



## **The Trent Valley Biodiversity Opportunity Mapping Project (DRAFT)**



**July 2013**

# The Trent Valley Biodiversity Opportunity Mapping Project

## **1. Aim of the Project**

The aim of this Project was to produce a Biodiversity Opportunity Map (BOM) for the Trent Valley between Nottingham and Gainsborough. This work was carried out specifically to support delivery within the Trent Vale Landscape Partnership Scheme area, and the Nottinghamshire Minerals Local Plan, but also to help underpin the wider work of the Nottinghamshire Biodiversity Action Group (BAG), Nottinghamshire's Local Biodiversity Action Plan (LBAP) partnership.

## **2. Background and context to the Project**

In 2008 the BAG resolved to produce a Biodiversity Opportunity Map for the County, in order to:

- Help us have a better understanding of the current distribution of biodiversity in the County
- Provide a spatial vision for how partners want the biodiversity of the County to look in the long and medium term
- Identify the most effective way to re-create habitat networks at a landscape-scale
- Help to focus partners' resources on optimising biodiversity gain
- Help to deliver our contribution to the England Biodiversity Strategy, such as for monitoring and reporting, and target-setting for habitats and species
- Inform spatial planning, including the delivery of Green Infrastructure
- Inform agri-environment targeting
- Underpin Biodiversity Offsetting
- Guide the work of the Local Nature Partnership and Local Enterprise Partnership
- Inform a wide range of other strategies, such as for climate change and ecosystem services
- Provide a robust case for developing funding bids
- Influence policy makers, landowners and land managers

Initially, the BAG intended to adapt the Regional BOM (which was under development at the time) into a County model, but over the next two years it became clear that for technical reasons this was not possible, so partners resolved to develop our own model that would best suit our needs in Nottinghamshire and would draw widely on best practice from around the UK. The availability of funds to progress the work was, however, a seriously limiting factor, particularly as the County Phase 1 mapping was only available as a hard copy and has never been digitised (due to cost).

A task and finish group of the BAG was established - the BOM Working Group (see Appendix 1) - to determine the best approach on behalf of partners, and after reviewing several models from other Counties, a decision was made in 2012 to utilise the Habitat Network Model developed in the National Forest, as this was most closely correlated to what we aimed to achieve and could be run on the computer software (MapInfo) available to the partners. The National Forest Company team was willing to share both their Habitat Network Model and their considerable staff expertise, having developed their model in-house.

The opportunity then arose to bid for funds from various sources to begin the BOM process on discrete parts of the county, namely Sherwood (funded by Natural England), and subsequently two sections of the Trent Valley – the Trent Vale between Newark and Gainsborough (funded by the Trent Vale Landscape Partnership Scheme), and the area between Nottingham and Newark (funded by the Minerals and Waste Team at Nottinghamshire County Council). Additional funding has recently been secured from the Environment Agency to complete the Trent Valley mapping from Nottingham upstream to the Derbyshire boundary. This report provides the combined results of the two BOM exercises so far completed in the Trent Valley, but it is envisaged that once the final section of mapping has been completed, a single BOM will be produced covering the whole of the Trent Valley through Nottinghamshire.

### **3. Methodology**

The following methodology has been used in undertaking the BOM process, which has been agreed by the BOM Working Group and the BAG:

- Geo-rectification of 1997-8 Phase 1 habitat map image files within MapInfo
- Digitisation of the Phase 1 habitat maps using MapInfo
- Updating of the Phase 1 habitat maps using aerial photography interpretation (2007 and 2009 flights), BAG LBAP habitat mapping data, and latest Local Wildlife Site knowledge from the Nottinghamshire Biological and Geological records Centre (NBGRC)
- Assigning relevant habitats to one of the four broad habitat types - woodland, acid grassland and heathland, other grassland, and wetland (see Appendix 2 for details of which habitats make up the four broad habitat types)
- Data cleaning within MapInfo to ensure that there were no gaps or overlaps in the mapped data
- Running of the Habitat Network Modelling (see below for further details of the model)
- Stakeholder workshops to annotate the Habitat Network maps (see below) based on the four broad habitat types (woodland, acid grassland and heathland, other grassland, and wetland)
- Collation and digitisation of the workshop outputs to produce Biodiversity Opportunity Maps for the four broad habitat types

- Production of draft report for comment
- Amendment of Biodiversity Opportunity Maps following feedback and production of final report

#### **4. *The Habitat Network Model***

The Habitat Network Model developed by the National Forest Company is based on the permeability of different habitats to the movement of species. It uses a generic 'focal' species to represent each of the four habitat networks (i.e. woodland, acid grassland and heathland, other grassland, and wetland), and every Phase 1 habitat that is mapped is assigned a permeability value for each of the four generic species. The permeability values are based on the work of Roger Catchpole at Natural England and have been slightly modified to reflect Nottinghamshire circumstances (see Appendix 3).

The Model then uses "least cost analysis" to calculate how far the focal species can move from its core habitat, with species moving further through more permeable habitats than through less permeable ones; for example, the woodland focal species can move well through habitats that are similar to woodland, such as scrub, but not through habitats which are very different to woodland, such as arable farmland or grassland. Therefore, core habitats that are surrounded by more permeable habitats will allow for stronger networks than those separated by impermeable ones. Where areas of core habitat become linked, these are referred to as Habitat Networks. To assist in the interpretation of this data, Habitat Networks have been placed into different categories depending on their size (which is the size of the Habitat Network, not the size of the core habitat contained within the Habitat Network), so that large Habitat Networks (containing areas of well connected habitats) can be distinguished from small Habitat Networks (representing isolated and fragmented areas of habitat).

#### **5. *Workshops***

Stakeholder workshops were held on 17<sup>th</sup> April 2013 (Trent Vale area) and 21<sup>st</sup> June 2013 (Nottingham to Newark area). Appendix 4 provides a list of attendees at the two workshops.

During the workshops, participants were asked to annotate the Habitat Network maps for each of the four broad habitat types, for two timescales – a long term 50 year period, and a shorter term 10 year period. They were asked to resist the temptation to necessarily link together all the Habitat Networks, and to think about the size and scale of habitats to be created, and where these might be best located within the landscape. Participants were also asked to follow the principles set out in 'Making Space for Nature' – Better, Bigger, More, Connected, using the following definitions:

- Better:** *Areas of existing, but degraded habitat, which need their condition improved*, e.g. scrubby heathland or mixed woodland with a high proportion of non-natives. This particularly relates to those sites that are in (very) poor condition.
- Bigger:** *Areas onto which existing habitat can be expanded*, e.g. adjacent areas of conifer plantation or arable land, which help make existing areas larger and also buffer them from other land uses. For the purposes of this workshop, an arbitrary limit will be used whereby 'bigger' can be up to doubling of the site (after which time it becomes 'more').
- More:** *New areas of habitat to increase the overall resource* - e.g. creation of new heathland or woodland on arable land, in areas that do not abut existing habitat that can be made 'bigger' (or where the size of an existing site is more than doubled).
- Connected:** *Enhancing existing, and creating new, connections between existing/planned areas of habitat*, either through continuous corridors or by using stepping stones, so that currently isolated habitat blocks are linked up. Obviously 'bigger' and 'more' may result in the creation of new connections anyway, and 'better' may result in the enhancement of existing connections, so this relates particularly to things like narrow, linear linking strips of habitat (along road verges or disused railway lines) or very small patches of habitat that will act as stepping stones which on their own don't deliver substantial areas of new habitat.

A range of other data was available to workshop participants to help assist in determining where activities to best deliver these principles should be located. This was:

- Phase 1 habitat maps
- Statutorily designated site boundaries (Sites of Special Scientific Interest)
- Locally designated site boundaries (Local Wildlife Sites, known locally as Sites of Importance for Nature Conservation, and Local Nature Reserves)
- Underlying geology (bedrock layer and superficial deposits)
- Zone 2 and Zone 3 flood maps
- Agricultural Land Classification
- Environmental Stewardship and English Woodland Grant Scheme agreements
- Species data (limited to riparian mammals)
- Land owned by BAG partners (Nottinghamshire Wildlife Trust, Royal Society for the Protection of Birds, Forestry Commission and Nottinghamshire County Council)

- Landscape-scale priority areas for partners (the Wildlife Trust's Living Landscapes and the RSPB's Futurescapes boundaries)
- Heathland Extent and Potential (HEaP) maps
- Wetland Vision map (for reedbed and floodplain grazing marsh)

## **6. Outputs of the Project**

The Trent Valley BOM Project has three mapping outputs:

- a) "*The Basemap*" (Appendix 5), which shows all habitats across 522 sq km within the project area, based on the digitised 1997-8 Phase 1 survey, updated with reference to aerial photography, the BAG's LBAP habitat mapping data, and knowledge of Local Wildlife Sites from the NBGRC.
- b) "*The Habitat Network Maps*" (Appendix 6), which have been produced in MapInfo using the National Forest's Habitat Network Model, for each of the four broad habitat types (woodland, acid grassland and heathland, other grasslands and wetland).
- c) The "*Biodiversity Opportunity Maps*" (see Maps section), which incorporate (i) the "Long Term 50 Year Opportunities" and (ii) the "*Short Term 10 Year Opportunities*". The former are BAG partners' shared vision and aspirations for what might be achieved over a 50 year time frame, based on the assumptions of a sympathetic funding and planning climate and guided by the current distribution of habitats and their potential for extension based primarily on geology, soils and hydrology. This map also includes details of the longer-term landscape scale visions and targets of BAG partners where they are already in place, but is moderated by immutable constraints such as large settlements and roads. The latter, which overlay the Long Term 50 Year Opportunities, show shorter-term aspirations based upon current or proposed projects and known constraints such as substantial approved development sites, new planned infrastructure and areas of highest value farmland. Each area on the maps is numbered, with a description of the opportunity contained in Appendix 7.

## **7. What the BOM shows**

The following conclusions have been drawn following the workshops and the production of the Biodiversity Opportunity Maps:

### *i. Priority habitats*

Perhaps unsurprisingly, the BOM maps indicate that wetland habitats are considered to be the habitats which should be subject to most activity, with considerable

opportunities identified for the re-creation of extensive areas of reedbed and wet grassland within the Trent Valley.

However, there are also opportunities for action on the other three broad habitat types. Woodland within the Trent Valley is rather limited, but concentrations do occur, especially towards the north of the area, and along the steep bluff between East Bridgford and Syerston airfield. The creation of wet woodland elsewhere is considered to be an opportunity.

Areas of grassland occur especially on the western side of the Trent Valley, and there are opportunities to improve, extend and link these. However, many grassland sites are small and isolated, and opportunities to significantly extend or link such sites are likely to be limited.

Acid grassland and heathland habitat is limited in its distribution within the Trent Valley, centred on an area east of the River Trent around Besthorpe and Spalford and Stapleford Woods/Turfmoor. Opportunities relating to these habitats are the most limited, constrained by the presence of areas of wind-blown sand in this small area only, but underlines their local importance.

#### *ii. Focal Areas*

The BOM maps show that there are several areas where existing habitats and associated opportunities are concentrated, referred to as 'Focal Areas'. The input of the participants at the workshops has shown that there are substantial opportunities in both the short and long term to expand these habitats, to buffer them and to link them up to create a stronger habitat network across a landscape scale. These Focal Areas are:

1. Stoke Bardolph to Gunthorpe/East Bridgford
2. East Stoke/Fiskerton/Rolleston
3. The area covering Langford Lowfields, Collingham and Besthorpe/Salford, and Girton gravel pits
4. The area south and west of Gainsborough

#### *iii. Wider Landscape*

It is significant that the BOM identifies a large number of smaller habitat cluster areas, scattered throughout the Trent Valley, but also appears to indicate that there are large parts of the Trent Valley where there are no opportunities. However, in these areas, opportunities do exist: improved hedgerow networks and shelterbelts can be used to improve linkages between woodlands; grassland strips around fields and along roads can help link up isolated grassland sites, and the improved management of ditches and other watercourses can link up wetland sites. Although not specifically picked out in the BOM, such opportunities can be delivered through

things like agri-environment schemes. It should also be noted that the BOM picks out the River Trent itself as a key feature which can be used to improve connectivity along the whole Trent Valley.

#### *iv. Conflicts*

It is evident that some areas are appropriate for the creation of more than one type of habitat. In such instances, it may be possible to incorporate both (or all) habitats into a single location through careful planning. Alternatively, it may be that one habitat is deemed to be more important than another. Such instances should be looked at on a case-by-case basis as and when opportunities arrive, with the help of specialist ecological input.

### **8. Next steps**

A further round of consultation with stakeholders will take place to refine the draft BOM maps further and to agree the conclusions and priorities that have emerged from the mapping. Once these refinements have taken place, a final report will be produced and circulated to all relevant parties.

### **9. Maps**

Map 1 – Woodland Biodiversity Opportunity Map (north)

Map 2 – Woodland Biodiversity Opportunity Map (south)

Map 3 – Acid grassland and heathland Biodiversity Opportunity Map (north)

Map 4 – Acid grassland and heathland Biodiversity Opportunity Map (south)

Map 5 – Grassland Biodiversity Opportunity Map (north)

Map 6 – Grassland Biodiversity Opportunity Map (south)

Map 7 – Wetland Biodiversity Opportunity Map (north)

Map 8 – Wetland Biodiversity Opportunity Map (south)

# Biodiversity Opportunity Mapping in the Trent Valley (North)

## Woodland Workshop Results

### WOODLAND Short Term ( 5 - 10 yrs )

- More
- Better
- Connected
- Bigger

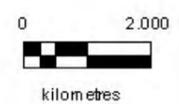
### Long Term ( 50 yrs )

- More
- Better
- Connected
- Bigger

- Existing Woodland



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# Biodiversity Opportunity Mapping in the Trent Valley (South)

