

# Isle of Axholme and North Nottinghamshire Water Level Management. Board

## BIODIVERSITY ACTION PLAN

June 2011



This Biodiversity Action Plan has been prepared by the Isle of Axholme and North Nottinghamshire Water Level Management Board. The Board was formed on the 1<sup>st</sup> April 2011 and includes the former Isle of Axholme, Garthorpe, Rivers Idle & Ryton and Everton Internal Drainage Boards that had previously produced a joint Biodiversity Action Plans in April, 2010..

It also demonstrates the Boards' commitment to fulfilling their duty as public bodies under the Natural Environment and Rural Communities Act 2006 to conserve biodiversity.

Many of the Boards' activities have benefits for biodiversity, not least their water level management and ditch maintenance work. It is hoped that this Biodiversity Action Plan will help the Boards to maximise the biodiversity benefits from their activities and demonstrate their contribution to the Government's UK Biodiversity Action Plan targets.

The Boards have adopted the Biodiversity Action Plan as one of their policies and are committed to its implementation. They will review the plan periodically and update it as appropriate.

.....

Date .....

Mr. M.A. Harris

Chairman of the Board - Isle of Axholme and  
North Nottinghamshire Water Level  
Management. Board.

This Biodiversity Action Plan is a public statement by the Board of their biodiversity objectives and the methods by which they intend to achieve them.

We would welcome appropriate involvement in the delivery of the Plan from interested organisations, companies and individuals.

You can contact us about this Biodiversity Action Plan by writing to the following address:

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Note: the Isle of Axholme and North Nottinghamshire Water Level Management Board is managed by Lindsey Marsh Drainage Board

or by email: [enquiries@lmdb.co.uk](mailto:enquiries@lmdb.co.uk)

Further information is available on the Board's websites:

Isle of Axholme: [www.ioaidb.co.uk](http://www.ioaidb.co.uk)

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## 1 IDB BIODIVERSITY – AN INTRODUCTION

### 1.1 Introduction

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The IDBs have conducted a biodiversity audit of its district and identified those habitats and species that would benefit from particular management or actions by the Boards. Using this information, which is presented in later sections, the Boards' Biodiversity Action Plan has been developed. The Plan identifies objectives for the conservation and enhancement of biodiversity within the drainage district and goes on to describe targets and actions that will hopefully deliver these objectives. The intention is to integrate, as appropriate, biodiversity into the Boards' activities, such as annual maintenance programmes and capital works projects.

The Action Plan will help to safeguard the biodiversity of the drainage districts now and for future generations. In particular, it is hoped that implementing the Plan will contribute to the achievement of local and national targets for UK BAP priority species and habitats. Species and habitats, which are not listed in the UK BAP but may be locally significant for a variety of reasons, have also been considered.

The Plan is an evolving document that will be reviewed and updated on a regular basis. It covers the entire drainage district of the Boards, as shown in Figure 1.

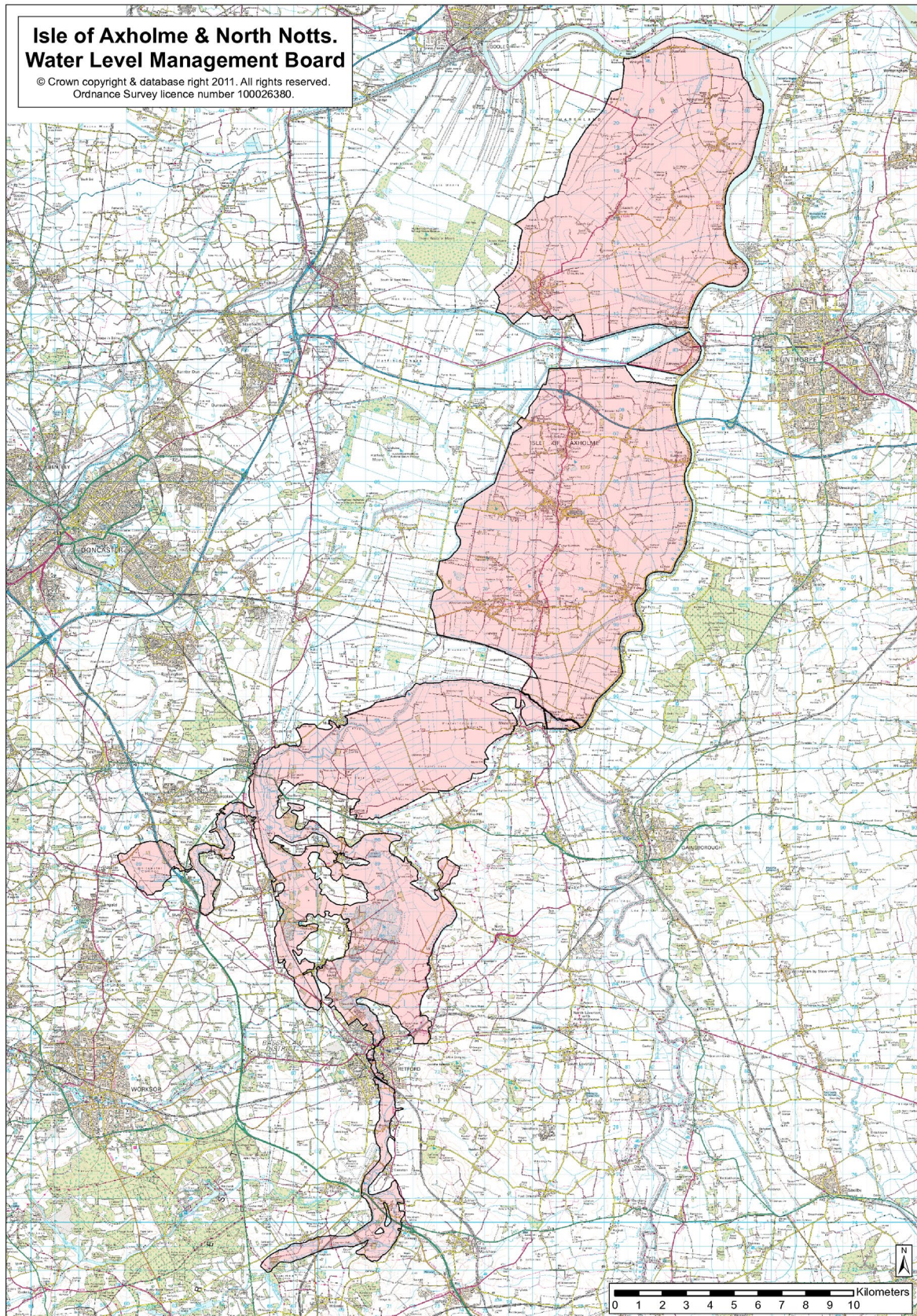


Figure 1. Isle of Axholme and North Nottinghamshire Water Level Management Board (Crown Copyright & Database Right 2010. All Rights Reserved. Ordnance Survey Licence Number 100026380)

## 1.2 What is Biodiversity?

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The Convention on Biodiversity agreed at the Earth Summit in Rio de Janeiro in 1992 defined biodiversity as:

*“The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.”*

Biodiversity can be defined simply as ‘the variety of life’ and encompasses the whole spectrum of living organisms including plants, birds, mammals and insects. It includes both common and rare species as well as the genetic diversity within species. Biodiversity also refers to the habitats and ecosystems that support these species.

## 1.3 The Importance of Conserving Biodiversity

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Biodiversity is a vital resource and it is essential to acknowledge its importance to our lives along with the range of benefits that it produces:

- Supply of ecosystem services – water, nutrients, climate change mitigation, pollination.
- Life resources – food, medicine, energy and raw materials.
- Improved health and well-being.
- Landscape and cultural distinctiveness.
- Direct economic benefits from biodiversity resources and ‘added value’ through local economic activity and tourism.
- Educational, recreational and amenity resources.

## 1.4 The Biodiversity Action Planning Framework

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The IDBs Biodiversity Action Plan is part of a much larger biodiversity framework that encompasses international, national and local levels of biodiversity action planning and conservation.

## 1.5 Biodiversity – The International Context

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The international commitment to halt the worldwide loss of habitats and species and their genetic resources was agreed in 1992 at United Nations Conference on the Environment and Development, commonly known as the Rio Earth Summit. Over 150 countries, including the United Kingdom, signed the Convention on Biological Diversity, pledging to contribute to the conservation of biodiversity at the global level. These states made a commitment to draw up national strategies to address the losses to global biodiversity and to resolve how economic development could go hand in hand with the maintenance of biodiversity.

The Rio Convention includes a global commitment to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level (<http://www.cbd.int/convention/convention.shtml>). The 2002 World Summit in Johannesburg on Sustainable Development subsequently endorsed this target.

## 1.6 Biodiversity – The National Context

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The UK Biodiversity Action Plan (UK BAP) is the UK commitment to Article 6A of the Rio Convention on Biological Diversity. It describes the UK's priority species and habitats and seeks to benefit 65 priority habitats and 1150 species in total. It identifies other key areas for action such as the building of partnerships for conserving biodiversity and gathering vital biodiversity data.

In England, *Working with the Grain of Nature*, sets out the Government's strategy for conserving and enhancing biological diversity and establishes programmes of action for integrating biodiversity into policy and planning for key sectors, together with appropriate targets and indicators. The strategy has a Water and Wetlands Working Group and an associated programme of action that includes:

- Integrating biodiversity into whole-catchment management.
- Achieving net gain in water and wetland BAP priority habitats through Water Level

Management Plans, Catchment Flood Management Plans and sustainable flood management approaches.

### **1.7 Local Biodiversity Action Plans**

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For the UK Biodiversity Action Plan to be implemented successfully it requires some means of ensuring that the national strategy is translated into effective action at the local level. The UK targets for the management, enhancement, restoration and creation of habitats and species populations have therefore been translated into targets in Local Biodiversity Action Plans (LBAPs), which tend to operate at the county level.

