservation management, covering 116.45km. Some were designated as 'Roadside Verge Nature Reserves', and were signposted on site; this includes 24 RVNRs in Rutland. Many of these, and other verges, have since been designated as Wildlife Sites.

Currently there are over 100km of verge with a Wildlife Site designation, designated since 2000, and 4km designated as SSSI.

Some characteristic species

Plants characteristic of unimproved grassland such as Common Knapweed (*Centaurea nigra*) and Meadow Crane's-bill (*Geranium pratense*) can also be found on roadside verges in Leicestershire and Rutland. Other plants such as the parasitic Knapweed Broomrape (*Orobanche elatior*) and Sulphur Clover (*Trifolium ochroleucon*) are now almost totally confined to verges in the two counties. Another notable species is the Glow-worm (*Lampyris noctiluca*).

Local Wildlife Site criteria

There are no specific LWS criteria for roadside verges, but they are usually designated because they meet the grassland criteria, as long as they are at 200m in length. Glow-worm verges are designated using the local Red Data Brook species criteria, as the habitat favoured by Glow-worm may not be diverse enough to meet LWS grassland standards.

Most important factors affecting the habitat

- Eutrophication due to fertiliser applications to adjacent agricultural land and nitrous oxides from vehicle exhaust fumes
- Inappropriate mowing regimes.
- Road widening and maintenance work.
- Loss of native species as a result of inappropriate planting and the spread and growth of scrub vegetation.

Opportunities

- Roadside verge management by the local and national Highways Authorities

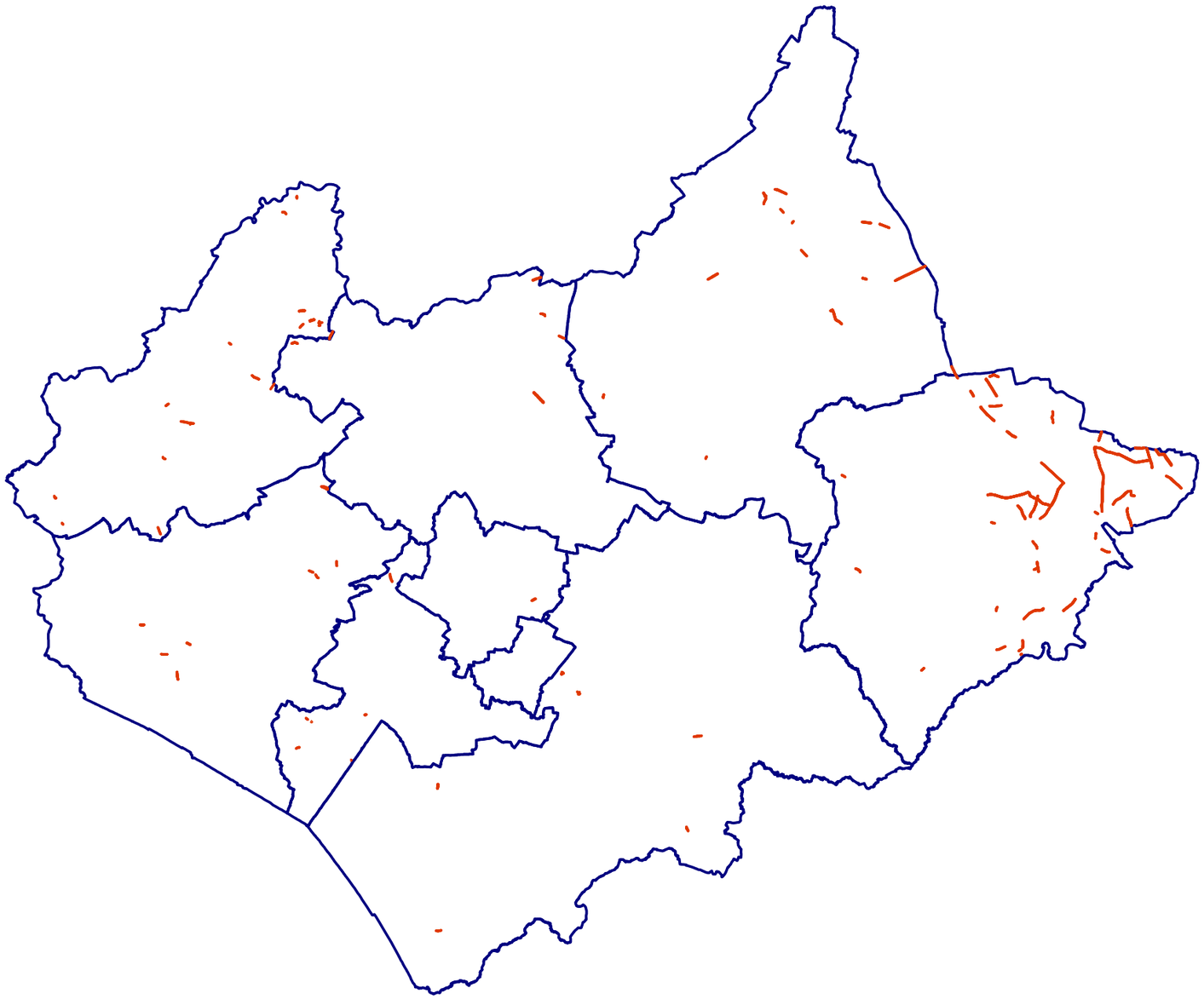
Leicestershire & Rutland Environmental Records Centre