## Woodland Workshop Results

### WOODLAND

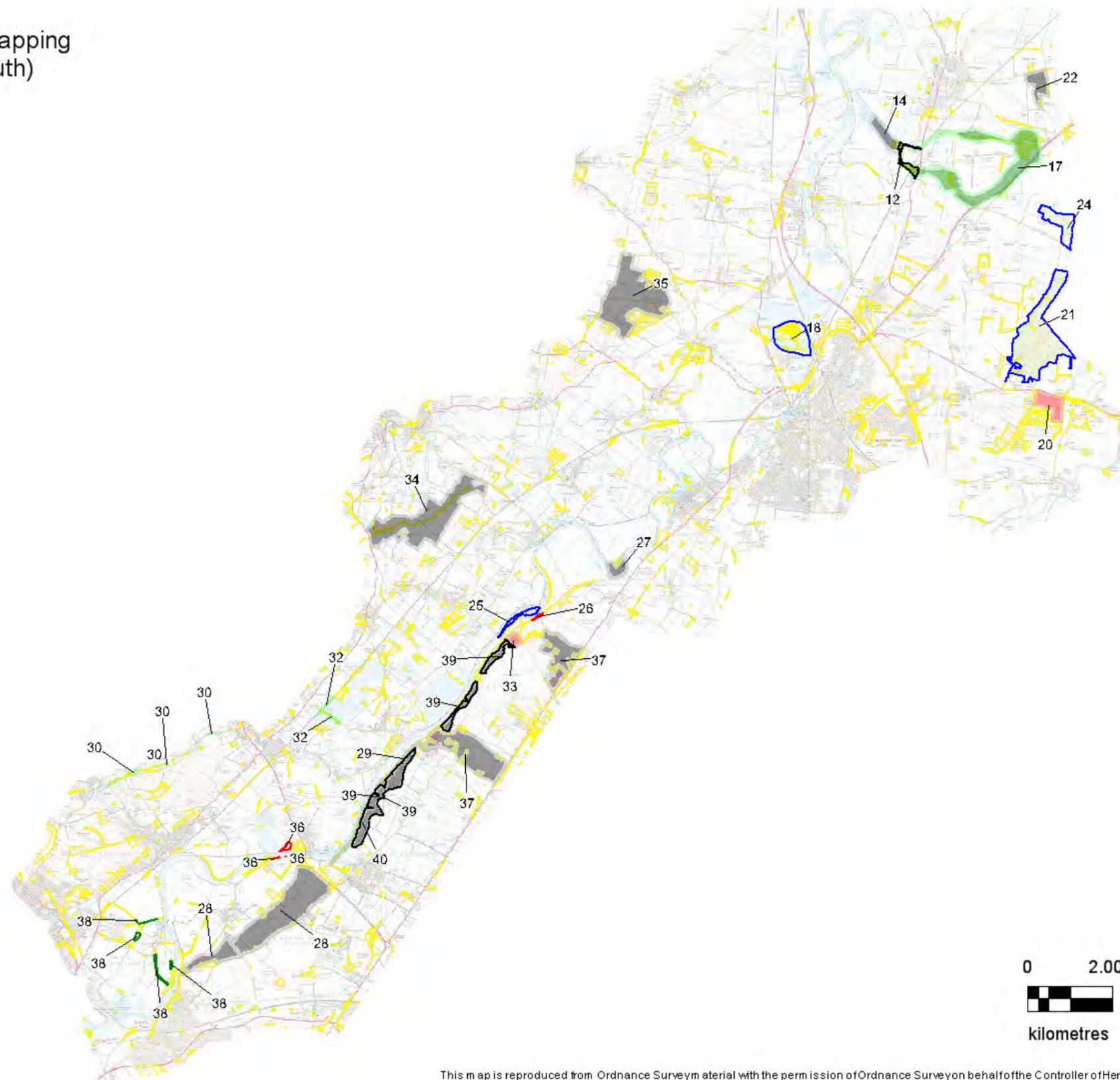
#### Short Term ( 5 - 10 yrs )

- More
- Better
- Connected
- Bigger

#### Long Term ( 50 yrs )

- More
- Better
- Connected
- Bigger

- Existing Woodland



07/2013

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# Biodiversity Opportunity Mapping in the Trent Valley (North)

## Heathland & Acid Grassland Workshop Results

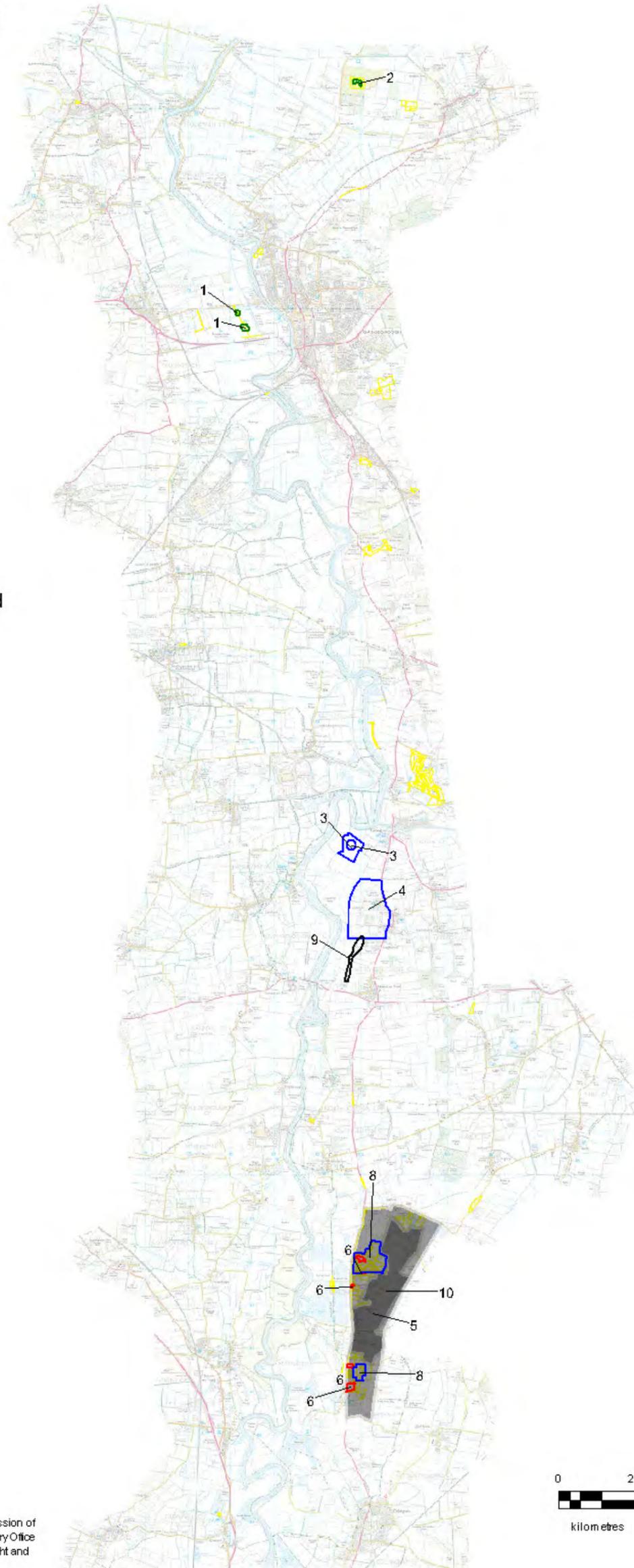
### HEATHLAND & ACID GRASSLAND Short Term ( 5 - 10 yrs )

- More
- Better
- Connected
- Bigger

### Long Term ( 50 yrs )

- More
- Better
- Connected
- Bigger

- Existing Heathland & Acid Grassland



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kilometres

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# Biodiversity Opportunity Mapping in the Trent Valley (South)

## Heathland & Acid Grassland Workshop Results

### HEATHLAND & ACID GRASSLAND

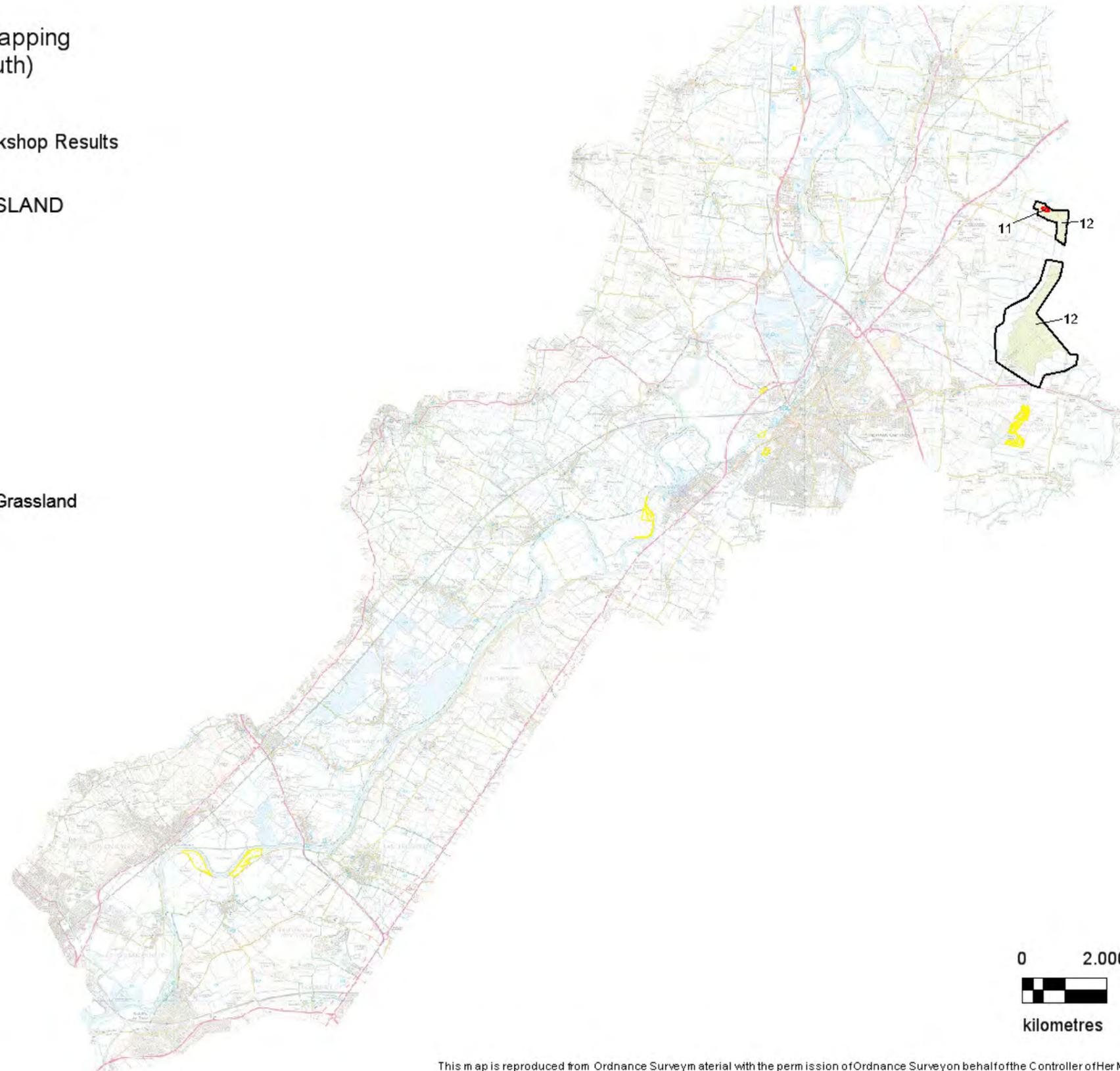
#### Short Term ( 5 - 10 yrs )

- More
- Better
- Connected
- Bigger

#### Long Term ( 50 yrs )

- More
- Better
- Connected
- Bigger

- Existing Heathland & Acid Grassland



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# Biodiversity Opportunity Mapping in the Trent Valley (North)

## Grassland Workshop Results

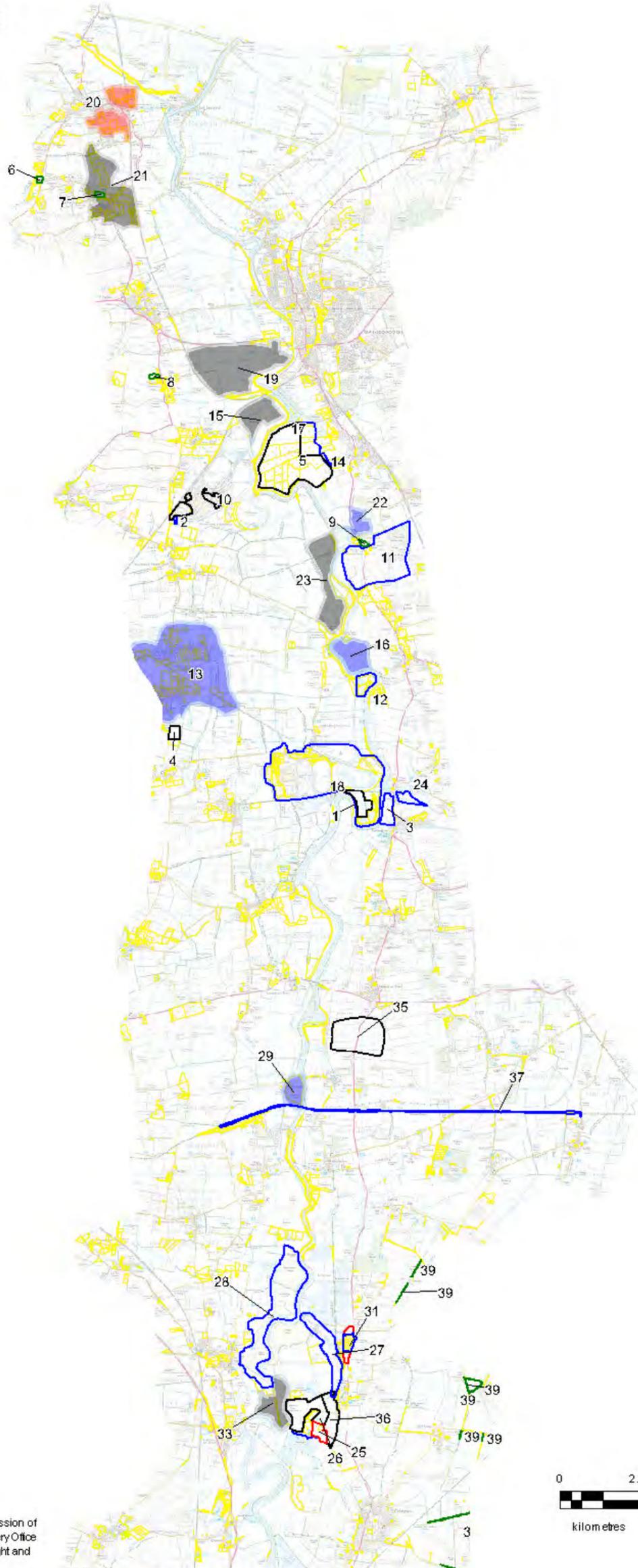
**GRASSLAND**  
Short Term ( 5 - 10 yrs )

- More
- Better
- Connected
- Bigger

Long Term ( 50 yrs )

- More
- Better
- Connected
- Bigger

Existing Grassland



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# Biodiversity Opportunity Mapping in the Trent Valley (South)