### **1.8 Internal Drainage Boards and Biodiversity**

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The Natural Environment and Rural Communities Act 2006 places a duty on IDBs to conserve biodiversity. As a public body, every IDB must have regard in exercising its functions, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

The Act states that conserving biodiversity includes restoring or enhancing a population or habitat. In so doing, an IDB should have regard to the list published by the Secretary of State of living organisms and types of habitat that are of principal importance for the purpose of conserving biodiversity. In effect this list comprises the Biodiversity Action Plan priority species and habitats for England.

In 2007, the Government's IDB Review Implementation Plan established a commitment that IDBs should produce their own Biodiversity Action Plans.

This IDB Biodiversity Action Plan has been produced to help fulfil these requirements and seeks to set out targets and actions that complement the UK Biodiversity Action Plan and Local Biodiversity Action Plans.

### **1.9 The Aims of the IDB Biodiversity Action Plan**

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The aims of this IDB BAP are:

- To ensure that habitat and species targets from the UK Biodiversity Action Plan and the local BAP are translated into effective action within the Boards' drainage district.
- To identify targets for other habitats and species of local importance within the Boards' drainage district.
- To develop effective local partnerships to ensure that programs for biodiversity conservation are maintained in the long term.
- To raise awareness within the Boards and locally of the need for biodiversity conservation and to provide guidance to landowners, occupiers and their representatives on biodiversity and inland water management.
- To ensure that opportunities for conservation and enhancement of biodiversity are fully considered throughout the Boards' operations, and
- To monitor and report on progress in biodiversity conservation.



## 2 THE IDB BAP PROCESS

### 2.1 The Biodiversity Audit

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To produce this IDB Biodiversity Action Plan, information on the habitats and species present in the catchment was first obtained. This 'Biodiversity Audit' involved the collation of existing data held by the Boards and by other biodiversity partners.

### 2.2 Evaluating and Prioritising Habitats and Species

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The Biodiversity Audit identified those priority habitats and species in the UK Biodiversity Action Plan and the Local Biodiversity Action Plan that can be found in the drainage districts. Additional non-BAP habitats and species deemed to be important within the drainage districts were also identified.

Further habitats and species, together with additional targets and actions, may be added in the future, as knowledge is improved and delivery of the Boards' BAP is reviewed.

A range of criteria was then used to select those species and habitats that are of particular importance to the Boards – that is to say, those habitats and species that could benefit from the Boards' actions. The criteria used included their national and local status, the opportunities for effective Board action and the resources available.

### 2.3 Setting Objectives, Targets and Indicators

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For each habitat and species identified as being important to the Boards, conservation objectives and targets have been drawn up and set out in the Plan. The objectives express the Boards' broad aims for benefiting a particular habitat or species. The related targets have been set to focus Board programmes of action and to identify outcomes that can be monitored to measure achievement. For each target an indicator has been set – a measurable feature of the target that, when monitored over time, allows delivery to be assessed.

In order for this BAP to be as effective as possible the targets and actions have been devised to be SMART (Specific, Measurable, Achievable, Relevant and Time-limited). The targets are ambitious but are also considered to be proportionate and practicable given the resources available.

Procedural targets and actions have also been considered. These are targets that the Boards will use to measure the way in which it considers and incorporates biodiversity across the whole range of its operations. These may involve changes to administrative, management and operating procedures.

### 2.4 Implementation

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Once targets have been set for habitats and species, it is important that the actions to deliver the Biodiversity Action Plan are described. The Plan sets out how the Boards intend to implement the actions in the plan, often in partnership with other organisations or individuals.

### 2.5 Monitoring

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Achievement of the Plan targets will be measured by a programme of monitoring which the Boards will undertake, in some instances with assistance from its partners. The methods to be used are described in the Plan.

### 2.6 Reporting and Reviewing Progress

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It is important to review the implementation of the BAP, assess changes in the status of habitats and species and the overall feasibility of objectives and targets. In addition, it is vital that the successful achievement of targets is recorded and the gains for biodiversity registered in the public domain.

The Plan sets out the methods the Boards will be using to review the delivery of targets and to communicate progress to partner organisations and the public.

### 3 THE BIODIVERSITY AUDIT

#### 3.1 Introduction

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The following Sections 4, 5 and 6 summarise the results of the Biodiversity Audit undertaken in 2007/9. Section 4 provides information about the drainage districts and lists of the nature conservation sites that occur within or bordering their boundaries. Sections 5 and 6 list respectively the habitats and species occurring within the districts that are of potential importance to the Boards.

#### 3.2 Local Biodiversity Action Plans

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The Doncaster Local Biodiversity Action Plan, Lincolnshire Biodiversity Action Plan and Nottinghamshire Local Biodiversity Action Plan cover the IDBs districts. IDBs, via the Lincolnshire Branch of the Association of Drainage Authorities, have been supporters of the Lincolnshire Biodiversity Action Plan since its inception.

Biodiversity Action Plan Partnerships brings together local authorities, statutory agencies, voluntary and not-for-profit organisations with a responsibility for and interest in biodiversity on a county and regional level. Partnership's coordinates action, information and protection and provides services for partner organisations and is independent of its constituent organisations.

The Yorkshire and Humber Biodiversity Forum is an association of organisations committed to supporting biodiversity through action for sustainable development and to promoting partnerships with regional and local agencies, organisations, industries and groups.

For more information see:

Doncaster Local Biodiversity Action Plan [http://www.Biodiversity\\_Action\\_Plan/Doncaster](http://www.Biodiversity_Action_Plan/Doncaster)

Lincolnshire Biodiversity Partnership [www.lincsbiodiversity.org.uk](http://www.lincsbiodiversity.org.uk)

Nottinghamshire Biodiversity Action Group [www.nottsbag.org.uk](http://www.nottsbag.org.uk)

Yorkshire and Humber Biodiversity Forum [www.yhbf.org](http://www.yhbf.org)

#### 3.3 IDB Biodiversity Audit Boundary

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The Biodiversity Audit covers the entire district of the Boards, as shown in Figure 1. Where data has been obtained that shows a record of a species in a 1km square or 10km square which the districts wholly or partially cover, this has been included in the area of the audit.

#### 3.4 Sources of Data - Habitats

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Information on habitats of relevance occurring within the drainage districts was obtained from the following sources:

- Data held by Local Records Centres, this includes data supplied by the Wildlife Trusts, the Naturalist's Unions and other supporting organisations.
- GIS data on priority habitats and sites provided by Natural England.
- MAGIC (Multi-Agency Geographic Information for the Countryside) Habitat Inventory
- Surveys of the districts conducted by the Boards' staff.
- Surveys undertaken by Environmental Consultants, submitted to the Boards in support of Byelaws and Section 23 applications under the Land Drainage Act 1991.
- Doncaster Biodiversity Action and their Habitat Audit.
- Lincolnshire Biodiversity Action Plan
- Nottinghamshire Local Biodiversity Action Plan
- Yorkshire and Humber Biodiversity Forum
- Regional Priority Species Scoping paper – Taking forward the East Midlands' UK BAP Species List.

### **3.5 Sources of Data - Species**

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Information on species of relevance occurring within the drainage districts was obtained from the following sources:

- Data held by Local Records Centres, this includes data supplied by the Wildlife Trusts, the Naturalist's Unions and other supporting organisations.
- Surveys of the district conducted by the Boards' staff.
- Surveys undertaken by Environmental Consultants, submitted to the Boards in support of Byelaws and Section 23 applications under the Land Drainage Act 1991.
- Doncaster Biodiversity Action and their Habitat Audit.
- Lincolnshire Biodiversity Action Plan
- Nottinghamshire Local Biodiversity Action Plan
- Yorkshire and Humber Biodiversity Forum
- Regional Priority Species Scoping paper – Taking forward the East Midlands' UK BAP Species List.

## 4 NATURE CONSERVATION SITES

### 4.1 The Drainage Districts

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The drainage districts covers an area of 287.37km<sup>2</sup> and contains 461km of Board maintained watercourses. It is located on the western banks of the River Trent in Lincolnshire and extends into Nottinghamshire and South Yorkshire. The districts are predominantly in North Lincolnshire Council's area and extend to South Yorkshire/Doncaster Council and Nottinghamshire/Bassetlaw District Council.

### 4.2 Geology

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The Boards' district is predominately a flat landscape, dominated by the former pro-glacial Lake Humber. Two levels for Lake Humber are described, the first at 30m O.D. (Geoff Gaunt) and the second, for which the evidence is more widespread, at 8m O.D. A range of low hills run north/south on which the Settlements of Crowle, Belton, Epworth, Haxey and Westwoodside are situated. To the west of the hills are peatlands and patchy sands while on the east are alluvial carrlands of the Trent.

To the south the Boards' district follows the valley of the River Idle encompassing the Sutton & Lound Gravel Pits SSSI complex of disused mineral workings. South of Retford the River Idle's tributaries of the River's Maun and Meden flow through the southern part of the Boards' districts.

West of Scroby the Boards' district follows the valley of the River Ryton to Bylth with the Board drains extending west of the A1 to Whitewater Common.

North and west of Crowle the predominant soils are the deep stoneless marine alluviums of the Blacktoft and Romney association with smaller areas of deep permeable loamy glaciofluvial drift of the Blackwood association.

South of Crowle in the Trent Valley the Blacktoft and Romney associations and continue to West Stockworth. Inland the reddish loamy over clay Permo-Triassic soils of the Brockhurst association occur. Epworth and Haxey Turbarys are located on the sandy and peaty glaciofluvial drift of the Isleham 2 association. South of Haxey is a large area of the Blackwood association with areas of reddish clay Permo-Triassic soils of the Worcester association and smaller areas of the Cretaceous sands of the Cuckney association and the loamy clayey soil of the Dunnington Heath association.

The predominate soils along the River Idle are the Cretaceous sands of the Cuckney association with larger areas of Blackwood association. To the south east of the districts a mosaic of soils occur near Gringley-on-the-Hill which is located on higher ground consisting of Drift over Permo-Triassic and Carboniferous Mudstones of the Whimble association. Silty and clay Lake marls of the Willingham association, river alluvium clayey soils of the Frome and Fladbury 2 associations, Brockhurst association, Isleham 2 and Fen peats of the Altca2 association.

### 4.3 Landscape

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#### 4.3.1 Landscape Designations

There are no statutory designated landscapes within the Boards' district.

