King's Lynn
Drainage Board

BIODIVERSITY ACTION PLAN

April 2018

Front cover images (L-R) Gaywood River ©Mike Page; Barn Owl; Daubenton's Bat ©Gilles San Martin; Water Vole; Kestrel ©Heather Smithers

FOREWORD

This Biodiversity Action Plan (Second Edition) has been prepared by the Kings Lynn Internal Drainage Board in accordance with the commitment in the Implementation Plan of the DEFRA Internal Drainage Board Review for IDB's, to produce their own Biodiversity Action Plans by April 2010. As such, the original version was published in January 2010. This revised version aims to continue to align the Kings Lynn IDB with biodiversity policy and more specifically, the Biodiversity document for England, *"Biodiversity 2020: A strategy for Englands' Wildlife and Ecosystem Services"* and build on the Government's 25 Year Environmental Plan; *A Green Future*. In doing so, the document strives to demonstrate 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 and opportunities for biodiversity, not least its water level management and watercourse 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 targets as part of the Biodiversity 2020 strategy and achieve wider environmental improvement within its catchments.

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

Mr John Austin

Chairman - Kings Lynn Internal Drainage Board

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ABBREVIATIONS AND ACRONYMS USED WITHIN THIS DOCUMENT

AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
CWS	County Wildlife Site
DEFRA	Department for the Environment, Food and Rural Affairs
EA	Environment Agency
FWAG	Farming and Wildlife Advisory Group
GIS	Geographic Information Systems
Ha	Hectare
IDB	Internal Drainage Board
LA	Local Authority
LNR	Local Nature Reserve
NBRC	Norfolk Biological Records Centre
NCA	National Character Areas
NBIS	Norfolk Biological Information Services
NCC	Norfolk County Council
NE	Natural England
NERC	Natural Environment and Rural Communities
NNR	National Nature Reserve
NNNSI	Norfolk Non Native Species Initiative
NWT	Norfolk Wildlife Trust
RAMSAR	Wetland of International Importance (after Ramsar Convention 1971)
SAC	Special Area for Conservation
SAP	Species Action Plan
SMART	Specific, Measurable, Achievable, Relevant and Time limited
SMO	Standard Maintenance Operations
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WMA	Water Management Alliance
WLMP	Water Level Management Plan
ZSL	Zoological Society of London

1. IDB BIODIVERSITY – AN INTRODUCTION

1.1 Introduction

The Kings Lynn IDB has conducted a biodiversity audit of its district and identified those habitats and species that would benefit from particular management or actions by the IDB. Using this information, which is presented in later sections, the IDB'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 works projects, subject to available resources which can lead to habitat improvements and population enhancement for many different species within a catchment.

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 improvements and increased areas of priority habitats and species. Habitats and Species which are not classified as Priority Habitats or Species as described in Section 41 of the Natural Environment and Rural Communities Act (2006) may still be locally significant for a variety of reasons and have also been considered.

The Plan is an evolving document that will be reviewed and updated on a regular basis. This document is the first revision of the original, which was published in 2010. It covers the entire drainage district of the IDB, as shown in Map 1.

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 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 included a global commitment to achieve by 2010 a significant reduction in rate of loss of biodiversity at the global, regional and national level.

A World Summit on Sustainable Development in Johannesburg in 2002 subsequently endorsed this target and in 2010, over 190 countries signed an historic global agreement in Nagoya, Japan to take urgent and effective action to halt the alarming global declines in biodiversity.

1.5 Biodiversity – The National Context

Before 2010, the UK Biodiversity Action Plan (UK BAP) was the UK commitment to Article 6A of the Rio Convention on Biological Diversity. It described the UK's priority species and habitats, and sought to benefit specific priority habitats and species. It also identified other key areas for action such as the building of partnerships for conserving biodiversity and gathering vital biodiversity data.

Following on from UK BAP and the outcomes delivered by Biodiversity 2010 and the previous biodiversity strategy for England, 'Working with the grain of nature' (2002) ,it was decided that each UK country should have its own biodiversity strategy, as this allows for conservation approaches to be tailored to the varying conditions within different areas of the UK. The most recent England biodiversity strategy, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra in 2011. 'Biodiversity 2020' provides a picture of how England is implementing its international and EU commitments toward biodiversity, setting out a strategic direction for biodiversity policy for land and sea and builds on the successful work achieved by Biodiversity 2010. The England Biodiversity Strategy is chaired by Defra.

The 'Biodiversity 2020' document sets out to deliver outcomes through action in four areas:

- A more integrated large-scale approach to conservation on land and at sea
- Putting people at the heart of biodiversity policy
- Reducing environmental pressures
- Improving our knowledge

Water Management is considered to be one of a series of key sectors for the positive influence on biodiversity.

1.5 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 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.

