Nottinghamshire County Council

Nottinghamshire Minerals Local Plan

Background Paper

Biodiversity

January 2016

Purpose of background paper

This background paper summarises the relationship between minerals and biodiversity. It considers why biodiversity is important, Local and national frameworks for the recreation of priority habitats, and the ongoing role of minerals restoration and the Minerals Local Plan in helping to deliver these.

Other background papers supporting the Minerals Local Plan

- Aggregates;
- Safeguarding;
- Archaeology;
- Biodiversity;
- Brick clay;
- Hydrocarbons – oil and gas;
- Industrial Dolomite;
- Landscape;
- Flood Risk;
- Site Selection.

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1. Introduction

1.1 Once mineral extraction has ceased, restoration of mineral sites can have a major environmental benefit; there is considerable potential to create areas of new habitat for wildlife, and in doing so, help to meet national and local habitat creation targets.

1.2 Whilst a certain level of new habitat has been delivered as a result of the restoration of permitted minerals extraction sites, opportunities have in the past been lost. With an appropriate policy framework in the Minerals Local Plan, and careful planning at an early stage, the level of high-quality habitat delivered by mineral extraction can be increased, creating valuable places for both wildlife and people.

2. Why create habitats?

2.1 Pressures such as agricultural intensification, forestry, and development have resulted in a significant reduction in the area and quality of habitat in Nottinghamshire over the last few centuries (as in the rest of the UK), and even within recent decades. As a result, the biodiversity resource of the county is highly impoverished. For example;

- Just 1.5% of the area of Nottinghamshire is designated as nationally important wildlife sites, comparing poorly with a regional average of around 4.5% and a national (England) average of just over 8%[1].
- 97% of the county's flower-rich meadows have been lost since the 1930s[2].
- 90% of our heathland has been lost since 1922[3].
- Species such as grass of Parnassus, pearl-bordered fritillary and Nottingham catchfly have become extinct in the county.

2.2 Although a number of important wildlife sites, such as Sites of Special Scientific Interest, are protected, the erosion of our biodiversity continues with habitat being damaged or destroyed and species lost as a result of development, agricultural intensification, pollution, invasive non-native species or inappropriate management. Even those sites that are properly looked after are difficult to manage, due to their fragmented distribution and (often) small size. In 2008, at a national level, 43% of our important habitats were assessed as being in decline, along with 29% of our important species[4]. More recently, assessments have determined that of

[1] https://www.gov.uk/protected-or-designated-areas
[2] Nottinghamshire Local Biodiversity Action Plan - Habitat Action Plan for Lowland Neutral Grassland Nottinghamshire Wildlife Trust 2011
[3] Nottinghamshire Local Biodiversity Action Plan – Habitat Action Plan for Lowland Heathland Nottinghamshire Wildlife Trust 2011
[4] A biodiversity strategy for England, Measuring progress: 2010 assessment DEFRA 2011

3,148 species for which quantitative populations or distribution trends are available, 60% have declined over the last 50 years, and 31% have declined strongly, whilst 155 conservation priority species have declined in overall number by 77% in the last 40 years[5].

2.3 In order to restore a healthy, functioning and high quality natural environment that supports a rich diversity of species, steps need to be taken to restore areas of degraded habitat, to buffer and reconnect existing sites to allow species to migrate and disperse as our climate changes, and to recreate new areas of habitat to replace those that have been lost.

Benefits for local people

2.4 As well as being important for our wildlife, the creation of new, high-quality habitats also has benefits for the residents and visitors of Nottinghamshire, as biodiversity brings more general benefits to society by contributing to people's quality of life, the economy, and the environment. For example;

- People enjoy contact with nature - walking in the countryside and other greenspace is the most popular leisure activity in the country. Objective research[6] is showing that contact with nature is good for us, enhancing our quality of life and having a positive effect on both physical and mental well-being; easy access to healthy, natural environments provides opportunities for recreational activities, promoting health benefits, whilst time spent in natural environments promotes a positive outlook on life and improves people's ability to cope with, and recover from, stress, illness and injury.

- Biodiversity provides us with vital commodities such as food, shelter, clothing, medicines and industrial materials. Conserving and creating biodiversity supports jobs and incomes, and increases inward investment - the environment and biodiversity sector is of great importance to the economy, generating 3% of the region's GDP, making it comparable in size to sectors such as construction and food and drink. Creating attractive new areas of habitat also provides benefits to the local economy by attracting visitors.

