The Rushcliffe Biodiversity Opportunity Mapping Report

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The Rushcliffe Biodiversity Opportunity Mapping Project

Credits:

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1. Aim of the Project

The aim of this project is to produce a Biodiversity Opportunity Map (BOM) for the Borough of Rushcliffe. This report will also help to underpin the wider work of the Nottinghamshire Biodiversity Action Group (BAG), the Local Biodiversity Action Plan (LBAP) partnership for Nottinghamshire.

2. Background and context to the Project

In 2008 the Nottinghamshire 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. 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. Initially this work took place in Sherwood and was funded by Natural England. Subsequently funding was provided by the Trent Vale Landscape Partnership Scheme and the Nottinghamshire County Council Minerals and Waste Team, to undertake the BOM process in the Trent Valley. This process was undertaken in two phases, firstly in the Trent Vale between Newark and Gainsborough and secondly in the area between Nottingham and Newark. In 2013/14 funding was made available by two local authorities (Rushcliffe Borough Council and Broxtowe Borough Council) in conjunction with funds from the Environment Agency to undertake the BOM process within Broxtowe and Rushcliffe (west of the A46), including the final section of the Trent Valley between the eastern edge of Nottingham (Netherfield) and through the city to the county boundary with Derbyshire. Funding to undertake the BOM process in the remaining part of Rushcliffe Borough (Rushcliffe east of the A46) was made available by Rushcliffe Borough Council in 2014/15.

A report detailing the outputs from the Trent Valley BOM was produced in September 2013 and this was followed by a report detailing the BOM outputs for the Borough of Broxtowe, produced in March 2014. A report for Rushcliffe, West of the A46, was produced in October 2014 and this was recently followed by the production of a report detailing the outputs of the BOM exercise for the East of Rushcliffe in March 2015.

The outputs from the three reports covering the full extent of the Borough of Rushcliffe have been combined to produce this report, 'The Rushcliffe Biodiversity Opportunity Mapping Report'.

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, 2009 and 2013 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). In Rushcliffe the habitats were assigned to three of the broad habitat types due to the scarcity of acid grassland and heathland in this part of Nottinghamshire.
- 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 three broad habitat types (woodland, grassland and wetland)
- Collation and digitisation of the workshop outputs to produce Biodiversity Opportunity Maps for the three 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 three habitat networks (i.e. woodland, grassland and wetland), and every Phase 1 habitat that is mapped is assigned a permeability value for each of the three 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

Three stakeholder workshops were held during the process of gathering the information to go into this report. The workshops were held on Friday 21st June 2013 (The Old Ragged School, Nottingham), Tuesday 26th November 2013 (West

Bridgford Community Hall) and Tuesday 10th February 2015 (Cropwell Bishop Memorial Hall). The workshops were attended by 27 individuals representing 16 organisations.

Additional opportunities to input into the process were given after each workshop, whereby stakeholders were offered second chance to view the data and input their knowledge. As a result a separate session was arranged in the weeks following each workshop. After the Rushcliffe East Workshop a special session was arranged for staff from the Environment Agency to input specific information on the wetland potential within this area into the process. A further 9 individuals representing 6 organisations (2 of these additional to those already represented at the workshops), inputted into the BOM process at these additional opportunities.

Appendix 4 provides a list of attendees for all three workshops, including details of those who took up the opportunity to attend special sessions opened up to those people who were unable to attend the original workshop dates.

After the completion of each BOM report, a draft was circulated for further comment. Any comments received that contained additional information that could be used in the report were included into the final document.

During the workshops, participants were asked to annotate the Habitat Network maps for each of the three 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:

- Agricultural Land Classification
- Environmental Stewardship and English Woodland Grant Scheme agreements
- National Character Areas
- Land owned by BAG partners (Forestry Commission, Nottinghamshire County Council, Nottinghamshire Wildlife Trust and the Woodland Trust)
- Landscape-scale priority areas for partners (the Wildlife Trust's Living Landscapes and the RSPB's Futurescapes boundaries)
- Locally designated site boundaries (Local Wildlife Sites and Local Nature Reserves)
- Phase 1 habitat maps
- Species data (limited to riparian mammals)
- Statutorily designated site boundaries (Sites of Special Scientific Interest)
- Underlying geology (bedrock layer and superficial deposits)
- Wetland Vision map (for reedbed and floodplain grazing marsh)
- Woodland for Water (broad areas showing potential woodland creation zones to assist the water environment - water quality/flooding etc.).
- Zone 2 and Zone 3 flood maps

6. Outputs of the Project

The Rushcliffe BOM Project has three mapping outputs:

a) "*The Basemap*" (Appendix 5), which shows all habitats across 409 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, grassland 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

The BOM maps indicate that there are considered to be a number of opportunities for wetland habitats throughout Rushcliffe, predominantly within the floodplain of the Trent Valley, Soar Valley, Fairham Brook and the Devon/Smite river catchments and their tributaries. This potential has been identified for enhancement, enlargement, creation and reconnection of wetland habitats along these river corridors. In addition the opportunity to make in-channel improvements to all of these river systems has also been identified.

However, there are also opportunities for action on the other broad habitat types. Substantial concentrations of existing grasslands occur in the West Leake Hills, the Gotham Hills, between Stanford and East Leake, south of Keyworth and in the Soar Valley by Sutton Bonnington. The BOM identifies that there are good opportunities to improve, extend and link the grassland habitats in these locations.

Woodland within Rushcliffe is rather limited, but concentrations do occur around the Gotham and West Leake Hills, along the ridgeline between East Leake and Bunny, and there is a concentration of woodland in and around (to the east of) Cotgrave Forest. There is also good potential for the enhancement of wood pasture at

Stanford Hall. In all these locations there are opportunities to create extensive areas of new woodland to improve connectivity, and also to enhance and enlarge the existing woodlands.

ii. Focal Areas

The BOM maps show that there are several areas where existing habitats and associated opportunities are concentrated, referred to here 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 enhance and expand these habitats, to buffer them and to link them up to create a stronger habitat network across a landscape scale. These Focal Areas, shown on Map 4 in section 9, are:

1. **Cotgrave Forest:** opportunities are present to improve and extend this existing network of woodland and grassland habitats. This opportunity has its focus on Cotgrave Forest & Borders Wood where opportunities exist to enhance this core block of habitat. Potential has been identified to create habitat links in three directions away from this block: north, south and west. This potential could strengthen links between existing habitat fragments of woodland and grassland.
2. **East Leake/Stanford Hall:** potential for the restoration of parkland and grassland at Stanford Hall offer good core habitat. This area would form a southern block to an area that offers opportunities to improve habitat connectivity down the eastern fringes of East Leake and into the Kingston Brook. The focus for this area would be enhancing a mosaic of grassland and wetland habitats.
3. **Fairham Brook**: potential for wetland enhancement and grassland creation have been identified between Clifton and the Keyworth Wolds within this focal area.
4. **Gotham Hills, West Leake to Bunny ridgeline:** an existing network of woodland and grassland that can be enhanced and buffered. There is lots of potential for creating important links between existing habitats.
5. **River Smite Corridor:** the corridor along the River Smite, running north-east through the east of Rushcliffe, holds significant potential for wetland and woodland enhancement and creation. Together these could deliver Water Framework Directive objectives as well as creating new areas of habitat.
6. **Soar Valley:** lots of potential for wetland/grassland developments along the whole of the river corridor, but with particular focus on the lowlands around Sutton Bonnington.
7. **Rushcliffe pondscape:** a high concentration of ponds exists in an area bordered by Hickling, Keyworth, Willoughby and the county boundary with Leicestershire. Data suggests that this may be particularly important for great crested newts. Opportunities were identified to maintain and enhance existing ponds, and create new ponds to improve connectivity across the landscape.
8. **Trent Valley (Lady Bay to Stoke Bardolph):** lots of potential for improving the wetland and grassland networks in a large block centred on Holme Pierrepont. A number of existing sites have been identified as requiring maintenance, enhancement and buffering. There is also lots of potential for improving habitat connectivity between sites.

9. **Trent Valley (Wilford to Thrumpton)**: lots of potential for improving the wetland and grassland networks. A number of existing sites provide good areas of core habitat and the surrounding floodplain offers potential areas where habitat connectivity can be improved.

iii. Wider Landscape

As well as those Focal Areas identified above, the BOM identifies a limited number of smaller habitat cluster areas, scattered throughout the Borough, but also appears to indicate that there are large parts of the Borough where there are no (known) 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, alongside ditches and roads can help link up isolated grassland sites, and the improved management of ditches, including the creation of buffer strips alongside streams and water courses can serve the dual purpose of linking up wetland sites as well as reducing diffuse pollution. An existing network of live and disused railway lines offer specific opportunities in Rushcliffe for improving the connectivity between habitats. Although not specifically picked out in the BOM, such opportunities can be delivered through mechanisms like agri-environment schemes. It should also be noted that the BOM picks out certain rivers such as the Fairham Brook, River Soar, River Smite, and River Trent as key features which can be used to improve habitat connectivity in east Rushcliffe; however other rivers and streams are likely to provide similar opportunities to improve linkages across the landscape. Simple improvements for species, such as installing barn owl boxes, providing seed hoppers for farmland birds or otter passes under roads all help to ensure the current landscape is permeable to the wildlife it supports.