Since this time the Kings Lynn IDB has been contributing to maintain or enhancing priority habitats and species within its catchments; complimenting the former UK Biodiversity Action Plan and Local Biodiversity Action Plans.

1.6 The Aims of the IDB Biodiversity Action Plan

The aims of this IDB BAP are:

- To positively demonstrate that the Boards water course maintenance, water level management and capital works are undertaken in a manner that, whilst reducing flood risk and managing flows, also safeguards biodiversity and, wherever possible, makes a positive contribution to the enhancement of the biodiversity and the natural environment.

- To ensure that priority habitat and species targets are translated into effective action within the drainage district.

- To identify targets for other habitats and species of local importance within the drainage district.

- To develop effective local partnerships to ensure that programs for biodiversity conservation are maintained in the long term and at the catchment level.

- To raise awareness within the IDB 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 IDB's operations, and

- To monitor and report on progress in biodiversity conservation.

2. THE IDB ACTION PLAN 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 IDB and by other biodiversity partners.

2.2 Evaluating and Prioritising Habitats and Species

The Biodiversity Audit identified those priority habitats and species 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 revised objectives and actions, may be made in the future, as knowledge is improved and delivery of the IDB BAP is reviewed.

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

In line with a key outcome of the Biodiversity 2020 strategy for England the latest revision of the Kings Lynn IDB Biodiversity Action Plan aims to deliver benefits to a range of species by means of the consideration and implementation of appropriate management, enhancement and protection of important habitats within the Board's area.

2.3 Setting Objectives, Actions and Indicators

For each habitat and species identified as being important to the IDB, conservation objectives and actions have been drawn up and set out in the Plan; this includes the identification of certain species which may benefit from the Plan. The objectives express the IDB's broad aims for benefiting a particular habitat or species. The related actions have been set to focus IDB programmes of action and to identify outcomes that can be monitored to measure achievement. For each action an indicator has been set – a measurable feature of the action that, when monitored over time, allows delivery to be assessed.

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

Procedural targets 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 objectives have been set for habitats and species, it is important that the actions to deliver the Biodiversity Action Plan are described and carried out. 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 actions will be measured by a programme of monitoring which the Board will undertake, in some instances with assistance from its partners, and 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, targets and actions. In addition, it is vital that the successful achievement of targets and actions undertaken is recorded and the gains for biodiversity are registered in the public domain.

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

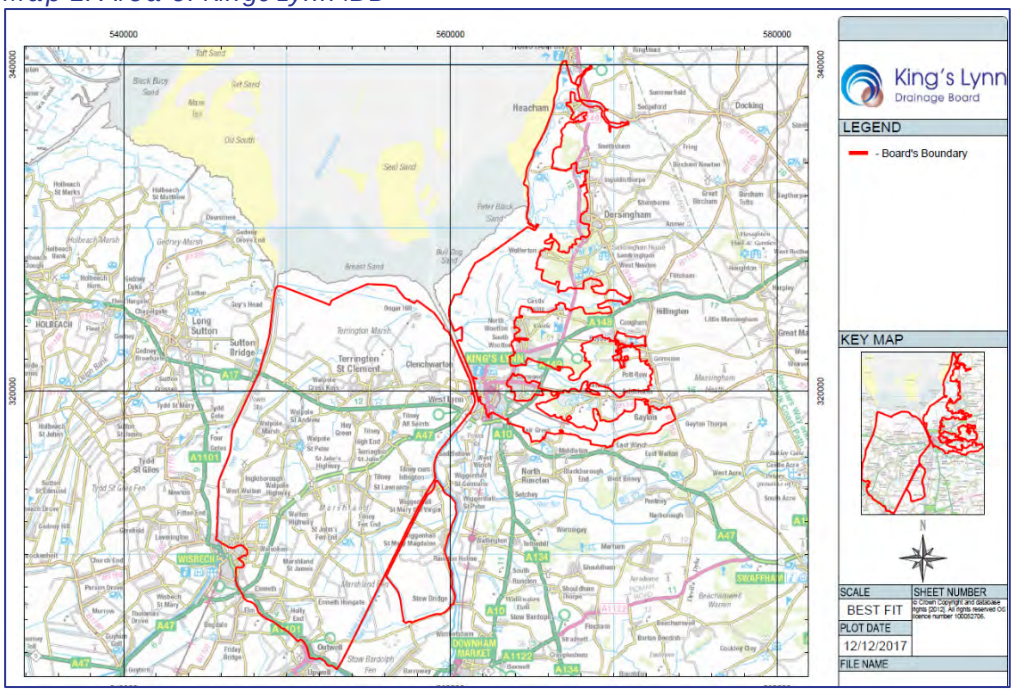
3. CURRENT ECOLOGICAL AND GEOLOGICAL STATUES

3.1 The Drainage District

The drainage district covers an area of 645.23km^2 and contains 598km of IDB-maintained watercourses which are constantly regulated by 15 pumping stations, 10 tidal sluices and 15 other water control structures. Much of the drainage district is bounded by sea defences, though some of the area abuts the Wash SSSI directly, at Heacham and Snettisham. The area runs south from Hunstanton and is bounded to the West by the River Nene and is bisected by the River Ouse at King's Lynn.