## Grassland Workshop Results

### GRASSLAND

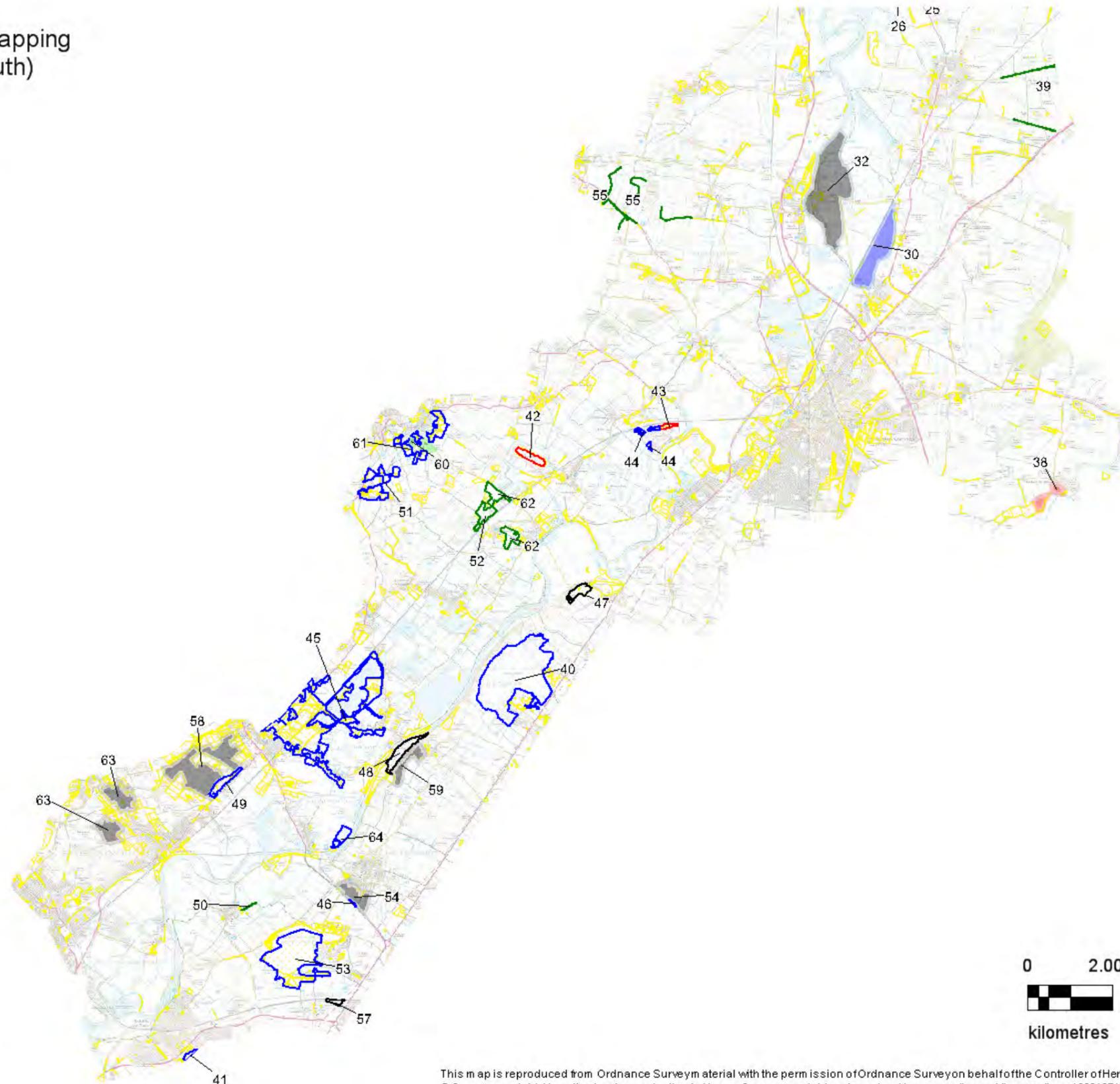
#### Short Term ( 5 - 10 yrs )

-  More
-  Better
-  Connected
-  Bigger

#### Long Term ( 50 yrs )

-  More
-  Better
-  Connected
-  Bigger

-  Existing Grassland



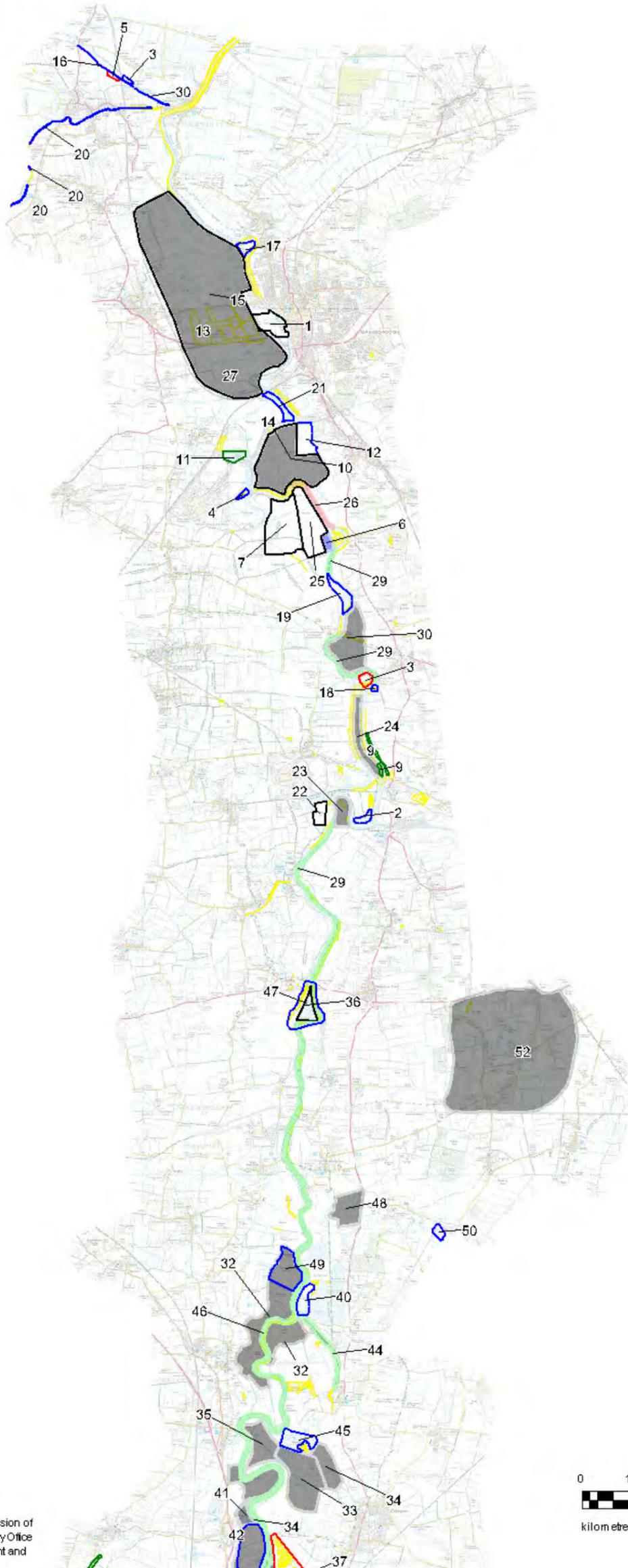
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# Biodiversity Opportunity Mapping in the Trent Valley (North)

## Wetland Workshop Results

- WETLAND**
- Short Term ( 5 - 10 yrs )**
- More
  - Better
  - Connected
  - Bigger
- Long Term ( 50 yrs )**
- More
  - Better
  - Connected
  - Bigger
- Existing Wetland



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# Biodiversity Opportunity Mapping in the Trent Valley (South)

## Wetland Workshop Results

### WETLAND

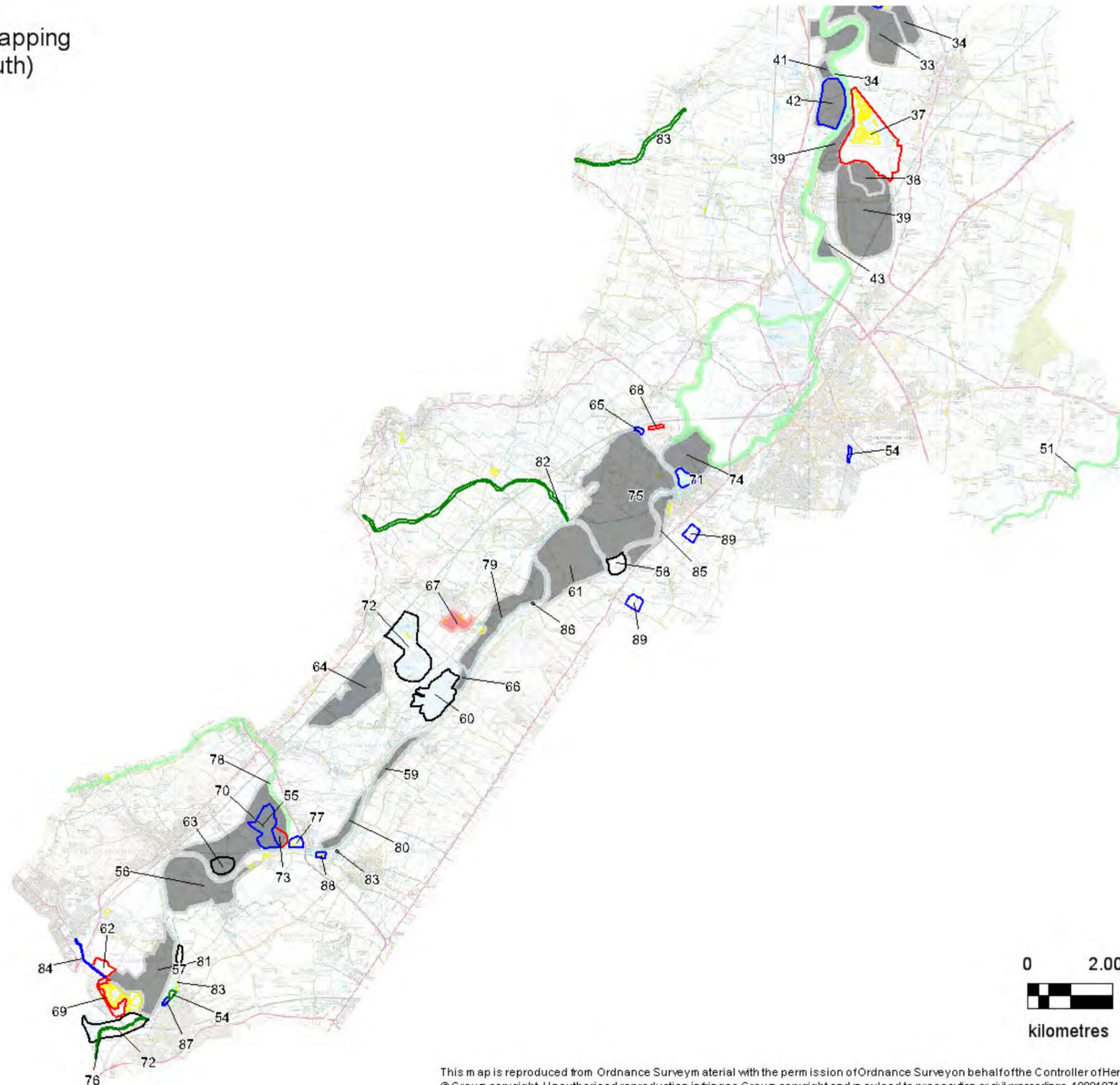
#### Short Term ( 5 - 10 yrs )

- More
- Better
- Connected
- Bigger

#### Long Term ( 50 yrs )

- More
- Better
- Connected
- Bigger

- Existing Wetland



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## **Appendix 1 - BOM Working Group**

Nottinghamshire County Council  
Nottinghamshire Wildlife Trust  
Nottinghamshire Biological and Geological Records Centre  
Environment Agency  
Royal Society for the Protection of Birds  
The National Forest Company

## Appendix 2 - Composition of broad habitat types

The following table indicates the phase 1 habitats that form the four broad habitat types.

<b>Broad habitat type - WOODLAND</b>	
PBW	Broadleaved woodland - plantation
BW	Broadleaved woodland - semi-natural
PMW	Mixed woodland - plantation
MW	Mixed woodland - semi-natural
<b>Broad habitat type - HEATHLAND &amp; ACID GRASSLAND</b>	
SAG	Acid grassland - semi-improved
AG	Acid grassland - unimproved
ADH	Dry dwarf shrub heath - acid
BDH	Dry dwarf shrub heath - basic
DGM	Dry heath/acid grassland mosaic
WH	Wet dwarf shrub heath
WGM	Wet heath/acid grassland mosaic
<b>Broad habitat type – OTHER GRASSLAND</b>	
SCG	Calcareous grassland - semi-improved
CG	Calcareous grassland - unimproved
SNG	Neutral grassland - semi-improved
NG	Neutral grassland - unimproved
SBW	Parkland and scattered trees - broadleaved
Orchard	Parkland and scattered trees - broadleaved
SCW	Parkland and scattered trees - coniferous
SMW	Parkland and scattered trees - mixed
<b>Broad habitat type - WETLAND</b>	
BB	Blanket bog
DB	Dry modified bog
BM	Fen - basin mire
FPM	Fen - flood plain mire
VM	Fen - valley mire
AF	Flush and spring - acid/neutral flush
BF	Flush and spring - basic flush
IV	Marginal/inundation - inundation
MV	Marginal/inundation - marginal
MG	Marsh/marshy grassland
RB	Raised bog
Reedbed	Reedbed
SP	Swamp
WB	Wet modified bog

### Appendix 3 - Permeability values

The following four tables provide a list of Phase 1 habitats and the permeability scores assigned to each of these Phase 1 habitats. The four tables correspond to one of the four broad habitat types (woodland, acid grassland and heathland, other grassland and wetland), and the permeability scores listed indicate how permeable each Phase 1 habitat is to the relevant generic 'focal' species associated with the broad habitat type in question.

The permeability score given for each Phase 1 habitat falls between 1 and 50. A score of 1 indicates that the habitat is a core/source habitat for the broad habitat type. A low score above 1 indicates a habitat that is very permeable to the generic focal species associated with the broad habitat type in question, whilst a score of 50 indicates that the habitat is very impermeable for that focal species.

The final column in each table indicates the source of the information. Where the source is given as JNCC the information has come directly from work by Natural England (Catchpole 2010). Where the source is given as NFC the information has come from the habitat network modelling work undertaken by the National Forest Company. The data from NFC principally relates to a variety of urban habitats not listed in the Phase 1 habitat survey handbook, such as roads, tracks, buildings, airports, railways, suburbs, gardens etc. The exception to this is orchards for which a permeability value has been given based on a similar Phase 1 habitat type (in this case parkland/scattered trees).

In addition, some of the permeability scores devised by Catchpole have been altered to best serve local biodiversity conditions, and some additional habitats have been added to the list of habitats and assigned a permeability score based on similarly structured/functioning habitats. In this case the source of the data is given as NCC. These local amendments are highlighted below:

- The BOM working group agreed that acid grassland and heathland should be dealt with in the same broad habitat group. Nationally, acid grassland is dealt with in the same broad habitat group as 'other grassland' types. As a result of this change acid grassland has had its permeability score altered to reflect this change. Within the broad habitat of 'Other Grassland' the permeability score has been altered to 2 (rather than 1) and within the broad habitat of heathland and acid grassland it has had its permeability score given a value of 1 (to ensure that it is picked up as core/source habitat within this broad habitat type).
- To reflect the importance of Open Mosaic Habitat on Previously Developed Land in Nottinghamshire this habitat has been assigned its own Phase 1 habitat code. The permeability scores have been based on similar open habitat types.
- To identify the importance of Reedbed restoration work within Nottinghamshire this habitat was assigned its own Phase 1 habitat code. The permeability scores have been based on similar habitat types.