#### 4.3.2 Landscape Character

Natural England has divided the whole of England into a number of National Character Areas (NCA) based on characteristic landforms, wildlife and land use. They are descriptive but not confined by traditional administrative boundaries. For each NCA, Natural England has prepared a profile that characterises the wildlife and natural features and identifies the influences that act upon those features and sets objectives for nature conservation.

The majority of the Boards' district is with the Humberhead Levels National Character Area. South of Retford the Board's district extends into the Sherwood National Character Area, with drains on the east of the Board's district near Retford and Clayworth extending into the Trent and Belvoir Vales National Character Area.

A coastal strip north east of Adlingfleet that includes Blacktoft Sands is in the Humber Estuary National Character Area.

The key characteristics of the National Character Areas are:

| <b>Humberhead Levels</b>   |
|--|
| A flat landscape occupying the area of the former pro-glacial Lake Humber.   |
| Very low lying, commonly at or below mean high water mark.   |
| Surface geology of drift deposits, including glacial tills, clays, peat, sand and gravel and wind blown sand, giving local variations in character.  |
| Broad floodplains of major navigable rivers draining to the Humber Estuary with extensive areas of washlands and some alluvial meadows.  |
| Rich high-quality land which is intensively farmed and includes substantial areas of warp land.  |
| Essentially flat, very open character with occasional rising ground formed by ridges of sand and outcrops of Mercia Mudstone.  |
| Very large open fields divided by dykes with relatively few hedgerows or field trees.  |
| Peat bogs of international ecological and historical importance, which are widely exploited for commercial peat extraction.  |
| Widespread evidence of drainage history in rivers, old river courses, ditches, dykes and canals.   |
| Important areas of historic landscape such as the more enclosed agricultural landscape at Fishlake, the remnant open fields of the Isle of Axholme and the unique 'cable' landscape of Thorne. |
| Areas of remnant heath and large, isolated conifer plantations on poor sandy soils.  |
| Modern motorways on embankments and large installations, notably power stations, which are often prominent in the flat landscape.  |

| <b>Humber Estuary</b>   | <b>Sherwood</b>  | <b>Trent and Belvoir Vales</b>   |
|---|--|--|
| Expansive, flat, low-lying, sometimes remote estuarine landscape dominated by the Humber and with an ever-changing character due to tidal influences. | Rolling landforms with numerous dry valleys.   | Gently undulating landform with shallow ridges dropping down gently to broad river valleys.  |
| Dominance of sky and open views over the estuary, mudflats and salt marshes, where flood embankments allow.   | Large amount of woodland, particularly oak-birch broadleaved woodland and conifers.                    | Open, arable or mixed farmed landscape, strongly rural in feel with trimmed hedges and few hedgerow trees; woodlands only locally significant. |
| A predominantly reclaimed former inter-tidal landscape of rectilinear fields with boundaries formed by dykes, drains and embankments.                 | Extensive, enclosed, arable farmlands with rectilinear field patterns divided by low, treeless hedges. | Frequent nucleated villages with red brick houses, roofed with pantiles and spired churches prominent in long views.                           |
| A landscape of predominantly arable farming with some conspicuous areas of market gardening, particularly around Hull.                                | Strong contrast between open arable fields and woodlands.  | Large market towns with historic centres and substantial churches visible from afar, notably Newark, Grantham, Southwell, Lincoln.             |
|   | Strong heathland character, diminishing in north, often evident at roadsides and in woodlands.         |  |
|   | Parks and estates.   |  |

| <b>Humber Estuary</b>   | <b>Sherwood</b>  | <b>Trent and Belvoir Vales</b>  |
|---|--|---|
| <p>Internationally important coastal mudflats and other wetland and coastal habitats, including the Spurn peninsula.</p> <p>Urban and industrial influences especially around Hull and on the South bank. Text to add</p> | <p>Conspicuous remains of coal industry - including disused mines, pit heaps, old railway lines and mining settlements.</p> <p>Narrow river corridors with pasture, flood meadows and woodland, often in sharp contrast to the adjacent arable farmland.</p> <p>Urban influences around Nottingham and the larger western towns.</p> <p>Quarrying of sandstone for industrial aggregates.</p> <p>Buildings of local sandstone with older building materials being generally red brick and pantile.</p> | <p>Subtle variations within the area from the remote and pastoral landscape of the Vale of Belvoir to the more undulating and wooded farmland north-east of Nottingham and the open arable lands to the north and east.</p> <p>Urban development closely confined to major centres, in particular the outskirts of Nottingham.</p> <p>Elsewhere the open, undeveloped and rural character strongly influenced locally by power stations, pylons and sand and gravel extraction on the Trent floodplain.</p> |

National Character Areas in the Boards' District are shown in Appendix 14.1.

#### 4.3.3 Historic Environment Record

Numerous sites are recorded on the Local Authority Historic Environment Record. Details of the Scheduled Monuments and Listed Buildings are maintained on the Board's ArcMap Geographic Information System when available.

The majority of the records held by Historic Environment Records (90%) are for undesignated sites. Many are maintained on a Geographic Information System that is updated on a daily basis and not all records are digitised, aerial photographs and other written records are routinely used to complement the data and interpretation by a non-specialist is difficult. The Boards consults with the Historic Environment Records for all new works.

#### 4.3.4 Tree Preservation Orders

Tree Preservation Orders (TPOs) are made under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999. TPO are administrated by Local Authorities, to protect specific trees or a particular woodland from deliberate damage and destruction.

Where TPO records are available electronically they are maintained on the Boards' ArcMap Geographic Information System.

#### 4.4 Statutory Nature Conservation Sites

##### 4.4.1 International Sites

The following internationally designated conservation sites are found within the districts:

**Table 1. International Designations**

| Site name   | Designation   | Features Relevant to the Board  |
|---|---|---|
| <p><b>Humber Estuary - European Marine Site</b></p> <p>The Boards are a Relevant Authority under section 34 of the Conservation (Natural Habitats &amp; c.) Regulations 1994. The Boards work with the Relevant Authorities Group to maintain the favourable condition of the Humber Estuary.</p> <p>The Boards discharges water from pumping stations across the protected area and undertakes management of its assets.</p> <p>Full details of the habitats and species protected by these designations are available at <a href="http://www.humberems.co.uk">www.humberems.co.uk</a></p> | <p>Special Area of Conservation<br/>Special Protection Area<br/>Ramsar site</p> | <p>Habitats include the estuary and its components;<br/>Coastal lagoons.<br/>Atlantic salt meadows.<br/>Salicornia and other annuals colonising mud and sand (pioneer saltmarsh).<br/>Mudflats and sandflats not covered by seawater at low tide.<br/>Sandbanks, which are slightly covered by seawater all the time.<br/>Tidal reedbeds.<br/>Unvegetated sand and shingle.<br/>Species include:<br/>River lamprey <i>Lampetra fluviatilis</i>.<br/>Sea lamprey <i>Petromyzon marinus</i>.<br/>Waterfowl, including Annex I species, migratory species and the assemblage of waterfowl.<br/>Grey Seals <i>Halichoerus grypus</i>.</p> |

International and Nationally Designated Sites in the Boards' District are recorded on the Boards' Geographic Information System.

##### 4.4.2 National Sites

The following nationally designated conservation sites are found within the districts:

**Table 2. National Designations**

| Site name  | Designation                         | Features Relevant to IDB  |
|--|-------------------------------------|---|
| <b>Belshaw</b>   | Site of Special Scientific Interest | None, Natural England have confirmed that Belshaw does not require a Water Level Management Plan.   |
| <b>Chesterfield Canal</b><br>(Rivers Idle & Ryton IDB) | Site of Special Scientific Interest | <p>The Chesterfield Canal is designated for it's aquatic plant community characteristic of the brackish, eutrophic (nutrient-rich) water.</p> <p>The Chesterfield Canal is managed by the Environment Agency.</p> |
| <b>Eastoft Meadow</b><br>(IoA IDB)                     | Site of Special Scientific Interest | None, Natural England have confirmed that Eastoft Meadow does not require a Water Level Management Plan.  |

| Site name   | Designation                                | Features Relevant to IDB  |
|---|--|---|
| <p><b>Epworth Turbary</b><br/>(IoA IDB)<br/>The Board is responsible for a Water Level Management Plan for Epworth Turbary that is being implemented, as funds are available.</p>       | <p>Site of Special Scientific Interest</p> | <p>Epworth Turbary is a relict of lowland raised bog in adverse condition due to drainage.</p> <p>The Board is working with partners to develop and deliver the Water Level Management Plan.</p>  |
| <p><b>Haxey Turbary</b><br/>The Board is responsible for a Water Level Management Plan for Haxey Turbary.</p>   | <p>Site of Special Scientific Interest</p> | <p>Haxey Turbary is a relict of lowland raised bog in adverse condition due to drainage.</p> <p>The Board is working with partners to develop and deliver a Water Level Management Plan. Work will resume when funding is available.</p>  |
| <p><b>Hewson's Field</b><br/>(IoA IDB)</p>  | <p>Site of Special Scientific Interest</p> | <p>None, Natural England have confirmed that Hewson's Field does not require a Water Level Management Plan.</p>   |
| <p><b>Humber Estuary</b></p>  | <p>Site of Special Scientific Interest</p> | <p>Details within section 4.4.1 – Humber Estuary.</p>   |
| <p><b>Mattersey Hill Marsh</b><br/>(Rivers Idle &amp; Ryton IDB)</p>  | <p>Site of Special Scientific Interest</p> | <p>None, no Board maintained drains are adjacent to the designated site.</p> <p>The Rivers Idle &amp; Ryton Board installed a sluice on the principal outflow (SK670874) of the SSSI to assist in retaining water on the site - Natural England's request in February 2002.</p> |
| <p><b>Mother Drain, Misterton</b><br/>(Everton IDB)<br/>The Board is responsible for a Water Level Management Plan for Mother Drain, Misterton this is currently being implemented.</p> | <p>Site of Special Scientific Interest</p> | <p>The Board is working with partners to develop and deliver the Water Level Management Plan.</p>   |
| <p><b>River Idle Washlands</b><br/>(Everton IDB)<br/>(Rivers Idle &amp; Ryton IDB)</p>  | <p>Site of Special Scientific Interest</p> | <p>The Board has been a partner in the production of the Water Level Management Plan. The Environment Agency has responsibility for implementation.</p>   |
| <p><b>Rush Furlong</b><br/>(IoA IDB)</p>  | <p>Site of Special Scientific Interest</p> | <p>None, Natural England have confirmed that Rush Furlong does not require a Water Level Management Plan.</p>   |



| Site name  | Designation                         | Features Relevant to IDB  |
|--|-------------------------------------|---|
| <b>Sutton &amp; Lound Gravel Pits</b><br>(Rivers Idle & Ryton IDB) | Site of Special Scientific Interest | Sutton and Lound Gravel Pits contains extensive areas of open water and margins, which support an exceptionally rich assemblage of breeding wetland birds and a nationally important population of wintering gadwall.<br><br>The Board's Dawson Dyke runs along the northern boundary, drain IR014100 bisects the south part of the SSSI.<br><br>The Board's Carr Dyke flows into the SSSI. A reedbed, soak away is being developed that will minimise this flow. |

International and Nationally Designated Sites in the Board Districts are recorded on the Boards' Geographic Information System.