The King's Lynn IDB drains a population of approximately 100,000 individuals. It removes water from the easterly uplands, including the villages of Heacham, Ingoldisthorpe, Dersingham, Pott Row and Gayton and large residential and industrial areas of King's Lynn itself. To the west, the large fenland villages of Terrington St Clements, Clenchwarton and West Lynn are serviced by drainage board infrastructure along with many small outlying villages, homesteads and large areas of prime agricultural and arable land.

Map 1: Area of Kings Lynn IDB



3.2 Geology

The King's Lynn IDB district displays two geologically distinct areas. The geology is also reflected in the topography of the district. If a line was to be drawn between King's Lynn and Downham Market, the area to the west can be described to consist of very flat fen deposits whereas the area to the east is that of a hilly chalky upland.

The fenland area is a flat peaty landscape at or below sea level which were deposited as a result of changing conditions since the last ice age. The marshland deposits are mostly that of calcareous estuarine silt and clay, much of which has been reclaimed from the Wash since the 17th Century. The soils have large water storage capacity and support extensive and intensively farmed arable land. The water table is relatively close to the surface and in some areas, groundwater may be brackish.

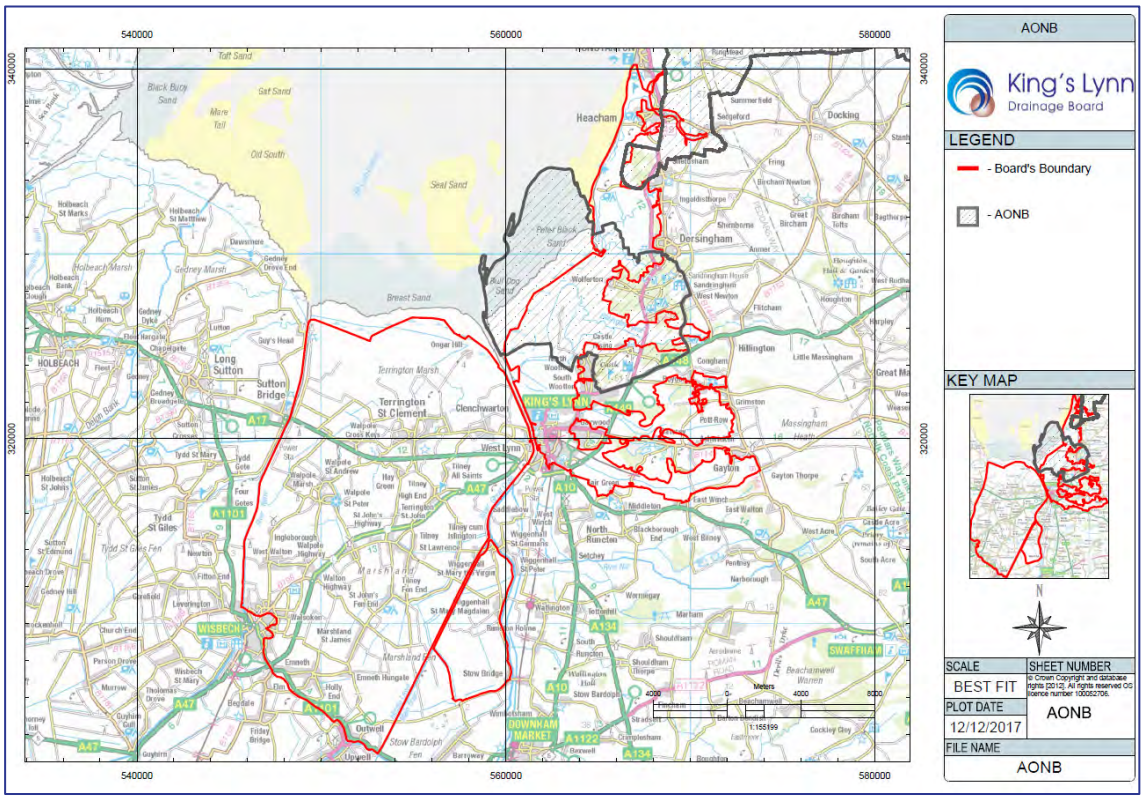
On reaching the edge of the flat fen on the east of the district, the upland rises substantially with gently rolling hills being an obvious feature. The upland part of the King's Lynn IDB district, has a large presence of Chalk which plays a part in the hydrology of the area. This is overlain by deposits of quartz, Lower greensand and various clay deposits, layered down in the Cretaceous and Jurassic periods. The effects of glaciations and a covering of boulder clay also gives the area a topography distinct from the west of the area. Where glacial sands and gravel form the surface, wide and comparatively flat areas of heathland occur. Such areas are extracted for the comparatively fine sand and some areas constitute valuable nature reserves.