## Reference

Catchpole, R. (2010) England Habitat Network (EHN 2.0) – Metadata. *Natural England*

# GRASSLAND

GRASSLAND			
Phase 1 Code	Phase 1 Habitat Name	Grassland Cost	Definition Source
ROAD	A or B road	50	NFC
SAG	Acid grassland - semi-improved	2	NCC
AG	Acid grassland - unimproved	2	NCC
RUNWAY	Airport runway	50	NFC
BG	Bare ground	20	JNCC
P	Bare peat	5	JNCC
BB	Blanket bog	20	JNCC
X	Boundary removed	0	JNCC
CB	Bracken - continuous	10	JNCC
SB	Bracken - scattered	10	JNCC
PBW	Broadleaved woodland - plantation	20	JNCC
BW	Broadleaved woodland - semi-natural	20	JNCC
BUILD	Buildings	20	NFC
Building	Buildings	20	NFC
Buildings	Buildings	20	NFC
SCG	Calcareous grassland - semi-improved	1	JNCC
CG	Calcareous grassland - unimproved	1	JNCC
CS	Caravan site	0	JNCC
CA	Cave	50	JNCC
PCW	Coniferous woodland - plantation	20	JNCC
CW	Coniferous woodland - semi-natural	20	JNCC
AM	Cultivated/disturbed land - amenity grassland	50	JNCC
A	Cultivated/disturbed land - arable	50	JNCC
ESP	Cultivated/disturbed land - ephemeral/short perennial	5	JNCC
DD	Dry ditch	0	JNCC
ADH	Dry dwarf shrub heath - acid	10	JNCC
BDH	Dry dwarf shrub heath - basic	10	JNCC
DGM	Dry heath/acid grassland mosaic	2	JNCC
DB	Dry modified bog	20	JNCC
EB	Earth bank	0	JNCC
BM	Fen - basin mire	5	JNCC
FPM	Fen - flood plain mire	5	JNCC
VM	Fen - valley mire	5	JNCC
F	Fence	0	JNCC
AF	Flush and spring - acid/neutral flush	5	JNCC
BF	Flush and spring - basic flush	5	JNCC
PH-	Hedges - defunct - species-poor	20	JNCC
RH-	Hedges - defunct - species-rich	20	JNCC
PH	Hedges - intact - species-poor	20	JNCC
RH	Hedges - intact - species-rich	20	JNCC
PHT	Hedges - with trees - species-poor	20	JNCC
RHT	Hedges - with trees - species-rich	20	JNCC
I	Improved grassland	50	JNCC
AC	Inland cliff - acid/neutral	50	JNCC
BC	Inland cliff - basic	50	JNCC
IS	Introduced shrub	20	JNCC
LH	Lichen/bryophyte heath	15	JNCC
LP	Limestone pavement	50	JNCC
IV	Marginal/inundation - inundation	20	JNCC
MV	Marginal/inundation - marginal	20	JNCC
MG	Marsh/marshy grassland	5	JNCC
MI	Mine	20	JNCC
PMW	Mixed woodland - plantation	20	JNCC
MW	Mixed woodland - semi-natural	20	JNCC
MH	Montane heath/dwarf herb	15	JNCC
MWAY	Motorway or major dual carriageway	50	NFC
SNG	Neutral grassland - semi-improved	1	JNCC
NG	Neutral grassland - unimproved	1	JNCC
NR	Non-ruderal	10	JNCC
OMHOPDL	Open Mosaic Habitat	5	NCC
AR	Other exposure - acid/neutral	50	JNCC
BR	Other exposure - basic	50	JNCC
SBW	Parkland and scattered trees - broadleaved	1	JNCC
Orchard	Parkland and scattered trees - broadleaved	1	NFC
SCW	Parkland and scattered trees - coniferous	1	JNCC
SMW	Parkland and scattered trees - mixed	1	JNCC
SI	Poor semi-improved grassland	2	JNCC
Q	Quarry	50	JNCC
RAIL	Railway line	50	NFC
RB	Raised bog	20	JNCC
FB	Recently felled woodland - broadleaved	20	JNCC
FC	Recently felled woodland - coniferous	20	JNCC
FM	Recently felled woodland - mixed	20	JNCC
Reedbed	Reedbed	20	NCC
R	Refuse tip	20	JNCC
RW	Running water	50	JNCC
RWB	Running water - brackish	50	JNCC
RWD	Running water - dystrophic	50	JNCC
RWE	Running water - eutrophic	50	JNCC
RWC	Running water - marl	50	JNCC
RWM	Running water - mesotrophic	50	JNCC
RWO	Running water - oligotrophic	50	JNCC
AS	Scree - acid/neutral	50	JNCC
BS	Scree - basic	50	JNCC
DS	Scrub - dense/continuous	20	JNCC
SS	Scrub - scattered	20	JNCC
SWALL	Sea wall	0	JNCC
S	Spoil	20	JNCC
SW	Standing water	50	JNCC
SWB	Standing water - brackish	50	JNCC
SWD	Standing water - dystrophic	50	JNCC
SWE	Standing water - eutrophic	50	JNCC
SWC	Standing water - marl	50	JNCC
SWM	Standing water - mesotrophic	50	JNCC
SWO	Standing water - oligotrophic	50	JNCC
SUBURB	Suburban/rural development	10	NFC
Gardens	Suburban/rural development	10	NFC
Paved	Suburban/rural development	50	NFC
SP	Swamp	20	JNCC
TR	Tall ruderal	10	JNCC
TRACK	Track or minor access road	50	NFC
Path	Track or minor access road	50	NFC
?	Unknown	50	NFC
INDUST	Urban industrial development	30	NFC
URBAN	Urban residential/commercial development	20	NFC
W	Wall	0	JNCC
WH	Wet dwarf shrub heath	10	JNCC
WGM	Wet heath/acid grassland mosaic	2	JNCC
WB	Wet modified bog	20	JNCC

# HEATHLAND & ACID GRASSLAND

HEATHLAND & ACID GRASSLAND			
Phase 1 Code	Phase 1 Habitat Name	Heathland & Acid Grassland Cost	Definition Source
ROAD	A or B road	50	NFC
SAG	Acid grassland - semi-improved	1	NCC
AG	Acid grassland - unimproved	1	NCC
RUNWAY	Airport runway	50	NFC
BG	Bare ground	30	JNCC
P	Bare peat	20	JNCC
BB	Blanket bog	3	JNCC
X	Boundary removed	0	JNCC
CB	Bracken - continuous	20	JNCC
SB	Bracken - scattered	20	JNCC
PBW	Broadleaved woodland - plantation	35	JNCC
BW	Broadleaved woodland - semi-natural	35	JNCC
BUILD	Buildings	50	NFC
Building	Buildings	50	NFC
Buildings	Buildings	50	NFC
SCG	Calcareous grassland - semi-improved	50	JNCC
CG	Calcareous grassland - unimproved	40	JNCC
CS	Caravan site	0	JNCC
CA	Cave	50	JNCC
PCW	Coniferous woodland - plantation	20	JNCC
CW	Coniferous woodland - semi-natural	20	JNCC
AM	Cultivated/disturbed land - amenity grassland	50	JNCC
A	Cultivated/disturbed land - arable	50	JNCC
ESP	Cultivated/disturbed land - ephemeral/short perennial	50	JNCC
DD	Dry ditch	0	JNCC
ADH	Dry dwarf shrub heath - acid	1	JNCC
BDH	Dry dwarf shrub heath - basic	1	JNCC
DGM	Dry heath/acid grassland mosaic	1	JNCC
DB	Dry modified bog	3	JNCC
EB	Earth bank	0	JNCC
BM	Fen - basin mire	30	JNCC
FPM	Fen - flood plain mire	30	JNCC
VM	Fen - valley mire	30	JNCC
F	Fence	0	JNCC
AF	Flush and spring - acid/neutral flush	30	JNCC
BF	Flush and spring - basic flush	30	JNCC
PH-	Hedges - defunct - species-poor	10	JNCC
RH-	Hedges - defunct - species-rich	10	JNCC
PH	Hedges - intact - species-poor	10	JNCC
RH	Hedges - intact - species-rich	10	JNCC
PHT	Hedges - with trees - species-poor	10	JNCC
RHT	Hedges - with trees - species-rich	10	JNCC
I	Improved grassland	50	JNCC
AC	Inland cliff - acid/neutral	50	JNCC
BC	Inland cliff - basic	50	JNCC
IS	Introduced shrub	10	JNCC
LH	Lichen/bryophyte heath	10	JNCC
LP	Limestone pavement	50	JNCC
IV	Marginal/inundation - inundation	40	JNCC
MV	Marginal/inundation - marginal	40	JNCC
MG	Marsh/marshy grassland	30	JNCC
MI	Mine	30	JNCC
PMW	Mixed woodland - plantation	35	JNCC
MW	Mixed woodland - semi-natural	35	JNCC
MH	Montane heath/dwarf herb	10	JNCC
MWAY	Motorway or major dual carriageway	50	NFC
SNG	Neutral grassland - semi-improved	30	JNCC
NG	Neutral grassland - unimproved	30	JNCC
NR	Non-ruderal	20	JNCC
OMHOPDL	Open Mosaic Habitat	10	NCC
AR	Other exposure - acid/neutral	50	JNCC
BR	Other exposure - basic	50	JNCC
SBW	Parkland and scattered trees - broadleaved	30	JNCC
Orchard	Parkland and scattered trees - broadleaved	30	NFC
SCW	Parkland and scattered trees - coniferous	30	JNCC
SMW	Parkland and scattered trees - mixed	30	JNCC
SI	Poor semi-improved grassland	30	JNCC
Q	Quarry	50	JNCC
RAIL	Railway line	50	NFC
RB	Raised bog	3	JNCC
FB	Recently felled woodland - broadleaved	10	JNCC
FC	Recently felled woodland - coniferous	10	JNCC
FM	Recently felled woodland - mixed	10	JNCC
Reedbed	Reedbed	40	NCC
R	Refuse tip	30	JNCC
RW	Running water	50	JNCC
RWB	Running water - brackish	50	JNCC
RWD	Running water - dystrophic	50	JNCC
RWE	Running water - eutrophic	50	JNCC
RWC	Running water - marl	50	JNCC
RWM	Running water - mesotrophic	50	JNCC
RWO	Running water - oligotrophic	50	JNCC
AS	Scree - acid/neutral	50	JNCC
BS	Scree - basic	50	JNCC
DS	Scrub - dense/continuous	10	JNCC
SS	Scrub - scattered	10	JNCC
SWALL	Sea wall	0	JNCC
S	Spoil	30	JNCC
SW	Standing water	50	JNCC
SWB	Standing water - brackish	50	JNCC
SWD	Standing water - dystrophic	50	JNCC
SWE	Standing water - eutrophic	50	JNCC
SWC	Standing water - marl	50	JNCC
SWM	Standing water - mesotrophic	50	JNCC
SWO	Standing water - oligotrophic	50	JNCC
SUBURB	Suburban/rural development	50	NFC
Gardens	Suburban/rural development	50	NFC
Paved	Suburban/rural development	50	NFC
SP	Swamp	40	JNCC
TR	Tall ruderal	20	JNCC
TRACK	Track or minor access road	50	NFC
Path	Track or minor access road	50	NFC
?	Unknown	50	NFC
INDUST	Urban industrial development	50	NFC
URBAN	Urban residential/commercial development	50	NFC
W	Wall	0	JNCC
WH	Wet dwarf shrub heath	1	JNCC
WGM	Wet heath/acid grassland mosaic	1	JNCC
WB	Wet modified bog	3	JNCC

# WETLAND

WETLAND			
Phase 1 Code	Phase 1 Habitat Name	Wetland Cost	Definition Source
ROAD	A or B road	50	NFC
SAG	Acid grassland - semi-improved	20	NCC
AG	Acid grassland - unimproved	20	NCC
RUNWAY	Airport runway	50	NFC
BG	Bare ground	40	JNCC
P	Bare peat	20	JNCC
BB	Blanket bog	1	JNCC
X	Boundary removed	0	JNCC
CB	Bracken - continuous	30	JNCC
SB	Bracken - scattered	30	JNCC
PBW	Broadleaved woodland - plantation	50	JNCC
BW	Broadleaved woodland - semi-natural	50	JNCC
BUILD	Buildings	50	NFC
Building	Buildings	50	NFC
Buildings	Buildings	50	NFC
SCG	Calcareous grassland - semi-improved	40	JNCC
CG	Calcareous grassland - unimproved	50	JNCC
CS	Caravan site	0	JNCC
CA	Cave	50	JNCC
PCW	Coniferous woodland - plantation	40	JNCC
CW	Coniferous woodland - semi-natural	40	JNCC
AM	Cultivated/disturbed land - amenity grassland	50	JNCC
A	Cultivated/disturbed land - arable	50	JNCC
ESP	Cultivated/disturbed land - ephemeral/short perennial	40	JNCC
DD	Dry ditch	0	JNCC
ADH	Dry dwarf shrub heath - acid	5	JNCC
BDH	Dry dwarf shrub heath - basic	5	JNCC
DGM	Dry heath/acid grassland mosaic	5	JNCC
DB	Dry modified bog	1	JNCC
EB	Earth bank	0	JNCC
BM	Fen - basin mire	1	JNCC
FPM	Fen - flood plain mire	1	JNCC
VM	Fen - valley mire	1	JNCC
F	Fence	0	JNCC
AF	Flush and spring - acid/neutral flush	1	JNCC
BF	Flush and spring - basic flush	1	JNCC
PH-	Hedges - defunct - species-poor	30	JNCC
RH-	Hedges - defunct - species-rich	30	JNCC
PH	Hedges - intact - species-poor	30	JNCC
RH	Hedges - intact - species-rich	30	JNCC
PHT	Hedges - with trees - species-poor	30	JNCC
RHT	Hedges - with trees - species-rich	30	JNCC
I	Improved grassland	50	JNCC
AC	Inland cliff - acid/neutral	50	JNCC
BC	Inland cliff - basic	50	JNCC
IS	Introduced shrub	30	JNCC
LH	Lichen/bryophyte heath	20	JNCC
LP	Limestone pavement	50	JNCC
IV	Marginal/inundation - inundation	1	JNCC
MV	Marginal/inundation - marginal	1	JNCC
MG	Marsh/marshy grassland	1	JNCC
MI	Mine	40	JNCC
PMW	Mixed woodland - plantation	50	JNCC
MW	Mixed woodland - semi-natural	50	JNCC
MH	Montane heath/dwarf herb	20	JNCC
MWAY	Motorway or major dual carriageway	50	NFC
SNG	Neutral grassland - semi-improved	30	JNCC
NG	Neutral grassland - unimproved	20	JNCC
NR	Non-ruderal	30	JNCC
OMHOPDL	Open Mosaic Habitat	20	NCC
AR	Other exposure - acid/neutral	50	JNCC
BR	Other exposure - basic	50	JNCC
SBW	Parkland and scattered trees - broadleaved	30	JNCC
Orchard	Parkland and scattered trees - broadleaved	30	NFC
SCW	Parkland and scattered trees - coniferous	30	JNCC
SMW	Parkland and scattered trees - mixed	30	JNCC
SI	Poor semi-improved grassland	30	JNCC
Q	Quarry	50	JNCC
RAIL	Railway line	50	NFC
RB	Raised bog	1	JNCC
FB	Recently felled woodland - broadleaved	20	JNCC
FC	Recently felled woodland - coniferous	20	JNCC
FM	Recently felled woodland - mixed	20	JNCC
Reedbed	Reedbed	1	NCC
R	Refuse tip	40	JNCC
RW	Running water	20	JNCC
RWB	Running water - brackish	20	JNCC
RWD	Running water - dystrophic	20	JNCC
RWE	Running water - eutrophic	20	JNCC
RWC	Running water - marl	20	JNCC
RWM	Running water - mesotrophic	20	JNCC
RWO	Running water - oligotrophic	20	JNCC
AS	Scree - acid/neutral	50	JNCC
BS	Scree - basic	50	JNCC
DS	Scrub - dense/continuous	30	JNCC
SS	Scrub - scattered	30	JNCC
SWALL	Sea wall	0	JNCC
S	Spoil	40	JNCC
SW	Standing water	20	JNCC
SWB	Standing water - brackish	20	JNCC
SWD	Standing water - dystrophic	20	JNCC
SWE	Standing water - eutrophic	20	JNCC
SWC	Standing water - marl	20	JNCC
SWM	Standing water - mesotrophic	20	JNCC
SWO	Standing water - oligotrophic	20	JNCC
SUBURB	Suburban/rural development	50	NFC
Gardens	Suburban/rural development	50	NFC
Paved	Suburban/rural development	50	NFC
SP	Swamp	1	JNCC
TR	Tall ruderal	30	JNCC
TRACK	Track or minor access road	50	NFC
Path	Track or minor access road	50	NFC
?	Unknown	50	NFC
INDUST	Urban industrial development	50	NFC
URBAN	Urban residential/commercial development	50	NFC
W	Wall	0	JNCC
WH	Wet dwarf shrub heath	5	JNCC
WGM	Wet heath/acid grassland mosaic	5	JNCC
WB	Wet modified bog	1	JNCC