Leicestershire County Council

Map 16: Roadside verges

Leicester, Leicestershire and Rutland

Source: Local Wildlife Site register



05/01/2017

Local Biodiversity Action Plan

Field Margins

Action plan objectives

- **Promote creation and management of field margin habitat for wildlife**

Introduction

Arable field margins act as a buffer zone between the field boundary and the crop or road, and form important wildlife corridors between species-rich areas. In Leicestershire and Rutland, field margins are a key habitat for a number of Red Data Book species, including many farmland birds, arable plants and insects. Flower-rich field margins are important reservoirs for pollinating insects. The structural condition of a field margin is extremely important for biodiversity along with the presence of associated features such as hedgerows, ditches, walls or watercourses.

Current extent

We have no information on the current extent of species-rich field margins.

Some characteristic species

Arable weeds are one of the most threatened categories of plant in the UK. Species like the Cornflower (*Centaurea cyanus*) disappeared from Leicestershire and Rutland long ago. Other once common plants, including Corn Marigold (*Chrysanthemum segetum*), Shepherd's Needle (*Scandix pecten-veneris*) and even Common Poppy (*Papaver rhoeas*) are becoming increasingly rare. Seeds from arable weeds, such as Fat Hen (*Chenopodium album*), are an important food source for many

species of farmland bird. Birds such as Grey Partridge (*Perdix perdix*) Corn Bunting (*Emberiza calandra*) and Skylark (*Alauda arvensis*) benefit from sympathetic management of arable field margins. Characteristic butterfly species include Small Skipper, Gatekeeper and Ringlet.

Local Wildlife Site criteria

The criteria for designation of this habitat have never been used, although some fields in Rutland are known which would meet the criteria. They are based on the presence of a number of key indicator species, some of which have limited distribution in Leicestershire and Rutland, and it is unlikely that many fields outside the limestone areas in Rutland would meet the criteria.

Most important factors affecting the habitat

- Ploughing/cultivation right up to the base of the field margin.
- Spray drift of fertilisers and pesticides.
- Over-management to keep field margins 'neat and tidy'.

Opportunities

Countryside stewardship includes options for flower-rich margins and plots, fallow land, farmland bird habitats and for increasing nectar and pollen resources on farmland.
(NB – This has replaced the former Entry-level and Higher-level Stewardship options)

Local Biodiversity Action Plan

Rocks and Built Structures

Action plan objectives

- **Identify and advise on rocks and built structures meeting LWS criteria**

Introduction

Rock and built structure habitats in Leicestershire and Rutland are of two types; natural outcrops, scree slopes, shingle and stony ground, and man-made habitats including quarries, walls, pavements, roofs, culverts, grave stones, wood and ironwork, ballast and bridges. All of these habitats can be of value to fauna and flora, especially lichens and bryophytes.

Current extent

An Inventory has never been compiled.

Some characteristic species

Over 300 species of lichen have been recorded from rock outcrops in the Counties. About 70-80 lichen species can be expected from a local churchyard. Ferns such as Common Polypody (*Polypodium vulgare*) and the locally scarce Rustyback (*Ceterach officinarum*) are also dependent on rocks and built structures, as are cliff-dwelling birds such as Peregrine *Falco peregrinus* and House Martin *Delichon urbica*. The Wall is a typical butterfly species associated with this habitat.

Local Wildlife Site criteria

Sites can be designated on the basis of an assemblage of lichens, ferns or annual vascular plants. The habitat has most often been identified in association with other habitats, such as Heath-grassland.

Most important factors affecting the habitat

- Air pollution.
- Trampling of plant communities by people and animals.
- Reduction of grazing leading to woodland development with consequent over-shading of cryptogamic flora.
- Indiscriminate tree planting also leading to over-shading of rock habitats.
- Spraying of chemicals and agricultural dusts.
- Damage by fire.
- Use of quarries for landfill.
- Cleaning of walls and grave stones.
- Unsympathetic rebuilding of drystone walls.

