

LINDSEY MARSH DRAINAGE BOARD

BIODIVERSITY ACTION PLAN

March 2010



This Biodiversity Action Plan has been prepared by the Lindsey Marsh Drainage Board in accordance with the commitment in the Implementation Plan of the Defra Review of Internal Drainage Boards (IDBs) to produce their own Biodiversity Action Plans by April 2010.

It also demonstrates the Board's commitment to fulfilling its duty as a public body under the Natural Environment and Rural Communities Act 2006 to conserve biodiversity.

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

The Board has adopted the Biodiversity Action Plan as one of its policies and is committed to its implementation. It will review the plan periodically and update it as appropriate.

.....

Date

Mr Michael Clark
Chairman of the Board

This Biodiversity Action Plan is a public statement by the Board of its biodiversity objectives and the methods by which it intends 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:

Lindsey Marsh Drainage Board
Wellington House
Manby Park
Louth
LN11 8UU

or by email: enquiries@lmdb.co.uk

Further information is available on the Board's website: www.lmdb.co.uk

CONTENTS

1	IDB BIODIVERSITY – AN INTRODUCTION-----	5
1.1	Introduction.....	5
1.2	What is Biodiversity?	6
1.3	The Importance of Conserving Biodiversity	6
1.4	The Biodiversity Action Planning Framework	6
1.5	Biodiversity – The International Context	6
1.6	Biodiversity – The National Context.....	6
1.7	Local Biodiversity Action Plans	7
1.8	Internal Drainage Boards and Biodiversity.....	7
1.9	The Aims of the IDB Biodiversity Action Plan	7
2	THE IDB BAP PROCESS -----	8
2.1	The Biodiversity Audit	8
2.2	Evaluating and Prioritising Habitats and Species	8
2.3	Setting Objectives, Targets and Indicators	8
2.4	Implementation.....	8
2.5	Monitoring.....	8
2.6	Reporting and Reviewing Progress	8
3	THE BIODIVERSITY AUDIT -----	9
3.1	Introduction.....	9
3.2	Local Biodiversity Action Plans	9
3.3	IDB Biodiversity Audit Boundary	9
3.4	Sources of Data - Habitats	9
3.5	Sources of Data - Species	10
4	NATURE CONSERVATION SITES -----	11
4.1	The Drainage District	11
4.2	Geology	11
4.3	Landscape.....	11
4.4	Statutory Nature Conservation Sites.....	13
4.5	Non-statutory Local Sites	16
5	HABITAT AUDIT -----	17
5.1	Habitat Audit Summary	17
5.2	Habitats of Importance for the Board	19
6	SPECIES AUDIT -----	22
6.1	Species Audit Summary.....	22
6.2	Species of Importance for the IDB	25
7	HABITAT AND SPECIES ACTION PLANS-----	29
7.1	Habitat and Species Action Plans.....	29
8	HABITAT ACTION PLANS-----	30
8.1	Hedgerow Action Plan.....	30
8.2	Reedbeds Action Plan.....	31
8.3	Coastal and Floodplain Grazing Marsh Action Plan	32
8.4	Rivers & Streams - Blow Wells Action Plan	33
8.5	Rivers, Canals and Drains action Plan	34
8.6	Ponds Action Plan.....	35
9	SPECIES ACTION PLANS -----	37
9.1	Barn Owl Action Plan	37
9.2	Black Poplar Action Plan	38
9.3	European Eel Action Plan	39
9.4	Grass Snake Action Plan	40
9.5	Greater water-parsnip Action Plan	41
9.6	Invasive Species Action Plan	43

9.7	Water Vole action Plan.....	45
10	PROCEDURAL ACTION PLAN-----	48
11	IMPLEMENTATION -----	50
11.1	Implementation.....	50
11.2	Monitoring.....	50
12	REVIEWING AND REPORTING PROGRESS -----	51
12.1	Reviewing and Reporting Progress	51
13	APPENDICES -----	52
13.1	National Character Areas in the Board's District.....	52
13.2	Scheduled and Listed sites in the Board's District.....	53
13.3	Tree Preservation Orders in the Board's District	54
13.4	International and Nationally Designated Sites in the Board's District.....	55
13.5	Local Nature Reserves and Lincolnshire Wildlife Trust Reserves in the Board's District.....	56

1 IDB BIODIVERSITY – AN INTRODUCTION

1.1 Introduction

Lindsey Marsh Drainage Board has conducted a biodiversity audit of its district and identified those habitats and species that would benefit from particular management or actions by the Board. Using this information, which is presented in later sections, the Board's 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 Board's activities, such as annual maintenance programmes and capital schemes.

The action plan will help to safeguard the biodiversity of the drainage district 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 Board, as shown in Figure 1.



Figure 1. Lindsey Marsh Drainage Board District
(CROWN COPYRIGHT RESERVED Reproduced from Ordnance Survey Digital Map Data 2008. All Rights Reserved. DEFRA Licence: 100018880)

1.2 What is Biodiversity?

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

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

Lindsey Marsh Drainage Board’s 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

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

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

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

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 of 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

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 Board's drainage district.
- To identify targets for other habitats and species of local importance within the Board's 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 Board 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 Board's operations, and
- To monitor and report on progress in biodiversity conservation.

2 THE IDB BAP PROCESS

2.1 The Biodiversity Audit

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 Board and by other biodiversity partners.

2.2 Evaluating and Prioritising Habitats and Species

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 district. Additional non-BAP habitats and species deemed to be important within the drainage district 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 Board’s BAP is reviewed.

A range of criteria was then used to select those species and habitats that are of particular importance to the Board – that is to say, those habitats and species that could benefit from the Board’s 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

For each habitat and species identified as being important to the Board, conservation objectives and targets have been drawn up and set out in the Plan. The objectives express the Board’s 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 Board 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

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 Board intends to implement the actions in the Plan, often in partnership with other organisations or individuals.

2.5 Monitoring

Achievement of the Plan targets will be measured by a programme of monitoring which the Board 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

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 Board 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

The following Sections 4, 5 and 6 summarise the results of the Biodiversity Audit undertaken in 2007/2009. Section 4 provides information about the drainage district and a list of the nature conservation sites that occur within or bordering its boundaries. Sections 5 and 6 list respectively the habitats and species occurring within the district that are of potential importance to the Board.

3.2 Local Biodiversity Action Plans

The Lincolnshire Biodiversity Action Plan covers Lindsey Marsh Drainage Board's District. Lincolnshire IDB's via the Lincolnshire Branch of the Association of Drainage Authorities have been supporters of the Lincolnshire Biodiversity Action Plan since its inception, the BAP is now on its 2nd Edition, that was published in November 2006.

The Lincolnshire Biodiversity Action Plan is funded and managed by the Lincolnshire Biodiversity Partnership. The Partnership brings together local authorities, statutory agencies, voluntary and not-for-profit organisations with a responsibility for and interest in biodiversity in the historic county of Lincolnshire. The Partnership coordinates action, information and protection and provides services for partner organisations and is independent of its constituent organisations.

The Lincolnshire Biodiversity Partnership's services include:

The Lincolnshire Biodiversity Action Plan covers the historic county of Lincolnshire including North and North East Lincolnshire and includes action plans for habitats and species. It also identified the need for the development of the Lincolnshire Environmental Records Centre and Lincolnshire Local Wildlife Sites.

Lincolnshire Environmental Records Centre collects, collates, manages and disseminates information of known quality relating to wildlife, wildlife sites and habitats.

Lincolnshire Local Wildlife Sites. These are sites protected by policy¹ criteria for site selection have been developed and following survey and appraisal sites are recommend to the Lincolnshire Biodiversity Partnership for listing.

For more information see:

www.lincsbiodiversity.org.uk/ Lincolnshire Biodiversity Partnership

3.3 IDB Biodiversity Audit Boundary

The Biodiversity Audit covers the entire district of Lindsey Marsh Drainage Board, 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 district wholly or partially covers, this has been included in the area of the audit.

3.4 Sources of Data - Habitats

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

- Data held by the Lincolnshire Environmental Records Centre, this includes data supplied by the Lincolnshire Wildlife Trust, the Lincolnshire Naturalist's Union and other supporting organisations.
- GIS data on priority habitats and sites provided by Natural England.
- Surveys of the district conducted by the Board's staff.
- Surveys undertaken by Environmental Consultants, submitted to the Board in support of Byelaws and Section 23 applications under the Land Drainage Act 1991.

¹ Planning Policy Statement 9 - Biodiversity and Geological Conservation and Planning Policy Statement 12 -Local Development Frameworks

- Surveys undertaken by the Lincolnshire Biodiversity Partnership on Local Wildlife Sites in conjunction with East Lindsey District Council.
- Regional Priority Species Scoping paper – Taking forward the East Midlands' UK BAP Species List.

3.5 Sources of Data - Species

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

- Data held by the Lincolnshire Environmental Records Centre, this includes data supplied by the Lincolnshire Wildlife Trust, the Lincolnshire Naturalist's Union and other supporting organisations.
- Data available on the National Biodiversity Network (NBN) Gateway.
- Surveys of the district conducted by the Board's staff.
- Surveys undertaken by Environmental Consultants, submitted to the Board in support of Byelaws and Section 23 applications under the Land Drainage Act 1991.
- Surveys undertaken by the Lincolnshire Biodiversity Partnership, on Local Wildlife Sites, in conjunction with East Lindsey District Council.
- Regional Priority Species Scoping paper – Taking forward the East Midlands' UK BAP Species List.