#### 4.4.3 Local Nature Reserves

The following Local Nature Reserves, which are designated by local authorities under Section 21 of the National Parks and Access to the Countryside Act 1949, are found within the districts:

**Table 3. Local Designations**

| Site name  | Designation                               | Features Relevant to IDB  |
|--|---|---|
| Daneshill Lakes (Part of Sutton & Lound Gravel Pits) (Rivers Idle & Ryton IDB) | Local Nature Reserve - Nottinghamshire    | See 4.4.2   |
| Axholme Line – Haxey (loA IDB)   | Local Nature Reserve – North Lincolnshire | The old Railway bisects the Board's area, but has no impact on the Board's work.                                  |
| Owston Ferry Castle (loA IDB)  | Local Nature Reserve – North Lincolnshire | The site is directly to the south of the graveyard wall of the village church, away from Board maintained drains. |

#### 4.5 Non-Statutory Local Sites

A number of sites have been identified locally as being important for biodiversity, whilst these designations do not have statutory status, the sites themselves are important for their contribution to biodiversity.

Local Site is the term advocated by Defra to describe sites of local importance, including Sites of Importance for Nature Conservation (SINCs), Sites of Nature Conservation Importance (SNCIs) and Sites of Scientific Interest (SSIs). Local Site can be sub-divided to Local Wildlife or Local Geological Site. Local Authorities have policies to protect Local Sites; Bassetlaw Council's Local Plan Policy 6/1, Doncaster Council's Supplementary Planning Document, Planning for Nature Policy 6.4 and North Lincolnshire Council's Adopted Local Plan Policy 12.12.

Criteria for the Local Sites are prepared locally such as the Lincolnshire Biodiversity Partnership<sup>1</sup>, these criteria are consistent with Defra's<sup>2</sup> guidance<sup>3</sup>.

<sup>1</sup> Local Wildlife Sites, Guidelines for their Identification and Selection in the Historic County of Lincolnshire (Lincolnshire, North Lincolnshire and North East Lincolnshire

Currently the Lincolnshire Biodiversity Partnership are about to undertake surveys for Local Wildlife Sites in the Board's area, the Board are assisting by facilitating access.

Local Geological Sites will succeed Regionally Important Geological and Geomorphological Sites, these sites are expected to be protected in a similar way to Local Wildlife Site in Local Plans and Local Development Frameworks.

The Boards routinely consult on new works and will use Geographic Information System data on Local Wildlife Sites and Local Geological Sites as this becomes available.

The Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 1999 (as Amended) require The IDBs to consider whether any proposed works are likely to have a "significant" environmental affect. Environmental Statements are produced for any work that has a "significant" environmental affect.

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<sup>2</sup> Department for the Environment Farming and Rural Activity

<sup>3</sup> Local Sites – Guidance on their Identification, Selection and Management, DEFRA, 2006.

## 5 HABITAT AUDIT

### 5.1 Habitat Audit Summary

This habitat audit summary lists the broad habitat types and UK BAP priority habitats that occur within the Boards' district as identified by the information gathering exercise. Also listed are habitats deemed to be of local importance and/or featured in the county Local Biodiversity Action Plan that occur in the Boards' district. Habitats that are of potential importance for the Boards, where water level management or other IDB activities may be of benefit, are identified. Finally, brief notes are included on the potential for the Boards to maintain, restore or expand their important habitats.

**Table 5. Habitat Audit Summary**

Note, the Doncaster, Lincolnshire and Nottinghamshire Biodiversity Action Plans describe these habitats in various ways i.e. Ancient and Species Rich Hedgerows (Doncaster), Hedgerow and Hedgerow Trees (Lincolnshire), Hedgerows: Including ancient and/or species-rich hedgerows (Nottinghamshire). The following tables do not include the multiple descriptors for the habitat and species.

| Broad Habitat Types        | UK Priority Habitat | BAP | Local Biodiversity Action Plan Habitat | Habitat of Importance for Board | Location of Habitat of Importance for Board  | Potential for Maintaining, Restoring or Expanding Habitat   |
|----------------------------|---------------------|-----|--|---------------------------------|--|---|
| Boundary & Linear Features | Hedgerows           |     | Yes                                    | Yes                             | Across districts   | Maintain existing extent and plant additional areas where possible  |
| Fen, Marsh and Swamp       | Reedbeds            |     | Yes                                    | Yes                             | Habitats within the Humber Estuary - European Marine Site<br>Mattersey Hill Marsh<br>River Idle Washlands<br>Berms and margins of Board maintained drains across districts | Maintain and expand extent<br>Linear reedbeds can be created alongside drains during reforming works and in flood storage areas |
| Lowland Raised Bog         | Lowland Raised Bog  |     | Yes                                    | Yes                             | Epworth & Haxey Turbary.   | Deliver favourable condition via the Water Level Management Plan  |
| Rivers & Streams           |                     |     | Yes.                                   | Yes                             | Across districts   | Maintain extent<br>Undertake management sympathetically   |

| Broad Habitat Types  | UK Priority Habitat | BAP Biodiversity Action Plan | Local Biodiversity Action Plan | Habitat Importance for Board | Location of Habitat Importance for Board                           | Potential for Maintaining, Restoring or Expanding Habitat   |
|--|---------------------|------------------------------|--------------------------------|------------------------------|--|---|
|  |                     |                              |                                |                              |  | Work with partners to improve nutrient condition where possible   |
| Ponds  | Ponds               | Yes                          |                                | No                           | Across districts   | Encourage creation and management.  |
| The Habitats below and others occur in the Humber Estuary - European Marine Site see 4.4 |                     |                              |                                |                              |  |   |
| Intertidal Mudflats  | Intertidal mudflats | Coastal and Marine           |                                | Yes                          | Coastal designated Sites, including the Humber Estuary & The Wash. | Habitats found within the statutorily designated sites on the Coast, are mostly outside the Boards' operational area.<br><br>The Boards are active participants in the European Management Scheme for both sites. |
| Littoral sediment  | Coastal saltmarsh   | Coastal Saltmarsh            |                                |                              |  |   |
| Saline lagoons   | Saline lagoons      | Saline lagoons               |                                |                              |  |   |
| Supralittoral sediment   | Coastal sand dunes  | Coastal sand dunes           |                                |                              |  |   |

## 5.2 Habitats of Importance for the Boards

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The following section provides more information on the status and location of the habitats within the drainage districts that are of importance for the Boards and may benefit from water level management or other Board activities.

### 5.2.1 Hedgerows

*Description:* Hedgerows are linear strips of shrubs and trees, normally on field boundaries and often alongside ditches. Hedges are often planted, many during the main enclosure period (1600 – 1700).

*National status and local county status:* Concern about the decline of hedges led to the introduction of the Hedgerow Regulations 1997. Biodiversity Partnerships have not ascertained changes in the extent of hedges in the Board's district.

*Status and locations within drainage districts:* The majority of the Boards' district is low-lying with extensive hedges not associated with these parts of the National Character Areas. Many hedges are associated with the smaller fields around the villages.

*Potential improvements:* Avoid removal of existing hedges where possible. Replant hedges to maintain extent of habitat in district, sympathetically within the landscape character area.

### 5.2.2 Reedbeds

*Description:* Reedbeds are wetlands dominated by stands of the common reed, where the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches and small areas of wet grassland and carr woodland may be associated with them. Reedbeds are included in Defra's Outcome Measure 5 as a "UK Biodiversity Action Plan habitat" if over 0.1 hectare in extent.

*National status and local county status:* Biodiversity Partnerships have not ascertained changes in the extent of Reedbeds in the Boards' district.

*Status and locations within drainage districts:* Reedbeds occur on the statutorily protected sites listed in 4.4. Many of the Board maintained drains are fringed with reed, including that growing on specially created berms.

*Potential improvements:* The Boards will continue to create berms during reforming programmes. The creation of reedbeds will be considered when washlands and flood storage areas are created.

### 5.2.3 Lowland Raised Bog

*Description:* Lowland Raised Bogs are peatland ecosystems which develop primarily, but not exclusively, in lowland areas such as the head of estuaries, along river flood-plains and in topographic depressions. In such locations, drainage may be impeded by a high groundwater table or by low permeability substrata such as estuarine, glacial or lacustrine clays.

*National status and local county status:* Nationally and locally declining, an estimated 47.9ha 1996 occurs in Lincolnshire in the Boards' area on Epworth & Haxey Turbary. The Humberhead Peatlands National Nature Reserve extends to 2,888 hectares but is outside the Boards' district.

*Status and locations within drainage districts:* The iconic sites within the Board's district are Epworth & Haxey Turbary SSSI.

*Potential improvements:* The Boards are responsible for a Water Level Management Plan for Epworth & Haxey Turbary SSSI. The Boards are working with partners to develop and deliver the Water Level Management Plan, work on the Haxey WLMP will commence as soon as funds are available.