Opportunities

- Quarry restoration and regeneration plans
- Countryside Stewardship option for dry-stone wall repair, maintenance and creation

Local Biodiversity Action Plan

Urban Habitats

Action plan objectives

- **Improve the value of wildlife corridors and the biodiversity network throughout Leicester**
- **Improve access to existing information on Leicester's biodiversity**
- **Encourage the monitoring and recording of wildlife within Leicester**
- **Draw attention to the need to make greenspace and natural areas accessible to the citizens of Leicester**
- **Develop Leicester's existing network of nature reserves**

Introduction

Leicester is the largest city in the East Midlands, the traditional county town of Leicestershire, and, since 1997, has been a self-governing unitary authority. It is the 13th largest city in the UK, covering 75 km^2 and is located at the centre of the county. The wider conurbation of Leicester, which includes the satellite towns of Oadby, Wigston, Braunstone Town, Birstall, Glenfield, Blaby, Thurmaston, Syston and Leicester Forest East, is home to 65% of Leicestershire's population and is very culturally and economically diverse.

The city is bisected north to south by the River Soar and the Grand Union canal: these and their tributary streams serve as important wildlife corridors, along with the two railway lines. Although the majority of the land area in Leicester (~54%) is still classified as 'green space', planned major developments, especially to the north, are set to reduce this considerably, and much of what will remain is of limited biodiversity value.

Like most UK cities private gardens are the single largest land use, covering almost 2000 ha or 27% of the city area, but compared to other cities of its size Leicester has relatively little brownfield ('urban commons') sites having lost most to completed development at the city centre.

Leicester City has its own Biodiversity Action Plan 2011 – 2021.
https://www.leicester.gov.uk/media/113637/leicesters-biodiversity-action-plan-2011-21.pdf

Some characteristic species

The river and canal are the major wildlife habitats in the city. Other important habitats include a number of small but mature broad leaved woodlands and spinneys, significant areas of grassland such as the neutral grassland in Goss Meadows and Kirby Frith Local Nature Reserves, the grassland around Aylestone, Birstall and the Anstey green wedge, and five ancient hedges, all but one in the northwest.

There are seven LNRs in the city, covering 2% of the land area, 33 sites of importance for wildlife conservation (covering 7%) and 98 biodiversity enhancement sites (~10%). Other large areas significant for maintaining urban biodiversity are parks (13 more than 10 ha in size and covering 5% of the land area) and allotments (44 sites covering 112 ha covering 1.5%). T

There are only a few records, in some cases now very dated, of rare and BAP listed species in Leicester (great crested newts in the Western Golf Course, white-clawed crayfish in Anstey Brook and water voles in the

River Soar. Most are in need of reassessment. Otherwise the species found in Leicester are those which would be expected in association with the various urban habitats.

Local Wildlife Site criteria

There are no specific LWS criteria related to urban habitats, but LWS have been designated in urban areas using other LWS criteria.

Most important factors affecting the habitat

- Public generally unaware of Leicester's biodiversity, its loss and their own role both in this loss and in conservation
- Rapid development for housing and commerce
- Management of green spaces (excluding nature reserves) is largely unsympathetic to biodiversity conservation
- Anti-social behaviour associated with urban green space

Appendix 2: Species with Action Plans: Summaries

1. Barn Owl
2. Bats
3. Black Hairstreak butterfly
4. Black Poplar
5. Dingy and Grizzled Skipper butterflies
6. Dormouse
7. Nightingale
8. Otter
9. Purple Small-reed
10. Redstart
11. Sand Martin
12. Violet Helleborine
13. Water vole
14. White-clawed Crayfish
15. Wood Vetch
16. Swifts, Swallows and House Martins

1. Barn Owl

Action plan objectives

- Increase the number of breeding barn owls in Leicestershire and Rutland
- Encourage the provision of artificial nesting sites

Introduction

The Barn Owl *Tyto alba* is a good indicator of a healthy farmland environment. Throughout the United Kingdom in the 19th Century it was relatively common in lowland agricultural habitats. However since the 1940s it has been in serious decline. By 1997 there were fewer than 10 pairs in Leicestershire and Rutland. Since that time numbers have increased.

Key habitats

Barn Owls prefer to hunt and feed over unimproved rough grassland. Action to maintain and enhance this habitat is outlined in the neutral grassland, roadside verge and field margin action plans. Roosting and nesting sites are found in hollow trees and in old farm buildings. Many of these sites have been lost in recent years. The mature trees, lowland wood-pasture and parkland, and rocks and built structure habitat plans cover actions to preserve and increase the extent of these habitats and as a consequence should also benefit the Barn Owl.

Most important factors affecting species

Positive factors

- Climate change – mild winters
- Barn Owl nest-box schemes

Negative factors

- Loss of feeding habitat due to agricultural change
- Loss of nest and roost sites
- Road kill, particularly of young birds, whilst hunting along roadside verges
- Increased urbanisation

2. Bats

Action plan objectives

- Maintain the known distribution of all bat species
- Monitor known roosts using National Bat Monitoring Programme protocols

Introduction

Although several bat species are still considered to be common, available evidence suggests an overall decline in populations (Harris et al. 1995). The Pipistrelles, for instance, are thought to have declined by an estimated 70% between 1978 and 1993 (National Bat Colony Survey). Twelve of the 16 UK species have been recorded in the Counties, with a thirteenth (Serotine) suspected. Following a number of academic studies, the habitat needs of most species are well understood.