- Biodiversity is integral to a healthy environment. It is a key component of sustainable development, and is an indicator of the health of the wider environment – an environment rich in biodiversity is likely to

[5] Burns F, Eaton MA, Gregory RD, *et al* (2013) State of Nature report. The State of Nature Partnership https://www.rspb.org.uk/Images/stateofnature_tcm9-345839.pdf
[6] 'A Countryside for health and wellbeing: They physical and mental benefits of green exercise' University of Essex 2005, quoted in Nature After Minerals, RSPB 2006

perform well against other environmental quality measures such as air and water quality. Biodiversity provides a suite of 'ecosystem services' including atmospheric, climatic and hydrological regulation, nutrient cycling, soil formation, pest control and pollination. As an example, floodplains and washlands have an important role in reducing the severity of floods, protecting towns and villages by providing areas in which water can be temporarily stored without damage to property. Restoring floodplains and recreating habitats such as lowland wet grassland or reedbed can help alleviate flooding whilst providing important habitat areas.

3. The Biodiversity Action Plan process

3.1 In line with the requirements of the Convention on Biological Diversity (CBD), which seeks to address biodiversity decline at the international level, the UK prepared a national Biodiversity Action Plan in 1994 (the UKBAP), followed up with subsequent updates. The UKBAP provided a detailed planning process for conservation of our most threatened ('priority') habitats and species at national and devolved levels. Action plans were developed to aid the recovery of these habitats and species, and reporting rounds undertaken to show how the UKBAP contributed to the UK's progress towards the significant reduction of biodiversity loss called for by the CBD.

3.2 Since July 2012, the "*UK Post-2010 Biodiversity Framework*"[7] has succeeded the UKBAP, and Section 41 (S41)[8] of the Natural Environment and Rural Communities Act (2006) has taken a more prominent role; this lists 56 Habitats of Principal Importance (which includes all the habitats occurring in England that were identified by the UKBAP) and 943 Species of Principal Importance (which includes all the species occurring in England that were identified by the UKBAP, plus Hen Harrier).

3.3 In order to help implement the UKBAP, as well as deliver actions for biodiversity features of local importance, the Local Biodiversity Action Plan (LBAP) process was developed across the country. In Nottinghamshire, the LBAP partnership, known as the Nottinghamshire Biodiversity Action Group (the 'Notts BAG'), produced its LBAP in 1998, entitled 'Action for Wildlife'. Despite the demise of the UKBAP process, the LBAP continues to provide a framework for work on nature conservation in the county, identifying priorities, setting targets for recovery, and managing a reporting process to monitor progress. The LBAP contains targeted Habitat Action Plans (HAPs) for all habitats, Species Action Plans (SAPs) for a selection

[7] http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf
[8] http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx

of species, and lists of all Species of Conservation Concern (SoCCs). These HAPS, SAPs and SoCCs are periodically updated, and all documents can be found on the Notts BAG website[9]. The HAPs contain targets for habitat creation and restoration up to 2015; targets beyond 2015 (up to 2025) have yet to be set.

Progress towards LBAP habitat creation targets

3.4 In order to improve the accuracy of existing data, and to demonstrate the continued need for the restoration of minerals sites to priority habitats, an accounting exercise is ongoing to determine more precisely how much LBAP habitat has been, or will be, delivered as a result of minerals restoration in Nottinghamshire. At the same time, information has been gathered, where available, about habitat created as a result of activities undertaken separately from the minerals restoration process by individual organisations (including those funded by grant schemes) and through other habitat creation projects.

a) Minerals restoration

Information has been gathered for all those sites or sub-sites that were active in (or have become active since) 2005, where habitat has either been restored subsequently or where it is proposed through a planning approval. This has been done with reference to site restoration plans, supporting information submitted as part of the planning process, information obtained directly from the applicant/operator, and aerial photos.

b) Other habitat creation information

Habitat delivered since 2005 through the activities of nature conservation organisations, such as site-specific projects, or as a result of other activities and initiatives including Environmental Stewardship and the English Woodland Grant Scheme ('Organisational activities') has been quantified, where available.

It must be noted that no guarantee can be made for the accuracy of the data. In both cases, the figures should be treated as an estimate due to gaps in the data (such as for habitat created as part of landfill restorations), problems with interpretation, and other missing information (for example, where restoration schemes have yet to be approved). It should also be noted that information has been gathered about a subset of key habitats deemed particularly relevant to minerals restoration.

[9] http://www.nottsbag.org.uk/projects.htm#bap

3.5 The figures arising from this mapping/data gathering exercise are shown in the table in Appendix 1.

4. The ongoing role of minerals restoration

4.1 It is widely recognised that the restoration of minerals extraction sites has a major role to play in meeting targets for the creation of new habitat, both nationally and locally. A study carried out by the RSPB[10] indicates that nationally, minerals restoration schemes can meet, and in some cases exceed, habitat creation targets for a number of national priority habitats.