3.3 Landscape

3.3.1 Landscape Designations

Parts of King's Lynn IDB fall within the designation area of the North Norfolk Coast Area of Outstanding Natural Beauty (See Map 2)

Map 2: Kings Lynn Area of Outstanding Natural Beauty



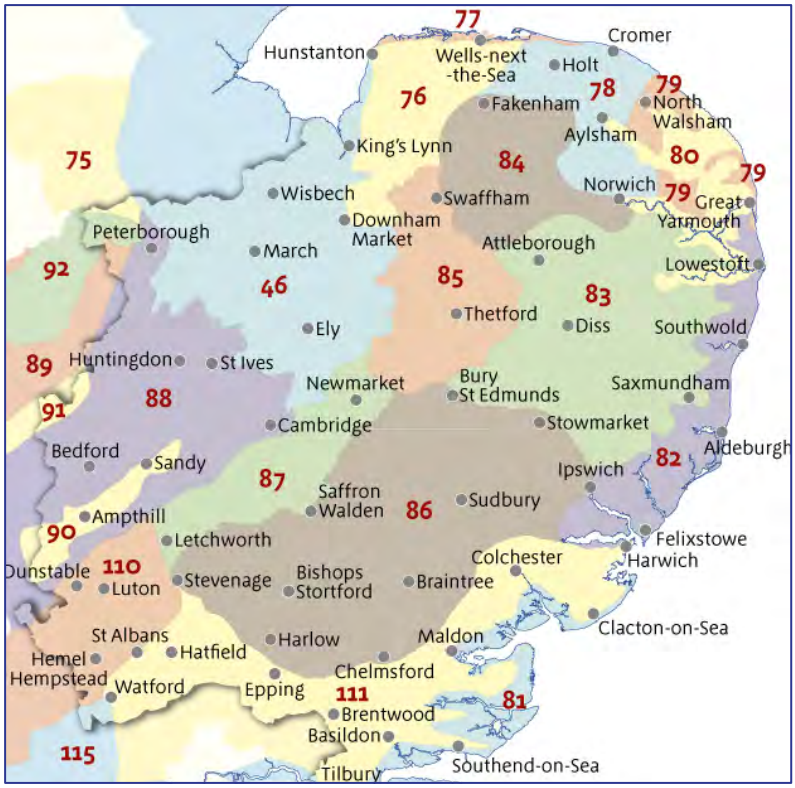
3.3.2 Landscape Character

Natural England has divided the whole of England into a number of National Character Areas (NCA) based on characteristic landforms, wildlife and land use (see Map 3). They are not designations and are not confined by traditional administrative boundaries. For each NCA, Natural England has prepared a profile that characterises the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The Biodiversity 2020 strategy has the aspiration for the creation and restoration of 200,000ha of priority habitat by 2020 (Outcome 1b). This aspiration has come about by using the NCAs, with the aim of creating a linkage of natural features and land-use characteristics to determine potential habitat creation and restoration areas as defined by these National Character areas.

The Kings Lynn IDB falls under two of these National Character Areas, the Fens (Area 46) and North West Norfolk (Area 76)

Map 3: NCA areas of the East of England



3.3.3 Sites and Monuments Records

No information for sites and monuments was obtained as part of the audit. The Board consults with English Heritage and the Norfolk County Council Archaeology Service prior to Capital works taking place or where ground breaking in areas other than general maintenance is required.

3.3.4 Tree Preservation Orders

The Board will continue to carry out searches prior to tree works, as required, to prevent any new Tree Preservation Orders being missed.

3.4 Statutory Nature Conservation Sites

3.4.1 Nationally, Internationally Designated Nature Conservation Sites and Water Level Management Plans

Within the Boards area are a number of nationally designated nature conservation sites, some of which also have international designations.

The Board was required to produce a water level management plan for all the SSSIs within their area where their activities can affect the wildlife interest. In practice this means all SSSIs where the Board manages a main drain, a structure or a pumping station which may influence the site.

The WLMP documents provide a means by which the water level requirements for a range of activities within a particular area, including agriculture, flood risk management and conservation, can be balanced and integrated.

Table 1 gives a summary of all the nature conservation sites within the KL IDB area with their national and international designations, water level management plans and UK BAP habitat.

All maps of the nationally and internationally designated nature conservation sites are shown in Appendix III.