### 5.2.4 Rivers, Canals and Drains

*Description:* Rivers are natural streams of usually freshwater that flow toward the sea; many are now constrained by man made banks such as the Great Eau and River Steeping. Drains are man-made watercourses created for flood defence purposes along the route of ancient streams or creeks or straighter drains created during drainage of the fens and marshes.

*National status and local county status:* Nationally data is not available.

*Status and locations within drainage districts:* The Boards maintains 461km of drains across their district that is bisected by the Environment Agency maintained main rivers.

*Potential improvements:* The Boards are not responsible for water quality but undertake their work to maintain and enhance the habitat, while ensuring adequate conveyance and capacity for flood risk management. Species like filamentous algae indicate eutrophic conditions and can obstruct water vole burrows during the weedcutting programme. The Boards can identify where this species occurs and work with partners to investigate solutions.

#### **5.2.5 Ponds**

*Description:* Ponds are defined as permanent and seasonal standing water bodies up to 2 ha in extent.

*National status and local county status:* Declining no evidence to suggest that this is not repeated in the Board's area.

*Status and locations within drainage districts:* The Biodiversity Partnerships has not ascertained changes in the number of Ponds in the Boards' district.

*Potential improvements:* The Boards are regularly consulted on proposals for new ponds, advice and support is provided. Creating ponds is in some cases used as mitigation for habitat loss in byelaw and section 23 consents.

## 6 SPECIES AUDIT

### 6.1 Species Audit Summary

This species audit summary lists the BAP priority species that occur within the Boards' district as identified by the information gathering exercise. Also listed are species deemed to be of local importance and/or identified in the county Local Biodiversity Action Plan that occur in the Boards' district. Species that are of potential importance for the Boards, where water level management or other Board activities may be of benefit, are identified. Finally, brief notes are included on the potential for the Boards to maintain or increase the population or range of species of importance.

Table 6. Species Audit Summary

| Group  | Order          | Scientific Name          | UK BAP Priority Species | Local Biodiversity Action Plan(s) Species | Non-BAP Species But Important in the Boards' District | Location of Species of Importance for the Boards                 | Potential for Maintaining or Increasing Population or Range   |
|--|----------------|--------------------------|-------------------------|---|---|--|---|
| Birds  | Bird           | <i>Tyto alba</i>         | No                      | Yes                                       | Yes   | Throughout districts   | Maintain and increase population  |
| Common Crane <i>Grus grus</i><br>Lapwing <i>Vanellus vanellus</i><br>Linnet <i>Carduelis cannabina</i><br>Reed Bunting <i>Emberiza schoeniclus</i><br>Sky Lark <i>Alauda arvensis</i><br>Tree Sparrow <i>Passer montanus</i> |                |                          | Yes                     | Yes                                       |   | Throughout districts   | No specific BAP projects other than the management of the habitat - see Habitat Action Plans for the Boards' districts. These projects will benefit these species     |
| Bittern <i>Botaurus stellaris stellaris</i>  |                |                          | Yes                     | Yes                                       |   | Throughout districts, breeds in the Humber European Marine Site. | No specific BAP projects other than the management of the habitat - see Habitat Action Plans for the Boards' districts. This species is a priority for these projects |
| Marsh Warbler <i>Acrocephalus palustris</i>  |                |                          | Yes                     | No  |   | Throughout districts   | No specific BAP projects other than the management of the habitat - see Habitat Action Plans for the Boards' districts. This species is a priority for these projects |
| Fish   | Anguilliformes | <i>Anguilla anguilla</i> | Yes                     | No  |   | Throughout districts   | Status currently uncertain in the Boards' districts. In conjunction with other projects establish status  |
| Herpetiles   | Reptile        | <i>Natrix natri</i>      | Yes                     | Habitat Action Plans                      |   | Throughout districts   | Status currently uncertain in the Boards' districts. In conjunction with other projects establish status  |

| Group               | Order     | Scientific Name                  | UK BAP Priority Species    | Local Biodiversity Action Plan(s) Species | Non-BAP Species But Important in the Boards' District   | Location of Species of Importance for the Boards   | Potential for Increasing Population or Range  |
|---------------------|-----------|----------------------------------|----------------------------|---|---|--|---|
| Herptiles           | Amphibian | <i>Triturus cristatus</i>        | Yes                        | Yes                                       |   | Throughout districts   | No specific BAP other than enclosure of ponds see Habitat Plans   |
| Numerous            | N/A       | N/A                              | No see Species Action Plan | Yes, biodiversity and legislative issues  | See Species Action Plan for full details:<br>American Mink, Across districts<br>Giant Hogweed/<br>Himalayan Balsam occasional plants occur in the Board<br>Japanese Knotweed<br>Pondweeds: Canadian Pondweed and Nuttall's pondweed some drains<br>Signal Crayfish not known to occur in the Board mainly although the National Biodiversity Network records Boards' district<br>Water Fern, Across districts<br>Wild Turnip/Oilseed Rape, Across districts |  |   |
| Herptiles           | Amphibian | <i>Bufo bufo</i>                 | Yes                        | No  |   | Throughout districts   | No specific BAP other than enclosure of ponds see Habitat Plans<br><br>Any habitat enclosure Great Crested Newt Common Toads. |
| Terrestrial mammals | Rodentia  | <i>Arvicola terrestris</i>       | Yes                        | Yes                                       |   | Throughout districts   | Maintain existing expand populations declines have occurred   |
| Crustacean          | Decapoda  | <i>Austropotamobius pallipes</i> | Yes                        | Yes                                       | Yes   | Records of White-clawed Crayfish occur near Board maintained drains. (Rivers Idle & Ryton IDB) | Survey for presence reforming programme   |

## 6.2 Species of Importance for the IDBs

The following section provides more information on the status and location of the species within the drainage districts that are of importance for the Boards and may benefit from water level management or other Board activities.

### 6.2.1 Barn Owl

*Description:* White/buff coloured owl, an iconic bird of the grazing marshes hunting at dawn and dusk.

*National status and local status:* Barn Owls declined nationally size over the last 50 years with a 70% decline in the between 1932 and 1985.

*Status and locations within drainage districts:* Populations are believed to be recovering, the Boards installed their first nest box in 2006, building on a programme dating from 1987 that has seen Lincolnshire's Internal Drainage Boards install over 200 nest boxes installed and 1,000 chicks reared (2008 figures).



*Potential improvements:* Maintaining and enhancing the network of nest boxes across the districts and maintaining grassland habitat suitable for quarry species.

### 6.2.2 European Eel

*Description:* The Eel has a distinctive, elongate, snake-like brown body with yellow flanks and minute scales that are deeply embedded in the skin, the dorsal, caudal and anal fins form a continuous fringe; pelvic fins are absent.

*National status and local status:* The Eel is included in the UK BAP due to a drastic decline in numbers.

*Status and locations within drainage districts:* Not known, the Boards are collecting records to establish which catchments support Eels.

*Potential improvements:* Eels are catadromous spending most of their lives in freshwater rivers and return to the ocean to spawn. Eels require connectivity between the Boards' district, the Environment Agency maintained highland rivers that cross the districts and the sea.

### 6.2.3 Grass Snake

*Description:* The Grass Snake is our largest snake often up to 1metre in length, its identified by the distinct yellow/cream/white around the neck and is not venomous.

*National status and local status:* The Grass Snake is included in the UK BAP due to a drastic decline in numbers.

*Status and locations within drainage districts:* The Grass Snakes formerly occurred widely, its current status is not known. The Boards are collecting records to establish the Grass Snakes distribution in the districts.

*Potential improvements:* Initially monitoring to establish the status of the Grass Snake in the Boards' district.

### 6.2.4 Invasive Species

*Description:* These include; Giant Hogweed, Himalayan Balsam and Japanese Knotweed, together with animals such as the American Mink and Signal Crayfish.

*National status and local status:* Many of these species have escaped from gardens or agricultural diversification projects.

*Status and locations within drainage districts:* American Mink are believed to be increasing.

*Potential improvements:* Surveillance and control were practical by the Boards or in conjunction with partners.

### 6.2.5 Water Vole

*Description:* The largest British Vole, typically up to 20cm long, with dark fur and a "round" body a short, fat face and a fur covered tail. Water Voles in the UK feed predominately on aquatic vegetation and burrow into the banks of watercourse.

*National status and local status:* The Water Vole is estimated to have suffered a 90 per cent fall in numbers in less than 20 years. In Lincolnshire populations appear to be stable, although their long-term viability has been questioned with Kite's (2008) worse case scenario even predicting the species extinction<sup>4</sup>. Recent Water Vole records for Nottinghamshire are scarce and although the County has probably suffered similar declines to the rest of the UK, the extent of the current population is unknown.

*Status and locations within drainage districts:* The Boards' observations have yet to determine population trends, currently the distribution is widespread across the northern Boards' district.

*Potential improvements:* The Boards have and are reviewing their maintenance works to maintain water vole habitat and support the population. American mink may be the biggest threat to the Water Vole.

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<sup>4</sup> Kite, N. 2008. Water Vole Conservation in Lincolnshire, Transactions Vol 27 Part 1, Lincolnshire Naturalists Union.