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. Similarly, there may be instances where habitat creation at one location will affect an adjacent area where habitat currently exists (or could be created). Such instances should be looked at on a case-by-case basis as and when opportunities arrive, with the help of specialist ecological input.

v. Opportunities for species

The BOM focuses on habitats, but implicit within this is the expectation that works to make habitats better and bigger, to create more of them, and to ensure that they are linked up, will also benefit the priority species which use these habitats. The species which are likely to particularly benefit from the opportunities identified in this report are:

- Mammals, including bats, water vole, otter and harvest mouse

- Herpetofauna, including great crested newt, common frog, common toad and grass snake
- Fish, including brown trout, salmon, bullhead and spined loach
- Lepidoptera, including habitat-specialist butterflies (grizzled skipper and green hairstreak) and moths
- Woodland and wetland birds

8. Next steps

This report and the data held within it, provide a unique source of information that can support future nature conservation efforts in Rushcliffe.

However, the report should be seen as a living document that will be updated as better data becomes available or as new opportunities are identified.

9. Maps and tables

Map 1 - Woodland Biodiversity Opportunity Map
Table 1 - Biodiversity Opportunity table for Woodland (W)

Map 2 - Grassland Biodiversity Opportunity Map
Table 2 - Biodiversity Opportunity table for Grassland (G)

Map 3 - Wetland Biodiversity Opportunity Map
Table 3 - Biodiversity Opportunity table for Wetland (M)

Map 4 - Focal Areas

Map 1 - Woodland Biodiversity Opportunity Map

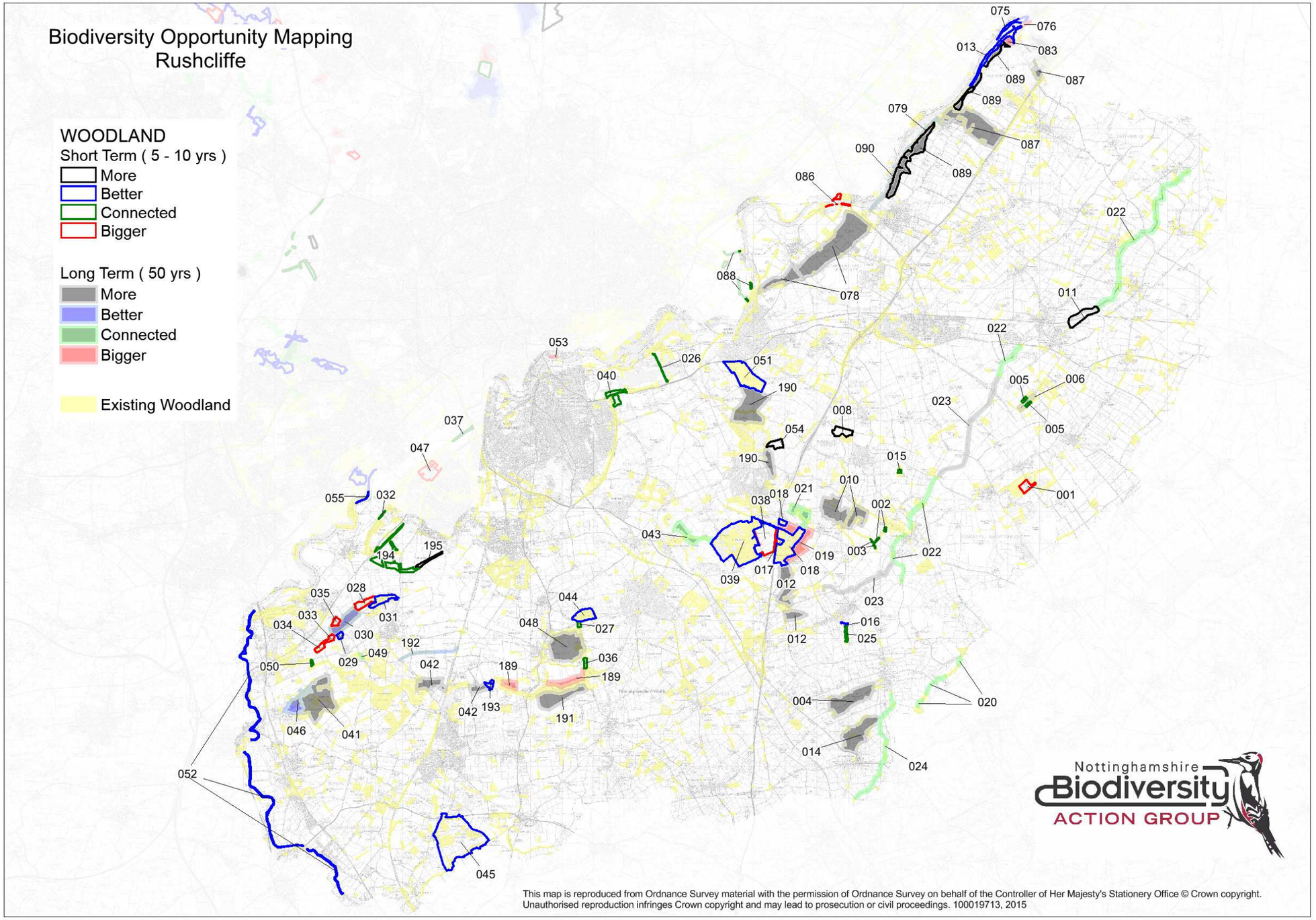


Table 1 - Biodiversity Opportunity table for Woodland (W)

Report ID	Map Display ID	Opportunity
RushEast	001	Possible linkage on cement works when restored. Owned by Lafarge. JMB
RushEast	002	Plant woodland. Increase connectivity between woodlands along road and connecting field. AS
RushEast	003	Link copses by planting one side of the watercourse. JMB
RushEast	004	Possible planting along the ridge, to link remnant woodlands. JMB
RushEast	005	Improve connectivity around field edge. AS
RushEast	006	Increase woodland size by planting in centre of existing woodland. AS
RushEast	008	Possible new woodland planting to expand wood. Landowner is known. JMB
RushEast	010	Woodland creation around Fishponds Wood and the road. JMB
RushEast	011	Continue woodland/scrub along the Smite. BD
RushEast	012	New woodland to link existing fragmented woods to Borders Wood. Borders Wood is an important site for woodland butterflies. JMB
RushEast	013	Improve condition of Flintham Wood. NP
RushEast	014	Woodland creation to link fragmented woods on steep hillsides. JMB
RushEast	015	Link between 2 woods. JMB
RushEast	016	The woodland that is part of Kinoulton Marsh SSSI doesn't seem to be marked but exists. Enhance the condition of this woodland. CCl
RushEast	017	Remove conifer and replace with broadleaves. NC
RushEast	018	Improve condition of Borders Wood. NC
RushEast	019	Expand eastern side of Borders Wood. NC
RushEast	020	Potential for riparian woodland planting to help reduce nutrient inputs and manage flood risk - slow flow. DJW
RushEast	021	Improve linkages to small woodlands N of Borders Wood. NC
RushEast	022	Potential for riparian woodland planting to help reduce nutrient inputs and manage flood risk - slow flows. Also connect with several existing woodlands. DJW
RushEast	023	Riparian woodland options - i.e. clumps of woodland planting to encourage light and shade on watercourse. DJW
RushEast	024	Dalby Brook offers opportunities for connecting riparian woodland. Planting to help reduce nutrient inputs and manage flood risk - slow flow. DJW
RushEast	025	The woodland that is part of Kinoulton Marsh SSSI doesn't seem to be marked but exists. Hedges between here and Kemp's Spinney create an opportunity to make better woodland linkages. CCl
RushWest	026	Enhance existing hedgerow to connect woodlands. MGW
RushWest	027	Connect existing woodland blocks through new planting. BD
RushWest	028	Linkage between the areas of woodland along slope edge. GD
RushWest	029	Owned by scouts, opportunity for improved management in woodland. Do some management. GD
RushWest	030	Plantation woodland, great scope for habitat management. Few years ago owner contacted NWT about purchase (may still have contacts). GD
RushWest	031	Used by shooting group, Gotham PC may have contacts. Opportunity to make woodland better. GD
RushWest	032	Non arable mixed heathland, opportunity for tree planting to bridge gap. Potential flooding but unlikely.
RushWest	033	Opportunity for infill and linking through. GD
RushWest	034	Opportunity for woodland linking in. GD
RushWest	035	Opportunity to link up isolated copse with larger woodland. GD
RushWest	036	Connect existing blocks. BD
RushWest	037	Connect woodlands. MGW
RushWest	038	Land between Cotgrave Forest and borders wood, link with new woodland planting. JMB
RushWest	039	Enhance the management of Cotgrave forest-reduce conifers, increase glades/rides/open space. Talk to new landowners. JMB
RushWest	040	Connect up woodland strips north end of Lings Bar and that of A52. JEO