# WOODLAND

WOODLAND			
Phase 1 Code	Phase 1 Habitat Name	Woodland Cost	Definition Source
ROAD	A or B road	50	NFC
SAG	Acid grassland - semi-improved	30	NCC
AG	Acid grassland - unimproved	30	NCC
RUNWAY	Airport runway	50	NFC
BG	Bare ground	40	JNCC
P	Bare peat	25	JNCC
BB	Blanket bog	30	JNCC
X	Boundary removed	0	JNCC
CB	Bracken - continuous	20	JNCC
SB	Bracken - scattered	20	JNCC
PBW	Broadleaved woodland - plantation	1	JNCC
BW	Broadleaved woodland - semi-natural	1	JNCC
BUILD	Buildings	40	NFC
Building	Buildings	40	NFC
Buildings	Buildings	40	NFC
SCG	Calcareous grassland - semi-improved	30	JNCC
CG	Calcareous grassland - unimproved	30	JNCC
CS	Caravan site	0	JNCC
CA	Cave	50	JNCC
PCW	Coniferous woodland - plantation	20	JNCC
CW	Coniferous woodland - semi-natural	20	JNCC
AM	Cultivated/disturbed land - amenity grassland	50	JNCC
A	Cultivated/disturbed land - arable	50	JNCC
ESP	Cultivated/disturbed land - ephemeral/short perennial	40	JNCC
DD	Dry ditch	0	JNCC
ADH	Dry dwarf shrub heath - acid	25	JNCC
BDH	Dry dwarf shrub heath - basic	25	JNCC
DGM	Dry heath/acid grassland mosaic	25	JNCC
DB	Dry modified bog	30	JNCC
EB	Earth bank	0	JNCC
BM	Fen - basin mire	20	JNCC
FPM	Fen - flood plain mire	20	JNCC
VM	Fen - valley mire	20	JNCC
F	Fence	0	JNCC
AF	Flush and spring - acid/neutral flush	20	JNCC
BF	Flush and spring - basic flush	20	JNCC
PH-	Hedges - defunct - species-poor	1	JNCC
RH-	Hedges - defunct - species-rich	1	JNCC
PH	Hedges - intact - species-poor	1	JNCC
RH	Hedges - intact - species-rich	1	JNCC
PHT	Hedges - with trees - species-poor	1	JNCC
RHT	Hedges - with trees - species-rich	1	JNCC
I	Improved grassland	50	JNCC
AC	Inland cliff - acid/neutral	50	JNCC
BC	Inland cliff - basic	50	JNCC
IS	Introduced shrub	1	JNCC
LH	Lichen/bryophyte heath	40	JNCC
LP	Limestone pavement	50	JNCC
IV	Marginal/inundation - inundation	20	JNCC
MV	Marginal/inundation - marginal	20	JNCC
MG	Marsh/marshy grassland	20	JNCC
MI	Mine	40	JNCC
PMW	Mixed woodland - plantation	1	JNCC
MW	Mixed woodland - semi-natural	1	JNCC
MH	Montane heath/dwarf herb	40	JNCC
MWAY	Motorway or major dual carriageway	100	NFC
SNG	Neutral grassland - semi-improved	30	JNCC
NG	Neutral grassland - unimproved	30	JNCC
NR	Non-ruderal	20	JNCC
OMHOPDL	Open Mosaic Habitat	5	NCC
AR	Other exposure - acid/neutral	50	JNCC
BR	Other exposure - basic	50	JNCC
SBW	Parkland and scattered trees - broadleaved	5	JNCC
Orchard	Parkland and scattered trees - broadleaved	5	NFC
SCW	Parkland and scattered trees - coniferous	30	JNCC
SMW	Parkland and scattered trees - mixed	5	JNCC
SI	Poor semi-improved grassland	30	JNCC
Q	Quarry	50	JNCC
RAIL	Railway line	50	NFC
RB	Raised bog	30	JNCC
FB	Recently felled woodland - broadleaved	5	JNCC
FC	Recently felled woodland - coniferous	5	JNCC
FM	Recently felled woodland - mixed	5	JNCC
Reedbed	Reedbed	20	NCC
R	Refuse tip	40	JNCC
RW	Running water	50	JNCC
RWB	Running water - brackish	50	JNCC
RWD	Running water - dystrophic	50	JNCC
RWE	Running water - eutrophic	50	JNCC
RWC	Running water - marl	50	JNCC
RWM	Running water - mesotrophic	50	JNCC
RWO	Running water - oligotrophic	50	JNCC
AS	Scree - acid/neutral	50	JNCC
BS	Scree - basic	50	JNCC
DS	Scrub - dense/continuous	1	JNCC
SS	Scrub - scattered	1	JNCC
SWALL	Sea wall	0	JNCC
S	Spoil	40	JNCC
SW	Standing water	50	JNCC
SWB	Standing water - brackish	50	JNCC
SWD	Standing water - dystrophic	50	JNCC
SWE	Standing water - eutrophic	50	JNCC
SWC	Standing water - marl	50	JNCC
SWM	Standing water - mesotrophic	50	JNCC
SWO	Standing water - oligotrophic	50	JNCC
SUBURB	Suburban/rural development	25	NFC
Gardens	Suburban/rural development	25	NFC
Paved	Suburban/rural development	50	NFC
SP	Swamp	20	JNCC
TR	Tall ruderal	20	JNCC
TRACK	Track or minor access road	50	NFC
Path	Track or minor access road	50	NFC
?	Unknown	50	NFC
INDUST	Urban industrial development	50	NFC
URBAN	Urban residential/commercial development	40	NFC
W	Wall	0	JNCC
WH	Wet dwarf shrub heath	25	JNCC
WGM	Wet heath/acid grassland mosaic	25	JNCC
WB	Wet modified bog	30	JNCC

## Appendix 4 - List of workshop attendees

<b>Trent Vale BOM Workshop, 17<sup>th</sup> April 2013 - list of Attendees</b>			
<b>Name</b>	<b>Organisation</b>	<b>Position</b>	<b>E-mail</b>
Richard Bennett	Canal and River Trust	Senior Ecologist	richard.bennett@canalrivertrust.org.uk
Jenni Blakeman	Nottinghamshire Wildlife Trust	Wetland Projects Officer	jblakeman@nottswt.co.uk
Janice Bradley	Nottinghamshire Wildlife Trust	Head of Conservation Policy and Planning	Jbradley@nottswt.co.uk
Michael Copleston	RSPB	Site Manager Langford Lowfields and Beckingham Marshes	michael.copleston@rspb.org.uk
Carl Cornish	RSPB	Conservation Officer (Notts and Lowland Derbys)	ccornish@rspb.org.uk
Nick Crouch	Nottinghamshire County Council	Senior Practitioner Nature Conservation	nick.crouch@nottsc.gov.uk
Dot Driver	Amphibian and Reptile Conservation	Species Co-ordinator and GCN Conservation Officer	dorothy.driver@arc-trust.org
Brian Dunning	Natural England	Lead Adviser Notts	brian.dunning@naturalengland.org.uk
Jeremy Fraser	Lincolnshire Wildlife Trust	Wildlife Sites Officer	jfraser@lincstrust.co.uk
Andrew Hindmarsh			andrewhindmarsh@yahoo.co.uk
Fran Hitchinson	Greater Lincs Nature Partnership	GLNP Manager	fran.hitchinson@glnp.org.uk
Chris Jackson	Notts BAG	Biodiversity Officer	chris.jackson@nottsc.gov.uk
Chris Manning	Trent Valley IDB	Environment Officer	chris.manning@lmdb.co.uk
Ruth Needham	OnTrent/Trent Rivers Trust	OnTrent Project Manager	on-trent@staffs-wildlife.org.uk
Swati Nettleship	Environment Agency	Biodiversity Officer	swati.nettleship@environment-agency.gov.uk
John Osborne		County Herp Recorder	jeosbourne@btinternet.com
Adrian Southern	RSPB	Futurescapes Project Manager (Midlands)	adrian.southern@rspb.org.uk
Mark Speck	Nottinghamshire Wildlife Trust	Northern Conservation Officer	mspeck@nottswt.co.uk
Michael Walker	Nottinghamshire Bat Group	Chair	mwalker@nottswt.co.uk

<b>Trent Newark to Nottingham BOM Workshop, 21st June 2013 - list of Attendees</b>			
<b>Name</b>	<b>Organisation</b>	<b>Position</b>	<b>E-mail</b>
Richard Bennett	Canal and River Trust	Senior Ecologist	richard.bennett@canalrivertrust.org.uk
Jenni Blakeman	Nottinghamshire Wildlife Trust	Wetland Projects Officer	jblakeman@nottswt.co.uk
Janice Bradley	Nottinghamshire Wildlife Trust	Head of Conservation Policy and Planning	Jbradley@nottswt.co.uk
Gary Cragg	Nottinghamshire Wildlife Trust	Conservation Assistant	GCragg@nottswt.co.uk

Nick Crouch	Nottinghamshire County Council	Senior Practitioner Nature Conservation	nick.crouch@nottscc.gov.uk
Gordon Dyne	Rushcliffe Nature Conservation Strategy Implementation Group	Chair	gordon.dyne@gmail.com
Chris Jackson	Notts BAG	Biodiversity Officer	chris.jackson@nottscc.gov.uk
John Osborne		County Herp Recorder	jeosbourne@btinternet.com
Adrian Southern	RSPB	Futurescapes Project Manager (Midlands)	adrian.southern@rspb.org.uk
Bill Thomson	Natural England	Central Landscape Scale Delivery Team	Bill.Tomson@naturalengland.org.uk
Michael Walker	Nottinghamshire Bat Group	Chair	mwalker@nottswt.co.uk
Dan Widdowson	Environment Agency	Biodiversity Officer	dan.widdowson@environment-agency.gov.uk
<b>Viewed maps and added comment on Tuesday 25th June</b>			
Carl Cornish	RSPB	Conservation Officer (Notts and Lowland Derbys)	ccornish@rspb.org.uk
Paul Phillips	Rushcliffe Borough Council	Community Environment Officer	pPhillips@rushcliffe.gov.uk

## **Appendix 5 – The Basemap**

Map 1- Phase 1 in the Trent Valley (north)

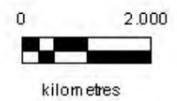
Map 2 – Phase 1 in the Trent Valley (south)

# Phase 1 (Map 1) in the Trent Valley (North)

## Phase 1 Habitat Key

Labels shown in brackets

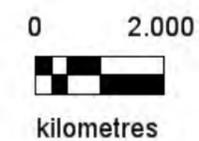
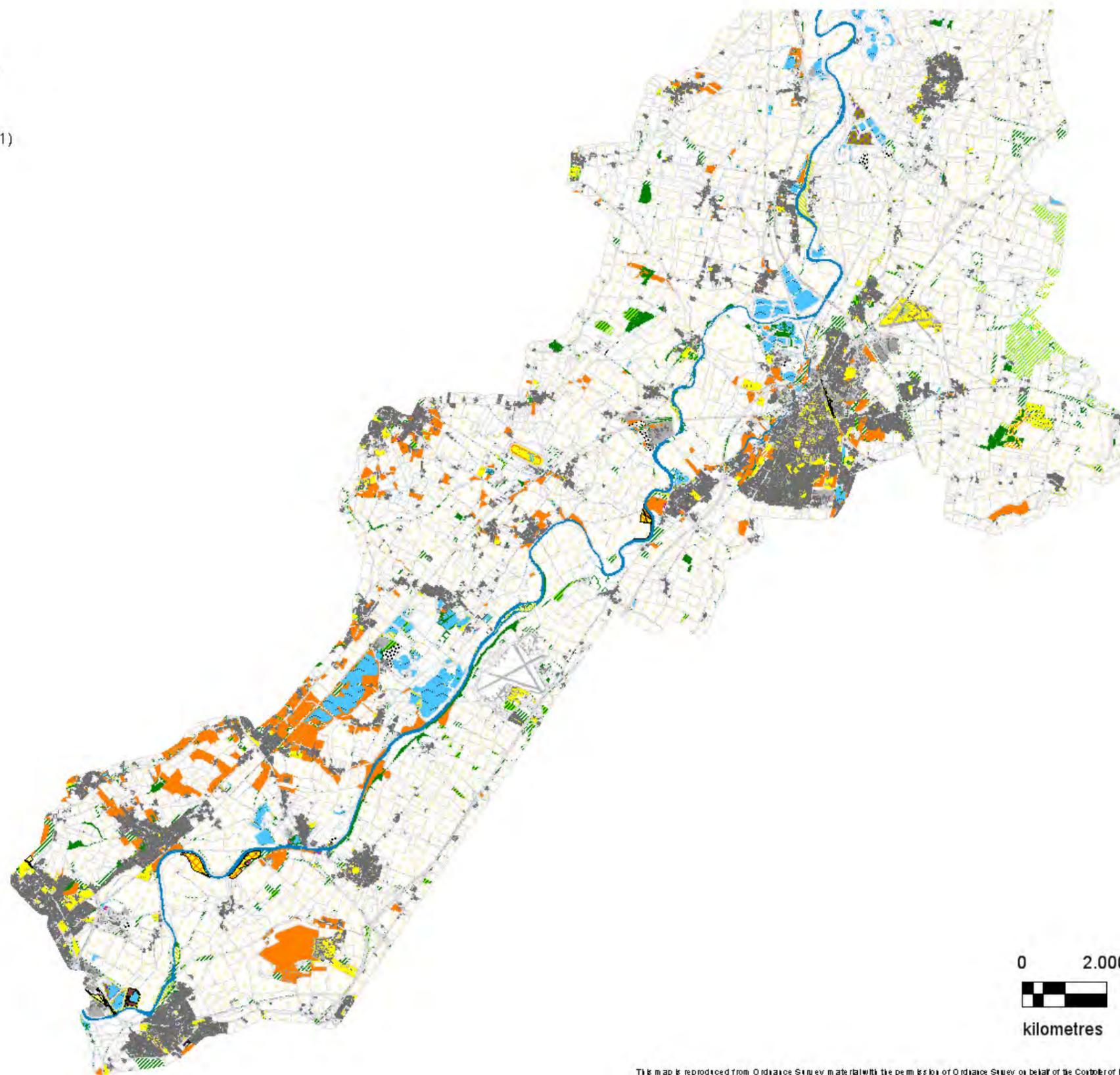
- A or B road
- Acid grassland - semi-improved (SI)
- Acid grassland - unimproved
- Bare ground
- Beach
- Bracken - continuous
- Bracken - scattered
- Broadleaved woodland - plantation
- Broadleaved woodland - semi-natural
- Buildings
- Calcareous grassland - unimproved
- Caravan site
- Coniferous woodland - plantation
- Coniferous woodland - semi-natural
- Cultivated/disturbed land - amenity grassland (A)
- Cultivated/disturbed land - arable (A)
- Dry ditch
- Dry dwarf shrub heath - acid
- Dry heath/acid grassland mosaic
- Dry modified bog
- Fen - flood plain mire
- Fen - valley mire
- Improved grassland
- Introduced shrub
- Marginal/inundation - marginal
- Marsh/marshy grassland
- Mixed woodland - plantation
- Mixed woodland - semi-natural
- Neutral grassland - semi-improved (SI)
- Neutral grassland - unimproved
- Non-ruderal
- Open Mosaic Habitat
- Other exposure - acid/neutral
- Other exposure - basic
- Parkland and scattered trees - broadleaved
- Parkland and scattered trees - coniferous
- Parkland and scattered trees - mixed
- Poor semi-improved grassland (SI)
- Quarry (Q)
- Railway line
- Recently felled woodland - coniferous
- Reedbed
- Running water
- Running water - eutrophic
- Scrub - dense/continuous
- Scrub - scattered
- Spoil (S)
- Standing water
- Standing water - eutrophic
- Standing water - mesotrophic
- Suburban/rural development
- Swamp
- Tall ruderal
- Track or minor access road
- Unknown
- Wet heath/acid grassland mosaic