4 NATURE CONSERVATION SITES

4.1 The Drainage District

The drainage district covers an area of 525km² and contains 975km of Board maintained watercourses. It is located on the Eastern Coast of Lincolnshire, predominantly in the East Lindsey District Council's area and extends northwards to North East Lincolnshire Council's area.

4.2 Geology

Two lines of hills bisect Lincolnshire, those in the west are of Jurassic limestone on which the city of Lincoln is built. To the east are the mainly Cretaceous chalks of the Lincolnshire Wolds. Lincolnshire's solid geology now dips gently eastwards, originally the cretaceous chalks would have formed in sediments above the Jurassic limestone.

As the last ice age retreated, the North Sea extended to the Lincolnshire Wolds. The Board's district was formed by the accretion of marine alluviums. The accretion produced large areas of salt marsh, this was gradually reclaimed as sea dykes were built and became suitable for grazing cattle. In one area from North Cotes to North/South Somercotes and Skidbrooke/Saltfleet cottages (known as "cotes") were occupied by those tending the animals and the summer pasture of Fulstow was called "*la Sumerette*" (Robinson, 1970). Reclamation continued until the 19th century.

Rivers and streams from the Wolds flow across the Middle Marsh to the sea, the river banks were raised as the marshland was reclaimed. Blow wells also occur, these are formed where sand and gravel lenses allow water from the chalk to reach the surface, they are most numerous in North Lincolnshire and extend to Tetney in the Board's district.

The predominant soils are deep stoneless marine alluviums. The Agney association of fine and coarse silts occur on the coast in the northern part of the Board's district, inland the Newchurch 2 association of calcareous clay soils. From South Somercotes to Skegness, the clayey and calcareous silty soils of the Wallsea 2 association occur, these encompass a small area of the silty and clayey soil of the Tanvats association near Saltfleet. South of Skegness, the Wallsea 2 association soils are separated from the coast by soils of the Agney association that extend into the fens. Inland the chalky tills of the Holderness association are the dominant soil type, these extend to the Lincolnshire Wolds. Marine sands and shingle of the Sandwich association are found as linear strips, notably at Donna Nook but also at Gibraltar Point.

4.3 Landscape

4.3.1 Landscape Designations

The western part of the Board's catchment encompasses parts of the Lincolnshire Wolds Area of Outstanding Natural Beauty. The Board's District and maintained drains do not extend into the designated landscape.

Topographically, the Wolds are a dissected chalk tableland falling gently eastward from a western scarp face, which crests in pleasing contrast above the midland plain. High plateaux and ridges in the north give way to rounded hills crossed by winding valleys and narrow ravines.

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 Board's district is with the Lincolnshire Coast and Marshes National Character Area, with the southern part extending into the Fens. Some catchments outside the Board's district extend to the Lincolnshire Wolds National Character Area.

The key characteristics of the National Character Areas are:

Lincolnshire Coast and Marshes	Lincolnshire Wolds	The Fens
<p>Flat coastal plain to east, rising gradually in west to more undulating land at foot of the Lincolnshire Wolds.</p> <p>Predominantly open, medium-scale agricultural landscape. Tendency to smaller farm units with pasture in east. Some remnant areas of ridge and furrow and mixed arable to west.</p> <p>Woodland and hedge cover sparse yet increasing to west at foot of the Wolds.</p> <p>Dispersed settlement pattern through most of area. Concentration of larger settlements towards the coast.</p> <p>Land drained to coast by combination of irregular ditches, streams and dykes. Louth Canal is major man-made watercourse.</p> <p>Coastline experiencing both erosion and accretion. Major coastal dune systems, saltmarshes and artificial sea defences along the coastline. Extensive shallow beaches.</p> <p>Brick and pantile vernacular architecture to the west. Coastal strip significantly altered by discordant 20th century development including seaside resorts, theme parks, bungalows, caravan parks and industry.</p>	<p>Rolling “upland” arable landscape of strongly cohesive identity.</p> <p>Pronounced scarp edge to north and west, comprising rough pasture and scrub, affording fine panoramic views to Central Lincolnshire Vale. Combination of elevated plateaux and deep steep sided dales to chalk areas.</p> <p>Large rectilinear fields with clipped and degraded hedgerows from late enclosure. Occasional shelter belts concentrated on steeper sided valley and scarp slopes emphasising landform.</p> <p>Sparse settlement pattern of small nucleated villages, often in sheltered valleys and associated with modest country houses and small parklands. Diverse geology gives rise to variety of building materials.</p> <p>Broad verges to some roads and tracks provide valuable herb-rich habitats.</p> <p>Archaeologically rich with ancient trackways, deserted villages and burial mounds. Broader south-west valleys of River Lymn and Bain. Associated alder carr woodland and tree lined watercourses.</p>	<p>Large-scale, flat, open landscape with extensive vistas to level horizons and huge skies.</p> <p>A hierarchy of rivers, drains and ditches provide a strong influence throughout the area. Area south of Lincolnshire Wolds most recently drained with Wolds providing marked “Upland” horizon to north.</p> <p>Built forms exhibit strong influence ranging from historic cathedrals and churches like Ely and Boston to large agricultural and industrial structures.</p> <p>Rich and varied intensive agricultural land use including wide range of arable, root crops, bulbs, vegetables and livestock. Field labourers prevalent at harvesting. Horticultural glasshouses and general agricultural clutter a significant feature.</p> <p>Bronze Age, Iron Age and Roman landscapes emerging from below the falling peat. Very rich archaeology especially on fen margins.</p> <p>Abridged, see Landscape Character on Natural England’s Web site for full details.</p>

National Character Areas in the Board’s District are shown in Appendix 13.1.

4.3.3 Historic Environment Record

Numerous sites are recorded on Lincolnshire County Council’s Historic Environment Record. Details of the Scheduled Monuments and Listed Buildings are maintained on the Board’s ArcMap Geographic Information System.

The majority of the records held by Lincolnshire County Council’s Historic Environment Record (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 are routinely used to complement the data and interpretation by a non-specialist is difficult. The Board consults with the Historic Environment Record for all new works.

Scheduled and Listed sites in the Board’s District are shown in Appendix 13.2.

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. TPOs are administered by East Lindsey District Council and North East Lincolnshire Council to protect specific trees or a particular woodland from deliberate damage and destruction.

East Lindsey District Council's TPO records are maintained on the Board's ArcMap Geographic Information System. North East Lincolnshire Council's TPOs are not available electronically so liaison is undertaken for individual schemes.

Tree Preservation Orders in the Board's District are shown in Appendix 13.3.

4.4 Statutory Nature Conservation Sites

4.4.1 International Sites

The following internationally-designated conservation sites are found within the district:

Table 1. International Designations

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

Site name	Designation	Features Relevant to the Board
<p>the Conservation (Natural Habitats & c.) Regulations 1994. The Board works with the Relevant Authorities Group to maintain the favourable condition of the Humber Estuary.</p> <p>The Board 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 www.esfjc.co.uk/</p>		<p>Mudflats and Sandflats not covered by seawater at low tide.</p> <p>Glasswort (samphire) and other annuals colonising mud and sand.</p> <p>Atlantic salt meadows (lower, middle and upper saltmarsh).</p> <p>Mediterranean saltmarsh scrubs.</p> <p>Waterfowl, including Annex I species, migratory species, and the assemblage of waterfowl.</p> <p>Common Seals <i>Phoca vitulina</i>.</p>

International and Nationally Designated Sites in the Board’s District are shown in Appendix 13.4.

4.4.2 National Sites

The following nationally-designated conservation sites are found within the district:

Table 2. National Designations

Site name	Designation	Features Relevant to IDB
<p>Bratoft Meadows (Heath’s Meadows – LWT)</p> <p>The Board are responsible for a Water Level Management Plan for Bratoft Meadows, this was reviewed in agreement with Natural England in May 2007.</p>	Site of Special Scientific Interest	Species rich neutral grassland. Two adjacent fields border the Board maintained Cowcroft drain.
<p>Chapel Point – Wolla Bank</p> <p>The Board have no operational assets within the designated site.</p>	Site of Special Scientific Interest	Nationally important geological site for its sediments, which record the evidence of early Holocene sea level change.
<p>Donna Nook</p>	National Nature Reserve	Details within section 4.4.1 – Humber Estuary.
<p>Gibraltar Point</p>	National Nature Reserve Site of Special Scientific Interest	Details within section 4.4.1 - The Wash and North Norfolk Coast.
<p>Humber Estuary</p>	Site of Special Scientific Interest SSI	Details within section 4.4.1 – Humber Estuary.
<p>Saltfleetby–Theddlethorpe Dunes</p> <p>The Board are responsible for a Water Level Management</p>	National Nature Reserve	Details within section 4.4.1 – Humber Estuary.