Report ID	Map Display ID	Opportunity
RushWest	041	Significant opportunities for infill by planting and improved connections. May need to check other habitat types. GD
RushWest	042	Create woodland to connect three woodland blocks. MGW
RushWest	043	Connect woodland blocks at Normanton-on-the-Wolds and Cotgrave Forest. JEO
RushWest	044	Rancliffe Wood needs proper coppicing management. Now paint balling. Landowner known. NP
RushWest	045	Enhance parkland habitat at Stamford Hall. Of high value to 7+ species of bats. JMB
RushWest	046	Kingston Hall protect parkland. PP
RushWest	047	Clifton campus-heart of campus redevelopment. 30,000 m2 new landscaping to be staged. NTU Estates department.
RushWest	048	Potential for going back to parkland with ponds, woodland, wet woodland, marsh. Nottingham Uni owned. NP
RushWest	049	Potential to connect via hedgerow either side of footpath. GJJ
RushWest	050	Connect woodland.
RushWest	051	Naicent Woodland owned by a known landowner, approx 140 acres. Planted around 12 years ago, with wide rides, and areas of south facing and north facing slopes. Rides wide but straight. A woodland with substantial grassland areas, good for wildlife. Flower rich fields on southern side of wood. BB
RushWest	052	River Soar, riparian tree/woodland improvements. C&RT working with L&RWT on the 'rewilding the Soar' to change the management of trees. This will also help navigation and safety needs. RB
RushWest	053	Pocket of wet woodland on Trent. Potential to extend through influencing planning permission for re-development along this zone. EA/FA
RushWest	054	Planted Woodland around 2 years old. Good potential habitat in conjunction with the neighbouring Cotgrave Country Park. BB
RushWest	055	Riparian trees along R.Trent (including Attenborough Nature Reserve). Change and improve management of riverside trees/woodland by C&RT and NWT (Attenborough). RB
RushWest	189	New woodland could be established on arable land on the scarp slopes to the north of Bunny Wood and New Wood. This could act as a buffer to this important area of ancient woodland. NH
RushWest	190	Better woodland links could be made between Cotgrave Forest and woodland at Radcliffe on Trent, via Cotgrave Country Park. PP
RushWest	191	New woodland could be established on the arable land to the south of Bunny Wood. This would create a large robust area of woodland. NH
RushWest	192	The disused railway track running from the Gypsum Way to the Great Central Railway is an existing area of woodland and scrub that should be managed and enhanced for its biodiversity. The Gotham Environmental Trust are involved in the management of this site. GD
RushWest	193	Rough Hill Wood is an existing area of woodland/scrub/grassland that is owned by a landowner sympathetic to wildlife. It is intended that this land is managed and enhanced into the future. GD
RushWest	194	The proposed housing estate at Clifton includes a proposal for green infrastructure. The GI includes a network of woodland belts that link existing blocks of woodland. GD
RushWest	195	The proposed housing estate at Clifton includes a proposal for green infrastructure. The GI includes some new blocks of woodland planting. GD
Trent NN-S	075	The Nabbs SINC/Hazelford Island. Scrub dominated island, potential to modify management for different stages of succession. RB
Trent NN-S	076	Small area of woodland to expand and link existing corridor.
Trent NN-S	078	Create woodland along the escarpment. JMB
Trent NN-S	079	Trent Hills Wood. This section is not as good as section North and South. Important bat habitat (roosting and foraging). MGW
Trent NN-S	083	New woodlands on airfield connecting with Trent Hills.
Trent NN-S	086	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
Trent NN-S	087	Connect Trent hills woodland to Flintham Wood.
Trent NN-S	088	Link Stoke lock woodland to other woods in Stoke Bardolph via corridors (South Trent owned). RB
Trent NN-S	089	Expand Trent hills woodland. MGW
Trent NN-S	090	Improved management required. Work with landowner. PP

Map 2 - Grassland Biodiversity Opportunity Map

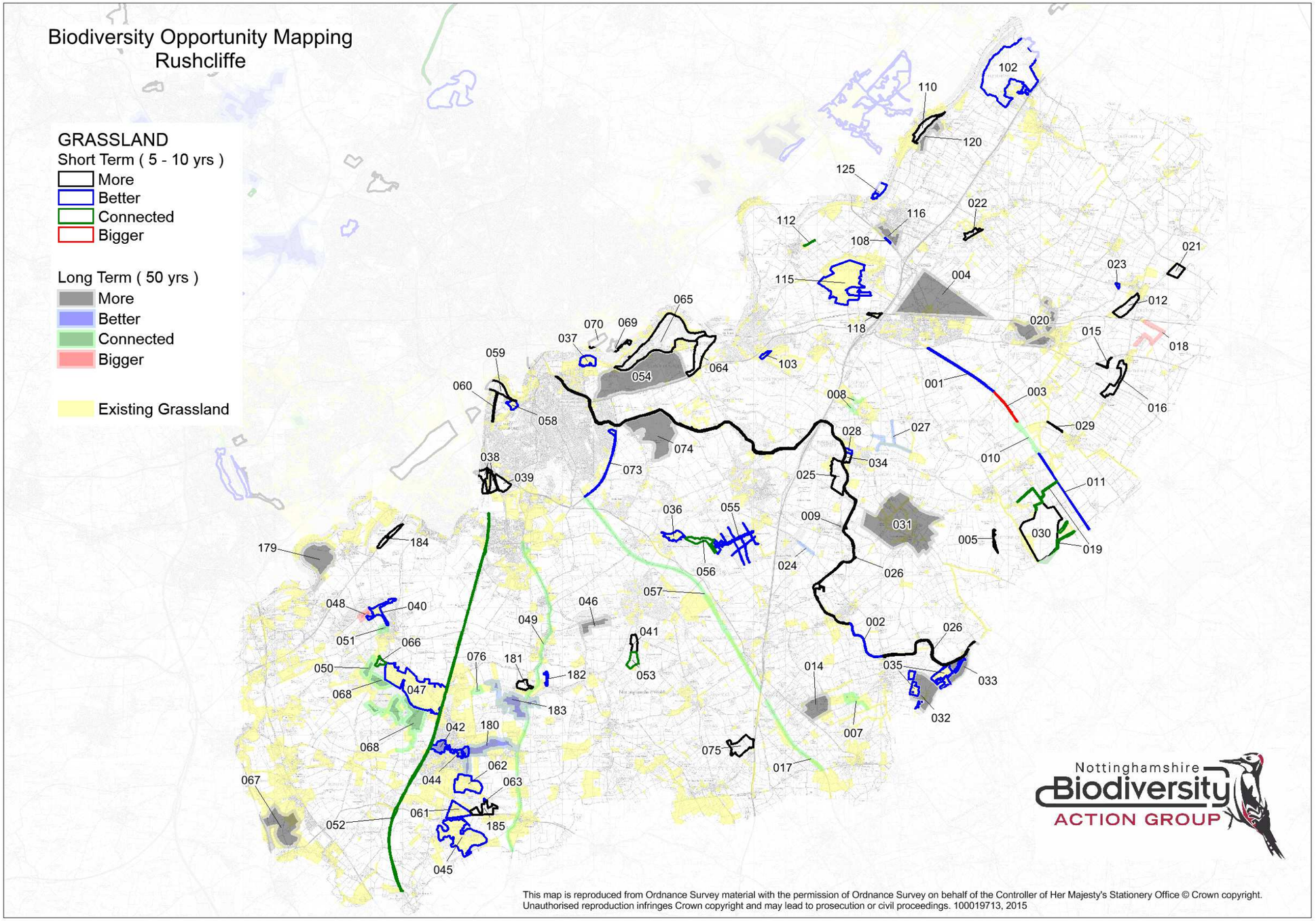


Table 2 - Biodiversity Opportunity table for Grassland (G)

Report ID	Map Display ID	Opportunity
RushEast	001	Bingham Linear Park supports existing grassland - ongoing management required. MSS
RushEast	002	Opportunity for keeping unimproved grasslands alongside the canal - some still unimproved sections at the moment. CCl
RushEast	003	Potential extension of grassland management - site in private ownership. MSS
RushEast	004	Development within local plan - opportunity for green infrastructure. PP
RushEast	005	Set aside grassland beside Stroom Dyke - land owner known. DB
RushEast	007	Good site to link/make bigger. PP
RushEast	008	Opportunity to connect e.g. by wide margins. PP
RushEast	009	Small area of grassland within Fishpond Wood, Owthorpe. DB
RushEast	010	Relink Bingham Linear Park to Barnstone Cutting. BB
RushEast	011	Improve condition of southern end of disused railway, near Barnstone. NC
RushEast	012	Improve grassland around ponds. Improved habitat connectivity for Orston Plaster Pits SSSI. BD
RushEast	014	Good site to link/make bigger. PP
RushEast	015	Old road now bypassed between Elton and Whatton. Potential to create and manage grassland. BB
RushEast	016	Improved grassland (existing), mostly used for hay which could be enhanced if it was possible to work with landowners. GJJ
RushEast	017	Improve connectivity along railways test track - scrub management. NC
RushEast	018	Potential to create border of grassland.
RushEast	019	Improve connectivity around Langar airfield site; particularly to benefit Grizzled Skipper. NC
RushEast	020	Connect grasslands around Whatton-in-the-vale + Aslockton. BD
RushEast	021	Grassland improvements around perimeter and possibly within solar farm. BB
RushEast	022	Manage Car Colston village green. Improved meadow management and aftermath grazing and seeding. NP
RushEast	023	Orston - too neatly manicured. Less good than 10 years ago. PP
RushEast	024	Green lane - protect and enhance. Good quality, Silver-washed Fritillary seen. NP
RushEast	025	Re-create calcareous/neutral grassland on former gypsum site - link to the Creamery LWS and canal farm grasslands. JMB
RushEast	026	Grantham canal - could we improve the grass verge by changing mowing regime to allow cowslips etc. in the spring. CCl
RushEast	027	Survey green lane network and identify sites for improvement. NP
RushEast	028	Enhance LWS and bring adjacent grassland into better management to increase diversity. JMB
RushEast	029	Recent tree planting leaving some grassland along the line. BB
RushEast	030	Recreate and diversify grassland on Langar Airfield. JMB
RushEast	031	Area of focus for grassland enhancement, creation and management around Colston Basset. JMB
RushEast	032	Create new grassland and manage/enhance existing grasslands. JMB
RushEast	033	Create new grassland and manage/enhance existing grasslands. JMB
RushEast	034	Enhance LWS and bring adjacent grassland into better management to increase diversity. JMB
RushEast	035	Create new grassland and manage/enhance existing grasslands. JMB
RushWest	036	Normanton Pastures SSSI-manage better and no woodland, see woodland map conflict. NP
RushWest	037	Simkin Farm-management agreement potential. PP
RushWest	038	Increase areas of grassland (and other habitat types) round Wilwell. Land farmed or set aside (owned by city council). Some of this land taken over by NET & has been reseeded with species rich grassland mix. GD
RushWest	039	Seek more wildlife friendly management of golf course. GD
RushWest	040	Improve grasslands on Gotham Pastures SSSI and SINC. Some parts owned by British Gypsum. GD