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# Phase 1 (Map 2) in the Trent Valley (South)

Phase 1 Key available on Phase 1 (Map 1)



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## **Appendix 6 – Habitat Network maps**

Map 1 - Current Woodland Connectivity (north)

Map 2 - Current Woodland Connectivity (south)

Map 3 - Current Heathland & Acid Grassland Connectivity (north)

Map 4 - Current Heathland & Acid Grassland Connectivity (south)

Map 5 - Current Grassland Connectivity (north)

Map 6 - Current Grassland Connectivity (south)

Map 7 - Current Wetland Connectivity (north)

Map 8 - Current Wetland Connectivity (south)

# Biodiversity Opportunity Mapping in the Trent Valley (North)

- Current Woodland Connectivity**  
Area of Woodland network
- More than 250 ha
  - 100 to 250 ha
  - 20 to 100 ha
  - 5 to 20 ha
  - Less than 5 ha
  - Existing Woodland



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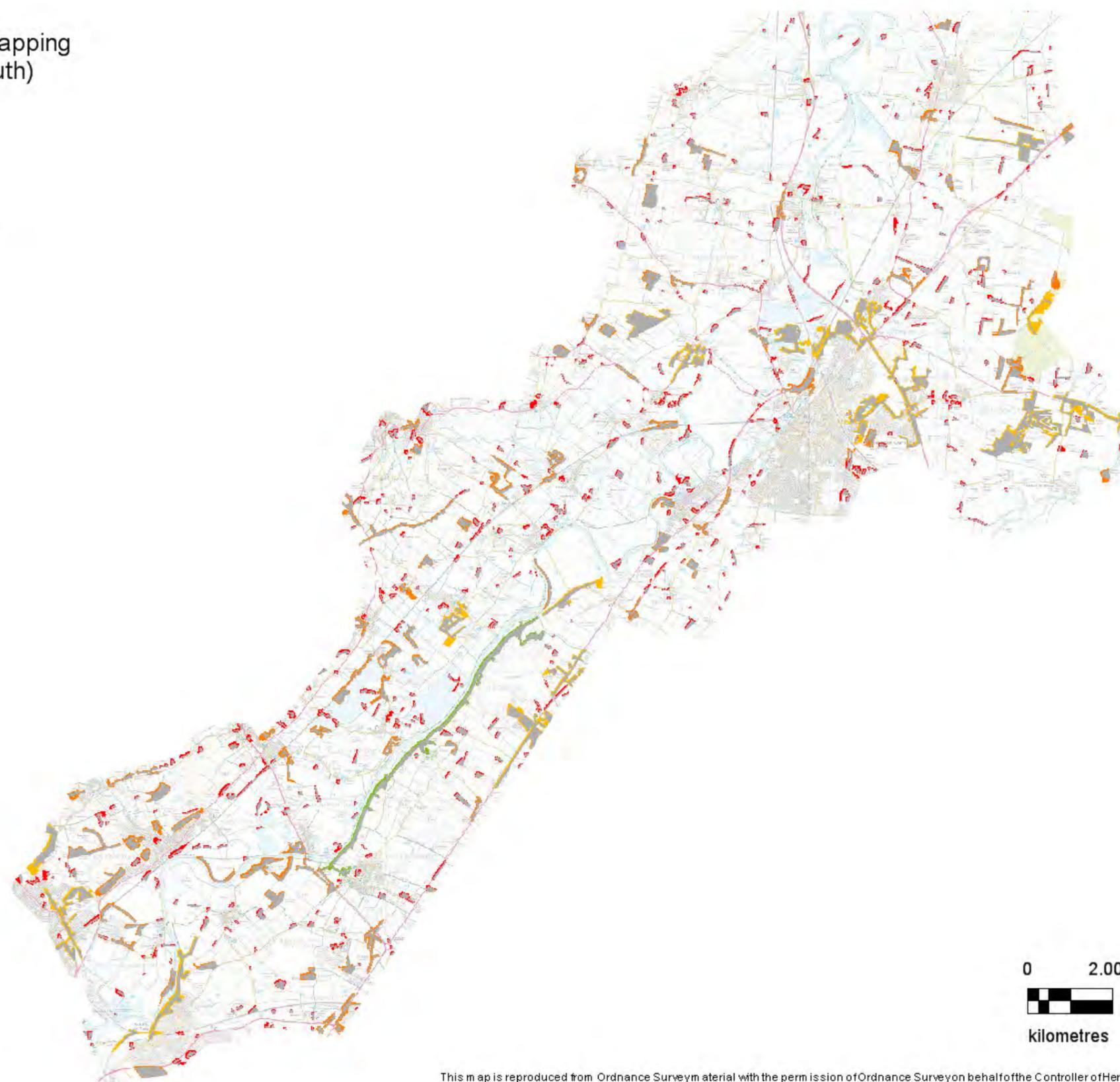
# Biodiversity Opportunity Mapping in the Trent Valley (South)

## Current Woodland Connectivity

Area of Woodland network

- More than 250 ha
- 100 to 250 ha
- 20 to 100 ha
- 5 to 20 ha
- Less than 5 ha

Existing Woodland

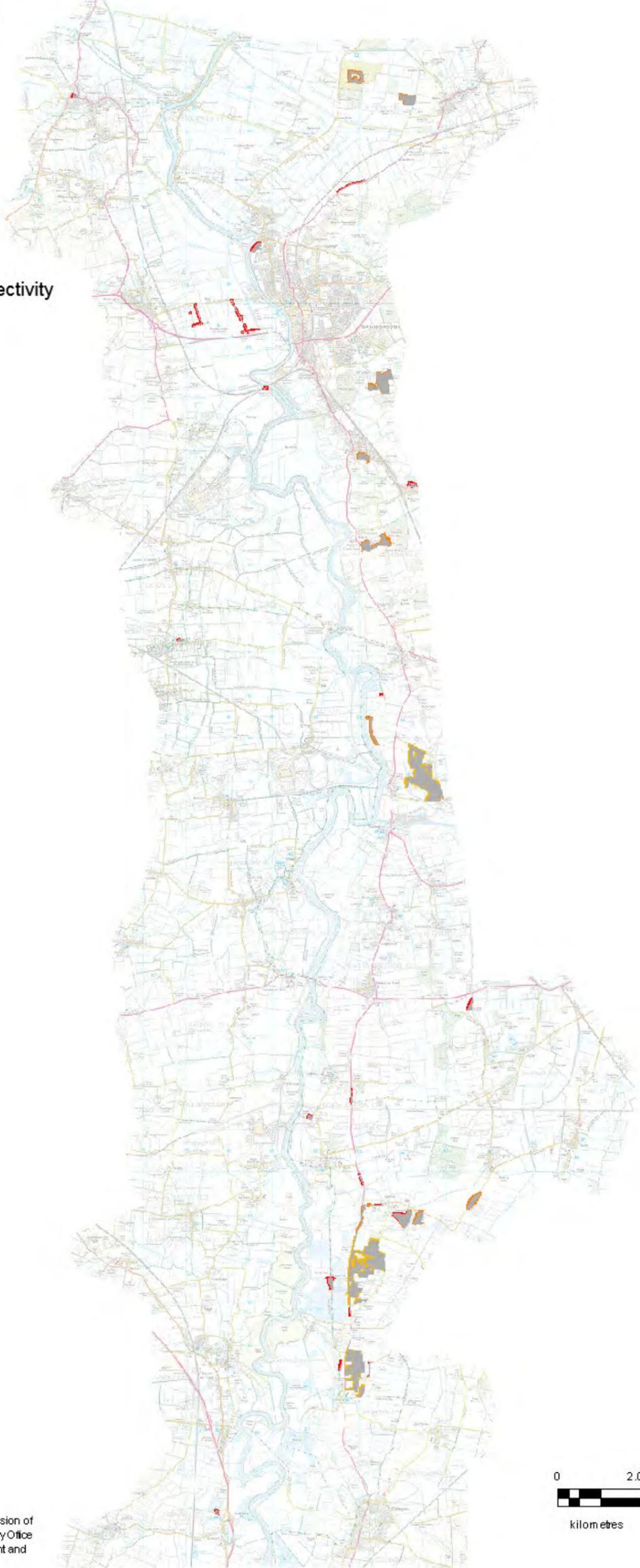


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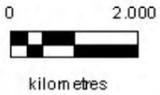
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# Biodiversity Opportunity Mapping in the Trent Valley (North)

- Current Heathland & Acid Grassland Connectivity**  
Area of Heathland & Acid Grassland network
- More than 250 ha
  - 100 to 250 ha
  - 20 to 100 ha
  - 5 to 20 ha
  - Less than 5 ha
  - Existing Heathland & Acid Grassland



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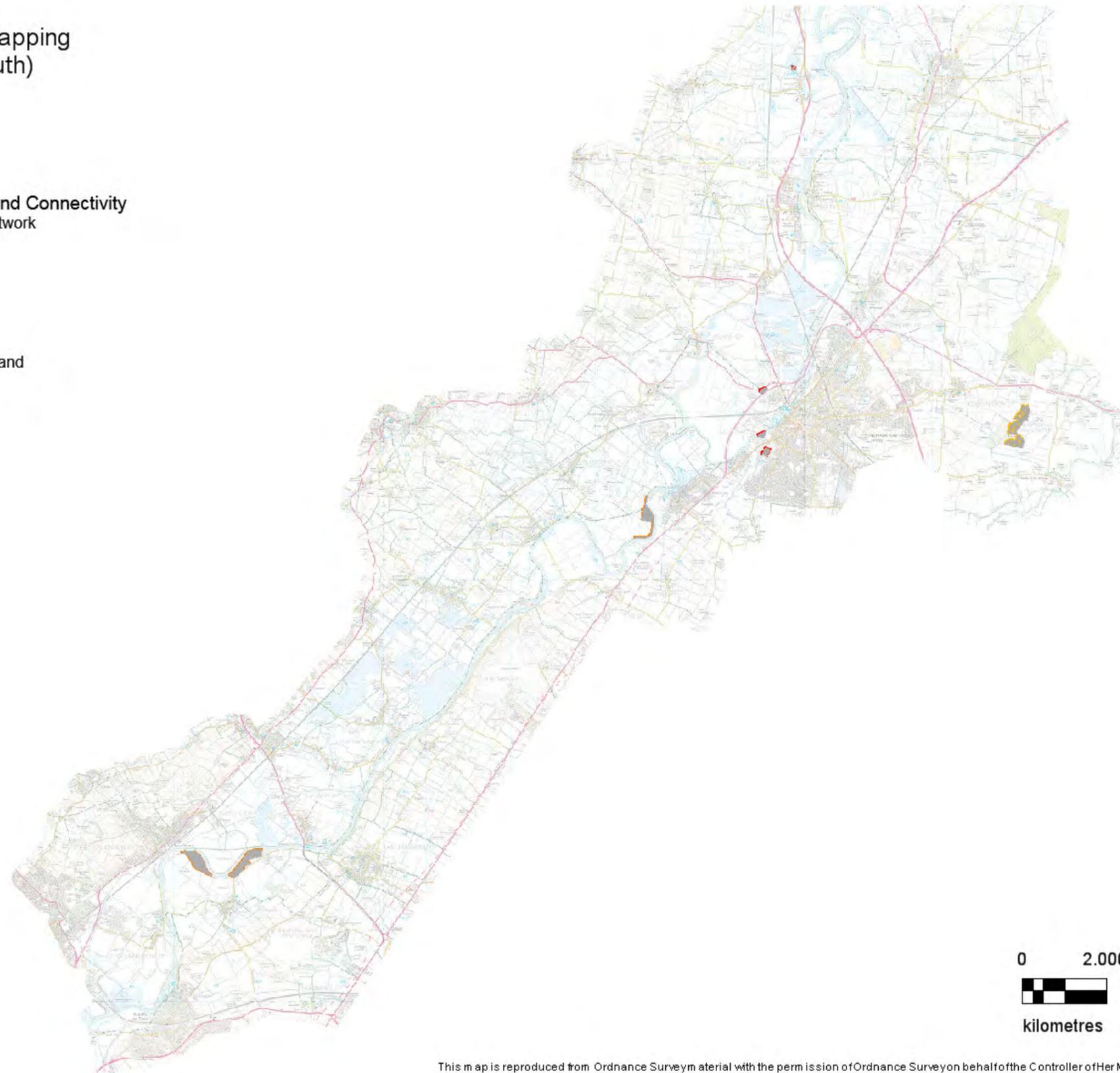
# Biodiversity Opportunity Mapping in the Trent Valley (South)

## Current Heathland & Acid Grassland Connectivity

Area of Heathland & Acid Grassland network

- More than 250 ha
- 100 to 250 ha
- 20 to 100 ha
- 5 to 20 ha
- Less than 5 ha

Existing Heathland & Acid Grassland

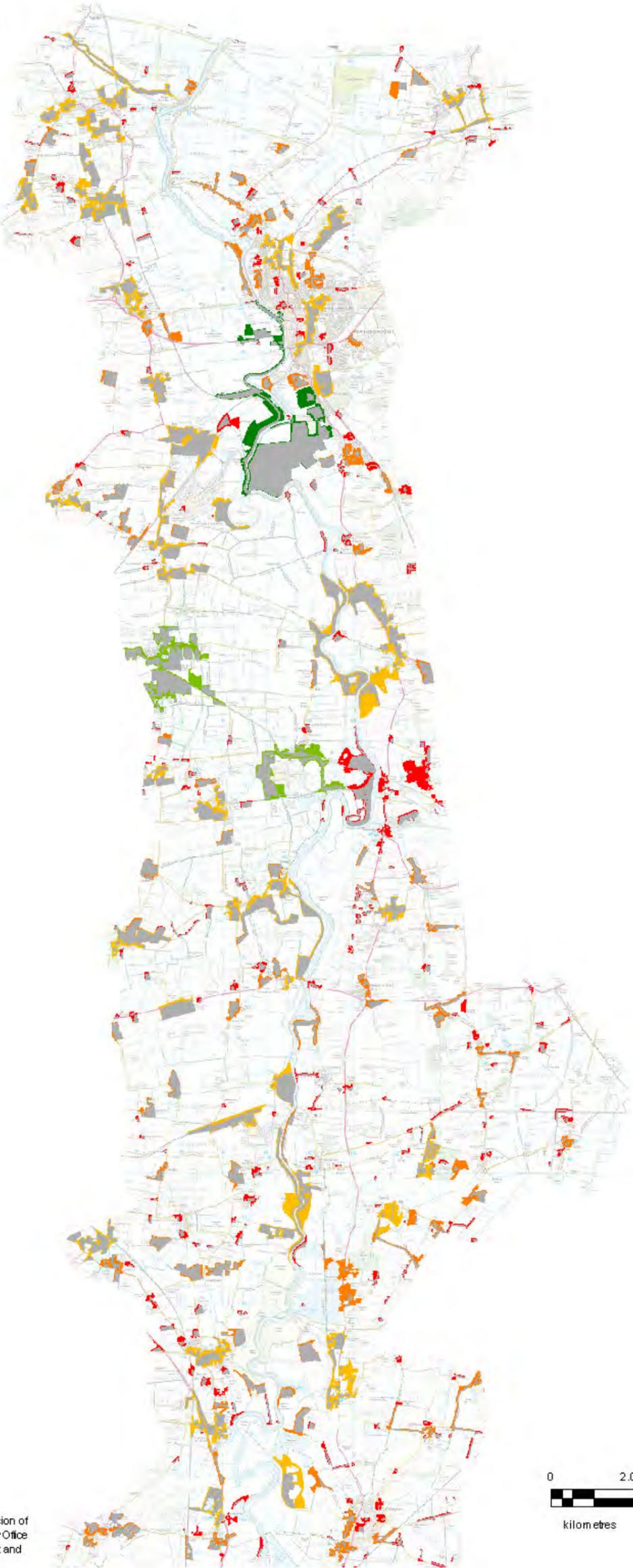


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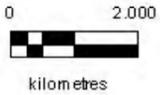
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# Biodiversity Opportunity Mapping in the Trent Valley (North)