Table 1: Nationally, Internationally Designated Nature Conservation Sites and Water Level Management Plans

Site name	National Designation	International Designation	WLMP	UK BAP Priority Habitat Description
The Wash	SSSI, NNR	The Wash & Norfolk Coast SAC The Wash RAMSAR, The Wash SPA,	(Wash European Marine Site Plan)	Littoral sediment
Dersingham Bog	SSSI, NNR	Roydon Common and Dersingham Bog SAC, Dersingham Bog RAMSAR	Dersingham Bog	Fen, marsh and swamp – lowland Dwarf shrub heath – lowland Earth heritage
Roydon Common	SSSI, NNR	Roydon Common and Dersingham Bog SAC, Roydon Common RAMSAR	Roydon Common	Fen, marsh and swamp – lowland Dwarf shrub heath – lowland
Islington Heronry	SSSI			Broadleaved, mixed and yew woodland - lowland
Wiggenhall St Germans	SSSI			Earth heritage
Leziate, Sugar and Derby Fens	SSSI		Leziate, Sugar and Derby Fens	Neutral grassland – lowland Dwarf shrub heath - lowland Acid grassland - lowland

3.4.2 Local Nature Reserves

There are no Local Nature Reserves, which are designated by local authorities under Section 21 of the National Parks and Access to the Countryside Act 1949, found within the Boards area.

3.5 Non-statutory Local Sites

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites themselves are important for their contribution to biodiversity and planning policy requires that they are given consideration. Table 2 shows those local sites found within or bordering the drainage district. Appendix IV shows County Wildlife Sites within the KL IDB catchment.

Table 2: County Wildlife Sites

County Wildlife Sites		
North Hook Bridge	Mill House Wood	Moore Common
North of Wiggenhall	Wolferton Wood	Watchers Wood
Clenchwarton Road	Bogg's Whins	Gaywood River and Watery Lane
South of Gaywood Park	Dersingham Meadow	Grimston Sewerage Works Meadow
100 and 10 Acre Plantation	Dersingham-Wolferton Railway	Roydon Village Green
Roydon Meadow	Boathouse Wood	Babingley Meadow
Hudson's fen	Life Wood & Ingoldisthorpe Com	River Babingley
Lynn Point	Shepherd's Port Meadow	Reffley Spring Wood
Relict Heath nr Wood Farm	Snettisham Common	Reffley Wood
Wootton Carr	Coast nr. Snettisham	Honington House Farm
Castle Rising Wood	Land north-west of Heacham	The White House
Penny Wood	South-east of Sedgeford	Grimston Warren
Middle Level Main Drain	North-west of Heacham	The Holt
South of Dersingham Station		

4. HABITATS

4.1 Introduction and Rational

The broad aim of the latest version of the Kings Lynn IDB Biodiversity Action Plan is to shift the emphasis toward a more habitat focused plan. The rational is that by managing and enhancing habitats, there is an increased potential to provide a broad benefit to a wide range of species. The species that could potentially benefit from these Habitat Action Plans are included within the sections covering each Habitat Action Plan.

4.2 Habitat Audit Summary

This habitat audit summary lists the broad habitat types and priority habitats that occur within the IDB 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 IDB district. Habitats that are of potential importance for the IDB, where water level management or other IDB activities may be of benefit, are identified

Table 3: Habitat Audit Summary

Broad Habitat Types	Priority Habitat	Habitat of Importance for IDB
Woodland	Lowland Mixed deciduous woodland	
Rivers, waterbodies and wetlands	Ponds	Yes
	Reedbeds	Yes
	Fen	Yes
	Coastal and floodplain grazing marsh	Yes
Grassland	Lowland Calcareous grassland	
	Lowland Meadow	
	Lowland dry acidic grassland	
	Lowland heathland	
	Purple Moorgrass and Rush Pasture	
Coastal	Mudflats	
	Saline Lagoon	
Farmland	Ancient/ Species Rich Hedgerow	
	Arable Field Margins	Yes

4.3 Habitats of Importance for the IDB

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

- Coastal and Floodplain Grazing Marsh
- Reedbed
- Fens

The IDB have considered the actions proposed in the Norfolk BAP and by the former Norfolk Biodiversity Partnership and have used this as guidance in the synthesis of IDB objectives and targets for action. IDB actions are formalised within the tables below:

4.3.1 Coastal and Floodplain Grazing Marsh

Grazing marsh is defined as a periodically inundated pasture, or meadow with ditches which maintain the water level, containing standing brackish or fresh water. The ditches are often especially rich in plants and invertebrates. Grazing marshes are also of importance for both breeding and wintering bird populations.

KINGS LYNN IDB OBJECTIVE
A. To continue to maintain enhance and expand the existing extent and quality of Coastal and Floodplain Grazing Marsh within the Board's area via Capital Schemes, WLMP delivery or Natural Flood Management solutions.