Site name	Designation	Features Relevant to IDB
Plan for Saltfleetby–Theddlethorpe Dunes, this was reviewed in agreement with Natural England in May 2007.		
<p>Sea Bank Clay Pits</p> <p>The Sea Bank Clay Pits are included in Defra’s High Level Targets for Flood and Coastal Erosion Risk Management (High Level Target 4 Biodiversity).</p> <p>Four units are in favourable condition, unit 3 is in unfavourable condition due to drainage (this unit is called Wolla Bank Reedbed by Lincolnshire Wildlife Trust who manage it).</p> <p>The Board have purchased an adjustable weir that will be installed in the Board maintained South Outmarsh Drain during the Summer of 2009.</p>	Site of Special Scientific Interest	<p>The pits were excavated in 1953 to provide material for the repair of the sea wall between Mablethorpe and Chapel St. Leonards. They support uncommon aquatic plant communities characteristic of the slightly brackish, eutrophic (nutrient-rich) water in addition to extensive reedbeds and a rich marginal wetland flora.</p> <p>Breeding birds in recent years include national rarities such as Bittern and Marsh Harrier.</p>
<p>Tetney Blow Wells</p> <p>The Board are responsible for a Water Level Management Plan for Tetney Blow Wells, this was reviewed in agreement with Natural England in May 2007.</p>	Site of Special Scientific Interest	<p>Blow Wells colonised by plant communities characteristic of low-nutrient waters. Also area of reed, shrub and neutral grassland. The east, west and south boundaries of the SSSI adjoin the Board’s Tetney Blow Wells Drain.</p>
The Wash	Site of Special Scientific Interest	Details within section 4.4.1 - The Wash and North Norfolk Coast.
<p>Candlesby Hill, Claxby Chalk Pit, Hoplands Wood, Skendleby Psalter Banks, Willoughby Meadow, Willoughby Wood.</p>	Site of Special Scientific Interest x 6	These sites are within the Board’s catchments and detailed in strategy studies but outside the operational district.

International and Nationally Designated Sites in the Board’s District are shown in Appendix 13.4

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 district:

Table 3. Local Designations

Site name	Designation	Features Relevant to IDB
Willoughby Branch Line	Local Nature Reserve	Part of the former railway track with scrub and grassland. Adjacent to the Board's Mawthorpe Main Drain.

See 4.5 Non-statutory Local Sites for details.

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 Wildlife Site - This designation is succeeding Sites of Nature Conservation Importance as sites are surveyed and assessed according to the new criteria. Sites of Nature Conservation Importance are covered by East Lindsey District Council's adopted Local Plan policy ENV19² and North East Lincolnshire Council's adopted Local Plan Policy NH2. Criteria for the Local Wildlife Sites³ were published by a sub-group of the Lincolnshire Biodiversity Action Plan in 2006, these criteria are consistent with Defra's⁴ guidance⁵. The Lincolnshire Biodiversity Partnership's target is that all the sites are assessed against these criteria using current survey data by 2010.

Local Geological Sites - This designation will succeed Regionally Important Geological and Geomorphological Sites as sites are surveyed and assessed according to the new criteria. Draft criteria for Local Geological Sites were published in July 2009. Local Geological Sites are expected to be protected in a similar way to Local Wildlife Site in Local Plans and Local Development Frameworks.

The Board routinely consults on new works and will use Geographic Information System data on Local Wildlife Sites and Local Geological Sites as this becomes available. Lincolnshire Environmental Record Centre are working with the Yorkshire & Humber Environmental Data Network to develop ways of accessing this data including via an online WebFeatureService or a WebMapService that can be linked directly to the Board's Geographic Information System.

The Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 1999 (as Amended) require Lindsey Marsh Drainage Board 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.

Local Nature Reserves and Lincolnshire Wildlife Trust Reserves in the District are shown in Appendix 13.5

² This policy is consistent with Planning Policy Statement 9: Biodiversity and Geological Conservation (ODPM, 2005) and Planning for Biodiversity and Geological Conservation: A Guide to Good Practice (ODPM, 2006).

³ Local Wildlife Sites, Guidelines for their Identification and Selection in the Historic County of Lincolnshire (Lincolnshire, North Lincolnshire and North East Lincolnshire

⁴ Department for the Environment Farming and Rural Activity

⁵ 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 Board's 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 Board's district. Habitats that are of potential importance for the Board, where water level management or other IDB activities may be of benefit, are identified. Finally, brief notes are included on the potential for the Board to maintain, restore or expand its important habitats.

Table 5. Habitat Audit Summary

Broad Habitat Types	UK BAP Priority Habitat	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	Hedgerow and Hedgerow Trees	Yes	Across district.	Maintain existing extent and plant additional areas where possible.
Fen, Marsh and Swamp	Reedbeds	Fens, Swamps and Wet Reedbeds	Yes	Habitats within the designated coastal sites. Sea Bank Clay Pits SSSI Tetney Blow Wells SSSI Berms and margins of Board maintained drains across district	Maintain and expand extent. Linear reedbeds can be created alongside drains during reforming works and in flood storage areas
Improved Grassland	Coastal and Floodplain Grazing Marsh	Grazing Marsh	Yes	Numerous fragmented sites across district	Expand extend via partnership working and creating grazing marsh on current and future washlands

Lindsey Marsh Drainage Board – Biodiversity Action Plan

Broad Habitat Types	UK BAP Priority Habitat	Local Biodiversity Action Plan Habitat	Habitat of Importance for Board	Location of Habitat of Importance for Board	Potential for Maintaining, Restoring or Expanding Habitat
Lowland Meadows	Neutral Grassland	Meadow and Pasture	Yes	Bratoft Meadows Local Wildlife Sites	Maintain extent See Grazing Marsh
Rivers & Streams	(A plan currently exists for Chalk Rivers)	Chalk Streams includes Springs and Blow Wells	Yes	Tetney Blow Wells SSSI	Maintain existing extent
Rivers & Streams	(A plan currently exists for Chalk Rivers)	Rivers, Canals and Drains	Yes	Across district	Maintain extent Undertake management sympathetically Work with partners to improve nutrient condition were possible.
Ponds	Ponds	Ponds, Lakes and Reservoirs	No	Across district	Encourage creation and management
The Habitats below and others occur in statutorily protected sites along the Lincolnshire Coast					
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 Board's operational area. The Board is an active participant 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 Board

The following section provides more information on the status and location of the habitats within the drainage district that are of importance for the Board 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). An iconic feature of the grazing marsh is the remnant hedges existing as a row of heavily browsed dwarf trees.

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

Status and locations within drainage district: The majority of the Board's district is Lincolnshire Coast and Marshes National Character Area, hedge cover is sparse yet increases to the west at the foot of the Wolds. Additional 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: The Lincolnshire Biodiversity Partnership has not ascertained changes in the extent of Reedbeds in the Board's district.

Status and locations within drainage district: 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 Board 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 Coastal and Floodplain Grazing Marsh

Description: Coastal grazing marsh is a specific term applied to land derived from the enclosure of salt marsh. Coastal grazing marsh is recognised as a distinct habitat type in Great Britain as "Enclosed, unimproved or semi-improved salt marsh." It is defined by the presence of permanent and semi-permanent grassland, drainage ditches and enclosing earth dykes⁶.

National status and local county status: It is estimated that there are about 300,000 ha of grazing marsh in the UK.

⁶ http://www.english-nature.org.uk/livingwiththesea/project_details/good_practice_guide/habitatCRR/ENRestore/Habitats/GrazingMarsh/CoastalGrazingMarsh.htmGrazing

Status and locations within drainage district: The estimated Lincolnshire resource is 4,000 ha, several new sites have been created via the Higher Level Stewardship Scheme recent years.

Potential improvements: The Board is a partner in the Lincolnshire Coastal Grazing Marshes and the Coastal Country Park Projects. The work of these projects includes securing funds for the delivery of Coastal and Floodplain Grazing Marsh.

The Board will continue working with these partnerships to enable the creation of grazing marsh on current and future washlands and flood storage areas where possible.

5.2.4 Neutral Grassland

Description: Occur on clay and loam soils with a neutral pH. They range from unimproved to improved grasslands depending on past management including, reseeded, applications of artificial fertilisers and herbicides. Meadow is defined as grassland that is regularly cut for traditional hay and the aftermath grazed by livestock.

National status and local county status: Nationally and locally declining, an estimated 289 ha (1996) occurs in Lincolnshire.

Status and locations within drainage district: The iconic site within the Board's district is Bratoft Meadows, an SSSI. Numerous other sites occur that will be identified by Local Wildlife Sites.

Potential improvements: The Board are responsible for a Water Level Management Plan for Bratoft Meadows, this was reviewed in agreement with Natural England in May 2007. The Lincolnshire Biodiversity Partnership's Local Wildlife Sites work is enabling the surveying of numerous sites previously recognised for their grassland flora. The Board will assist, where possible, in contacting landowners for the purposes of survey and maintenance of these sites and ensure that they are not adversely affected by maintenance operations. Note: Coastal and Floodplain Grazing Marsh encompasses Neutral grassland sites.

5.2.5 Rivers & Streams - Blow Wells

Description: Blow wells are chalk water springs where high groundwater pressure forces a flow upward through the confining boulder clay and gravel.

National status and local county status: Blow wells in the form they occur in Lincolnshire are probably not found elsewhere in the UK.

Status and locations within drainage district: The iconic site within the Board's district is Tetney Blow Wells, an SSSI. The Lincolnshire Biodiversity Partnership's data suggests that 50% of Lincolnshire's Blow Wells have been lost.

Potential improvements: The Board is responsible for a Water Level Management Plan for Tetney Blow Wells and this was reviewed in agreement with Natural England in May 2007, adjacent drains are managed with berms to maximise the amount of marshy habitat.

5.2.6 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 water courses 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, the estimated Lincolnshire Resource is >10, 000 km,

Status and locations within drainage district: The Board maintains 975km of drains across its district, that is bisected by the Environment Agency maintained main rivers.

Potential improvements: The Board is not responsible for water quality but undertakes its 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 weed cutting programme. The Board can identify where this species occurs and work with partners to investigate solutions.

5.2.7 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 Lincolnshire.