4.2 The figures shown in Appendix 1 indicate that progress has been made towards the LBAP 2015 habitat creation targets, and that the restoration of minerals sites in Nottinghamshire has made a significant contribution. At the same time, they also show that the creation targets have not yet been met for any habitat, and that for some (e.g. lowland wet grassland, lowland neutral grassland, lowland calcareous grassland and marsh and swamp), we are still a long way off meeting the targets.

4.3 Therefore, it is evident that minerals restoration will continue to play a key role in helping to meet the LBAP targets in the future.

4.4 However, in order to maximise the potential value of minerals restoration schemes, it is necessary to carefully plan which habitats can be created, and where. This is because certain habitats can only be located in certain parts of the county as a result of underlying geology, and even then they can often only develop as a result of particular conditions at a site level. For example, calcareous grassland can generally only be created on the magnesian limestone geology in the west of Nottinghamshire, and even then, only on skeletal soils (not on enriched topsoil).

4.5 In addition, whilst all LBAP habitats are priorities for action, certain habitats are best delivered by mineral extraction - this is particularly true of wetland habitats, by virtue of the fact that many minerals site restorations (especially sand and gravel quarries) involve the creation of a void that fills with water. For example, significant areas of reedbed are, realistically, only achievable as a result of minerals site restoration. Appendix 2 lists those habitats which are considered priorities for creation through minerals restoration, along with those which are not priorities, and those which cannot be created through minerals restoration.

4.6 Furthermore, habitat creation should also be considered at a more strategic level. In particular, it can be used to contribute to landscape-

[10] Nature After Minerals, RSPB, 2006

scale conservation, as advocated by the RSPB in their 'Futurescapes' programme, and by the Wildlife Trusts through their 'Living Landscapes'. At the same time, habitat creation should be used to buffer, link and extend existing habitats, on the basis that large areas of habitat support more species, are more resilient to external forces, and are easier to manage (in terms of economies of scale). Alternatively, there may be cases for the planning of new habitat in areas where none currently exists – the creation of 'stepping stones' to aid the migration and dispersal of species.

4.7 It is recognised that in some instances, creation of habitat may not be appropriate or desirable, and it is not necessarily the intention that every area of every extraction site should be restored for the sole benefit of biodiversity - in some cases, restoration for leisure uses, or returning land to agricultural use, may be more appropriate. However, even in these cases, restoration schemes can be designed to maximise their value to achieve a net biodiversity gain.

5. Biodiversity in the Minerals Local Plan

5.1 The Minerals Local Plan is supported by the Biodiversity Opportunity Mapping project for the Trent Valley, the aims of which include:

- increasing understanding of the current distribution of biodiversity in the County
- providing a spatial vision for biodiversity in the long and medium term
- identifying the most effective way to re-create habitat networks at a landscape-scale
- informing spatial planning and other strategies

5.2 Therefore, to ensure the potential role of minerals development in securing improvements in biodiversity is met, the Minerals Local Plan includes a biodiversity-led restoration strategy, which is encapsulated in a series of strategic and development management policies. These policies:

a) seek to avoid damage to existing designated nature conservation sites and priority habitats
b) have a presumption in favour of the creation of priority habitats on minerals extraction sites
c) take a strategic approach to habitat creation, in terms of habitat creation at the site scale, and at a landscape-scale
d) maximise opportunities for multifunctionality (flood storage)

5.3 It is expected that the Local Plan will also consider issues such as the role of pre-application discussions, the length of aftercare schemes, and birdstrike.

6. Conclusion

6.1 Once mineral extraction has ceased, the restoration of mineral sites provides major opportunities to create areas of new habitat for wildlife, and in doing so, help to meet national and local habitat creation targets and to provide benefits for people. Maintaining and improving biodiversity is important for a healthy, functioning natural environment as well as to local communities in terms of the social benefits it can bring. The Minerals Local Plan therefore includes policies which:

a) Ensure that opportunities for habitat creation are not lost.

b) Ensure restoration continues to make a valuable contribution to LBAP targets.

c) Seek the minimisation of the impact of minerals development on designated nature conservation sites and priority habitats.

d) Emphasise the contribution restoration can make to landscape-scale conservation.