### 6.2.6 White-clawed Crayfish

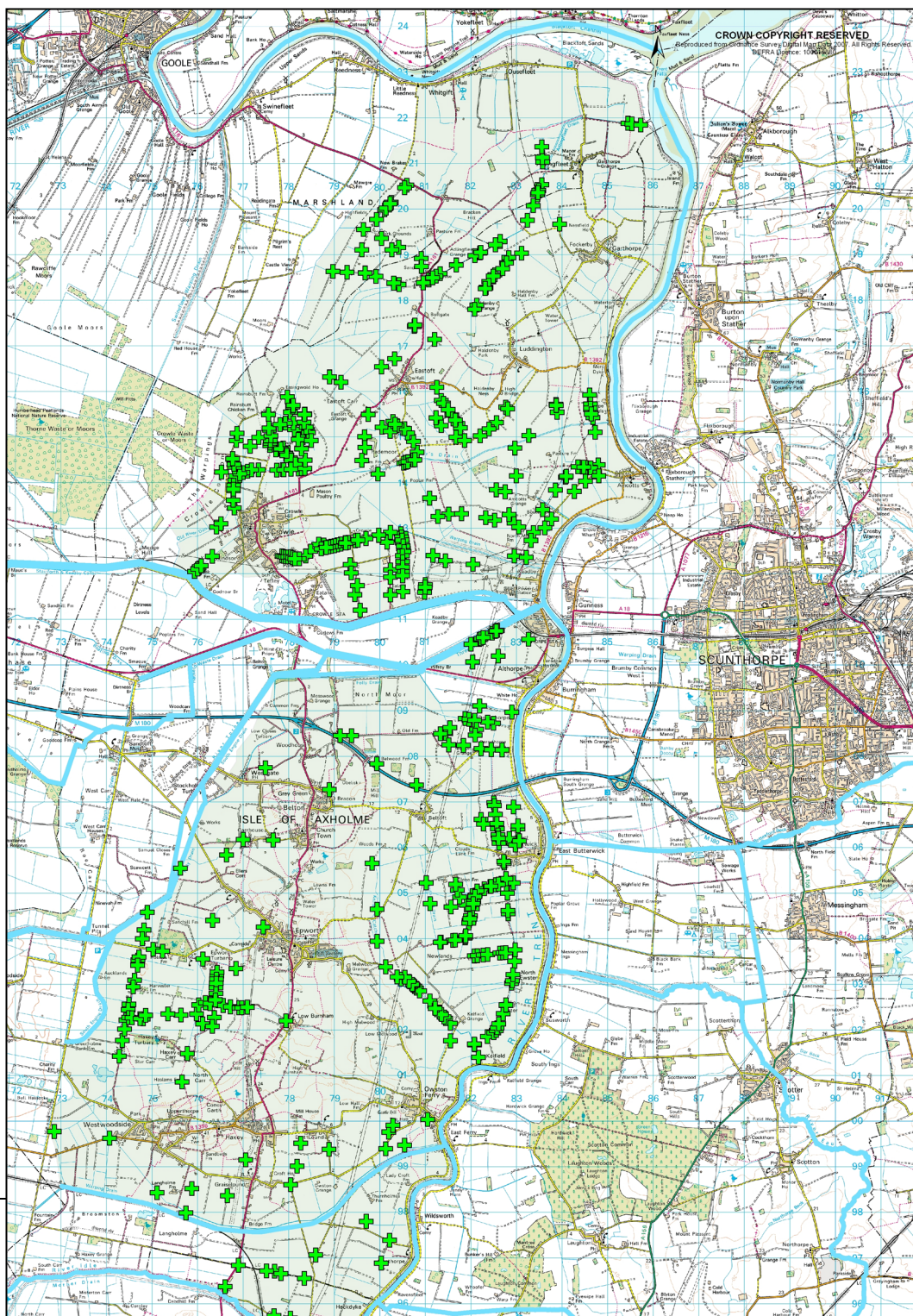
*Description:* The White-clawed Crayfish is olive-brown colour, with pale-coloured undersides to the claws (hence white-clawed). It may grow to 12 cm (5 inches) long, although sizes below 10 cm are more common. It is normally found in rivers and streams, where it hides among rocks and submerged logs, emerging to forage for food.

*National status and local status:* The White-clawed Crayfish was formerly widespread in Europe, but populations are now confined to a diminishing number of areas. It is relatively widespread in the UK, but many populations have been lost since the 1970s.

*Status and locations within drainage districts:* Present in the Rivers Idle & Ryton IDB District, not known from Board maintained drains.

*Potential improvements:* Survey to establish presence prior to all reforming works.

### 6.2.7 Water Vole Distribution in the Boards' District



Records collected by Board staff 2006-2009, all records have been passed to the Lincolnshire Environmental Records centre and will be uploaded onto the National Biodiversity Network [www.nbn.org.uk](http://www.nbn.org.uk).

Note: Everton and the Rivers Idle & Ryton IDB have yet to begin recording.

## **7 HABITAT AND SPECIES ACTION PLANS**

### **7.1 Habitat and Species Action Plans**

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The following sections contain action plans for each of the habitats and species that have been prioritised for action by the Boards. The plans set out the objectives, targets and actions that the Boards believes are appropriate for each. These plans will be reviewed and updated periodically.

## 8 HABITAT ACTION PLANS

### 8.1 Hedgerow Action Plan

#### National UK BAP Targets

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Hedgerows are a priority habitat for the UK Biodiversity Action Plan.

#### Local Biodiversity Action Plan Targets

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Hedgerow and Hedgerow Trees are included in Biodiversity Action Plans.

#### Local Status

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The resource is unknown, several kilometres of hedgerow including many ancient boundary hedges have been removed in since the 1940s.

#### Status within the Drainage Districts

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The Biodiversity Audit did not attempt to map existing hedges in the Boards' district. Many hedges are away from the Boards' maintained watercourses, protection includes the Hedgerow Regulations 1997, the "Code of Good Agricultural Practice" and the requirements of Environmental Stewardship. Management of the hedges is the responsibility of adjacent landowners, the Boards only undertakes cutting where it is inhibiting access.

The Boards generally do not remove hedges for maintenance others other than trimming for access.

The Boards' Byelaws (No 10) require *"No person without the previous consent of the Board shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within eight metres of the landward toe of the bank where there is an embankment or wall or within eight metres of the top of the batter where there is no embankment or wall, or where the watercourse is enclosed within eight metres of the enclosing structure."*

## Boards' Objectives and Targets

| Target Reference | Target   | Action Reference | Board Actions  | Partners | Date | Indicators              | Reporting |
|------------------|--|------------------|--|----------|------|-------------------------|-----------|
| 1                | Maintain the length of hedgerow in the districts | 1.1              | Review the need for hedge removal during access improvements works                                       |          | 2010 | No net loss             | Annually  |
|                  |  | 1.2              | Plant species rich hedges to compensate for any hedges necessarily removed for access improvements works |          | 2010 | No net loss             | Annually  |
| 2                | Increase the length of hedgerow in the districts | 2.1              | Plant species rich hedges were possible during works programmes  |          | 2010 | Length of hedge planted | Annually  |

### Associated Species

Farmland Birds including: Linnet, Reed Bunting and Tree Sparrow.

## 8.2 Reedbeds Action Plan

### National UK BAP Targets

Reedbeds are a priority habitat for the UK Biodiversity Action Plan

### Local Biodiversity Action Plan Targets

Reedbeds are included in the Biodiversity Action Plans.

### Local Status

No known.

### Status within the Drainage Districts

The Biodiversity Audit did not attempt to map existing reedbeds in the Boards' district.

IDBs have pioneered the creation of berms alongside watercourses during reforming work; these normally colonise with reed and provide additional storage for water together with enhancing biodiversity. Reedbeds, as a national priority habitat, are included in Outcome Measures No 5 - areas created that are larger than 0.1 ha are reported against this measure in accordance with Environment Agency practise.

## Boards' Objectives and Targets

| Target Reference | Target  | Action Reference | BOARD Actions  | Partners         | Date | Indicators                  | Reporting |
|------------------|---|------------------|--|------------------|------|-----------------------------|-----------|
| 3                | Maintain the area of reedbed in the districts | 3.1              | Replace habitat lost when installing culverts during access improvements works |                  | 2010 | No net loss                 | Annually  |
| 4                | Increase area of reedbed in the districts     | 4.1              | Create additional berms  |                  | 2010 | Area of new reedbed created | Annually  |
|                  |   | 4.2              | Create reedbeds on washland and flood storage areas where possible             | FWAG<br>WT<br>NE | 2010 |                             |           |

### Associated Species

Water voles, reed and sedge warblers and waterfowl, larger areas may be used by bearded tits, bitterns and marsh harriers.

### 8.3 Lowland Raised Bog

#### National UK BAP Targets

Lowland Raised Bog is a priority habitat for the UK Biodiversity Action Plan.

#### Local Biodiversity Action Plan Targets

Lowland Raised Bog is included in the Biodiversity Action Plans.

#### Local Status

Epworth and Haxey Turbaries are SSSI in unfavourable condition.

#### Status within the Drainage Districts

Epworth and Haxey Turbaries are SSSI in unfavourable condition.

## Boards' Objectives and Targets

| Target Reference | Target   | Action Reference | Board Actions  | Partners        | Date | Indicators               | Reporting                    |
|------------------|--|------------------|--|-----------------|------|--------------------------|------------------------------|
| 5                | Deliver and maintain the Water Level Management Plans for Epworth & Haxey Turbary SSSI | 5.1              | Continue design of the Epworth WLMP and begin implementation when funds are provided | EA<br>NE<br>LWT | 2010 | SSSI in target condition | Following receipt of funding |
|                  |  | 5.2              | Agree the Haxey WLMP with Natural England  | EA<br>NE<br>LWT | 2010 | SSSI in target condition | Following receipt of funding |
|                  |  | 5.3              | Undertake research and develop a design for the Haxey WLMP when funds are provided   | EA<br>NE<br>LWT | 2010 | SSSI in target condition | Following receipt of funding |

### Associated Species

Water Voles, Reed and Sedge Warblers and Waterfowl, Nesting Waders including: Avocet, Lapwing, and Grass Snakes.

## 8.4 Rivers, Canals and Drains Action Plan

### National UK BAP Targets

Rivers, Canals and Drains are a priority habitat for the UK Biodiversity Action Plan.

### Local Biodiversity Action Plan Targets

Rivers, Canals and Drains are included in the Biodiversity Action Plans.

### Local Status

Extensive network across the Boards' district.

### Status within the Drainage Districts

The Boards maintain 461km of watercourse with the drainage districts. The Boards' maintained watercourses are:

- Artificial, developed during the draining of the area.
- Originally designed and constructed solely for the function of conveying surplus water run-off and managing water levels.

The Boards' role includes maintenance of the system and improvements such as creating new drains and structures.