Status and locations within drainage district: The Lincolnshire Biodiversity Partnership has not ascertained changes in the number of ponds in the Board's district.

Potential improvements: The Board is 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 Board's 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 Board's district. Species that are of potential importance for the Board, where water level management or other Board activities may be of benefit, are identified. Finally, brief notes are included on the potential for the Board to maintain or increase the population or range of species of importance.

Table 6. Species Audit Summary

Common Name	Group	Order	Scientific Name	UK BAP Priority Species	Local Biodiversity Action Plan(s) Species	Non-BAP Species But Important in the Board's District	Location of Species of Importance for the Board	Potential for Maintaining or Increasing Species Population or Range
Barn owl	Birds	Bird	<i>Tyto alba</i>	No	Yes - Farmland Birds	Yes	Throughout District	Maintain and expand population
Black Poplar	Vascular plants	Tree	<i>Populus nigra</i> ssp. <i>betulifolia</i> ,	No	No	Yes	Throughout District	In conjunction with partners survey existing trees Propagate and plant new trees
Birds	Includes Lapwing <i>Vanellus vanellus</i> Linnet <i>Carduelis cannabina</i> Reed bunting <i>Emberiza schoeniclus</i> Sky lark <i>Alauda arvensis</i> Tree sparrow <i>Passer montanus</i>			Yes	Yes Grouped Farmland Birds	Action Plan-	Throughout District	No specific Board actions, other than the maintenance of habitat - see Habitats Action Plans for the Board's work on habitat projects that support these species
Birds	Bittern <i>Botaurus stellaris stellaris</i>			Yes	Yes Species Action Plan		Throughout District breeds in the Sea Bank Clay Pits	No specific Board actions, other than the maintenance of habitat – see Habitats Action Plans for the Board's work on habitat projects that support this species

Lindsey Marsh Drainage Board – Biodiversity Action Plan

Common Name	Group	Order	Scientific Name	UK BAP Priority Species	Local Biodiversity Action Plan(s) Species	Non-BAP Species But Important in the Board's District	Location of Species of Importance for the Board	Potential for Maintaining or Increasing Species Population or Range
Birds	Marsh warbler	<i>Acrocephalus palustris</i>		Yes	No		Throughout District	No specific Board actions, other than the maintenance of habitat - see Habitats Action Plans for the Board's work on habitat projects that support this species.
European eel	Fish	Anguilliformes	<i>Anguilla anguilla</i>	Yes	No		Throughout District	Status currently unknown in the Board's district In conjunction with partners establish status
Grass snake	Herptiles	Reptile	<i>Natrix natri</i>	Yes	Habitat Action Plans		Throughout District	Status currently unknown in the Board's district In conjunction with partners establish status
Great crested newt	Herptiles	Amphibian	<i>Triturus cristatus</i>	Yes	Yes		Throughout District	No specific Board actions, other than encourage creation of ponds see Habitats Action Plans
Greater water-parsnip	Vascular plants	Flowering plant	<i>Sium latifolium</i>	Yes	Yes		Reinstated on: Grange Beck Green Dyke Harrowsea Drain Manby Washlands	Monitor current populations and continue reinstatement in additional areas in conjunction with partners

Lindsey Marsh Drainage Board – Biodiversity Action Plan

Common Name	Group	Order	Scientific Name	UK BAP Priority Species	Local Biodiversity Action Plan(s) Species	Non-BAP Species But Important in the Board's District	Location of Species of Importance for the Board	Potential for Maintaining or Increasing Species Population or Range
Invasive Species	Numerous	N/A	N/A	No see Species Action Plan	Yes, biodiversity and legislative issues	See Species Action Plan for full details: American Mink, across district Giant Hogweed, Marshchapel Himalayan Balsam occasional plants occur in the Board's district Japanese Knotweed, Trusthorpe Pondweeds; Canadian Pondweed and Nuttall's pondweed, occur in some drains Signal Crayfish not known to occur in the Board maintained drains although the National Biodiversity Network records them in the Board's district Water Fern, across district Wild Turnip/Oilseed Rape, across district.		
Toad - Common	Herptiles	Amphibian	<i>Bufo bufo</i>	Yes	No		Throughout District	No specific Board actions, other than encourage creation of ponds see Habitats Action Plans Any habitat enchantment for Great crested newt will benefit common toads
Toad - Natterjack	Herptiles	Amphibian	<i>Bufo calamita</i>	Yes	Yes		Coastal habitat at Gibraltar Point and Saltfleetby-Theddlethorpe Dunes	Outside operational area – the Board are responsible for a Water Level Management Plan for Saltfleetby-Theddlethorpe Dunes
Water Vole	Terrestrial mammals	Rodentia	<i>Arvicola amphibius</i>	Yes	Yes		Throughout District	Maintain existing population, expand population where declines have occurred

Common Name	Group	Order	Scientific Name	UK BAP Priority Species	Local Biodiversity Action Plan(s) Species	Non-BAP Species But Important in the Board's District	Location of Species of Importance for the Board	Potential for Maintaining or Increasing Species Population or Range
Wild Trout	Salmoniformes	Salmonidae	<i>Salmo trutta</i>	Yes	No – included in Chalk Streams Habitat Action Plan.		Principally Chalk streams to west of the Board's district and main rivers	Outside operational area on main rivers that bisect the Board's district

6.2 Species of Importance for the IDB

The following section provides more information on the status and location of the species within the drainage district that are of importance for the Board 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 have declined nationally over the last 50 years with a 70% decline between 1932 and 1985.

Status and locations within drainage district: Populations are believed to be recovering. The Board installed their first nest box 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 1,000 chicks reared (2008 figures).

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

6.2.2 Black Poplar

Description: The dark grey fissured bark on the trunk has numerous "bosses" (swellings), the crown is a wide and rounded. Black Poplar often has an obvious lean and pendulous branches. The Black Poplar is diclinous with male and female flowers on separate trees.

National status and local status: Black Poplar has been described as "*our rarest and most splendid native timber tree*". In prehistoric times it may have dominated winter-flooded riverine woods and was used commercially until drainage improvements for agriculture and the release of hybrid varieties initiated its decline.

Status and locations within drainage district: Some trees, such as the single one at Saltfleetby are well known. Status in the county not certain, it hybridises readily with cultivated species and many trees are hybrids.

Potential improvements: Black Poplar is easy to propagate but due to the presence of numerous hybrids and the limited distribution, it is incapable of reproducing successfully in the wild.

⁷ Milne-Redhead E, 1990, "The BSBI Black Poplar survey, 1973-88" Watsonia 18

6.2.3 Birds

Description: The green/white Lapwing with its distinctive crest occurs in flocks during the winter, with smaller numbers of birds breeding in the summer. The ground nesting Sky Lark's distinctive song flight is well known, yet the birds are difficult to spot on the ground. Booming male Bittern can be heard from considerable distances yet these secretive birds are seldom seen except in flight. The Passerines are small perching birds including the Linnet, Marsh Warbler, Reed Bunting, Song Thrush, Spotted Flycatcher and Tree Sparrow.

National status and local status: These species have suffered declines; the reasons include habitat management in the UK and in the case of the migratory species such as the Spotted Flycatcher this can be due to changing conditions in the wintering grounds or along migration routes.

Status and locations within drainage district: These species are still common within the Board's District, the Lincolnshire BAP are working to gain a better understanding of farmland bird populations and distribution in the county.

Potential improvements: The maintenance of habitat and the Board's work on habitat projects that support these species - see Habitats Action Plans.

6.2.4 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 district: Not known, the Board 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 Board's district and the Environment Agency maintained highland rivers that cross the district to the sea.

6.2.5 Grass snake

Description: The Grass Snake is our largest snake often up to 1 metre in length. It is 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 district: The Grass Snakes formerly occurred widely in central Lincolnshire but are less frequent nearer the coast. Its current status in Lincolnshire is not known. The Board are collecting records to establish the grass snakes distribution in the district.

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

6.2.6 Greater water-parsnip

Description: A tall (1-2 metres) hairless perennial with ridged stems, the white flowers are arranged in a large globe or umbel like cow-parsley.

National status and local status: Classified as Nationally Scarce, it thrives in ditches where water is kept open by occasional clearance. In the past, Greater Water-Parsnip was most commonly found on rafts of semi-floating vegetation at the margins of lakes and large rivers. However, following the drainage and reclamation of fens in the UK, it is now most often found in drainage ditches in the south and east of England.

Status and locations within drainage district: Nearly extinct, except for a few plants on the coast at Saltfleetby-Theddlethorpe Dunes and the new plantings.

Potential improvements: Monitoring existing plantings and undertaking additional planting.

6.2.7 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 district: Sites with Giant Hogweed and Japanese Knotweed are known, American Mink are believed to be increasing.

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

6.2.8 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 watercourses.