Key references

1. **Local Biodiversity Action Plan for Nottinghamshire** Nottinghamshire County Council 1998
2. **UKBAP species – from revised UKBAP list 2007 – present in Nottinghamshire (update to LBAP)** Nottinghamshire County Council 2008
3. **Biodiversity: the UK Action Plan** HMSO 1994
4. **Report on the Species and Habitat Review** Biodiversity Reporting and Information Group (BRIG) 2007
5. **Protecting biodiversity** Nottinghamshire County Council www.nottinghamshire.gov.uk/protectingbiodiversity [Accessed September 2011]
6. **Nottinghamshire Local Biodiversity Action Plan – Habitat Action Plan for Lowland Neutral Grassland** Nottinghamshire Wildlife Trust 2011
7. **Nottinghamshire Local Biodiversity Action Plan – Habitat Action Plan for Lowland Heathland** Nottinghamshire Wildlife Trust 2011
8. **A biodiversity strategy for England. Measuring progress: 2010 assessment** Department for Environment, Food and Rural Affairs 2011
9. **Nature After Minerals: how mineral site restoration can benefit people and wildlife** RSPB (A M Davies) November 2006

Appendix 1: Habitat creation totals in Nottinghamshire 2005 - 2011

Habitat type	LBAP creation target by 2015 (ha)	Minerals restoration (ha)	Other habitat creation works (ha)	Total (ha)	Percentage of LBAP target met
Lowland wet grassland	1060.5 [1]	123.5	183.3	306.8	28.9
Lowland calcareous grassland	87.5 [1]	4.0	17.0	21.0	24.0
Lowland neutral grassland	1032 [1]	287.9	6.7	294.6	28.5
Lowland dry acid grassland and Lowland heathland	1000 [1] [2]	255	180	435	43.5
Marsh and swamp	100 [1]	3.7	0.5	4.2	4.2
Lowland fens	No figure [3]	20.6	0.0	20.63	n/a
Reedbed	200 [4]	119.5	11.5	131.0	65.5
Mixed ash-dominated woodland	No figure [5]	104.0	2.3	106.3	n/a
Oak-birch woodland	No figure [5]	61.2	0.0	61.2	n/a
Wet woodland	No figure [5]	48.6	0.0	48.6	n/a
TOTALS	**3480**	**1028**	**401.3**	**1429.3**	**41.1**

Notes:

[1] The LBAP target is a combined target for restoration and expansion; this figure has been divided by two to obtain a guideline figure for expansion (i.e. creation) only.

[2] For the purposes of this exercise, these two habitat types have been assessed together due to their similarities

[3] Lowland fen was lumped with Marsh and swamp until 2009. No disaggregated creation figures currently exist.

[4] In this case, although the LBAP target is a combined target for restoration and expansion, there is considered to be very little reedbed in Nottinghamshire capable of restoration, so the figure has taken to be an expansion (creation) target in its entirety.

[5] No figure was set for creation targets for this habitat due to a lack of data.

Appendix 2: Priority habitats for creation through minerals restoration

The following LBAP habitats are considered to be primary targets for creation within the county on minerals extraction sites:

Habitat type	Location	Notes
Lowland calcareous grassland	• Magnesian limestone area	
Lowland wet grassland	• Trent and Idle Valleys	
Lowland neutral grassland	• Trent and Idle Valleys	
Lowland dry acid grassland	• Sherwood sandstone area	Potentially also parts of the Trent Valley (e.g. around coversands area)
Lowland heathland	• Sherwood sandstone area	
Lowland fens	• Trent and Idle Valleys	Potentially elsewhere
Marsh and swamp	• Trent and Idle Valleys	Potentially elsewhere
Reedbeds	• Trent and Idle Valleys	
Wet woodland	• Trent and Idle Valleys	
Mixed ash-dominated woodland	• Magnesian limestone area • Claylands	
Oak-birch woodland	• Sherwood sandstone coversands areas	Potentially also parts of the Trent Valley (e.g. around coversands area)

The following LBAP habitats are considered to be secondary targets for creation within the county on minerals extraction sites;

Habitat type	Location	Notes
Eutrophic and mesotrophic standing waters	• Not dependent on location	Large areas of standing open water should not be favoured in Sherwood or the west of the county, and should be minimised as far as possible in the Trent and Idle Valleys. This habitat is often produced as an incidental result of minerals extraction and it is well represented in the county. Ponds, however, should be created wherever there are opportunities' to do so.
Rivers and streams	• Trent and Idle Valleys	Although not strictly 'creation', there may, in some cases, be a role for the restoration and enhancement of rivers as a result of minerals restoration.
Ditches	• Not dependent on location	A common and widespread habitat that

		can be incorporated into many schemes
Hedgerows	• Not dependent on location	A common and widespread habitat that can be incorporated into most schemes
Wood pasture and parkland	• Not dependent on location	Unlikely to be created through minerals restorations

The following LBAP habitats are not considered as being deliverable through minerals restorations:

- Arable field margins
- Planted coniferous woodland
- Open habitats on previously developed land
- Urban habitats
- Canals
- Traditional orchards