Table 4: KL IDB Coastal and Floodplain Grazing Marsh Action Plan

ACTION	PARTNERS	DATE
1. Continue to work in partnership with stakeholders to look for opportunities, to enhance grazing marshes by appropriate water level management practice.	NWT, NE, EA Landowners, RSPB, NT	Ongoing
2. Map the area of floodplain grazing marsh in the area.	NE	2018-2019
3. Look for opportunities and explore partnerships for creating new coastal floodplain grazing marsh in the catchment	NWT, NE, EA, Landowners, RSPB, NT, NRT	Ongoing

4.3.1.1 Current Status

The exact extent of grazing marsh in the UK is not fully known but it is estimated that there may be 300,000ha in the UK with England having 200,000 ha. However, only a small proportion of this is semi natural supporting a high diversity of native plant species (an estimated 5000 Ha in England). Grazing marsh is an extensive habitat in Norfolk, estimating to 29,500 ha. Much of this resource is found in Broadland, North Norfolk Coast, Wensum and Wash hinterlands.

4.3.1.2 Priority Species benefiting from the Lowland and Floodplain Grazing Marsh Habitat Action Plan (Table 4)

- Water Vole
- Barn Owl
- Kestrel
- Overwintering bird populations
- Ground nesting birds e.g. Lapwing

4.3.1.3 Threats in Norfolk

- Drainage and water abstraction.
- Eutrophication - via diffuse and point source means.
- Pollution of ground and surface waters, including pesticides.
- Changes to more brackish or coastal sites due to sea level rise.
- Implementation of flood management works.
- Lack of functioning of flood plain through river management, such as canalisation, flood banks and historic maintenance spoil heaps.
- Aggregate extraction.
- Neglect in the form of decline in traditional grazing management.
- Land take by industrialisation and urbanisation.
- Agricultural intensification, including conversion to arable.

4.3.1.4 Legal Status

Water Level Management Plans are required for all SSSIs. The Environment Agency, Water Companies, Inland Drainage Boards and Local Authorities have a statutory duty to further conservation where consistent with purposes of enactment relating to their functions.

4.3.2 Reedbed

Reedbed is a rare habitat and dominated by stands of Common Reed *Phragmites australis*, where the water table is at or above ground level for most of the year. They also incorporate areas of open water or ditches. Reedbeds are of great conservation value, supporting birds such as bittern and the marsh harrier.

KINGS LYNN IDB OBJECTIVE
B. To maintain, enhance and expand the area of reedbed and reed availability within the Boards' district.

Table 5 : KL IDB Reedbed Habitat Action Plan

ACTION	PARTNERS	DATE
4. Map areas of reedbed and reed fringe within the KL IDB area.		2018
5. Maintain reedbed fringe habitat on the Boards main drains where applicable to do so.		Ongoing
6. Identify potential sites for habitat restoration and expansion within the KL IDB area and look for funding opportunities.	NRT, NE, EA SWT, Landowners	Ongoing
7. Explore opportunities to create new reedbeds and link with other reedbed projects to create corridors for wildlife.	SRT, NE, EA SWT, Landowners	Ongoing

4.3.2.1 Current Status

In the UK it is estimated that there are 12000 ha over 1000 sites, with the majority of sites being less than 20ha. Over 50 species of conservation concern in Norfolk depend fully or partly on reedbeds and associated fens.

4.3.2.2 Priority Species benefiting from the Reedbed Habitat Action Plan (Table 5):

- Birds - Bittern, Bearded Tit, Marsh Harrier, Savi's Warbler
- Mammals - Otter, Water Shrew, Harvest Mouse
- Moths - Small Dotted Footman, Fenn's Wainscot, Reed Leopard

4.3.2.3 Threats in Norfolk

- Several important reedbeds in North Norfolk are threatened by coastal erosion and some by increasingly frequent saline incursion including the Broads.
- Lack of biological information, particularly concerning reedbed invertebrates.
- Lack of appropriate management of some existing reedbeds leading to drying and scrub encroachment and unsympathetic cutting regimes.
- Lack of hydrological information.
- Water abstraction leading to concern over freshwater supplies.
- Inappropriate water level management.

4.3.2.4 Legal Status

Reedbed habitat is legally protected within the nationally and internationally protected sites within the catchment.

Opposite image: Bearded Tit

4.3.3 Fens

Fens are wetland areas developed on peat soils and are often dominated by reeds, rushes and sedges. If not managed by grazing or cutting, they would develop into woodland. They are complex systems which support a wide variety of plant and animal species, including many Priority Species.