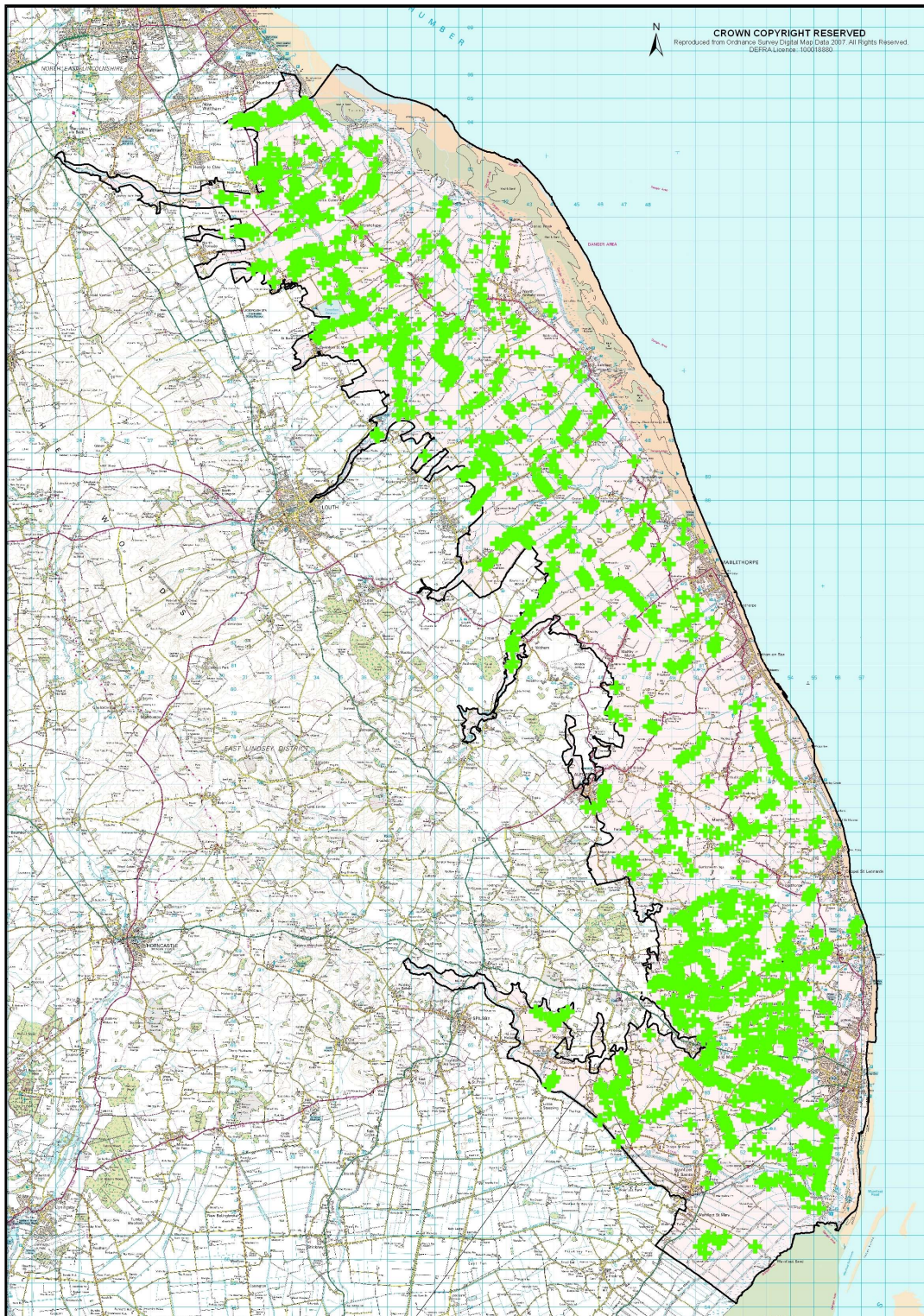
National status and local status: The water vole is estimated to have suffered a 90 % fall in numbers in less than 20 years. In Lincolnshire, populations appear to be stable, although their long-term viability has been questioned with Kite’s (2008) worse case scenario even predicting the species’ extinction⁸.

Status and locations within drainage district: The Board’s monitoring has yet to determine population trends, currently the distribution is widespread across the Board’s District.

Potential improvements: The Board 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 in Lincolnshire.

⁸ Kite, N. 2008. Water Vole Conservation in Lincolnshire, Transactions Vol 27 Part 1, Lincolnshire Naturalists Union.

6.2.9 Water Vole Distribution in the Board's 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/.

7 HABITAT AND SPECIES ACTION PLANS

7.1 Habitat and Species Action Plans

The following sections contain action plans for each of the habitats and species that have been prioritised for action by the Board. The plans set out the objectives, targets and actions that the Board 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

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

Local Biodiversity Action Plan Targets

Hedgerow and Hedgerow Trees are included in the Lincolnshire Biodiversity Action Plan.

Local Status

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

Status within the Drainage District

The Biodiversity Audit did not attempt to map existing hedges in the Board's district. Many hedges are away from Board 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 Board only undertakes cutting where it is inhibiting access.

In 2005 the Board adopted a policy of where possible, cutting alternative banks each year. Access constraints limit the delivery of this policy, however access improvements are being undertaken during reforming works. It is anticipated that it will take 15-30 years to complete this task. This can require the removal of some sections of hedge.

The Board's 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."

Board Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
1	Maintain the length of hedgerow in the district.	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 district.	2.1	Plant species rich hedges where 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 Lincolnshire Biodiversity Action Plan.

Local Status

At least 100 hectares in Lincolnshire.

Status within the Drainage District

The Biodiversity Audit did not attempt to map existing reedbeds in the Board's district, currently the Lincolnshire Biodiversity Partnership are working on a Biodiversity Baseline for the Lincolnshire Coastal Grazing Marshes area, this will include reedbed.

The Board 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 hectares are reported against this measure in accordance with Environment Agency practice.

Board Objectives and Targets

Target Reference	Target	Action Reference	BOARD Actions	Partners	Date	Indicators	Reporting
3	Maintain the area of reedbed in the District.	3.1	Replace habitat lost when installing culverts during access improvements works.		2010	No net loss.	Annually.
4	Increase area of reedbed in the District.	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 LWT 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 Coastal and Floodplain Grazing Marsh Action Plan
National UK BAP Targets

Coastal and Floodplain Grazing Marsh are a priority habitat for the UK Biodiversity Action Plan.

Local Biodiversity Action Plan Targets

Coastal and Floodplain Grazing Marsh is included in the Lincolnshire Biodiversity Action Plan.

Local Status

The estimated Lincolnshire Resource is approx. 4,000 hectares, of varying and unknown quality.

Status within the Drainage District

The Biodiversity Audit did not attempt to map existing grazing marsh in the Board's district. The Lincolnshire Biodiversity Partnership are working on a Biodiversity Baseline for the Lincolnshire Coastal Grazing Marshes area, this will include grazing marsh.

The Board are partners in the Lincolnshire Coastal Grazing Marshes Project, facilitating the management and creation of grazing marsh within the District.

Board Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
5	Encourage restoration and creation of grazing marsh	5.1	Continue supporting the Lincolnshire Coastal Grazing Marshes Project.	LCGM	The target and reporting are undertaken by the partnerships. www.lincsmarshes.org.uk/		
		5.2	Continue working with the Lincolnshire Coastal Country Park Project.	LCCP			
		5.3	Create grazing marsh on washland and flood storage areas where possible.	LWT NE	2010	Area of grazing marsh created.	2010.

Associated Species

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

8.4 Rivers & Streams - Blow Wells Action Plan

National UK BAP Targets

Blow Wells are a priority habitat for the UK Biodiversity Action Plan.

Local Biodiversity Action Plan Targets

Blow Wells are included in the Lincolnshire Biodiversity Action Plan.

Local Status

There are around 14 sites with Blow Wells in Lincolnshire from Barton-on-Humber to Fulstow. Around half of these Blow Wells are no longer active. Blow Wells in the form they occur in Lincolnshire are probably not found elsewhere in the UK.

Status within the Drainage District

The best know site is Tetney Blows Wells, an SSSI managed by Lincolnshire Wildlife Trust, others such as Humberston Blow Wells are in private ownership and have no formal designation, although they are likely to be Local Wildlife Sites.

Board Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
6	Maintain condition.	6.1	Deliver the Water Level Management Plan for Tetney Blow Wells.	NE	2012	SSSI in Favourable Condition.	2012.

Associated Species

Water Voles, Reed and Sedge Warblers and Waterfowl, and specialist invertebrates.

8.5 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 Lincolnshire Biodiversity Action Plan.

Local Status

There are estimated to be over 10, 000 km of Rivers, Canals and Drains in Lincolnshire.

Status within the Drainage District

The Board maintains 975km of watercourse within the drainage district. The Board maintained watercourses in the Lindsey Marsh Drainage Board's district are:

- Artificial, developed during the draining of the Lincolnshire Coast and Marshes and The Fens.
- Originally designed and constructed solely for the function of conveying surplus water run-off and managing water levels.

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

Board Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
7	Maintain & Improve Condition	7.1	Provide appropriate mitigation for maintenance works and projects to ensure no net loss of biodiversity.	LERC	2003	No net loss of biodiversity.	2015.
		7.2	Control introduced exotic species.	See Species Action Plans Targets 14-17			
		7.3	Identify eutrophic condition in the district.	CSFP EA	2009	Absence of filamentous algae.	2010.
		7.4	Review and develop the cutting programme in accordance with the Drainage Channel Biodiversity Manual	ADA LERC 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 weed cutting programme.

8.6 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 Lincolnshire Biodiversity Action Plan.

Local Status

Ponds are included in the Lincolnshire Biodiversity Action Plan.

Status within the Drainage District

The Biodiversity Audit did not attempt to map existing ponds in the Board’s district.

Board Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
8	Increase number of Ponds.	8.1	Provide advice when requested on pond creation management.	LWT	2010	No. of ponds where advice was given.	Annually.
		8.2	Promote the creation of ponds as mitigation for loss of habitat for Byelaw and Section 23 consents, where appropriate.	LWT	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 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 District

Barn Owl populations are known to be recovering in Lincolnshire. The Board installed their first nest box 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.

Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
9	Install Barn Owl Nest Boxes	9.1	Survey all the Board's operational sites and install Barn Owl nest boxes at all suitable locations.	WCP	2010	Barn Owl nest boxes on all suitable sites.	2012.

		9.2	Facilitate a network of Barn Owl nest boxes across the district.	WCP	2015	Network of Barn Owl nest boxes across the district.	Annually.
		9.3	Monitor nest boxes and ringing chicks.	BTO WCP	Annually	Number of Barn Owl nests/chicks.	Annually.

9.2 Black Poplar Action Plan

Legal Protection Status

Black Poplar is covered by the general provisions of the Wildlife & Countryside Act 1981..

National UK BAP Targets

Black Poplar is not included in the UK BAP.

Local Biodiversity Action Plan Targets

Black Poplar is not included in the Lincolnshire Biodiversity Action Plan.

Local Status

The Black Poplar is one of the rarest trees in Great Britain and Ireland, with only about 7,000 trees known, of which only about 600 have been confirmed as female.

Status within the Drainage District

Numerous hybrid “Black Poplars” are found in the Board’s district, one tree at Saltfleetby is known to be *Populus nigra* ssp. *betulifolia*. The status of numerous others including those at Bratoft is unknown.

Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
10	Establish the distribution of the Black Poplar in the District.	10.1	Identify and confirm the status of individual trees.	BSBI LCGM LBP	2010	Native/Hybrid status determined for all "Poplars".	2015.

9.3 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 Lincolnshire Biodiversity Action Plan. A Species Action Plan for Freshwater fish is to be produced including the national BAP species.

Local Status

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

Status within the Drainage District

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

Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
11	Establish the distribution of the eel in the district.	11.1	Operational staff to collect records during weed cutting work.	EA LBP	2009	Eels present in all the Board's catchments.	2012.

9.4 Grass Snake Action Plan

Legal Protection Status

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

National UK BAP Targets

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

Local Biodiversity Action Plan Targets

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

Local Status

The Grass Snake is more common than the Adder in Lincolnshire.

Status within the Drainage District

Not known.

Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
12	Establish the distribution of the Grass Snake in the District.	12.1	Operational staff to collect records during weed cutting work.	EA LBP	2009	Grass Snake distribution.	2012.

9.5 Greater water-parsnip Action Plan

Legal Protection Status

No specific legal protection covered by the Wildlife and Countryside Act 1981.

National UK BAP Targets

Greater water-parsnip is a Priority Species in the UK BAP, nationally scarce and considered endangered.:

- Target 1 Maintain the range of greater water-parsnip in the UK.
- Target 2 Ensure that viable populations are maintained at all existing sites.
- Target 3 Regenerate plants from the seed-bank on five suitable historic sites in England by 2003.
- Target 4 Achieve the spread of greater water-parsnip from existing sites.

Local Biodiversity Action Plan Targets

The Lincolnshire Biodiversity Action Plans targets are:

- Target 1 Maintain the current (2005) range of greater water-parsnip in Lincolnshire and ensure that viable populations are present at all extant sites by 2015.
- Target 2 Regenerate plants from the seed-bank for further reintroduction and stocking to suitable additional sites in Lincolnshire creating 25 self-sustaining county locations by 2010.

Local Status

In 2003 the Greater Water-Parsnip was only known from seven sites in the county, mostly in the South Holland district with a single site in the coast at Saltfleetby–Theddlethorpe Dunes. Wildplanet, working for the Lincolnshire BAP, have collected seed and grown plants that have since been planted at selected sites.

Status within the Drainage District

The Biodiversity Audit identified a single site for Greater water-parsnip in the drainage district. This small group of plants are maintaining a small population.

In 2007 plants were introduced to the berms on the Board maintained Green Dyke, Harrowsea Drain and Little Mardyke Drain. First year survival was extremely good at 43%. Plants have since been introduced to Grange Beck. Green Dyke, Harrowsea Drain and Grange Beck flow via the Environment Agency's South Dyke to Saltfleet. It is hoped that Greater Water-Parsnip will eventually colonise this system.

Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
13	Maintain and expand current populations.	13.1	Monitor recent plantings.	LERC WP	Annually	No of plants surviving.	Annually until 2015.
		13.2	Review the affect of the Board's maintenance programme (note - plants can establish from root off cuts, created by the cutting programme)	EA LERC WP	Annually	Are plants setting seed?	Annually until 2015.
		13.3	Monitor, downstream from planting areas to Saltfleet	EA LERC WP	2009 onwards.	New populations establishing naturally.	2015.
		13.4	Introduce to new catchments (see Habitat Action Plans, reedbeds)	LBP WP	2012 onwards.	Planted on newly created berms.	2025.

9.6 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. Plants listed in include Giant Hogweed Japanese Knotweed. 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 are 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% of the total), most of which have escaped from gardens. The vast majority of non-native species do not 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 are mentioned as threats in Action Plans.

Local Status

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

Status within the Drainage District

American Mink *Neovison 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* occurs on a single site in the Trusthorpe Main Drain at Trusthorpe.

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

Signal Crayfish *Pacifastacus leniusculus* are 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* occurs in the Low Drain at Grainthorpe and the North Drain near Wedlands Gate and other sites.

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 have been recorded in the Waterland Drain West with reports of their presence since 2006. Previously they were reported from the Thoresby Bridge but this population has not been seen for several years.

Objectives and Targets

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 Lincolnshire Biodiversity Partnership. 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 may be appropriate, if control is required, to manage flood risk.

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

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
14	Eliminate Giant Hogweed and Japanese Knotweed.	14.1	Regular spraying of Giant Hogweed at Marshchapel commenced in 2008.		2010	Species not present in Board maintained Watercourses.	Annually.
		14.2	Regular spraying of Japanese Knotweed at Trusthorpe commenced in 2008.		2010		Annually.
15.	Reduced Wild Turnip/Oilseed Rape occurrence.	15.1	The increased stubble left when flailing for water vole conservation will reduce scalping to the banks. This scalping may have produced conditions that promoted germination and establishment of Wild Turnip.		2009	Reduced coverage of Wild Turnip/Oilseed Rape.	2015
16	Control American Mink (the elimination of mink requires a UK wide project).	16.1	Operate Marsh Water Vole Project in conjunction with partners, trapping mink across the district.	EA NE LWT	2008	Thriving Water Vole population.	Annually.
17	Establish the distribution of the Signal Crayfish in Board maintained watercourses.	17.1	Operational staff to collect records during weed cutting work.	EA LERC	2009	Signal Crayfish not present in Board maintained watercourses.	2012.

9.7 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. In April 2008, the Water Vole received full protection under section 9 and it is now an offence to intentionally 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 1989/1990 as a baseline, by the year 2010.

Local Biodiversity Action Plan Targets

The Lincolnshire Biodiversity Action Plan targets are:

Target 1 Maintain the current distribution of the Water Vole in Lincolnshire (based on 2006 report) with no loss in range by 2015.

Target 2 Successfully establish the Lincolnshire Key Water Vole Sites project.

Local Status

The Lincolnshire Biodiversity Action Plan's targets consider that Water Voles population in Lincolnshire appear to be stable. Monitoring undertaken by the Environment Agency analysed by Kite (2008)⁹ questioned the long-term viability of the Water Vole in Lincolnshire with a worse case scenario even predicting the species' extinction by 2015.

Status within the Drainage District

The Board's operational staff have recorded sightings since 2006 which show a wide distribution of Water Vole over the Board's district. Water Voles were displaced during the 2007 deluge, the population trend is not known for the Boards district.

⁹ Kite, N. 2008. Water Vole Conservation in Lincolnshire, Transactions Vol 27 Part 1, Lincolnshire Naturalists Union.

Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
18	Maintain Water Vole Populations.	18.1	Collect and collate sightings by operational staff.	LERC	Annually	Distribution maintained/expanding.	Annually.
		18.2	Maintain quality of habitat, regular review of cutting programme.	LBP NE	Annually	Quality of Habitat is maintained.	Annually.
		18.3	Maintain extend of Habitat (see Procedural Action Plan)	ELDC NE LWT	Annually	Extend of Habitat is maintained.	Annually.

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

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 Board practices and procedures.

Objectives and Targets

Target Reference	Target	Action Reference	Board Actions	Partners	Date	Indicators	Reporting
19	Maintain extent of habitat in the Board's district.	19.1	<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 Board may be able to provide it on a chargeable basis.</p> <p>Ensure protection of drains/ditches within new developments and encourage appropriate management to enhance wildlife value.</p>	ELDC NE LWT FWAG	2006	No net loss of habitat.	Annually.
	Increase extent of habitat in the Board's district ¹⁰ .	19.2	The Board will continue working with the Lincolnshire Coastal Grazing Marsh & Coastal Country Park Projects	Partnership working with Lincolnshire Coastal Grazing Marshes Project and Lincolnshire Coastal Country Park Project - see Habitat Targets and Project reports.			
20	Surveillance of protected and invasive species.	20.1	Annual recording programme during cutting season – records digitised.	LERC	2006	Population's stable/increasing for protected species.	Data supplied to LERC Annually.

¹⁰ 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.

		20.2	Biodiversity training for operational staff.	LBAP	2009		Annually
21	Improving data and information flows.	21.1	<p>Board's data supplied to LERC annually.</p> <p>Continued development of data on Board's GIS system that currently holds data on Historic Environment Records, Lincolnshire Wildlife Trust Reserves, SSSIs (includes European Sites {SAC & SPA} and Ramsar) and Tree Preservation Orders.</p> <p>Biological records collected by the Board.</p>	ELDC HER LERC NE	2006	Data readily available to all staff and the Board.	Annually.