Report ID	Map Display ID	Opportunity
RushWest	041	Lings Lane Horse Pastures, ensure remains a grassland. Could be improved. Good quality with ridge and furrow. NP
RushWest	042	Meadow Park, improve species richness. GD
RushWest	043	Improve grassland sports pitches as habitat. Amenity grassland management at present. Area is flood alleviation owned by Nottingham University. JEO
RushWest	044	East Leake washlands-improve/manage. PP
RushWest	045	Stamford Hall, protect grassland. PP
RushWest	046	Sheepfold grassland-was very good for golden plover, lapwing and winter gulls - potential for improvement. NP
RushWest	047	Rushcliffe golf course - grassland management. PP
RushWest	048	Convert improved grassland to species rich. GD
RushWest	049	A60-connect grasslands along road verges - enhance. PP
RushWest	050	Connect grasslands along bridleways. PP
RushWest	051	Connect grasslands, improve Gotham railway walk. MGW
RushWest	052	Great central verges connect/improve. PP
RushWest	053	Connect horse pastures to Keyworth Meadow to Fairham Brook. NP
RushWest	054	Grassland improvements within the Holme Lakes complex including C/P. GD
RushWest	055	Protect, enhance and extend the species rich rides throughout Cotgrave Forest. NP
RushWest	056	Connect species rich grassland. NP
RushWest	057	Protect and enhance test track if it becomes available. NP
RushWest	058	Gresham Marsh dry grassland improvement management. GD
RushWest	059	Area of rough grassland beyond flood bank. Opportunities for improvement. Land owned by Environment Agency. GD
RushWest	060	Old railway embankment - did contain fragments of species rich-heavily scrubbed over. GD
RushWest	061	Improved grassland opportunity to create linkages from Stanford Hall to Lings Farm. GD
RushWest	062	Manor Farm opportunities for improved grassland within area. GD
RushWest	063	Old graveyard rough grassland. But traces of species rich. Restoration management. GD
RushWest	064	Revert recent arable land back to species rich grassland. NC
RushWest	065	Improvements to grassland management around rowing course. NC
RushWest	066	Gypsum Way - species rich verge which could be better managed. GD
RushWest	067	Normanton on Soar - recreate species rich grassland, long term project. JB
RushWest	068	Defragment whole area through restoring calcareous grassland. JB
RushWest	069	Colwick Country Park, room for better grassland management, enhance diversity of site. EA/FA
RushWest	070	Nottingham Racecourse, semi-improved grassland, room for improved management. EA/FA
RushWest	071	Nottingham Beeston Canal, potential for grassland habitat along towpath and adjacent land. Currently amenity grassland, but could be changed to meadow by removal of topsoil, seeding and management. RB
RushWest	072	Queens Drive Park & Ride, has a meadow with native neutral species. EA/FA
RushWest	073	Roadside land along A52 at Gamston, Management to connect existing areas of grassland. RB
RushWest	074	Tollerton Airport, open to suggestions for improved grassland management to increase species diversity. EA
RushWest	075	Willoughby Lodge, 2 tiny patches of woodland surrounded by grassland. New owners creating a livery and may be eschewing herbicides & fertilisers. Owner is sympathetic to Biodiversity. BB
RushWest	076	A small piece of land that will create an important link between two larger blocks of existing grassland.
RushWest	179	A habitat link between the grasslands at Thrumpton and the rest of the Trent Valley. PP
RushWest	180	There are long term opportunities to improve the management of and link between existing grasslands along the Kingston Brook and also to the eastern edge of East Leake. PP
RushWest	181	The restored area of grassland at Bunny landfill site could be enhanced for its biodiversity. GD
RushWest	182	Silver Seal mine is an existing area of grassland and scrub. It is designated as a Local Wildlife Site. Management should be enhanced in partnership with the site owner British Gypsum. GD

Report ID	Map Display ID	Opportunity
RushWest	183	The gentler slopes and hill tops to the south of New Wood (e.g. the small 'cowslip fields' near Ash lane and other sites on Bunny Hill) support a good resource of old pastures and grasslands. These sites should be maintained and enhanced. NH
RushWest	184	The proposed housing estate at Clifton includes a proposal for green infrastructure to the northern side of the A453 close to Brands Hill. The GI includes a large strip of new grassland. GD
RushWest	185	Extension of sand & gravel pit restoration towards Rempstone. Area to be restored to grassland. GD
Trent NN-S	102	Syerston Airfield. Improve existing grassland. Some is managed with wildlife in mind. RAF seem responsive to suggestions. MGW
Trent NN-S	103	Dewberry Hill to be leased from NCC by Radcliffe on Trent parish council for 50 years. Potential to improve grassland. GD
Trent NN-S	108	Managed by East Bridgford Wildlife Group. Area of grassland potential for improvement. PP
Trent NN-S	110	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!
Trent NN-S	112	Farm track with grassland fringes possible for improvement and links to woodland.
Trent NN-S	115	Protect and enhance airfield grassland-diversify sward and manage as hay meadow. JMB
Trent NN-S	116	Farmland linking various grassland areas. Potential to improve links and areas covered. GD
Trent NN-S	118	Area of infill between disused railway (Grizzled skipper) and main road, potential for improvement. GD
Trent NN-S	120	Improve quality of poor condition grassland. MGW
Trent NN-S	125	Gunthorpe grassland (left bank, d/s of lock) grazed parkland, previously SINC. Canal and River Trust owned. RB