The UK is thought to host a large proportion of fen surviving in Europe. As in other parts of Europe, fen vegetation has declined dramatically in the past century. Fens are peatlands, which receive water and nutrients from rock, soil and ground water, as well as from rainfall.

Fens can be described as 'poor-fen' or 'rich-fen'. Poor-fen, where the water is derived from base-poor rocks occurs in the lowlands with heathland. Rich-fens are fed by mineral-enriched calcareous waters. Fens are dynamic, semi-natural systems and in general, management is needed to maintain open fen communities and their associated species richness. Without appropriate management and water supply, natural processes will lead to scrub and woodland forming.

KINGS LYNN IDB OBJECTIVE
C. To implement restoration and WLMP objectives for Fen priority habitat within the Broads IDB area.

Table 6: KL IDB Fens Habitat Action Plan

ACTION	PARTNERS	DATE
8. Map areas of fen within the KL IDB catchment area.	NBIS NE	2018
9. Work in partnership with others to consider opportunities for Fen management and rehabilitation.	NWT NE, EA Landowners, BA	Ongoing
10. Review water level management on Leziate Sugar and Derby Fens and Roydon Common.	NE, Landowners	2020

4.3.3.1 Current Status

Norfolk is particularly rich in fen habitats, supporting a large proportion of the UK total. In north-west Norfolk, some 350 ha of poor-fen is found primarily associated with Roydon Common and Dersingham Bog. Kings Lynn IDB SSSIs supporting fen habitat include: Dersingham Bog; Roydon Common and Leziate, Sugar and Derby Fen.

4.3.3.2 Priority Species benefiting from the Fens Habitat Action Plan (Table 6)

- Birds - Bittern, Bearded Tit, Marsh Harrier, Reed Bunting
- Mammals - Water Vole, Otter
- Priority Invertebrates - Butterflies, moths, numerous species of dragonflies and damselflies, weevils and beetles

4.3.3.3 Threats in Norfolk

- Land drainage and land use, local and within catchments, affects water quality and quantity within and around fen sites.
- Changes in hydrology of floodplain fens, where they have become isolated from the river water which irrigated the fen.
- Excessive water abstraction from aquifers and surface sources reduces spring flows and lowers water tables. Abstraction affects the natural balance between the differing water qualities of ground and surface water.
- Lack of appropriate management remains an issue, both the restoration of past neglect and maintaining systems of sustainable, ongoing management post-restoration.
- Fens, particularly those of the valley type, are susceptible to run off of poor quality water, and drainage from agricultural land and afforestation within the catchment.
- Enrichment or hyper-trophication resulting in changing plant communities.

4.3.3.4 Legal Status

Fen habitat is legally protected where it is present within the SSSI, SAC, SPA and RAMSAR sites within the catchment.

5. SPECIES

5.1 Introduction and Rationale

The KL IDB area supports many species of local and national conservation value. As previously discussed, appropriate habitat management plans can fulfil the requirements of many of these species. A small number of species have particular importance within the drainage board's area and are relevant within the appropriate management of the previously listed habitats. The following section provides more information on the status and location of these species within the drainage district that are of importance for the IDB, and may benefit from water level management or other IDB activities.

5.2 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 IDB and may benefit from water level management or other IDB activities.

The Kings Lynn IDB has identified the following species where they believe they could make a positive contribution through its activities.

- Water Vole
- European Eel
- Barn Owl
- Kestrel
- Bat species
- Non Native Invasive Species

The IDB have considered the actions proposed in the Norfolk BAPs and by the former Norfolk Biodiversity Partnership and have used this as guidance in the synthesis of IDB actions. IDB Objectives and Actions are formalised and highlighted in green and are collated within a table. Where there is no county BAP then information on species has been obtained from other sources and IDB actions formulated as appropriate.

5.2.1 Water Vole

This is the largest of the British vole species. It is not particularly well adapted to the aquatic environment, but it rarely ventures far from the waterside. It is herbivorous and eats a huge variety of emergent plant species. They are a colonial species and breeding occurs between March – September. They do not hibernate as such in winter, but they do spend a large proportion of time below ground within a series of burrows. Water Voles show a preference for steep grassy banks rising from margins fringed with reeds and other emergent plants along slow to moderately flowing watercourses.

KINGS LYNN IDB OBJECTIVES
D. To ensure the appropriate sensitive management of watercourses and wetlands which will facilitate the maintenance and enhancement of the current distribution and abundance of the Water Vole in the IDB District. **E.** To facilitate control of American Mink within the KL IDB catchment.