11 IMPLEMENTATION

11.1 Implementation

Lindsey Marsh Drainage Board's Biodiversity Action Plan was adopted by the Board on 29th September 2009.

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 Board's long involvement with the Lincolnshire Biodiversity Action Plan and the appointment of a full time Environmental Officer in 2006. The Board's Environmental Officer is a Chartered Environmentalist and a full member of the Institute of Ecology and Environmental Management and acts as the Board's Biodiversity Champion.

The Board have regularly reviewed maintenance programmes with changes being made most years, combined with the purchase of new machinery. All flails were fitted with conveyors for the 2007 cutting season when a flail fraise conveyor unit was purchased - the first 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.

The Board pioneered the deployment of berms in IDB systems that provide multiple benefits to biodiversity and flood risk management. Additional berms are installed annually in the reforming programme and other capital works.

Applicants wishing to alter watercourses (under Byelaws and Section 23 of the Land Drainage Act 1991) are requested to supply "The Environmental Impact of the proposals". These are assessed by the Board's Environmental Officer.

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

11.2 Monitoring

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 Board is a member of the Lincolnshire Biodiversity Partnership and exchanges data with the Lincolnshire Environmental Records Centre who, after verification of the records, will place them on the National Biodiversity Network www.nbn.org.uk/ which is available to all.

12 REVIEWING AND REPORTING PROGRESS

12.1 Reviewing and Reporting Progress

A report on the operation of Lindsey Marsh Drainage Board's Biodiversity Action Plan will be produced annually to the Board and published on the Board's web site and supplied to the Lincolnshire Biodiversity Partnership. The Board is 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 No. 5), but will also be included on the Board's report via the Biodiversity Action Reporting System.

The Board's partners in delivering this Biodiversity Action Plan include:

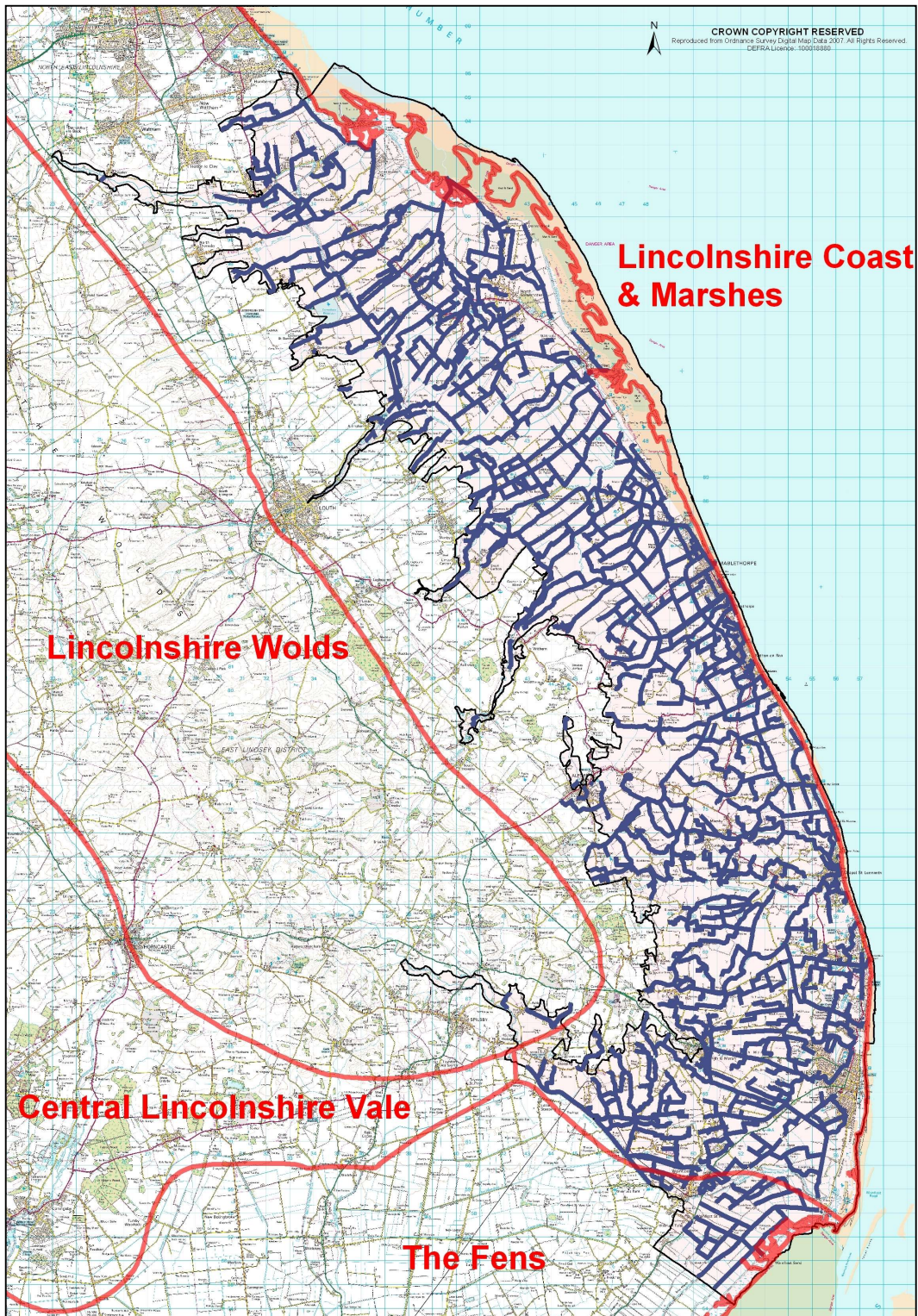
Association of Drainage Authorities (ADA)
Botanical Society of the British Isles (BSBI)
British Trust for Ornithology (BTO)
Catchment Sensitive Farming Programme (CSFP)
East Lindsey District Council (ELDC)
Environment Agency (EA)
Farming and Wildlife Advisory Group (FWAG)
Humber Management Scheme (HMS)
Lincolnshire Biodiversity Partnership (LBP)
Lincolnshire Coastal Country Park Project (LCCP)
Lincolnshire Coastal Grazing Marshes (LCGM)
Lincolnshire Environmental Records Centre (LERC)
Lincolnshire Wildlife Trust (LWT)
Natural England (NE)
Wash & North Norfolk Coast European Marine Site (WNNCEMS)
Wildlife Conservation Partnership (WCP)
Wildplanet (WP)

Partners that the Board are involved with, such as the Lincolnshire Coastal Grazing Marshes Project and Lincolnshire Coastal Country Park together with the European Marine Site Management Schemes for the Humber and Wash & North Norfolk Coast European Marine Site, produce their own reports. Items of particular interest are reported to the bi-monthly Board meetings, the full reports will be published annually.

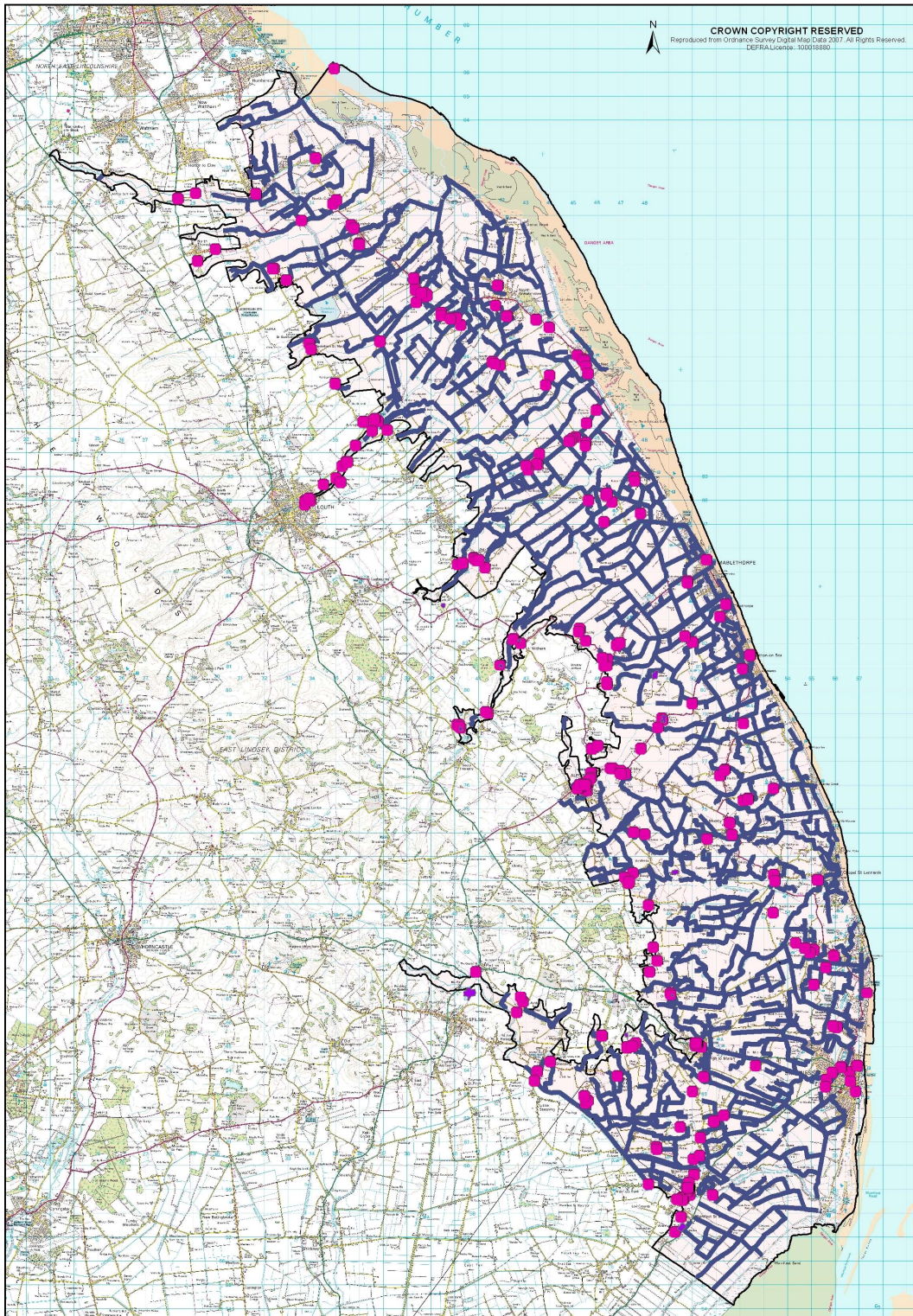
The Board will enter targets and report delivery on the Biodiversity Action Reporting System, the UK's national biodiversity information system that supports the planning, monitoring and reporting requirements of national and local organisations' Biodiversity Actions Plans www.ukbap-reporting.org.uk.