Status

Common: Soprano Pipistrelle, Common Pipistrelle, Daubenton's, Brown Long-eared

Uncommon: Brandt's, Whiskered, Natterer's, Noctule.

Rare: Leisler's, Barbastelle, Serotine

Vagrant: Greater Horseshoe, Grey Long-eared.

Key habitats

British bats are insectivorous, occupying many habitat types. With their complex life cycle, they need warm summer breeding roosts and cold, secure hibernation sites, both usually found in built structures. However, at least six local species also rely on trees for roosts throughout the year. All species will benefit from the successful implementation of the Mature trees and Broad-leaved Woodland habitat action plans. Other habitat plans that will benefit bats included Hedgerows and Lowland Wood-pasture and Parkland.

Most important factors affecting species

- Intensification of agriculture and inappropriate riparian management leading to a decline in the amount of insect prey for all species
- Widespread misunderstanding of the legislation protecting bats, leading to loss or damage of many roosts when consultation procedures have been ignored.
- Changes in agricultural practices, and to a lesser extent urbanisation, have reduced areas of insect-rich habitat and the connective flyways, which act as feeding and commuting routes between these habitats.
- Loss of winter roosting sites, which need to be cold, humid and undisturbed.
- Loss, destruction and disturbance of other roosts, particularly maternity roosts, through the use of toxic timber treatment chemicals, intolerance by roosts owners, building practices, and tree felling.
- Climate change.

3. Black Hairstreak Butterfly

Action plan objectives

- Maintain the only known colony at Luffenham Heath

Introduction

The Black Hairstreak butterfly *Styrmonidia pruni* butterfly is included on the Long List of Globally Threatened/Declining Species. It has a very restricted distribution in Britain, being confined to an area of central England from Oxfordshire north to Rutland. The borders of woods, and rides and clearings within woods, where the larval food plant Blackthorn *Prunus spinosa* is present, are the habitat of this shy and elusive butterfly. The adult keeps mainly to the top of oaks *Quercus spp.*, coming down to feed on honeydew and the nectar of flowers such as bramble *Rubus spp.* and Privet *Ligustrum vulgare*. In Leicestershire and Rutland the only certain location for Black Hairstreak is on and around Luffenham Heath Golf Course, where it is associated with the large areas of scrub woodland containing stands of Blackthorn.

Key Habitats

Black Hairstreak depends upon Blackthorn scrub managed by coppicing on a long rotation. Negative views of scrub, particularly on agricultural land, has resulted in a reduction in the amount of this habitat across much of the landscape. Where Blackthorn scrub still exists, it is often over mature due to lack of management, again resulting in loss of habitat for the Black Hairstreak.

Most important factors affecting species

- Lack of scrub management leading to dying out of Blackthorn and development of mature woodland.
- Deliberate destruction of scrub habitat.
- Habitat fragmentation preventing colonisation of new sites.

4. Black Poplar

Action plan objectives

- No further loss of existing Black Poplars
- Increase the population of Black Poplars by propagation of cuttings taken from local stock

Introduction

The Black Poplar includes many varieties, sub-species and cultivars of the species *Populus nigra* is found throughout most of central Europe, into Asia, where trees are widely planted. The native Black Poplar in Britain is the sub-species *betulifolia*, which is thought to occur naturally in the south and east of England, and parts of Wales. The tree was a distinctive feature of lowland river valleys but for a variety of reasons it is now scarce and the remaining populations are scattered. As a result the Black Poplar is one of the most endangered native trees in Britain. The species has separate male and female trees. The female is now very rare, having been selectively removed because of the large quantities of fluffy seeds produced in spring. Despite confusion with hybrids the native Black Poplar has probably always been rare in Leicestershire and Rutland, at least since botanical recording started in the early eighteenth century. Only a single specimen, at Barlestone, was known until recently, but there have been a further 13 trees reported from 10 sites, perhaps as a result of increased interest in this tree. All of the recent records are from west or northwest Leicestershire. The gender of very few of the trees has been determined, but there is at least one female, at Quorn.

Key habitats

The native Black Poplar is predominately a tree of open ground, not woodland, and will not tolerate side shade. A tree of river floodplains it is frequently associated with riverside meadows. This species should benefit from management covered by the Floodplain Wetland habitat action plan.

Most important factors affecting species

- The scattered nature of the population, making reproduction by natural means very difficult.
- Hybridisation with non-native poplars resulting in seed of doubtful provenance.
- The likelihood that the rarity of the native tree has resulted in little genetic variation within the population.
- Loss of appropriate habitat for germination as a result of drainage, river engineering schemes and agricultural improvement.
- Loss of, or damage to, remaining trees through agricultural operations including hedgerow removal, felling of hedgerow trees and close ploughing damaging the roots.
- Indiscriminate planting of black poplars at inappropriate sites, using inappropriate stock and with little or no documentation.