Map 3 - Wetland Biodiversity Opportunity Map

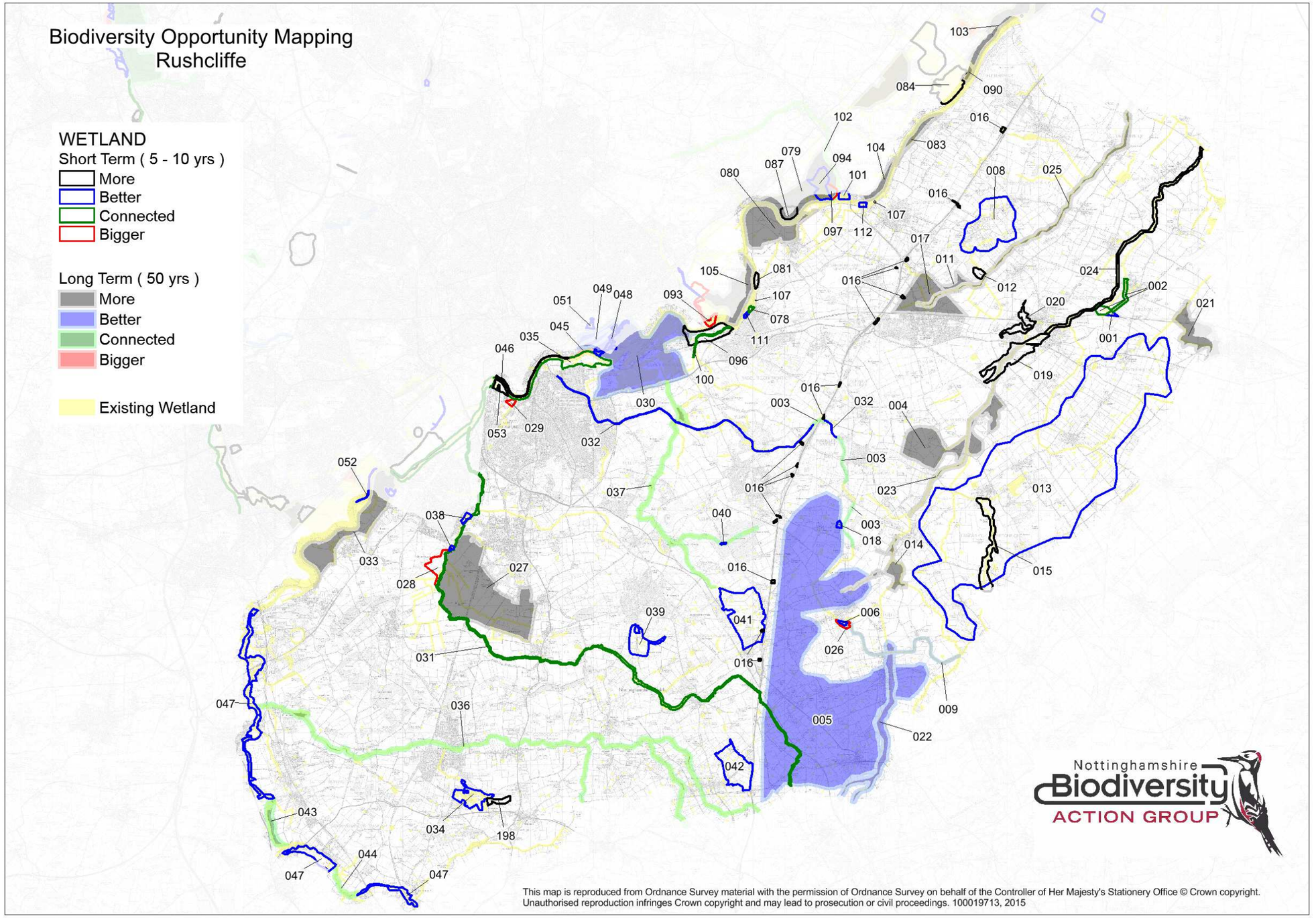


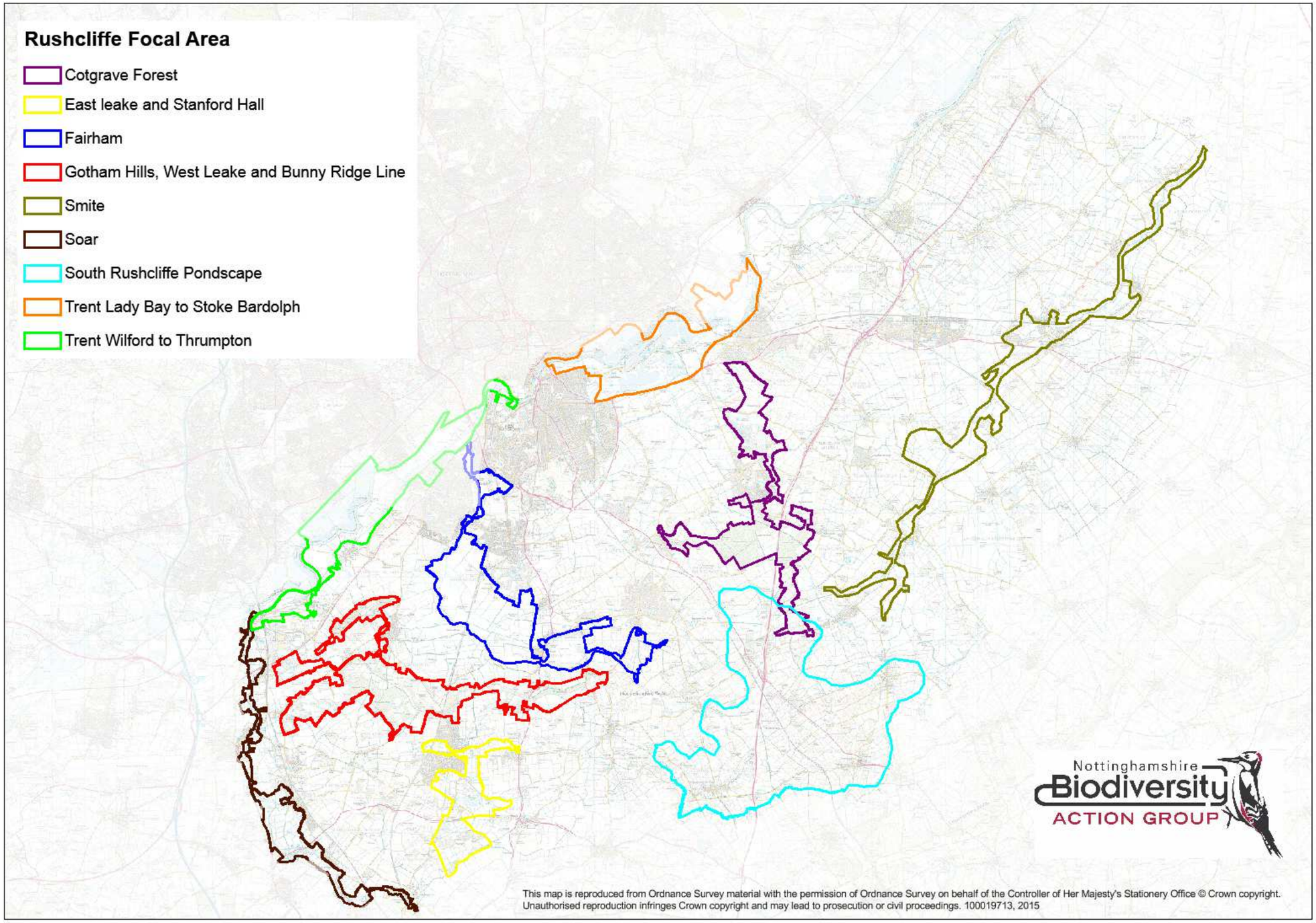
Table 3 - Biodiversity Opportunity table for Wetland (M)

Report ID	Map Display ID	Opportunity
RushEast	001	Orston Plaster Pits - very good site for dragonfly species, and may support GCNs. MGW
RushEast	002	Connecting Orston Plaster Pit to pond and river network to enable dragonfly species to spread. Manage grassland between ponds. MGW
RushEast	003	Improve wetland connectivity along dry sections of the Grantham Canal. NC
RushEast	004	Investigate river restoration and wetland habitat creation in this area. DJW
RushEast	005	Pondscape - could connect with West Rushcliffe. Enhance existing ponds, create a better connection between ponds by creating new ponds. MGW & CJ
RushEast	006	Improve condition of Kinoulton Marsh SSSI. NC
RushEast	008	Restore neglected ponds now in arable land. NP
RushEast	009	Work with Grantham canal restoration to ensure good habitat. NP
RushEast	011	Wetland habitat creation - fen and marsh along the Car dyke. JMB
RushEast	012	Wetland habitat creation - fen and marsh along the Car dyke. JMB
RushEast	013	Pondscape 'phase 2' survey and pond restoration, water shrews, include amphibians, inverts etc. (there are more ponds than picked up by connectivity map). BD
RushEast	014	Fen/marsh creation through reducing the drainage. JMB
RushEast	015	Recreation of marsh, river restoration along the Smite.
RushEast	016	Ponds created during the A46 widening. Influence their management. MSS
RushEast	017	Development opportunity within local plan. PP
RushEast	018	There are several (10) finger ponds that require management - poplar control. DB
RushEast	019	Investigate the possibility of providing upstream wetland habitat to help alleviate flood risk at Whatton-in-the-Vale and Aslockton. IDB agreement needed. DJW
RushEast	020	Wetland habitat creation to intercept overland flows to Whatton-in-the-Vale and Aslockton. IDB agreement needed. DJW
RushEast	021	Potential for wetland habitat creation in Notts d/s of Bottesford. Will help reduce overland flows downstream in Winter Beck system. DJW
RushEast	022	Watercourse suffers from cattle poaching with increased sediment downstream. Could install cattle drinks and install river restoration techniques. DJW
RushEast	023	Investigate river restoration options such as creation of two stage channel and remeandering sections. Consider countryside stewardship for this area. DJW
RushEast	024	Investigate river restoration options on this stretch of the R Smite. Also potential for the provision of fish refuges. Local ownership may make river restoration difficult. Install rock ramp, pre barrage fish passes downstream of bridges to improve fisheries habitat. Bridges currently act like weirs. DJW
RushEast	025	Investigate the possibility of river restoration options, two stage channel and backwaters. Look at providing a rock ramp downstream of bridges. DJW
RushEast	026	Buffer Kinoulton Marsh SSSI with wetland habitat. NC
RushWest	027	Flood Bunny, Bradmore, Gotham Moor-restore to mere. NP
RushWest	028	Clifton Pastures development, green infrastructure. PP
RushWest	029	Gresham Marsh PLNR. PP
RushWest	030	Improve wet habitats, lakeside margins, wet grassland, wet woodland. Important bat, reptile and amphibian populations. Breeding and wintering birds. Land to the south may be put into local development plan so funds may become available to enhance adjacent habitats. MGW
RushWest	031	Fairham Brook restoration project - river restoration/enhancement, and associated habitat creation. JMB
RushWest	032	Maintain connectivity between Grantham Canal and River Trent corridor. Grass snake populations along canal and amphibians in non-flowing sections. Build hibernacula. JEO Improve value of Grantham Canal: maintain water levels; create offline ponds and associated habitat; long term habitat restoration. PP
RushWest	033	Re-creation of marsh/fen/wet grassland habitat, in floodplain. JMB
RushWest	034	Lings Farm Quarry - enhanced wetland restoration required. JMB
RushWest	035	Enhance habitat along River Trent and to tributary's generally. JEO
RushWest	036	Kingston Brook - potential river restoration project. JMB
RushWest	037	Polser Brook improvement. PP
RushWest	038	Regenerate reedbed at Fairham Brook nature reserve. DJW