13 APPENDICES

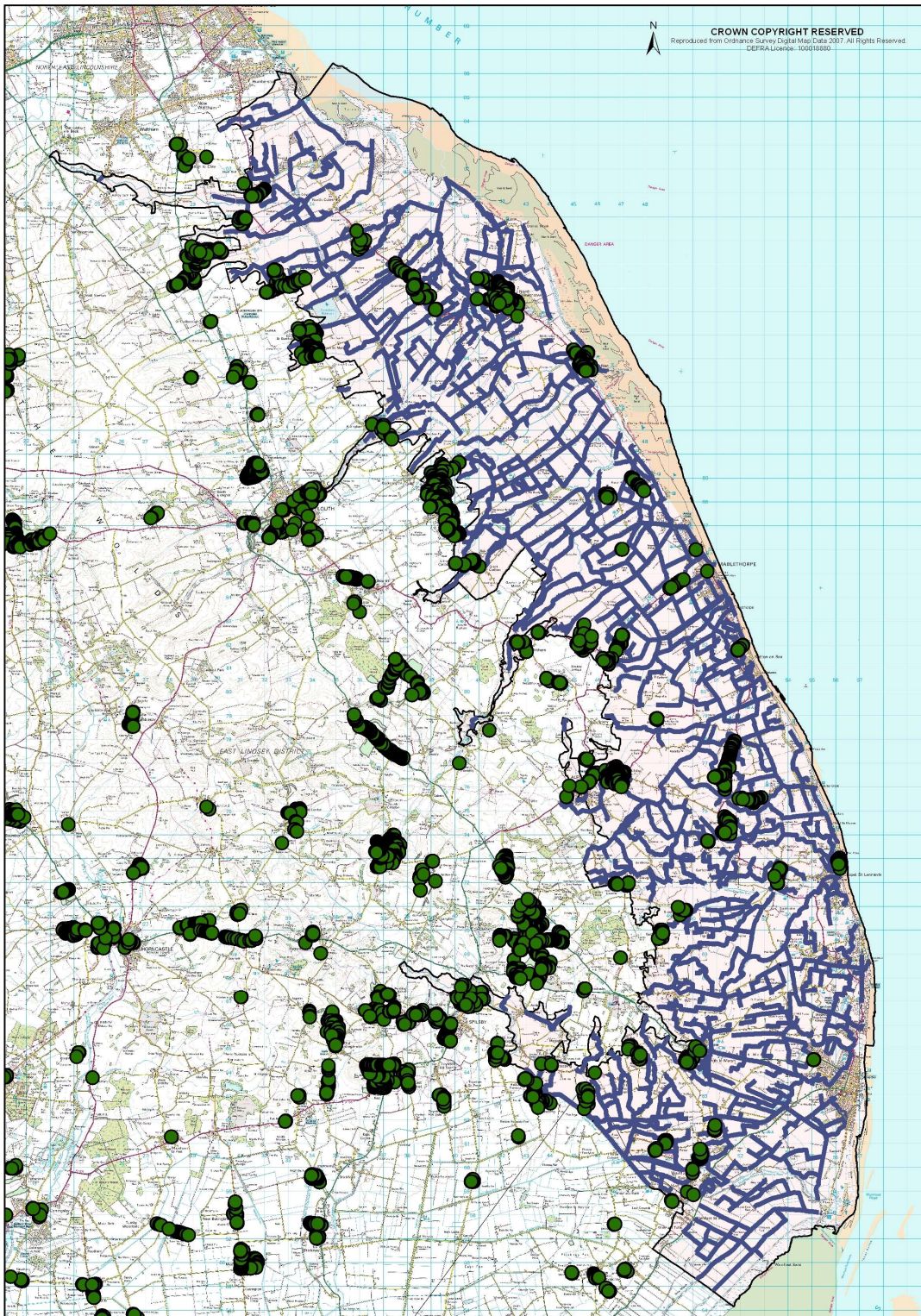
13.1 National Character Areas in the Board's District



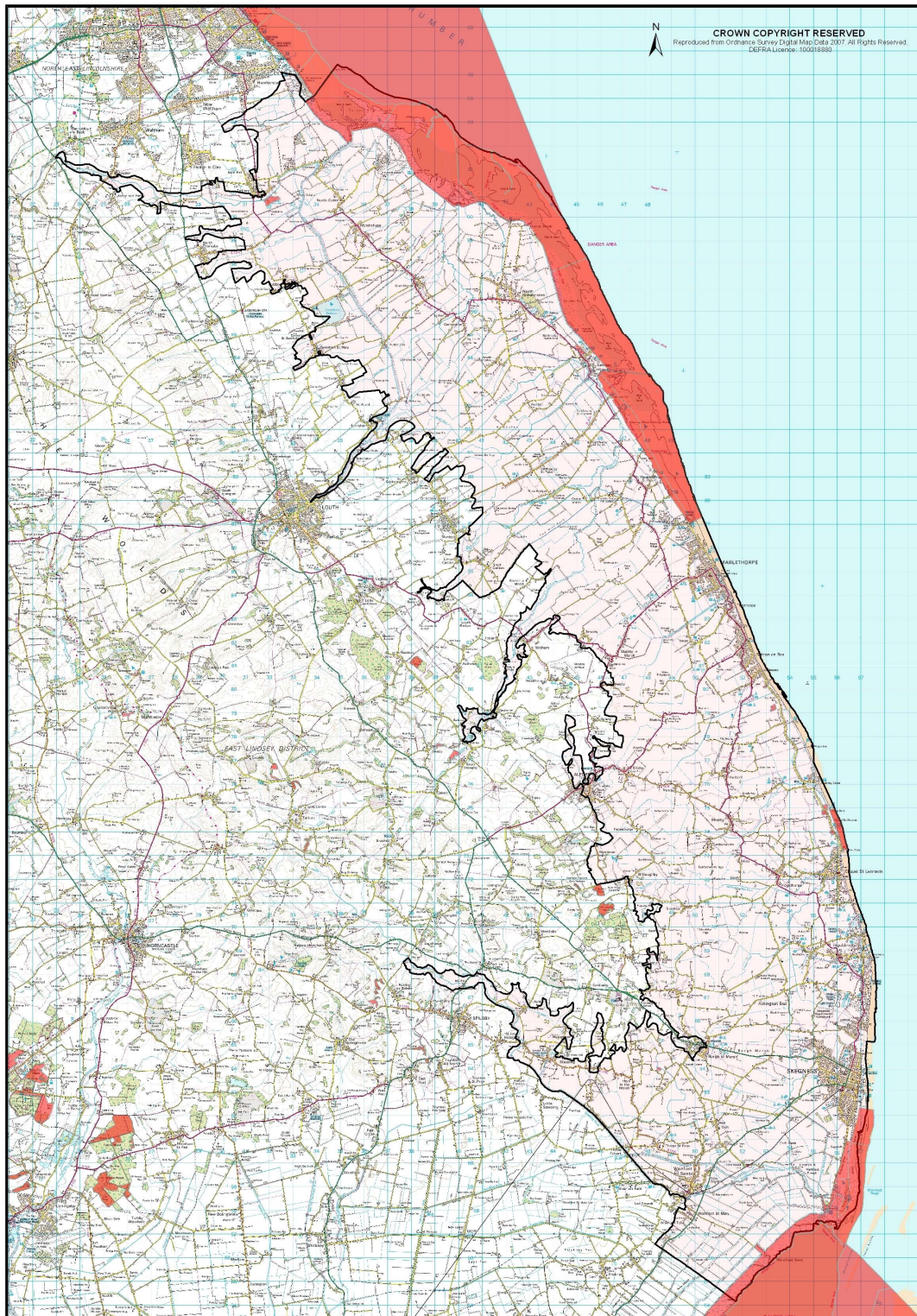
13.2 Scheduled and Listed sites in the Board's District



13.3 Tree Preservation Orders in the Board's District



13.4 International and Nationally Designated Sites in the Board's District



13.5 Local Nature Reserves and Lincolnshire Wildlife Trust Reserves in the Board's District