- Current Grassland Connectivity**  
Area of Grassland network
- More than 250 ha
  - 100 to 250 ha
  - 20 to 100 ha
  - 5 to 20 ha
  - Less than 5 ha
  - Existing Grassland



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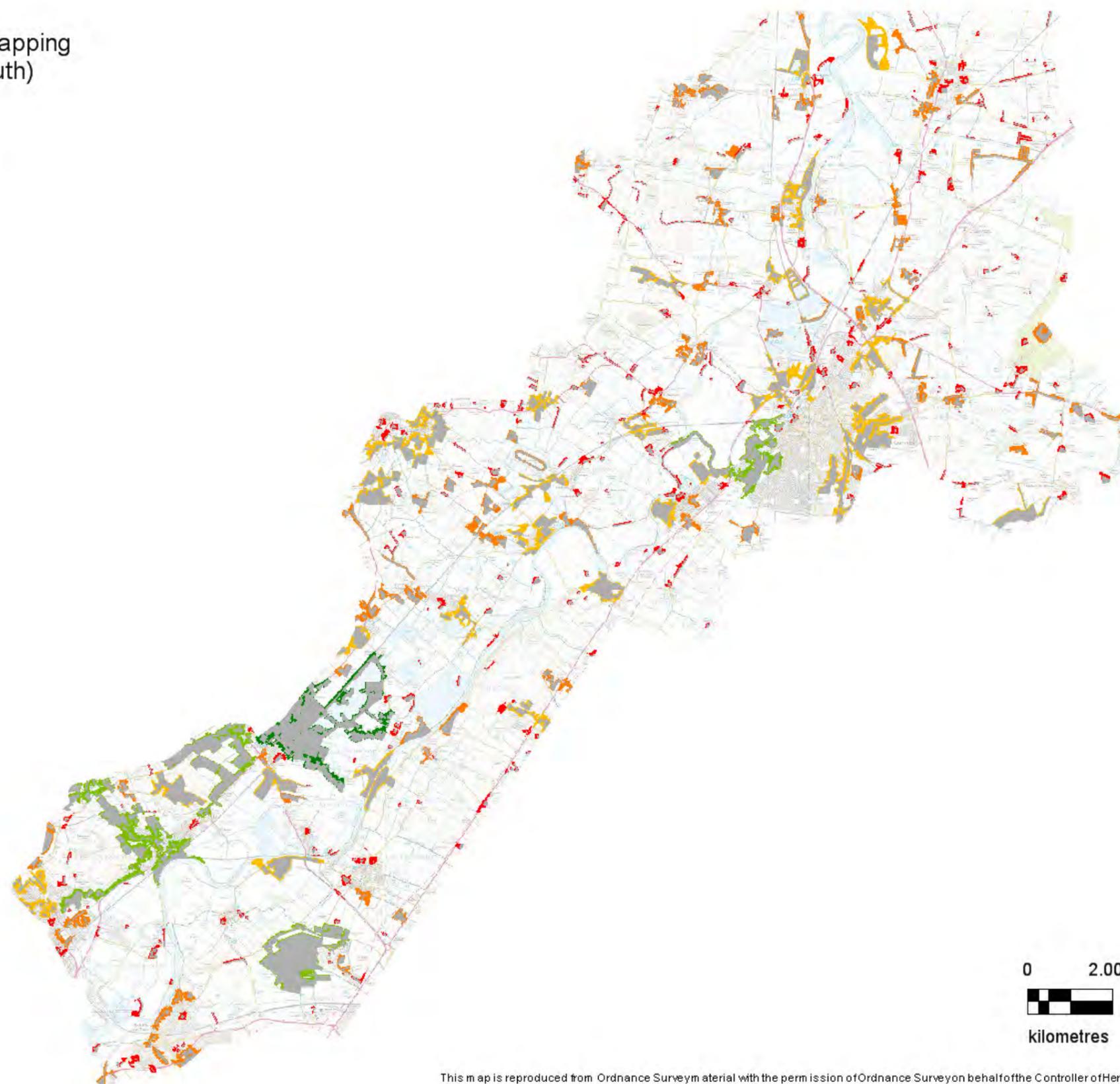
## Biodiversity Opportunity Mapping in the Trent Valley (South)

### Current Grassland Connectivity

Area of Grassland network

-  More than 250 ha
-  100 to 250 ha
-  20 to 100 ha
-  5 to 20 ha
-  Less than 5 ha

 Existing Grassland



0 2.000



kilometres

# Biodiversity Opportunity Mapping in the Trent Valley (North)

- Current Wetland Connectivity**  
Area of Wetland network
- More than 250 ha
  - 100 to 250 ha
  - 20 to 100 ha
  - 5 to 20 ha
  - Less than 5 ha
  - Existing Wetland



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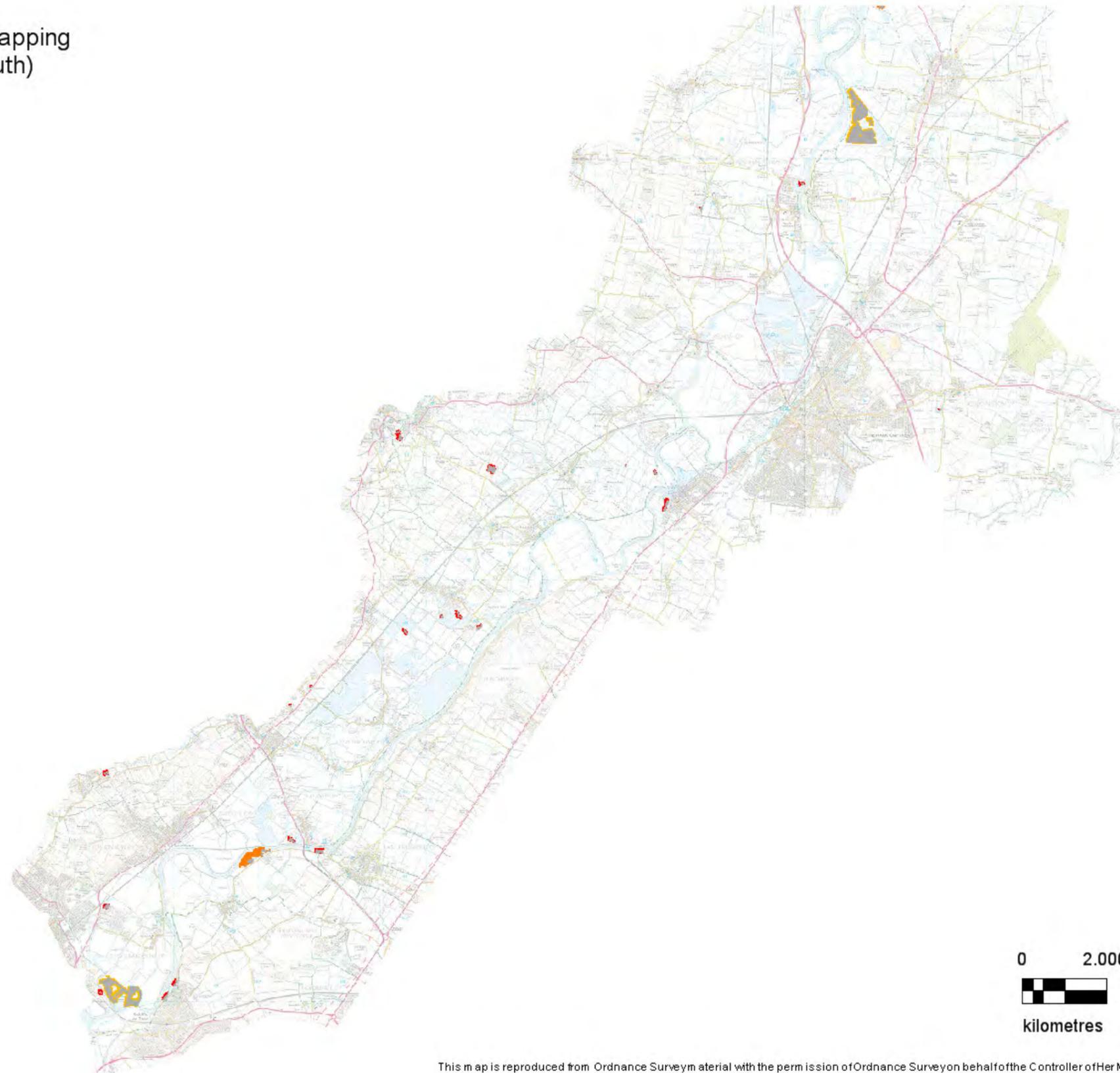
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# Biodiversity Opportunity Mapping in the Trent Valley (South)

**Current Wetland Connectivity**  
Area of Wetland network

- More than 250 ha
- 100 to 250 ha
- 20 to 100 ha
- 5 to 20 ha
- Less than 5 ha

Existing Wetland



0 2.000  
kilometres

## Appendix 7 – BOM map comments

Map Display ID	Woodland (W)
1	As a general comment - consider appropriate areas for scrub/wet scrub, especially for turtle dove + willow tit - include linking up extant mature hedgerows. CC.
2	Hedgerow along Chesterfield Canal. Could be 200 years old - potential to improve connectivity along the whole length.
3	Enhance scrub at West Burton power station - important site for scrub birds, turtle dove and willow tit. CC.
4	Trent Port - Includes hedgerow boundary and willow woodland on river bank. Improved management possible, following on from wetland work in 2012.RB.
5	Currently scrub/willow and regularly inundated from the Trent. Potential to improve to wet woodland, or clear to create wet floodplain. SN.
6	Scrub on railway embankment at Torksey. Possible scope for improved management. RB.
7	Fell coniferous woodland to improve grassland. MS.
8	Reconnect and expand woodland (dry). JMB.
9	Reconnect and expand woodland. JMB.
10	Substantial woodland creation - GI for Gainsborough. JMB.
11	Plantation adjacent to Lea Marsh SSSI - could be reverted to wetland habitat. JMB.
12	Existing scrub and shelter belts connected with woodland planting and edge softening. MC
13	Extensive connection of fragmented woodland sites around the ridge. JMB.
14	Proposed wet woodland creation linked to silt lagoons/restoration. MC.
15	Connection of fragmented woodlands. JMB.
16	Girton pits (scrub/willow) - enhance to benefit e.g. willow tit.
17	Connect woods, create shelterbelts, field corners etc. to provide barbastelle corridors. JMB.
18	Enhance scrub/wet scrub in grounds of sugar beet factory and camp site. CC.
19	Re-creation of parkland landscape. JMB.
20	Newark Gold Course. Increase size and connect woodland. MW.
21	Stapleford wood. More broadleaf in existing conifer plantation, forestry commission owned. MW. Barbastelle bat recorded at Norton Disney north of Stapleford wood.
22	Create new woodland-link existing fragments. JMB.
23	Better management of woodland. JMB.
24	Convert to broad-leaved woodland - improve edges with broad-leaves. CC.
25	The Nabbs SINC/Hazelford Island. Scrub dominated island, potential to modify management for different stages of succession. RB, C and RT.
26	Small area of woodland to expand and link existing corridor.
27	Wet woodland in meander.
28	Create woodland along the escarpment. JMB.

29	Trent Hills Wood. This section is not as good as section North and South. Important bat habitat (roosting and foraging). MGW.
30	Cocker Beck. Connectivity to Lambley Dumbles, Ploughman Wood, Gedling Pit-top country park. JO.
31	Patchwork of wet woodland, grassland and wetland creation-good connection with linear woodland along Trent Hills. DJW.
32	Connect woodlands. MGW.
33	New woodlands on airfield connecting with Trent Hills.
34	Extend and connect woodland. R Bennett.
35	Create substantial new woodland, linking existing patches. JMB.
36	Linking areas of existing woodland around Gunthorpe. There is already an area of existing wet woodland on the Shelford side, and by Crown estates, where heron ringing has previously taken place. Any new habitat or enhancements should take this into account. JRB.
37	Connect Trent hills woodland to Flintham woodlands.
38	Link Stoke lock woodland to other woods in Stoke Bardolph via corridors (south Trent owned). R Bennett.
39	Expand Trent hills woodland. MGW.
40	Management Required? Risk as not valued by landowner?? PP.

Map Display ID	Heathland and Acid Grassland (H)
1	Two dots - just making connections between these very small networks.
2	Seems like a potential to 'fill in' if not otherwise wholly improved as woodland?? Woodland Trust owned site. SN.
3	Small area of windblown sand in wider area (shown dotted) of pasture. Potential for improved management and expansion. JF.
4	Broom Hills has huge potential for better management and until about 2 years ago, supported the only Lincs population of <i>Orobancha rapum-genistae</i> , which was destroyed, possibly to prevent obstacles to expansion of caravan park. Larger area has potential if sandy. JF.
5	Coversands - creation of additional acid grassland habitat between/around Besthorpe and Spalford Warren SSSI's
6	Spalford Warren SSSI - conifer woodland restored to heathland - HLS agreement NWT reserve. Multiple small potential sites for recreation of blown sands habitats. JMB.
7	<b>Is this suitable for acid grassland? (Grid Ref: 481563, 364466) CM.</b>
8	Besthorpe Warren SSSI - heathland in need of management. BD.
9	Scrub/open sandy area bordering floodplain, uncertain extent. AH.
10	Re-create acid grassland and heath to join Spalford and Besthorpe warren SSSI's. JMB.
11	Make existing acid grassland patch larger (historic glow-worm records).
12	Enhance areas of heathland within woodland. MW.