5. Dingy Skipper and Grizzled Skipper

Action plan objectives

- Safeguard all known colonies and have their sites in favorable management.

Introduction

Both species have undergone losses of around 50% across the UK over the past 30 years although there are still some strong colonies in Rutland. Recent surveys have shown that losses in Leicestershire appear to be greater than the national average, especially for the Dingy Skipper *Erynnis tages*. The Grizzled Skipper *Pyrgus malvae* is approaching the northern edge of its range in Leicestershire.

These are our earliest butterflies to emerge in spring, and are on the wing from late April until mid-June. They live in small, self-contained colonies. However, for long term survival inter-connections between colonies are necessary, so that if one dies out it can be re-established from another nearby. Both butterflies can be difficult to spot because of their small size (wingspan 27-29 mm) and rapid flight close to ground level. In poor weather they remain stationary on dead flower heads.

Key habitats

Although the caterpillars of the two species need different foodplants, (principally Common Bird's- foot Trefoil *Lotus corniculatus* for the Dingy and Wild Strawberry *Fragaria vesca* or Creeping Cinquefoil *Potentilla reptans* for the Grizzled Skipper), colonies are often in similar habitats. Historically these have been sheltered chalk and limestone grasslands and woodland rides and clearings with relatively sparse and short vegetation. Nowadays in both counties colonies are found almost entirely in brownfield habitats, especially quarries and disused railway lines.

Most important factors affecting species

- Inappropriate (often misguided) development of brownfield sites for amenity use - cycleways, tree planting, grassed areas, soil enrichment.
- Site destruction through development for industry or housing.
- Habitat neglect, excessive scrub re-generation, dumping or other abuse.

6. Dormouse

Action plan objectives

- Maintain the existing Dormouse population in Pickworth Great Wood.

Introduction

The Dormouse *Muscardinus avellanarius* is a nocturnal animal, which lives among the branches of trees and shrubs, rarely coming to the ground, except to hibernate. It requires a mixed, species-rich habitat to supply a sequence of foods throughout its active seasons. In winter, Dormice hibernate on the ground in woven nests, which are sometimes in coppice stools, under brushwood or in tree roots. The Dormouse has a mainly southern distribution, being absent from Scotland, Northern Ireland and most of Wales and northern England. In the past 100 years it has become extinct in half the counties it formerly occupied. Even in good habitats, densities are less than 10 adults per hectare. Leicestershire and Rutland are sparsely wooded, and it is likely the species was always relatively rare. The most recent records are from Pickworth Great Wood, in eastern Rutland, where 40 boxes were put up in 1995.

Key habitats

Dormice are found in woodland. They have most often been associated with hazel coppice but probably are better thought of as a woodland edge species. They prefer areas with a high diversity of trees and shrubs, in which the shrub layer is dense and unshaded but which has a scattering of mature canopy trees. Shrubs that produce berries and nuts provide good sources of food. Many woods are surrounded by a hostile agricultural environment leaving isolated populations of Dormice vulnerable to extinction. Linking up woods, for instance through the planting of hedgerows, as promoted by the hedgerow action plan can help to reduce such isolation. Management of woods for Dormice is covered by the Broadleaved Woodland habitat action plan.

Most important factors affecting species

- Lack of traditional woodland management, notably Hazel *Corylus avellana* coppicing.
- Fragmentation of woodland habitat, and removal of hedges linking them, leaving isolated, non-viable populations.

7. Nightingale

Action plan objectives

- Bring all known Nightingale breeding sites in Leicestershire and Rutland into favourable management

Introduction

The Nightingale *Luscinia megarhynchos* is included on the U.K. Long List of Globally Threatened/Declining Species. It is a summer migrant to Britain, with a south-east distribution. It tends to occur in loose colonies and prefers coppice woodland, but also occurs in hedgerows, scrub, young conifer plantations and mature deciduous woodland. The species' current and historical status in Leicestershire and Rutland has been described by Jeeves (*Leicestershire Red Data Book: Birds,*, LRTNC, 1996). From being more widespread, the Nightingale had become restricted to eastern Rutland by the 1990s, with only 11 singing males in 1994 spread between Barnsdale and Hambleton Woods, Luffenham Heath and Coppice Leys (Barrowden). The absence from some woodland sites but not others is difficult to explain.

Key habitats

Nightingales prefer dense scrub for both feeding and nesting. Traditionally they were associated with hazel coppice although with the decline of coppicing Nightingales are now more likely to be found in blackthorn scrub and tall, thick hedgerows. After initiating scrub management for Nightingales vegetation takes about seven years to become sufficiently dense for it to be suitable for breeding birds. Relevant action plans, which are of relevance to the Nightingale, are those for Broadleaved Woodland and Hedgerows

Most important factors affecting species

- Losses associated with wintering grounds.
- The decline in traditional coppice woodland management.
- Planting of ancient woodlands with conifers.
- Climatic change, which may account for the retreat eastwards.
- The increase in deer populations, especially in eastern Rutland, leading to damage to woodlands and reluctance of owners to re-introduce coppice regimes.