Report ID	Map Display ID	Opportunity
RushWest	039	Pondscape - enhance and protect. NP
RushWest	040	Ponds - enhance and protect. NP
RushWest	041	Pond cluster around Roehoe Wood/Jericho farm. Improve and create new ponds. NC
RushWest	042	Pondscape around Willoughby - improve. NC
RushWest	043	Marsh grassland habitat could be connected here potentially.
RushWest	044	Connect wetland habitats in Soar floodplain.
RushWest	045	Extension of habitat along the River Trent, Meadow Lane/Trent Basin etc. Extension of existing wet woodland and other wetland habitats. FA
RushWest	046	Long term improvements of riparian habitats along the Trent. Options for reducing areas of hard engineering. Possible wetland improvements at the Embankment. EA/FA
RushWest	047	River Soar: C&RT working with L&RWT "Re-Wilding the Soar". Includes management of Riparian trees and woodland. Many sites along the Soar are owned and managed by C&RT. RB
RushWest	048	Colwick Country Park, enhancements to wetland habitats at CCP. Existing wildlife lake surrounded by areas of wet woodland/ marsh areas. Possible 5-10 year project with volunteers. EA/FA
RushWest	049	Nottingham Racecourse: 2 x existing LWS, ditches and ponds with typha bed and transitional habitat. Potential scope for wetland creation as site is often damp and racecourse leaseholders have problems with land drainage, possible reedbed/ attenuation pond. EA
RushWest	050	Notts Beeston canal and Boots Campus: ditch alongside canal has potential for improved management for wetland spp (including water vole). RB Pre-app Planning advice given to 'boots' applicant for re-development. Step back from the canal and have habitat and access creation by canal. EA
RushWest	051	Colwick Woods: new pond created in 2005. Potential for more wetland and improved marsh wet woodland areas. EA/FA
RushWest	052	Riverbank alongside Attenborough Nature Reserve. Potential to improve tree management. Partnership work between C&RT and NWT. RB
RushWest	053	Iremongers Pond: riparian improvements as part of NET Phase2. Potential for wetland enhancements to north. Managed by NWT and Friends Group. EA/FA
RushWest	054	Holme Pit: Has reduced in Ecological status of SSSI. Water quality issues and causes being looked into. Land around Holme Pit SSSI is City Council owned but has long term lease with local farmers. Suitable for wetland creation, but has implications for farming community and income for council. EA
RushWest	055	Tottle Brook through Highfields, and Pasture Lane Brook through Dunkirk Ponds. Potential to improve wetlands around corridors on each site. Current project at Highfields and Beeston Sidings managed by NWT. EA/FA
RushWest	198	Extension of sand & gravel pit restoration towards Rempstone. Area to be restored to wetland. GD
Trent NN-S	078	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. RB
Trent NN-S	079	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. Mosaic of wetland habitats. DJW
Trent NN-S	080	Large scale habitat creation-wet grassland and reedbed and river 'channel' re-branding or creation of back-channel. JMB
Trent NN-S	081	Tall ruderal floodplain with potential for scrapes, mires and wet grassland. GD
Trent NN-S	083	Improved grassland on flood plain, potential for acres of wet grassland. GD
Trent NN-S	084	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
Trent NN-S	087	Reinstatement of flooded pool at Burton Meadows. JEO
Trent NN-S	090	Better marshes (wetland) edge habitat. DJW
Trent NN-S	093	Netherfield Lagoons. Enhance existing margins and wet grassland. Create reedbed and wader scrapes. MGW
Trent NN-S	094	Habitat enhancement of existing wetlands. Reshape margins; reedbeds. JMB
Trent NN-S	096	Bleasby and Holme Pierrepoint. Management to consider local grass snake and amphibian populations. JEO
Trent NN-S	097	Habitat creation-wet grassland-part of Gunthorpe flood remediation scheme. JMB
Trent NN-S	100	Polser Brook. Connecting stream out past skylarks into Rushcliffe (potential route of canal). GD
Trent NN-S	101	Gunthorpe Gravel Pits. Management to consider significant toad, frog and smooth newt population. JEO
Trent NN-S	102	Cocker Beck. Improve wetland connectivity along Cocker Beck from River Trent to Lambley Dumbles, Ploughman Wood, Gedling Country Park. JEO
Trent NN-S	103	Mosaic of wetland habitats. Priorities being wetland grazing marsh and marshy habitats. DJW
Trent NN-S	104	Mosaic of wetland habitats.
Trent NN-S	105	Land around Netherfield lagoon - wet grassland and ditches could be improved - some could be 5-10 years. GD

Report ID	Map Display ID	Opportunity
Trent NN-S	107	Enhance Caunton Beck to connect habitats including ancient woodland and generally all dumbles and becks. BT
Trent NN-S	111	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
Trent NN-S	112	Trentside, East Bridgford. I think owned by E Bridgford parish council - is currently unmanaged. PP

Map 4 - Focal Areas



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.

Broad habitat type - WOODLAND	
PBW	Broadleaved woodland - plantation
BW	Broadleaved woodland - semi-natural
PMW	Mixed woodland - plantation
MW	Mixed woodland - semi-natural
Broad habitat type – GRASSLAND	
SCG	Calcareous grassland - semi-improved
CG	Calcareous grassland - unimproved
SNG	Neutral grassland - semi-improved
NG	Neutral grassland - unimproved
SAG	Acid grassland - semi-improved
AG	Acid 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
Broad habitat type - WETLAND	
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
RW	Running water
RWB	Running water - brackish
RWD	Running water - dystrophic
RWE	Running water - eutrophic
RWC	Running water - marl
RWM	Running water - mesotrophic
RWO	Running water - oligotrophic
SW	Standing water
SWB	Standing water - brackish
SWD	Standing water - dystrophic
SWE	Standing water - eutrophic
SWC	Standing water - marl
SWM	Standing water - mesotrophic
SWO	Standing water - oligotrophic
SP	Swamp
WB	Wet modified bog

Appendix 3 - Permeability values

The following three tables provide a list of Phase 1 habitats and the permeability scores assigned to each of these Phase 1 habitats. The three tables correspond to one of the three broad habitat types (woodland, 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:

- 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/commerical 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

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	1	NCC
RWB	Running water - brackish	1	NCC
RWD	Running water - dystrophic	1	NCC
RWE	Running water - eutrophic	1	NCC
RWC	Running water - marl	1	NCC
RWM	Running water - mesotrophic	1	NCC
RWO	Running water - oligotrophic	1	NCC
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	1	NCC
SWB	Standing water - brackish	1	NCC
SWD	Standing water - dystrophic	1	NCC
SWE	Standing water - eutrophic	1	JNCC
SWC	Standing water - marl	1	JNCC
SWM	Standing water - mesotrophic	1	JNCC
SWO	Standing water - oligotrophic	1	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/commerical 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

Trent Newark to Nottingham BOM Workshop, 21st June 2013 - list of Attendees				
Name	**Initials**	**Organisation**	**Position**	**E-mail**
Richard Bennett	RB	Canal and River Trust	Senior Ecologist	richard.bennett@canalrivertrust.org.uk
Jenni Blakeman	JRB	Nottinghamshire Wildlife Trust	Wetland Projects Officer	jblakeman@nottswt.co.uk
Janice Bradley	JMB	Nottinghamshire Wildlife Trust	Head of Conservation Policy and Planning	Jbradley@nottswt.co.uk
Gary Cragg	GC	Nottinghamshire Wildlife Trust	Conservation Assistant	GCragg@nottswt.co.uk
Nick Crouch	NC	Nottinghamshire County Council	Senior Practitioner Nature Conservation	nick.crouch@nottscc.gov.uk
Gordon Dyne	GD	Rushcliffe Nature Conservation Strategy Implementation Group	Chair	gordon.dyne@gmail.com
Chris Jackson	CJ	Notts BAG	Biodiversity Officer	chris.jackson@nottscc.gov.uk
John Osborne	JEO		County Herp Recorder	jeosbourne@btinternet.com
Adrian Southern	ATS	RSPB	Futurescapes Project Manager (Midlands)	adrian.southern@rspb.org.uk
Bill Thomson	BT	Natural England	Central Landscape Scale Delivery Team	Bill.Tomson@naturalengland.org.uk
Michael Walker	MGW	Nottinghamshire Bat Group	Chair	mwalker@nottswt.co.uk
Dan Widdowson	DJW	Environment Agency	Biodiversity Officer	dan.widdowson@environment-agency.gov.uk
Viewed maps and added comment on Tuesday 25th June				
Carl Cornish	CC	RSPB	Conservation Officer (Notts and Lowland Derbys)	ccornish@rspb.org.uk
Paul Phillips	PP	Rushcliffe Borough Council	Community Environment Officer	pphillips@rushcliffe.gov.uk

Rushcliffe West & Broxtowe BOM Workshop, Tuesday 26th November 2013 - list of Attendees				
Name	**Initials**	**Organisation**	**Position**	**E-mail**
Janice Bradley	JMB	Nottinghamshire Wildlife Trust	Head of Conservation Policy and Planning	Jbradley@nottswt.co.uk
Gary Cragg	GC	Nottinghamshire Wildlife Trust	Conservation Assistant	GCragg@nottswt.co.uk
Nick Crouch	NC	Nottinghamshire County Council	Senior Practitioner Nature Conservation	nick.crouch@nottscc.gov.uk
Brian Dunning	BD	Natural England	Lead Management Adviser	brian.dunning@naturalengland.org.uk
Gordon Dyne	GD	Rushcliffe Nature Conservation Strategy Implementation Group	Chair	gordon.dyne@gmail.com
Steve Fisher	SF	Broxtowe Borough Council	Section Engineer - Countryside Liaison and Design	Steve.Fisher@broxtowe.gov.uk
Chris Jackson	CJ	Notts BAG	Biodiversity Officer	chris.jackson@nottscc.gov.uk
Gaynor Jones-Jenkins	GJJ	Nottinghamshire Wildlife Trust	Senior Conservation Officer	GJJenkins@nottswt.co.uk
John Osborne	JEO		County Herp Recorder	jeosbourne@btinternet.com
Rose Perkins	RP	Groundwork Greater Nottingham	Landscape Architect	Rose.Perkins@groundworknottingham.org.uk
Jo Phelan	JP	Groundwork Greater Nottingham		Jo.Phelan@groundworknottingham.org.uk
Paul Phillips	PP	Rushcliffe Borough Council	Community Environment Officer	pphillips@rushcliffe.gov.uk
Neil Pinder	NP	Friends of Keyworth	Volunteer	Neil.pinder@ntlworld.com
Michael Walker	MGW	Nottinghamshire Bat Group	Chair	mwalker@nottswt.co.uk
Dan Widdowson	DJW	Environment Agency	Biodiversity Officer	dan.widdowson@environment-agency.gov.uk
Viewed maps and added comment on Tuesday 21st January				
Emily Aron	EA	Nottingham City Council	Biodiversity & Greenspace Policy Officer	Emily.Aron@nottinghamcity.gov.uk
Felicity Atkins	FA	Nottingham City Council	Biodiversity & Greenspace Policy Officer	Felicity.Atkin@nottinghamcity.gov.uk
Bill Bacon	BB	Butterfly Conservation East Midlands	Chair	rwilliambacon@gmail.com
Richard Bennett	RB	Canal and River Trust	Senior Ecologist	richard.bennett@canalrivertrust.org.uk
Additional comments submitted in response to the Rushcliffe West BOM consultation process				
Neil Hunter	NH	Bunny Wood Management Group	Site Warden	