Map Display ID	Grassland (G)
1	Revert arable fields to grassland. Complement marshy grassland adjacent. No idea if landowner wants to do this. CC/SN
2	West Burton SIN/NWT Reserve. Neutral/species rich grassland. Continue management. BD
3	Torksey castle and surrounding land. Improved management of grassland and reverting arable to grassland. RB.
4	Ashton's Meadow SSSI - potential to expand north which is setaside (use green hay?). BD
5	See wetland for grassland (Enlarge SSSI - subject to water management)
6	A connection that will join networks - doesn't have to be this exactly just looking at ways to link networks. FH.
7	As MapDisplayID 6. FH.
8	As MapDisplayID 6. FH.
9	As MapDisplayID 6. FH.
10	Enhance grassland within grounds of West Burton power station - currently areas of improved 'amenity' grassland along entrance road and around cooling towers. CC
11	Knaith Park, Lincs parkland - target for restoration. BD.
12	Coates Wetland - used as a dredging disposal site under Environmental permit. Site has succession of habitats wetland/grassland/scrub and woodland. Management to remove woodland to reset succession, especially if combined with reuse of material for wetland restoration elsewhere if possible. RB.
13	Better management - create botanically richer sward.
14	Small strip of good grassland cut for hay in 2006. Clearly partially improved, and better at the north end. Scatter of MG4 species such as <i>Sanguisorba officinalis</i> and <i>Silaum silaus</i> . Connected to SE corner of Lea Marshes SSSI. JF.
15	Bole Ings ash disposal tip. Restoration to species rich grassland as part of restoration scheme.
16	Enhancement of grassland botanically and for waders. JMB.
17	Lea Marshes SSSI - two fields. Only Lincs site for <i>Oenanthe silaifolia</i> , I think. Also, only Lincs site for <i>Scirpus sylvaticus</i> in a large clump on drain (see target note in report from 2006. JF.
18	Restoration of Cottam power station site to mosaic of wetland, grassland and scrub. JMB.
19	Potential rich flower meadows on EA land holding sensitive to farming management and windfarm potential. MC.
20	Reconnect and expand grassland sites. JMB.
21	Reconnect and expand grassland sites. JMB.
22	Permanent grassland. Nice bit noted in south-west corner next to river, but rest not really known. Could be acid grassland or neutral, depends on extent of sand. JF.
23	Potential wet grassland creation + mother drain + the river. JMB.

24	Former (2006) marshy grassland and ponds, apparently not developed as was anticipated in 2006. Also amenity grassland immediately to the north holding <i>Trifolium subterraneum</i> , <i>T. scabrum</i> and <i>T. striatum</i> .
25	Improve Besthorpe Meadow - through hydrological regime. Currently HLS managed NWT reserve. JMB.
26	Possible extend Besthorpe Meadows including into restored Besthorpe Wharf. JMB.
27	Enhancement of wet grassland along the Fleet. JMB.
28	Enhance value of Holmes grasslands botanically and for waders. JMB.
29	Fledborough Holme - SINC, but improve condition.
30	Unusual/used (?) to be dug for sand and gravel. Good potential between railway and Fleet. AH.
31	Girton Grasslands - enhance further and extend through further management agreements. JMB.
32	Recreation of extensive grassland (species rich and wet) in Holme Parish. JMB. Land adjacent to river has paleochannel earthworks and is improved. HLS scheme. BD.
33	Arable reversion to grassland. CC.
34	Species rich grassland creation from former arable land. HLS scheme.
35	Anglian Water reservoir being built in this area - management of grassland around reservoir. CC.
36	Wet grassland on low land. Besthorpe is on higher ground. CM.
37	Harby to High Marnham, disused railway. Improve grassland/scrub. Slow-worm/grass snake/common lizard populations. JO.
38	Improved and enhanced grasslands to connect existing resource. JRB.
39	Improve grassland connectivity through better verge management. BT.
40	Syerston Airfield. Improve existing grassland. Some is managed with wildlife in mind. RAF seem responsive to suggestions. MGW.
41	Dewberry Hill to be leased from NCC by Radcliffe on Trent parish council for 50 years. Potential to improve grassland. GD.
42	Improve to neutral grassland. BT.
43	Improve and extend existing grassland area, through re-seed/diversifying sword at Staythorpe Power Station. JRB.
44	Improve management of existing species rich grassland a Staythorpe Power Station. JRB.
45	Check data to make sure it is arable grassland. GC.
46	Managed by East Bridgford Wildlife Group. Area of grassland potential for improvement.
47	Improve/convert to grassland habitat and to connect small sites to larger area. BT.
48	Bankside grassland at Kneeton. Currently grazed with cattle but could be improved, would connect Trent Hills woodland to river habitat. Important bat foraging area. Barbastelle!
49	A612 steep grassland. Improve botanical diversity. NC.
50	Farm track with grassland fringes possible for improvement and links to woodland.

51	Brackenhurst Farm-potential to work with NFU to enhance their management of grasslands. Check the extent of grassland-is this arable.
52	Improve/convert to grassland habitat and to connect sites. BT.
53	Protect and enhance airfield grassland-diversify sward and manage as hay meadow. JMB.
54	Farmland linking various grassland areas. Potential to improve links and areas covered. GD.
55	Generally improve connectivity between small sites (can apply across the area) BT.
56	No comments
57	Area of infill between disused railway (Grizzled skipper) and main road, potential for improvement. GD.
58	Recreate grassland on steeper slopes to link existing block. JMB.
59	Improve quality of poor condition grassland. MGW.
60	Southwell grassland connection. Look to return to grassland the area of arable between existing grasslands.
61	Southwell grasslands. Look to enhance the existing network of grasslands.
62	Improve/convert to create connectivity between existing sites ( and generally across area) BT.
63	Check status of existing habitat-recreate grassland across a wide area. JMB.
64	Gunthorpe grassland (left bank, d/s of lock) grazed parkland, previously SINC. Canal and River Trust owned. R. Bennett.

Map Display ID	Wetland (M)
1	HLS agreement, 30ha wet grassland creation from arable land. May revert back to arable when scheme ends? BD.
2	Enhance waterbodies - reprofile margins for reedbed. EA have said they will fund this - perhaps!! CC/SN
3	Coates Wetland - used as a dredging disposal site under Environmental permit owned by CRT. The north part of the site is scrub/willow as a result of succession. Removal of scrub and/or export of the sand/gravel would reset succession back to wetland. So this is 'bigger'. Note - opportunity for this material to be used in landscaping for gravel pit restoration. RB.
4	Reedbed adjacent to West Burton power station in need of restoration. BD.
5	Wet grassland on lowland against Mother Drain. CM.
6	Removed this screening woodland when quarrying is finished. CC.
7	If quarrying happens restore to 1-2 key habitats. CC. Extant permission for quarry - required to restore to wet grassland reedbed, open water and fen. JMB.
8	Creation of 2 new ponds. MS.
9	Connect these exiting networks up to create a larger continuous network. I don't know the area, I don't know how feasible this is but it seems obvious.

	FH.
10	Proposal for quarry at Lea Marsh area - restore to 1 or 2 key habitats. CC.
11	Wetland area already located within boundary of West Burton power station - consider improved connection between wetland and Wheatley Beck. SN.
12	Bring Lea Marsh SSSI into favourable condition and enlarge.
13	Two dots. Create more habitat here to make this large area more resilient - large edge effects on these sections next to arable - don't know how feasible this is, don't know the area. FH.
14	Enlarge SSSI - subject to water management.
15	EA land holding - study undertaken by JBC for EA, IDB and RSPB to enhance ditch water level management.
16	Mother Drain SSSI requires scrub removal in some areas to restore to reedbed/open water. BD.
17	EA site - write management plan to target biodiversity delivery. SN.
18	Trent Port - improved management possible - following the open water recreation in 2012, grazing of grassland surrounding the open water and management of hedgerow and trees. RB.
19	Enhance Littleborough Lagoons - lake margins and improve management of grassland (currently overgrazed with horses). HLS application 2013. CC
20	Chesterfield Canal SINC and SSSI. Improved management by adjacent land measures to decrease diffuse water pollution. RB.
21	Potential reedbed/swamp for restoration - SINC. BD.
22	Former Rampton Quarry - will be restored to scrapes, wet and dry grassland, and scrub. JMB.
23	Loop of Trent. Remove floodbank and rewet.
24	Cottam to Marton. Wetland creation on species poor grassland.
25	Create extensive wet grassland habitat to link Sturton Quarry to the Trent. JMB.
26	Potential for river rebraiding through quarrying. JMB.
27	Potential. EA landholding for FSR. Could be wet grassland or flower rich meadows - note windfarm. MC.
28	River Trent - connectivity along river channel to link patches.
29	Area important for rarer county dragonfly species - variable damselfly and black darter. Maintain ditches in suitable conditions. MW. River Idle, Misterton Soss - moth SINC, site for grass snake, otters. JO.
30	Marton - Removal of floodbank realignment to natural ridgeline. Wet grassland/reedbed creation.
31	15. Expand to cover drains generally (based on same boundary as 15). JEO.
32	Trent Holmes area - wet grassland creation on Holmes. Improves connectivity along Trent between Besthorpe and Girton. NC. North Holme already functions as a wet grassland. BD.
33	Active sand and gravel quarry. Proposed NWT reserve. Creation of reedbed and open water habitat. MW.

34	4 areas - potential for extensive habitat creation (possible through mineral extraction). JMB.
35	Possible extensive arable reversion. JMB.
36	Potential wetland creation from EA partnership to reedbed 20ha. MC.
37	175ha wetland site - 100ha reedbed, 10ha wet woodland, 10ha swamp/marsh, 45ha rich grassland. MC.
38	Existing extension fro wetland creation post mineral extraction. MC.
39	Wetland creation post mineral extraction - nominated sites. MC.
40	Girton former plant site - enhance ephemeral wetlands and wetter grasslands. JMB.
41	Cromwell - habitat creation (or enhancement?) - reedbed, wet grassland (through restoration). NC.
42	CEMEX Cromwell South Site - improve extant restoration scheme. JMB.
43	Winthorpe Lake - habitat creation - reedbed, marginal habitats etc. NC.
44	The Fleet - Improving connectivity via enhancement/creation of fringing habitat, backwaters and ponds. NC.
45	Ongoing enhancements to wetland margins and fringing reeds site included open water and large wooded island. MW.
46	River Trent - improvements to management of banks/marginal vegetation along whole length to improve connectivity.
47	Dunham - land on NE side of toll bridge is form basin - 1ha. Potential for excavation for wetland habitat creation RB. And/or reduce flood cell size and increased frequency of wetting with Highways/EA.
48	Girton North Quarry - Tarmac site, currently mothballed - restoration. CC.
49	Normanton Holme - 50ha wet grassland HLS agreement. Grazed. Sluice in floodbank to control water levels. BD.
50	Improved management of existing gravel pit and marginal habitat (including reedbed). JRB.
51	Enhancement of River Witham corridor-improved riparian and marginal habitats, buffer strips, margins etc
52	Thorney C.P. Creation of pondscape to enhance GCN population. JO.
53	Lake (SINC) Improve management. This is a toad site with some reedbed. CC.
54	Land at top of Radcliffe Cliffs (upstream of weir) has standing open water, and recently purchased by R.o.T Parish Council. Opportunity for better management (less balsam, litter) and links to adjacent sites. R Bennett.
55	Potential flood alleviation scheme which could provide wetland habitat. Delivery date is unknown as are the potential habitats. Can revise timescales at a later date. DSW Mosaic of wetland habitats but should be checked with 20 year flood outlines DJW.
56	Large scale habitat creation-wet grassland and reedbed and river 'channel' re-branding or creation of back-channel. JMB.
57	Tall ruderal floodplain with potential for scrapes, mires and wet grassland. GD.
58	Gawburn Holt wetland creation. NC/DSW.
59	Improved grassland on flood plain, potential for acres of we grassland. GD.

60	Hoveringham Sailing Lake. The sailing club may be/are moving to another lake which gives an opportunity to improve fringing habitat. Woodland on opposite bank of Trent is very important for bats. Improving lake fringes will increase foraging potential. MGW.
61	Wetland creation within meander-floodplain grazing marsh-conversion from arable. NC/DJW.
62	Teal close development proposed ecology park with ponds and wetland scrapes. GC.
63	Reinstatement of flooded pool at Barton Meadows. JO.
64	Substantial habitat enhancement, restoration and creation-reshaping lagoons-reedbed. JMB.
65	Better management of existing pond and marginal habitat at Staythorpe Power Station. Landowners are sympathetic and open to management changes, but often require help with finding. JRB.
66	Better marshes (wetland) edge habitat. DSW.
67	Reconnection and enhancement and 'creation' of habitats - reedbed; swamp. JMB.
68	Potential for the creation of scrapes and new ponds in area of Staythorpe Power Station. JRB.
69	Netherfield Lagoons. Enhance existing margins and wet grassland. Create reedbed and wader scrapes. MGW.
70	Habitat enhancement of existing wetlands. Reshape margins; reedbeds. JMB.
71	Improved wetland habitat.
72	Bleasby and Holme Pierrepont. Grass snake and amphibian populations. JO.
73	Habitat creation-wet grassland-part of Gunthorpe flood remediation scheme? JMB.
74	Grazing marsh creation and open pools similar to native reserve habitat. DJW.
75	Prioritise floodplain grazing marsh-but generally a mosaic of wetland habitats. BT. Verify with 1:20 year outlines.
76	Polser Brook. Connecting stream out past skylarks into Rushcliffe potential route of canal. GD.
77	Gunthorpe Gravel Pits. Significant toad population and frog and smooth newt. JO.
78	Cocker Beck. Improve connectivity along Cocker Beck from River Trent to Lambley Dumbles, Ploughman Wood, Gedling Pit, Top country park. JO.
79	Mosaic of wetland habitats. Priorities being wetland grazing marsh and marshy habitats. DJW.
80	Mosaic of wetland habitats.
81	Land around Netherfield lagoon-wet grassland and ditches improved-some could be 5-10 years. GD.
82	Dumbles. Generally improve connectivity along Dumble streams. JO.
83	Enhance Caunton Beck to connect habitats including ancient woodland and generally all dumbles and becks. BT.
84	Ouse dyke. Enhance dyke. GC.
85	Mosaic of wetland habitats.

86	Fish passes at Stoke, Gunthorpe, Hazelford Weirs. Connectivity (for fish) between stretches of river. R Bennett.
87	Trentside grassland pond, Radcliffe on Trent acquired by RoT parish council from angling club to be managed as a Nature reserve (needs management plan creating). PP.
88	Trentside, East Bridgford. I think owned by E Bridgford parish council - is currently unmanaged. PP.
89	Opportunity for better management? New wetland sites next to A46. Balancing ponds, ridge and furrow wet grassland, 2 x wet grassland fields. CC.

<b>General comments</b>
General point - woodland so fragmented - few clusters. Simply seek to join or buffer existing areas together, rather than target specific areas or make corridors.
General woodland comment re: bats. Important for connectivity from villages to woodlands. Villages provide good roost sites which would not be viable if connecting habitat did not exist. Very important for species which forage over short distances e.g. brown long-eared. MW.
Some mature, species-rich hedgerows in this area, especially boundaries of Holmes and around quarries. CC.
Co-ordinated river bank management. EA to undertake coordinate better management for wildlife to utilise this large linear resource.
Create/manage dry reedbed as they are important for red data book moths.
Gravel pit restoration schemes should include numerous small ponds for amphibians/reptiles. Also, add to existing restored sites.
Promote floodbank realignment where possible.
Create osier beds where areas available.
Should we have mapped dense scrub as a core woodland habitat?
Hedgerows weren't mapped but if they were they would indicate a better woodland habitat connectivity.
Potential for dredged material from river navigation to be used as infill in mineral restoration or habitat creation (£1m of dredging from 2013-15).
Spoil tipping from power stations - need to control infilling of wetlands.