8. Otter

Action plan objectives

- To restore breeding Otters to all catchments (Avon, Soar, Tame, Welland) by natural recolonisation.

Introduction

Formerly widespread, the otter *Lutra lutra* has declined rapidly since the 1950s. Its range contracted until it was effectively lost from central and south-eastern England by the 1980s. Significant populations remained in Wales, south-west England, Scotland and Northern Ireland. The decline now appears to have halted and otters are re-colonising former habitats.

Up to the late 1950s the otter was still relatively numerous in Leicestershire, but as in other English counties, the population crashed after the 1950s. Throughout the 1980s and early 1990s there have been occasional records of otters from the Welland, Avon and Trent catchments. In 1994, The Otter Trust released seven captive-bred otters, on the Rivers Gwash and Welland in Rutland.

Key habitats

Otters have large ranges, which can be between 40-70km when quantities of prey are limited. They exploit a wide range of aquatic habitats from small ditches to large rivers, as well as ponds, lakes and reservoirs. The key factor determining the use of any body of water by otters is the quantity of fish present. Other factors are water quality and the presence of suitable places of refuge. Bankside trees, woody debris, brambles and scrub provide the latter. Action at the river catchment scale is necessary to ensure the return of otters to the area. However site based management as promoted by the Floodplain Wetland, Mesotrophic Lakes, Eutrophic Standing Water and Wet Woodland action plans can help to improve habitat quality for otters along individual watercourses.

Most important factors affecting species

- Use of organochlorines and, more recently, PCBs.
- Insufficient prey associated with poor water quality and unsympathetic riparian management.
- Impoverished bankside habitat features
- Road deaths.
- Disturbance, especially through increased recreation on rivers, canals and reservoirs.
- Mink traps.

9. Purple Small-Reed

Action plan objectives

- No loss of known populations of Purple Small-reed in Leicestershire and Rutland

Introduction

Purple Small-reed *Calamagrostis canescens* is a tall, attractive grass. It occurs in fens, marshes and open wet woods in scattered localities in England, especially the south-east, and Scotland. In Leicestershire and Rutland Purple Small-reed seems to prefer open woods on wet soils. Confusion with the very similar *Calamagrostis epigeijos* means that some old records of *C. canescens* are questionable. Nevertheless there are only seven post 1970 site records. Owston, Stretton and Cloud Woods are the only sites where colonies are still known for certain to occur. At these sites the plant is restricted to the margins of wet woodland rides.

Key habitats

In Leicestershire and Rutland Purple Small-reed is restricted to woodland habitat. This is covered by the Broadleaved and Wet woodland action plans. Under these plans actions covering conifer removal, ride and coppice management will all benefit this plant.

Most important factors affecting species

- Cessation of traditional woodland management (coppicing) leading to loss of open areas through development of a closed canopy.
- Planting of woodlands with conifers.
- Neglect of woodland ride systems.

10. Redstart

Action plan objectives

- Return of breeding Redstarts to Leicestershire and Rutland

Introduction

The Redstart *Phoenicurus phoenicurus* is a summer visitor to most of Britain, but is absent from Ireland. In Eastern England it is localised in occurrence. It feeds mainly on insects and nests in holes in trees and other places, in open woodland or parkland. In Leicestershire and Rutland it was once fairly common and widespread, but in recent years there have been no records of breeding in the Counties. Former sites, where two or more pairs bred regularly, are Burley Wood, the upper Chater valley, and possibly the Eye Brook valley.

Key habitats

The Redstart requires open woodland with mature trees for both nesting and feeding. Many local woodlands were clear felled within the past 60 years and now contain few mature trees with suitable nest holes. Lack of management such as coppicing has resulted in the vegetation becoming increasingly dense and shaded with the resultant loss of feeding habitat. In the wider countryside hedgerow and streamside trees have been removed, often as a result of agricultural intensification. In the long-term favourable management of woodland, hedgerows and mature trees should benefit Redstart. Management of Redstart habitats is covered by the Mature trees, Hedgerows, Broadleaved Woodland and Lowland wood-pasture and parkland action plans.

Most important factors affecting species

- Felling and re-planting of woodland habitat.
- Woodland neglect and lack of management leading to loss of open areas and development of thick understorey.
- Loss of hedgerow and stream-side trees.
- Fragmentation of suitable breeding sites.

11. Sand Martin

Action plan objectives

- Increase the number of Sand Martin colonies

Introduction

The Sand Martin *Riparia riparia* is a summer visitor to Britain and Ireland. It is still relatively common throughout Eastern England. It feeds on insects and nests in excavated tunnels, in riverbanks and man- made cliffs. In spring and autumn, Sand Martins gather with other hirundines in large flocks over large bodies of water and roost in suitable vegetation such as reedbeds. The species is included in the long list of Globally Threatened/Declining species. In Europe the Sand Martin has been identified as a species of European Concern (Category 3) on account of significant declines in populations. Drought conditions in the wintering grounds of the Sahel in the 1970's and 1980's saw large reductions in colony sizes within the Counties. Seven colonies have been recorded in recent years including at artificial Sand Martin walls at Watermead Country Park and Rutland Water nature reserve.