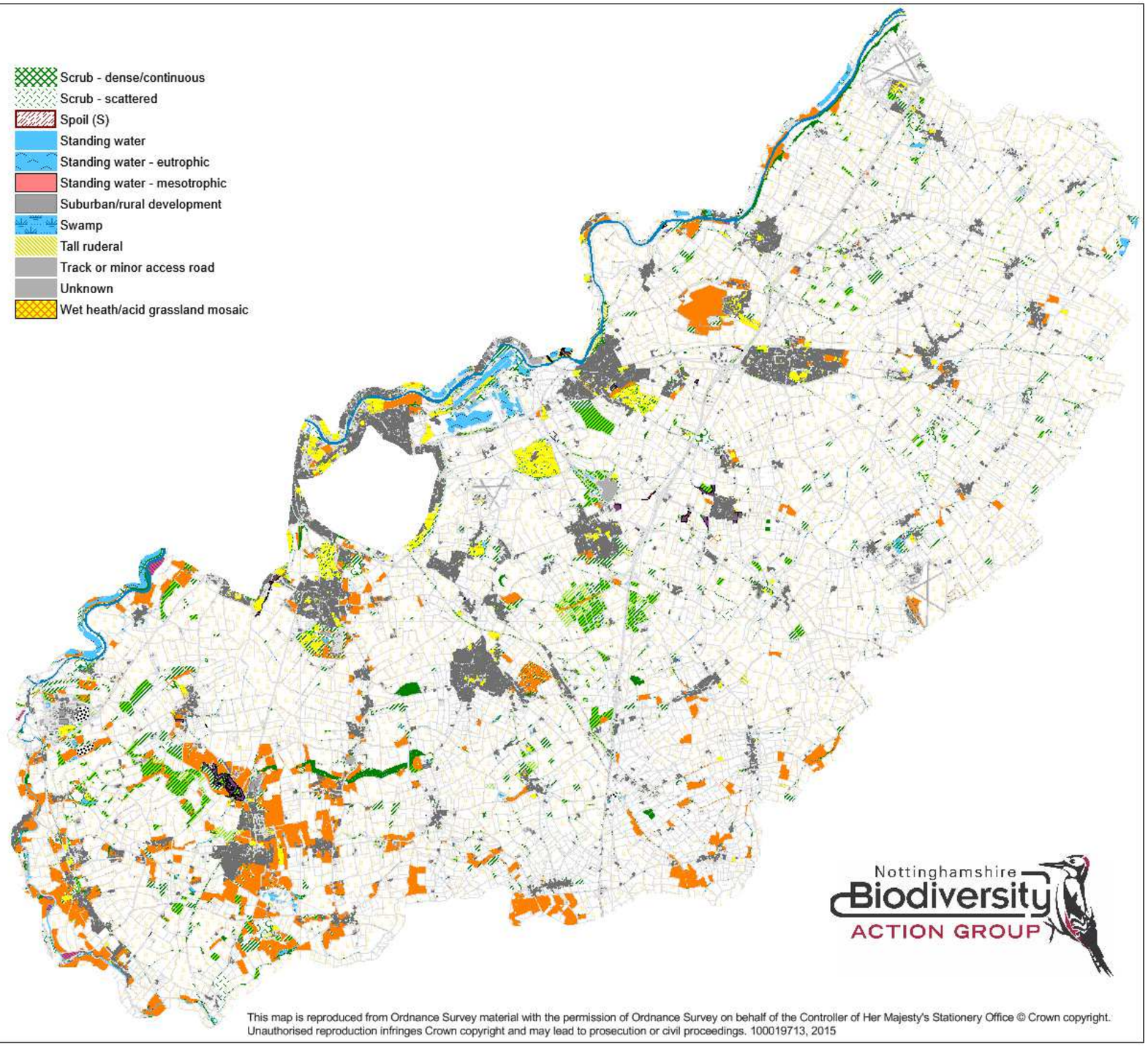
Rushcliffe East BOM Workshop, Tuesday 10th February 2015 - list of Attendees				
Name	**Initials**	**Organisation**	**Position**	**E-mail**
Bill Bacon	BB	Butterfly Conservation East Midlands	Chair	rwilliambacon@gmail.com
David Bate	DB	Friend of Fishpond Wood, Owthorpe	Volunteer	dgba@bgs.ac.uk
Janice Bradley	JMB	Nottinghamshire Wildlife Trust	Head of Conservation Policy and Planning	Jbradley@nottswt.co.uk
Carol Collins	CCl	Rushcliffe Nature Conservation Strategy Implementation Group		carol.w.collins@talk21.com
Nick Crouch	NC	Nottinghamshire County Council	Senior Practitioner Nature Conservation	nick.crouch@nottscc.gov.uk
Ben Driver	BD	Nottinghamshire Wildlife Trust	Southern Conservation Officer	BDriver@nottswt.co.uk
Chris Jackson	CJ	Notts BAG	Biodiversity Officer	chris.jackson@nottscc.gov.uk
Gaynor Jones-Jenkins	GJJ	Nottinghamshire Wildlife Trust	Senior Conservation Officer	GJJenkins@nottswt.co.uk
Janet Maughan	JM	Radcliffe-on-Trent Parish Council	Parish Councilor	John.Janet.Maughan@gmail.com
Paul Phillips	PP	Rushcliffe Borough Council	Community Environment Officer	pphillips@rushcliffe.gov.uk
Neil Pinder	NP	Friends of Keyworth	Volunteer	Neil.pinder@ntlworld.com
Amy Sneap	AS	Nottinghamshire Wildlife Trust	Conservation Assistant	ASneap@nottswt.co.uk
Mark Speck	MSS	Nottinghamshire Wildlife Trust	Northern Conservation Officer	mspeck@nottswt.co.uk
Ruth Tall	RT	Natural England	Lead Advisor, Land Management Team	ruth.tall@naturalengland.org.uk
Michael Walker	MGW	Nottinghamshire Bat Group	Chair	mwalker@nottswt.co.uk
Dan Widdowson	DJW	Environment Agency	Biodiversity Officer	dan.widdowson@environment-agency.gov.uk
Viewed maps and added comment during week beginning Monday 23rd February 2015				
Hannah Hogan	DJW	Environment Agency	FCRM Officer	
Matthew Buck	DJW	Environment Agency	Fisheries Technical Advisor	
Graham Dixey	DJW	Environment Agency	Environment Officer	

Appendix 5 - The Basemap

Map 1- Phase 1 covering the Borough of Rushcliffe.

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 - semi-improved
- 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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Appendix 6 – Habitat Network maps

Map 1 - Current Woodland Connectivity
Map 2 - Current Grassland Connectivity
Map 3 - Current Wetland Connectivity

Woodland

Rushcliffe

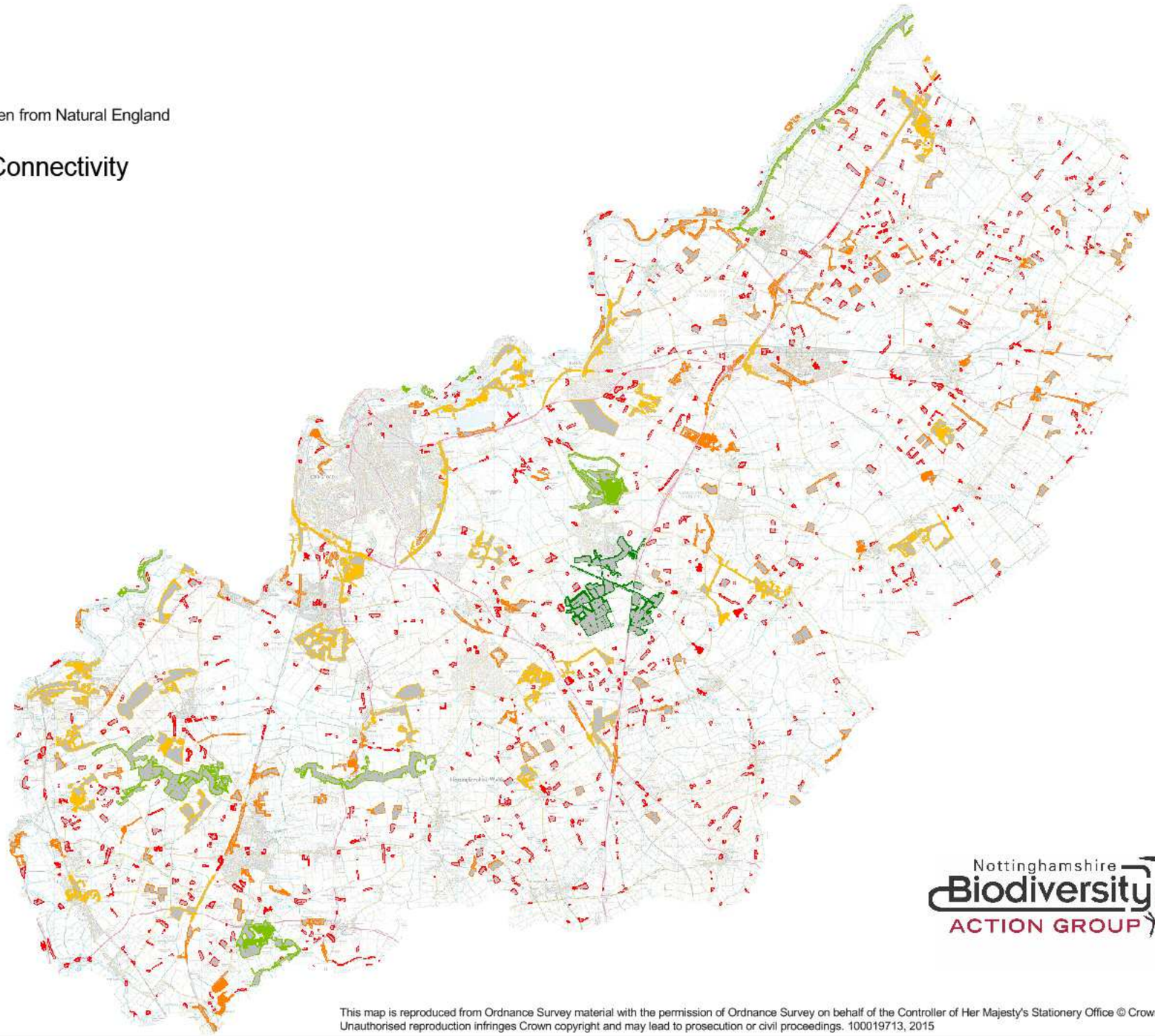
Based on dispersal distance taken from Natural England