## Boards' Objectives and Targets

| Target Reference | Target                       | Action Reference | Board Actions   | Partners                            | Date | Indicators                   | Reporting |
|------------------|------------------------------|------------------|---|-------------------------------------|------|------------------------------|-----------|
| 6                | Maintain & Improve Condition | 6.1              | Provide appropriate mitigation for maintenance works and projects to ensure no net loss of biodiversity | WT<br>BAP                           | 2003 | No net loss of biodiversity. | 2015      |
|                  |                              | 6.2              | Control introduced exotic species   | See Species Action Plans Targets 11 |      |                              |           |
|                  |                              | 6.3              | Identify eutrophic condition in the districts   | EA<br>NE                            | 2009 | Absence of filamentous algae | 2010      |
|                  |                              | 6.4              | Review and develop the cutting programme in accordance with the Drainage Channel Biodiversity Manual    | ADA<br>LERC<br>NE                   | 2010 | LWS status                   | 2015      |

### Associated Species

All wetland flora and fauna, particularly Water Voles. The filamentous algae can obstruct water vole burrows when left on the bank during the annual weedcutting programme.

### 8.5 Ponds Action Plan

#### National UK BAP Targets

Ponds are a priority habitat for the UK Biodiversity Action Plan.

#### Local Biodiversity Action Plan Targets

Ponds are included in the Biodiversity Action Plans.

#### Local Status

Ponds are included in the Biodiversity Action Plans.

**Status within the Drainage Districts**

The Biodiversity Audit didn't attempt to map existing ponds in the Board's district.

**Boards' Objectives and Targets**

| Target Reference | Target                   | Action Reference | Board Actions  | Partners | Date | Indicators                         | Reporting |
|------------------|--------------------------|------------------|--|----------|------|------------------------------------|-----------|
| 7                | Increase number of Ponds | 7.1              | Provide Advice when requested on pond creation management  | WT       | 2010 | No of ponds where advice was given | Annually  |
|                  |                          | 7.2              | Promote the creation of ponds as mitigation for loss of habitat for byelaw and section 23 consents – where appropriate | WT       | 2010 | No of ponds created                | Annually  |

**Associated Species**

Dragonflies and Damselflies, Common Toad, Grass Snake, Great Crested Newt perhaps Water Vole.

## 9 SPECIES ACTION PLANS

### 9.1 Barn Owl Action Plan

#### Legal Protection Status

The Barn Owl is listed in the Wildlife & Countryside Act 1981; Schedule 1 - Birds that cannot be intentionally or recklessly disturbed when nesting and Schedule 9 - Birds that cannot be released into the wild without a license.

#### National UK BAP Targets

The Barn Owl is not a priority species in the UK BAP. The Wildlife Conservation Partnership has a National Conservation (Action) Plan for the Barn Owl.

#### Local Biodiversity Action Plan Targets

The Barn Owl is included in a grouped Species Action Plan for Farmland Birds.

#### Local Status

Barn Owls declined nationally over the last 50 years with a 70% decline in the between 1932 and 1985. Today it is estimated that about 80% of the country's Barn Owls nest in artificial nest boxes developed by the Wildlife Conservation Partnership over 21 years ago.

#### Status within the Drainage Districts

Barn Owl populations are known to be recovering in the Boards' district. The Boards installed their first nest box in 2006 following a programme developed by IDB in Lincolnshire in 1987, in those days it was a pioneering initiative, now adopted across Lincolnshire by the Internal Drainage Boards with over 200 nest boxes installed and over 1,000 chicks reared by 2008.

#### Boards' Objectives and Targets

| Target Reference | Target                      | Action Reference | Board Actions  | Partners | Date | Indicators                                | Reporting |
|------------------|-----------------------------|------------------|--|----------|------|---|-----------|
| 8                | Install Barn Owl Nest Boxes | 8.1              | Survey all the Boards' operational sites and install Barn Owl nest boxes at all suitable locations | WCP      | 2010 | Barn Owl nest boxes on all suitable sites | 2012.     |

|  |  |     |  |            |          |   |          |
|--|--|-----|--|------------|----------|---|----------|
|  |  | 8.2 | Facilitate a network of Barn Owl nest boxes across the districts | WCP        | 2015     | Network of Barn Owl nest boxes across the districts | Annually |
|  |  | 8.3 | Monitor Nest Boxes and ringing chicks                            | BTO<br>WCP | Annually | Number Barn Owl nests/chick.                        | Annually |

## 9.2 European Eel Action Plan

### Legal Protection Status

The European Eel is included in the Salmon and Freshwater Fisheries Act 1975. This Act provides a specific duty for the Environment Agency to maintain, improve and develop eel fisheries. Licences to fish for eels must be issued on demand by the Environment Agency and although some controls on the use and type of instruments are available through byelaws, there is no power to restrict the number of fishing units. The International Council for the Exploration of the Sea (ICES) states that the eel fishery is not sustainable, the European Union issued Council Regulation (EC) No 1100/2007 establishing measures for the recovery of the stock of the European Eel, requiring member states to produce Eel Management Plans and setting measures to reduce anthropogenic mortalities of Eels. In March 2009, CITES added the European Eel to Appendix II, as a species threatened with extinction, trade in specimens of these species is permitted only in exceptional circumstances.

### National UK BAP Targets

The European Eel is a now Priority Species in the UK BAP, Eels were only added to the UK BAP in 2007.

### Local Biodiversity Action Plan Targets

The European Eel is not included in the Biodiversity Action Plans.

### Local Status

The National Biodiversity Network shows a UK wide distribution for the European Eel.

### Status within the Drainage Districts

Anecdotal reports from anglers suggest the Eel occurs in many of the Board maintained drains.

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**Boards’ Objectives and Targets**

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| Target Reference | Target   | Action Reference | Board Actions  | Partners  | Date | Indicators                                 | Reporting |
|------------------|--|------------------|--|-----------|------|--|-----------|
| 9                | Establish the distribution of the Eel in the districts | 9.1              | Operational staff to collect records during weedcutting work | EA<br>BAP | 2009 | Eels present in all the Boards’ catchments | 2012      |

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**9.3 Grass Snake Action Plan**

**Legal Protection Status**

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The Grass Snake receives general protection under the Wildlife and Countryside Act 1981, against killing, injuring and sale.

**National UK BAP Targets**

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Included in the UK BAP list, after a decline in the population.

**Local Biodiversity Action Plan Targets**

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The Grass Snake is included in the Farmland and Grassland Habitat and Urban Action Plans.

**Local Status**

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The National Biodiversity Network shows a UK wide distribution for the Grass Snake.

**Status within the Drainage District**

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Not known.

## Boards' Objectives and Targets

| Target Reference | Target   | Action Reference | Board Actions  | Partners   | Date | Indicators                | Reporting |
|------------------|--|------------------|--|------------|------|---------------------------|-----------|
| 10               | Establish the distribution of the Grass Snake in the districts | 10.1             | Operational staff to collect records during weedcutting work | EA<br>LBAP | 2009 | Grass Snake distribution. | 2012      |

### 9.4 Invasive Species Action Plan

#### Legal Protection Status

The Weeds Act lists injurious weeds (Common ragwort, Broad-leaved dock, Curled dock, Creeping thistle and Spear thistle), the Secretary of State may serve enforcement notice on the occupier of land on which injurious weeds are growing, the Board as a good neighbour would instigate control of these weeds if necessary.

It is an offence under the Wildlife and Countryside Act 1981 section 14(2) to '*plant or otherwise cause to grow in the wild*' any plant listed in Schedule 9, Part II. Listed in this section are Giant Hogweed Japanese Knotweed Fallopiia. Wastes containing seeds and rhizomes including soil and sludge from the Board's watercourses are included in the provisions of the Environmental Protection Act 1990.

Mink and introduced species of crayfish are included in the Wildlife and Countryside Act 1981, prohibiting release into the wild.

#### National UK BAP Targets

Invasive Species are not covered by the BAP, but mentioned as threats in Action Plans. A study commissioned by UK BAP Targets English Nature in 2005 reported 2,721 non-native species and hybrids in the wild in England, including 1,798 flowering plants (73 per cent of the total), most of which have escaped from gardens. The vast majority of non-native species don't cause any environmental or economic problems but some species can cause considerable damage. Invasive non-native species impact on biodiversity and the natural environment by displacing or preying upon native species, by changing habitats, or by introducing new diseases or parasites.

#### Local Biodiversity Action Plan Targets

Invasive Species are not covered by the BAP but mentioned as threats in Action Plans.

### Local Status

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Occasional work such as an Environment Agency study on the distribution of Giant Hogweed supplement the records held by the Environmental Records Centre

### Status within the Drainage Districts

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American Mink *Mustela vison* are known to occur in the Board's District.

Giant Hogweed *Heracleum mantegazzianum* occurs on a single site in the Land Dyke Drain at Marshchapel.

Himalayan Balsam *Impatiens glandulifera* occasional plants occur in the Board's district.

Japanese Knotweed *Fallopia japonica var japonica* is likely to occur in some areas.

Pondweeds; Canadian Pondweed *Elodea canadensis* and Nuttall's pondweed *Elodea nuttallii*, occur in some drains.

Signal Crayfish *Pacifastacus leniusculus* not known to occur in the Board maintained drains although the National Biodiversity Network records them in the Board's district.

Water Fern *Azolla filiculoides* may occur in some drains.

Wild Turnip/Oilseed Rape *Brassica rapa* occurs on drain banks across the Board's District.

Other species like Australian Swamp Stonecrop *Crassula helmsii*, Floating Pennywort *Hydrocotyle ranunculoides*, Parrot's Feather *Myriophyllum aquaticum*, Water primrose *Ludwigia grandiflora* and numerous other species including fish and Signal Crayfish *Pacifastacus leniusculus* are likely to occur in garden ponds in the Board's district.

Terrapins may also occur in the Board's district..

### Boards' Objectives and Targets

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Species like Himalayan Balsam, Pondweeds (Canadian and Nuttall's) and Water Fern are difficult to control with the currently available chemicals, while mechanical on large areas is ineffective. Actions to control these species must be applied at landscape scale, probably coordinated by the Biodiversity Partnerships. Policy and methods of control are developing with action coordinated nationally by the GB Non Native Species Secretariat.

Some species like Pondweeds (Canadian and Nuttall's) can inhibit conveyance. Biological control by introducing Chinese Grass Carp or reducing the plants vigour by increasing turbidity grass carp may be appropriate, if control is required, to manage flood risk.