Key habitats

Natural nest sites for Sand Martins are holes excavated in banks and cliffs, particularly along riverbanks. But in Leicestershire and Rutland they are more often associated with man-made excavations such as gravel and sand pits where the faces and spoil heaps provide suitable nesting sites. Artificial Sand Martin banks have also been a success locally, even on sites such as Rutland Water, with no previous record of breeding. Reedbeds provide roosting habitat for Sand Matins and are covered in the Reedbed habitat action plan. Sand Martins feed on invertebrates associated with wetlands and areas of open water, some of which are covered by the Floodplain Wetland, Mesotrophic Lakes and Eutrophic Standing Water plans.

Most important factors affecting species

- Habitat changes in wintering areas
- Loss of suitable nesting banks
- Flood defence and straightening of suitable rivers in the past resulting in the loss of suitable nesting area
- Disturbance to colonies
- Loss of roost sites due to drainage and scrub encroachment
- Loss of feeding sites such as wet meadows, river margins, field ponds and other wetland habitats.

12. Violet Helleborine

Action plan objectives

- No loss of Violet Helleborine colonies from any known site

Introduction

The Violet Helleborine *Epipactis purpurata* is an uncommon woodland orchid with a southeastern distribution in Britain and Ireland. It is found especially in beech woods on lime-rich soils, in heavy shade. In Leicestershire and Rutland this plant is at the northern limit of its distribution in the UK and is restricted to ancient woodlands on heavy basic soils. Since 1970 it has only been recorded from eight sites, of which only Great Merrible and Sheet Hedges Woods have populations of more than one or two individuals. The total number of individual plants in the counties is likely to be less than 100.

Key habitats

Ancient woodland with mature stands and heavy shade, and often under Oak *Quercus robur* and Beech *Fagus sylvatica* (where planted on Ancient woodland sites). Although covered by the broadleaved woodland plan many of the aims of that plan are likely to be detrimental to the survival of Violet Helleborine. It is therefore important that management of woodland sites where Violet Helleborine is found,takes into account this species requirement for shade. Activities such as coppicing and felling should be directed to areas well away from colonies of this plant.

Most important factors affecting the species

- Felling and planting of ancient woodlands.
- Restoration of coppicing to ancient woodlands without consideration of the needs of the Violet Helleborine (minimum intervention and long rotation coppicing).

13. Water Vole

Action plan objectives

- Maintain the current distribution in order to arrest the decline of the species in Leicestershire and Rutland.

Introduction

The Water Vole *Arvicola terrestris* is found throughout Britain but is confined mainly to lowland areas near water. A national survey in 1989-90, by the Vincent Wildlife Trust, failed to find signs of voles in 67% of sites where they were previously recorded. Once common and widespread in Leicestershire and Rutland until at least the 1970s, this species has suffered a significant decline in number and distribution. In 2002/2003 a survey of Water Voles found only six significant colonies in the two counties. The isolated nature of these colonies means that they are susceptible to extinction as a result of predation or habitat destruction, with little possibility of recolonisation from other populations.

Key habitats

Water Voles favour slow-moving water and canals. Sites should not be subject to large fluctuations in water level, or dry out in summer. Tall marginal and emergent vegetation provide feeding sites. Low scrub vegetation can provide cover but sites shaded by taller shrubs and trees are avoided. Water Voles also require steep, vegetated earth or clay banks in which to make their burrows.

Most important factors affecting species

- Riverside work and flood alleviation schemes.
- Intensive land use, including both arable farming and pasture with high stocking rates, adjacent to water courses
- Predation by American Mink.
- Pollution.
- Fragmentation of the population.

14. White-Clawed Crayfish

Action plan objectives

- Maintain the present distribution of White-clawed Crayfish

Introduction

White-clawed Crayfish *Austropotamobius pallipes* is the only species of freshwater crayfish which is native to the UK. It has a wide distribution in the British Isles across lowland England and Wales and in central Ireland, mainly in areas with relatively hard, alkaline water. It occupies a range of habitats, including streams, rivers, lakes, reservoirs and water-filled quarries, with a preference for streams and rivers without too much sediment and with adequate shelter. In Leicestershire, in the Trent catchment, crayfish are found in the headwaters of the Soar and in several of its tributaries, including the Wreake (River Eye SSSI), Twyford Brook, Rothley Brook and particularly the Charnwood streams. They are also present in the (Coalville) Sence and the Sence Brook. There are still-water populations at Nanpantan and Blackbrook Reservoirs, and in flooded quarries at Stoney Cove and Markfield. In the Environment Agency Anglian Region, there are crayfish populations in the Welland, Chater and Gwash.