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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Grassland

Rushcliffe

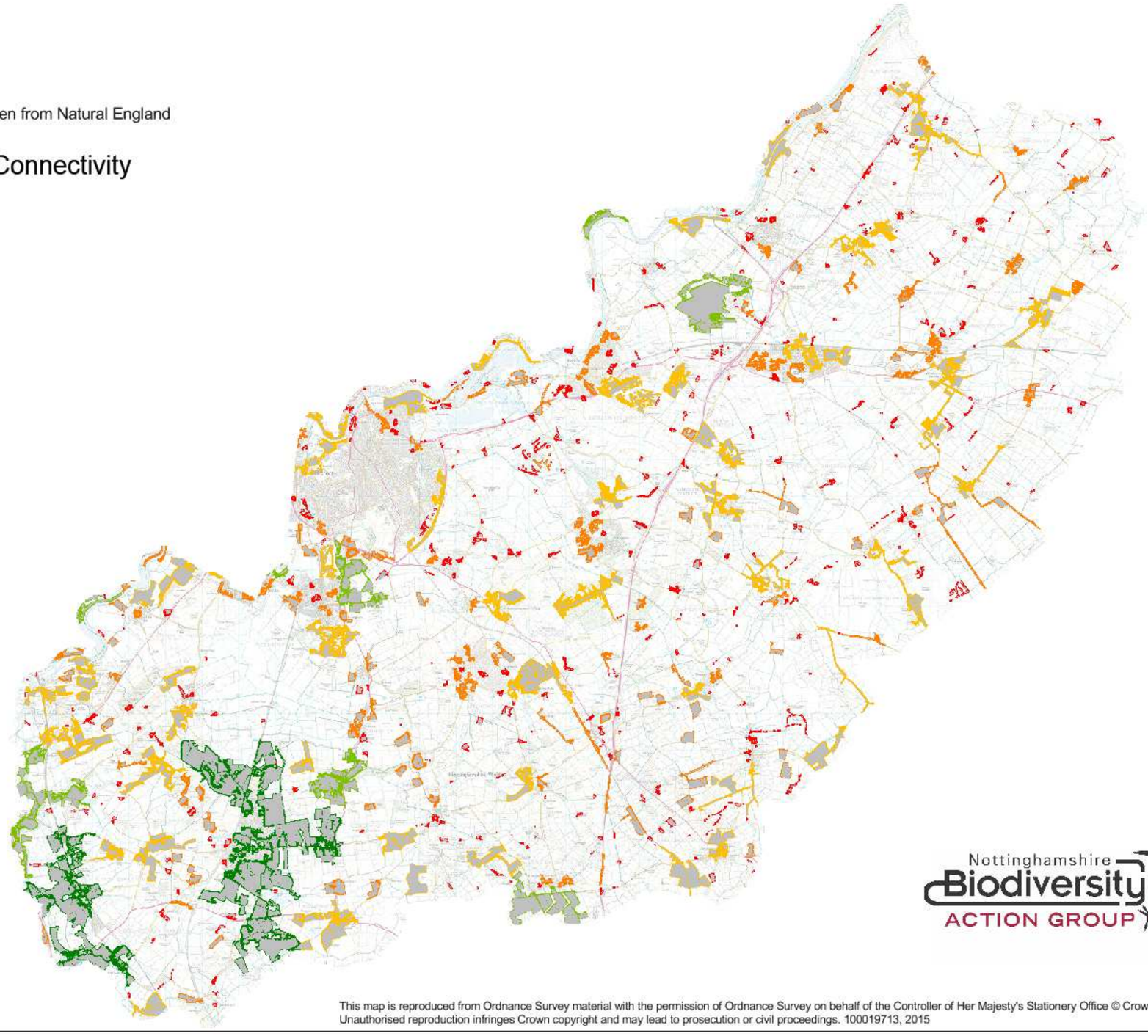
Based on dispersal distance taken from Natural England

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



Nottinghamshire Biodiversity Action Group

Wetland

Rushcliffe

Based on dispersal distance taken from Natural England

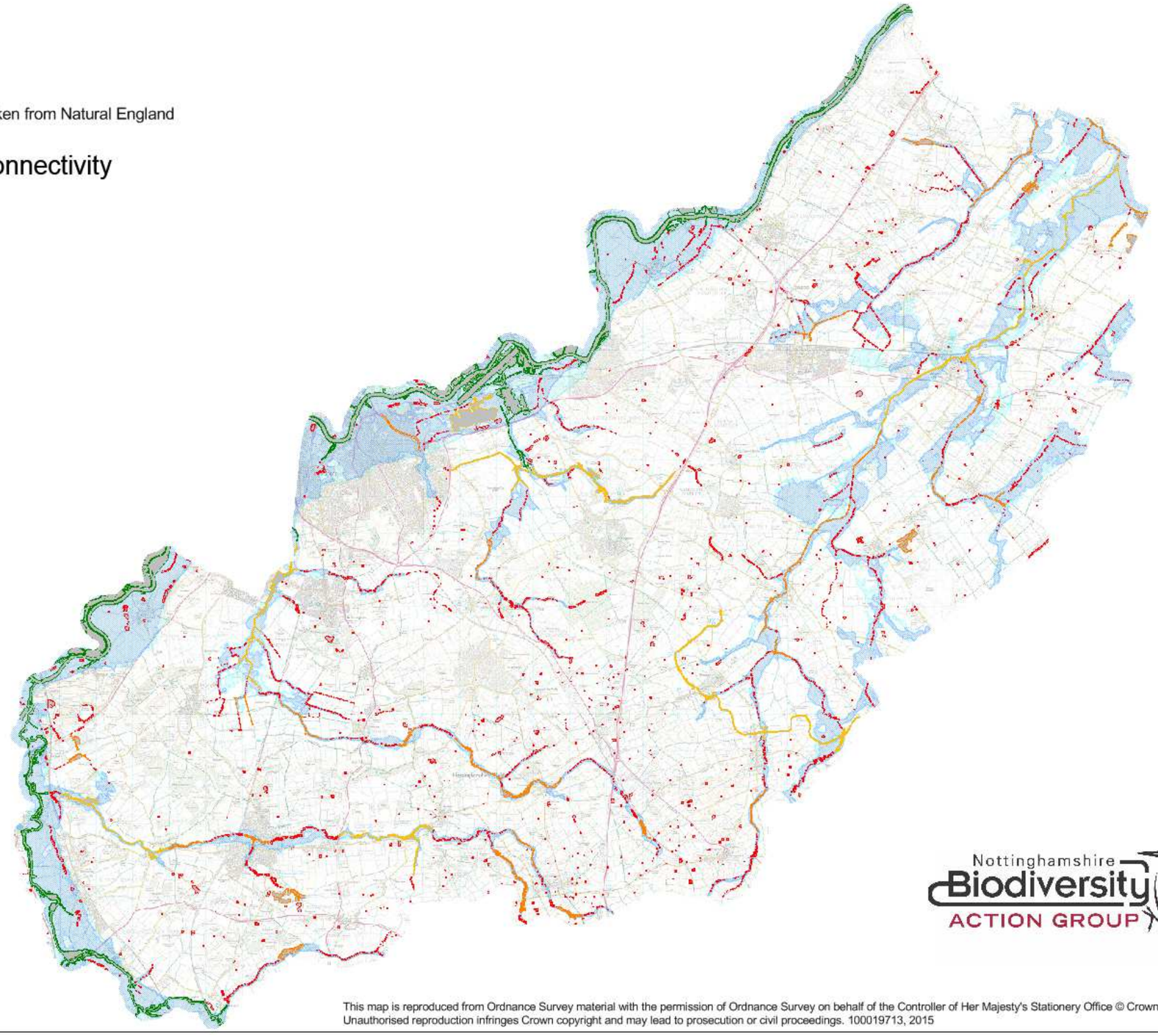
Current Wetland Connectivity

Area of Wetland network

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

- Flood Zone 2
- Flood Zone 3

- Existing Wetland



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