For most species the Boards are not currently undertaking any actions.

| Target Reference | Target   | Action Reference | Board Actions  | Partners | Date | Indicators   | Reporting |
|------------------|--|------------------|--|----------|------|--|-----------|
| 11               | Establish the distribution of invasive species | 11.1             | Operational staff to collect records during weedcutting work | BAP/LRC  | 2010 | Species not present in Board maintained watercourses | Annually  |

## 9.5 Water Vole Action Plan

### Legal Protection Status

The Water Vole receives legal protection under the Wildlife and Countryside Act 1981. Originally this was for of section 9(4); places which are used for shelter or protection and made it an offence to disturb water voles. In April 2008 the water vole received full protection, under section 9 it is now an offence to intentional kill, take, injure or possess water voles.

### National UK BAP Targets

Water Vole are a Priority Species in the UK BAP, targets are:

Target 1 Maintain the current distribution in order to arrest the decline of the species in Britain.

Target 2 Maintain the current abundance in order to arrest the decline of the species in Britain.

Target 3 Restore Water Voles to their former widespread distribution, using the Vincent Wildlife Trust survey of 1989/90 as a baseline, by the year 2010.

### Local Biodiversity Action Plan Targets

The Biodiversity Action Plan targets are:

Target 1 Maintain the current distribution of the water vole.

Target 2 Ensuring that Water Voles are present throughout their 1970s range by 2010.

### Local Status

The Lincolnshire Biodiversity Action Plans targets consider that Water Voles population in appears to be stable. Monitoring undertaken by the Environment Agency analysed by Kite's (2008)<sup>5</sup> questioned the long-term viability of the Water Vole in Lincolnshire, with a worse case scenario even predicting the species extinction by 2015.

<sup>5</sup> Kite, N. 2008. Water Vole Conservation in Lincolnshire, Transactions Vol 27 Part 1, Lincolnshire Naturalists Union.



### Status within the Drainage Districts

The Boards' operational staff have recorded sightings since 2006, these show a wide distribution of water vole over the Boards' district. Water Voles were displaced during the 2007 deluge, the population trend isn't known for the Boards' district.

### Boards' Objectives and Targets

| Target Reference | Target                          | Action Reference | Board Actions  | Partners         | Date     | Indicators                        | Reporting |
|------------------|---------------------------------|------------------|--|------------------|----------|-----------------------------------|-----------|
| 12               | Maintain Water Vole Populations | 12.1             | Collect and collate sightings by operational staff               | LERC             | Annually | Distribution maintained/expanding | Annually  |
|                  |                                 | 12.2             | Maintain quality of habitat, regular review of cutting programme | LBAP<br>NE       | Annually | Quality of Habitat is maintained  | Annually  |
|                  |                                 | 12.3             | Maintain extend of Habitat (See Procedural Action Plan)          | LAs<br>NE<br>LWT | Annually | Extend of Habitat is maintained   | Annually  |

Currently the Boards are collecting and collating sightings of Water Voles to enable an assessment of their distribution in the Boards' district. This work started in 2006, it is probable that the 2007 deluge affected recording is will by operational by operational staff.

## 9.6 White-clawed Crayfish Action Plan

### Legal Protection Status

Description: The White-clawed Crayfish is olive-brown colour with pale-coloured undersides to the claws (hence white-clawed). It may grow to 12cm (5 inches) long although sizes below 10cm are more common. It is normally found in rivers and streams where it hides among rocks and submerged logs emerging to forage for food.

### National UK BAP Targets

Maintain the present geographical distribution of this species.

### Local Biodiversity Action Plan Targets

The Nottinghamshire Biodiversity Action Plan targets are:

- Target 1 Establishing the status and distribution of White-clawed Crayfish by 2005 and using this to establish a target for increasing its distribution in the county.
- Target 2 Maintaining the known distribution of White-clawed Crayfish.

**Local Status**

Present in the Rivers Idle & Ryton IDB District.

**Status within the Drainage Districts**

Present in the Rivers Idle & Ryton IDB District, not known from Board maintained drains.

**Boards' Objectives and Targets**

| Target Reference | Target   | Action Reference | Board Actions   | Partners | Date | Indicators   | Reporting |
|------------------|--|------------------|---|----------|------|--|-----------|
| 13               | Establish the distribution of the White-clawed Crayfish in the districts | 13.1             | Survey to establish presence prior to all reforming works | LRC      | 2015 | Presence/Absence of White-clawed Crayfish in Board maintained drains | 2015      |

## 10 PROCEDURAL ACTION PLAN

### Introduction

A number of procedural targets and actions have been established within this Procedural Action Plan. These are intended to integrate biodiversity considerations into the Boards practices and procedures.

### Boards' Objectives and Targets

| Target Reference | Target  | Action Reference | Board Actions  | Partners                                  | Date | Indicators   | Reporting                     |
|------------------|---|------------------|--|---|------|--|-------------------------------|
| 14               | Maintain extend of Habitat in the Boards' district              | 14.1             | <p>Require replacement habitat creation for Byelaw and Section 23 consents that reduce habitat</p> <p>Where the applicant has difficulty providing replacement habitat, the Boards maybe able to provide it on a chargeable basis</p> <p>Ensure protection of drains/ditches within new development and encourage appropriate management to enhance wildlife value</p> | LA<br>WT<br>FWAG                          | 2010 | No net loss of habitat                               | Annually                      |
|                  | Increase extent of Habitat in the Boards' district <sup>6</sup> | 14.2             | The Boards will work with partnerships that seek to maintain and create habitat in the Board's district.   | Partnership Working, see Habitat Targets. |      |  |                               |
| 15               | Surveillance, of protected and invasive species                 | 15.1             | Annual recording programme during cutting season – records digitised   | LERC                                      | 2010 | Population's stable/increasing for protected species | Data supplied to LRC Annually |

<sup>6</sup> Defra's Making Space for Water: Outcome Measures No 5. UK Biodiversity Action Plan habitats, requires the Board to record an overall increase in Biodiversity Action Plan habitat.

|    |                                      |      |   |                        |      |  |          |
|----|--------------------------------------|------|---|------------------------|------|--|----------|
|    |                                      | 15.2 | Biodiversity training for operational staff   | LBAP                   | 2009 |  | Annually |
| 16 | Improving data and information flows | 16.1 | Boards' data supplied to LERC annually.<br><br>Continued development of data on Boards' GIS system that currently holds data on: Historic Environment Record Wildlife Trust Reserves, SSSI (includes European Sites {SAC & SPA} and Ramsar) and Tree Preservation Orders.<br><br>Biological records collected by the Boards | LA<br>HER<br>LRC<br>NE | 2010 | Data readily available to all staff and the Boards | Annually |

## 11 IMPLEMENTATION

### 11.1 Implementation

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The IDBs Biodiversity Action Plan was adopted by the Boards on 9<sup>th</sup> March 2010.

The Biodiversity Action Plan provides a series of targets for improving the Board's delivery of Biodiversity. Many of the measures are already in operation, due to the appointment of a full time Environmental Officer in 2006. The Boards Environmental Officer is a Chartered Environmentalist and a full member of the Institute of Ecology and Environmental Management and acts the Board's Biodiversity Champion.

The Boards have regularly reviewed maintenance programmes, with changes made most years combined with the purchase of new machinery. Conveyors are being fitted to flails and a flail fraise conveyor unit is operational – the second such unit in the country. This has been implemented together with closer scrutiny of maintenance operations, that involves all operational and supervisory staff, alongside the development of the biological recording and the Board's Geographic Information System.

Applicants wishing to alter watercourses (Byelaw and Section 23) are requested to supply "The Environmental Impact of the proposals", these are assessed by the Board's Environmental Officer.

The Biodiversity Action Plan will be published on the Board's web site and a copy will be displayed in reception.

### 11.2 Monitoring

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The Board will monitor progress for each of the targets in this Biodiversity Action Plan as detailed in the Habitat and Species Action Plans.

The Boards are members of the Biodiversity Partnership and exchange data with the Lincolnshire Environmental Records Centre who after verification the records will be placed on the National Biodiversity Network [www.nbn.org.uk/](http://www.nbn.org.uk/) and available to all.

## 12 REVIEWING AND REPORTING PROGRESS

### 12.1 Reviewing and Reporting Progress

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A report on the operation of The IDBs Biodiversity Action Plan will be produced annually to the Boards and published on the Boards' web site and supplied to the Biodiversity Partnerships. The Boards are a member of the BAP Rivers and Wetlands Habitat Group that coordinates action and reviews that section of the Lincolnshire BAP Action Plan.

Data such as the overall increase in UK Biodiversity Action Plan habitats (reedbeds) is reported to Defra (Outcome Measure No5) but will also be included on the Board's report via the Biodiversity Action Reporting System.

The Boards' partners in delivering this Biodiversity Action Plan include:

Association of Drainage Authorities (ADA)

Botanical Society of the British Isles (BSBI)

British Trust for Ornithology (BTO)

Local Authorities (LAs),

    South Yorkshire/Doncaster Council

    Nottinghamshire/Bassetlaw District Council

    Lincolnshire/North Lincolnshire Council

Environment Agency (EA)

Farming and Wildlife Advisory Group (FWAG)

Humber Management Scheme (HMS)

Biodiversity Action Plans.

- Lincolnshire Biodiversity Action Plan
- Nottinghamshire Local Biodiversity Action Plan
- Doncaster Biodiversity Action Plan

Environmental Records Centres

Wildlife Trust

    Lincolnshire

    Nottinghamshire

    Yorkshire

Natural England (NE)

Wildlife Conservation Partnership (WCP)

Partners the Boards are a Relevant Authority in the Humber Estuary European Marine Site. Items of particular interest are reported to the bi monthly Board meetings. The full reports will be published annually.

The Boards will enter targets and report delivery on the Biodiversity Action Reporting System, the UK's national biodiversity information system that supports the planning, monitoring and reporting requirements of national, local and organisations' Biodiversity Actions Plans [www.UK\\_BAP-reporting.org.uk](http://www.UK_BAP-reporting.org.uk).

## 13 APPENDICES

### 13.1 National Character Areas in the Boards' District