Key habitats

The White-clawed Crayfish will benefit from implementation of the Fast-flowing Streams and Eutrophic Standing Water Habitat Action Plans which cover streams, rivers, lakes and reservoirs favoured by this species.

Most important factors affecting species

- Crayfish plague, a disease caused by the fungus *Aphanomyces astaci* which is carried by some North American crayfish including the Signal Crayfish *Pacifastacus leniusculus*.
- Direct competition for food and habitat from non-native crayfish; three non-native crayfish species are now breeding in the wild, and two of these occur in Leicestershire and Rutland.
- Habitat modification and management of waterbodies.
- Pollution, particularly pesticides and sewage.

15. Wood Vetch

Action plan objectives

- No further loss of Wood Vetch from known sites

Introduction

The Wood Vetch *Vicia sylvatica* is a widespread but localised species in Britain and Ireland, occurring in open woods and wood borders, scree, scrub, maritime cliffs and shingle. It is rare and declining in the East Midlands. For example, a severe decline has been noted in Lincolnshire due to the planting of conifers in deciduous woodlands, and the plant is now confined to just three sites in that county. Recorded from 11 sites in Leicestershire and Rutland, this plant has been seen recently at Hallaton Wood, in newly felled and planted woodland, and in scrub at Clipsham Old Quarry. It could still occur at Loddington Reddish, Tugby Bushes and Tugby Wood, from where it was last recorded in the 1970s.

Key habitats

Wood Vetch appears to respond to light in woodland and scrub, and shows a strong association with ancient woodland sites (the Clipsham population may originally have colonised from the adjacent Pickworth Great Wood). It will benefit from a number of the actions proposed in the Broadleaved woodland habitat plan.

Most important factors affecting species

- Cessation of traditional coppice woodland management, leading to heavy shading of the herb layer.
- Reduced ride management, also leading to shading.
- Planting of trees producing heavy shade, as has happened at Hallaton Wood.
- Conflict of management objectives resulting in excessive scrub removal at Clipsham Quarry.

16. Swifts, Swallows and House Martins

Action plan objectives

- Develop guidance on swifts, swallows and house martins for inclusion in Supplementary Planning Guidance, and improve awareness of conservation issues amongst planners, householders and developers.

- Encourage recording and collecting of data, and maintain database of sites.

- Encourage provision of nesting boxes and opportunities in new/renovated building projects

Introduction

Swift (*Apus apus*) are supremely adapted to flying and flying at speed, feeding, sleeping and even mating while in the air. They are not related to swallows or house martins but many of their habits and reliance on man-made structures are similar. They depend almost exclusively on man-made sites such as houses, typically high up under the eaves, in ventilators and other available cavities. The birds arrive in early May and depart for Africa in early August, usually nesting in colonies. Swifts pair for life and are likely to return to the same nest sites year after year. Nestlings will also return to the vicinity where they were reared. Thus, where there are swifts nesting, it is likely to be a local population with links to that locality going back many years. Swifts will use old and new buildings.

Swallows (*Hirundo rustica*) sometimes use natural nest sites, such as caves and cliffs, but more often use man-made structures allowing them to become more widespread. Swallows return to nesting sites in April and May, normally raise two or maybe even three broods depending on the weather. Swallows leave in September and October, sometimes travelling in flocks, over-wintering in South Africa, feeding on the way. This makes them vulnerable to food shortages on their migration routes. Nests are normally built inside a building, on a beam or ledge and they are often not much higher than head height. They require cover above the nest, keeping it dry and relatively secure, and prefer farm buildings, particularly close to stock as this ensures a plentiful supply of insects close to the nest, but have been recorded using a wide range of different sites including mine shafts, under bridges and even within construction sites. Single nests are common but swallows often breed in small colonies of four or five pairs.

House martins (*Delichon urbicum*) are summer visitors to the British Isles, spending the winter in tropical Africa. Traditionally, house martins used overhanging cliffs and rock ledges on which to build nests, but house eaves mimic this habitat adequately and are more widespread.
House martins tend to breed in colonies and whilst they are not so loyal to particular nest sites as are swallows, nevertheless many do return year after year. Their nesting period is slightly longer than either swifts or swallows and the third brood can still be in the nest in mid-September. This is important when considering when to undertake work which may cause disturbance to the birds.

All three species are still relatively common in Leicester, Leicestershire and Rutland, but are in decline.

Key habitats

Buildings, including industrial buildings, warehouses, former mill buildings and office buildings; farm buildings and houses; also bridges and other structures.

Most important factors affecting species

There has been a moderate (25-49%) decline in UK breeding population of all 3 species over last 25 years.

Modern building methods, changes in building regulations and better maintenance of properties all contribute to excluding these species from their usual nesting places in roofs.

Little is known at present about all the factors contributing to the decline in UK breeding swifts, swallows and house martins. It is possible that fewer birds are surviving to return to the UK each year.