Table 7: KL IDB Water Vole Action Plan

ACTION	PARTNERS	DATE
11. Undertake a review of the current Standard Maintenance Operations (SMO) document		2018
12. Ensure compliance with the IDB SMO by auditing an identified number of maintenance works jobs annually, to ensure they are being carried out sensitively and to an agreed standard across the Board.		Ongoing
13. Send Water Vole survey records to the Norfolk Biodiversity Records Centre.	NBIS	Ongoing
14. Continue to work in partnership on the Norfolk Mink Control Project.	NNNSI	Ongoing
15. Take opportunities to enhance Water Vole habitat where appropriate during Capital or river/wetland restoration schemes.	NE, EA, Landowners, NWT	Ongoing

5.2.1.1 Current Status

Once a common species, the Water Vole has suffered a long-term decline since 1900 with an estimated decline in the UK population in 1998 estimated as 89% decline when looking at areas where they had previously been recorded in 1989-90 (Strachan et al, 2000). This decline is representative of a declining number of sites and numbers of individuals per colony.

It is thought that the current strongholds for the species are in Southern and Eastern England and that the East Anglian Region as a whole supports 20% of the British population of the species and 37% of the entire English population (Strachan et al, 2000).

A collation of data in 2011 showed Water Voles to be distributed patchily within the county, the main stronghold being the Broads area and grazing marsh habitats in particular. Highest rates of occupancy were noted on the River Ant and in Broadland dykes, other areas of high occupancy including the North Norfolk coast, north-west Norfolk coastal marshes, parts of the River Wensum and the River Nar. There were however, large gaps in the distribution in the south and west of the county even though siting's had been common 20 years previously.

5.2.1.2 Priority Habitats within the KL IDB area beneficial to Water Vole

- Coastal and Floodplain Grazing marsh
- Chalk River
- Ponds
- Reedbed
- Fen

5.2.1.3 Threats in Norfolk

- Damage to and loss of habitats due to insensitive routine maintenance of the channel and bankside, culverting or piling.
- Development within the floodplain that result in direct loss of habitat.
- Fluctuation in water level, where burrows are set during the active winter months can leave entrances wide open as water levels are lowered during winter. This leaves the hole open to predation.
- Population fragmentation leaves colonies remote from their neighbours and results in genetic restriction and susceptibility to disease.
- Predation particularly by Mink.
- Persecution Water Voles are often mistaken as a brown rat.

5.2.1.4 Legal Status

It has legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect to Section 9 where it is an offence to kill, injure or take (section 9 (1)); intentionally damage, destroy, or obstruct access to any structure or place that water voles use for shelter or protection and to disturb Water Voles whilst they are using this place (Section 9 (4)). The displacement of Water Vole for flood defence works is now a Natural England licenced activity for IDBs.

Above image: Water Vole © Peter Trimming

5.2.2 European Eel

The European Eel travels to freshwater as a glass Eel from its spawning site in the Sargasso Sea in the Atlantic Ocean. On arrival into freshwater in the summer, the tiny unpigmented Eel must travel upstream to find appropriate habitat where it will feed and mature through the elver and yellow Eel stage, living in some cases up to 15 years, before changing physiologically and returning to the ocean from which it spawned, as a Silver Eel.

5.2.2.1 Eel Management Plan

The Eel became a priority BAP species in 2007. There is currently no Eel BAP for the UK or Norfolk. There is however an Eel Management Plan (EMP) for the UK, published in December 2008 which divides the UK into different River Basin Districts (RBD). Norfolk falls under the Anglian River Basin District. This document aims to describe the current status of Eel populations in the Anglian RBD, assess compliance with the EU Council Regulation 1100/2007 and detail management measures to increase silver Eel escapement.

KINGS LYNN IDB OBJECTIVE
F. To contribute toward the Eel Regulations (2009) and the Eel Management Plan.

Table 7: KL IDB Eel Action Plan

ACTION	PARTNERS	DATE
16. Work in Partnership with the Environment Agency to assess the current status of Eel populations within the Board's Area.	EA and ZSL	Ongoing
17. Work in Partnership with the Environment Agency to identify barriers to migration in the Board's Area and assess options for overcoming these.	EA and ZSL	Ongoing

5.2.2.2 Current Status

The Eel is thought to be of huge economic and ecological significance to UK waters. It has been estimated that Eel recruitment has fallen by 70% in the UK and by 95% in other EU countries in since the 1980's. Prior to 1930, East Anglia had undergone hundreds of years of drainage for agriculture and habitation. It was only post 1940 that more intensive drainage programmes were introduced in order to optimise the high grade agricultural land to feed the populous both during and after World War II. During this time a wide scale loss of aquatic habitat took place. However, it was in response to the saline surge and floods of 1953 that emphasis was placed on defending the East Anglian coast from the North Sea. The "passability" of these hugely important tidal defence schemes, tidal flaps and pumping stations is being investigated by the Environment Agency as to their role in the successes or non-successes in the life history of the migratory Eel in East Anglia.

5.2.2.3 Threats in Norfolk

- Problems with Glass Eel recruitment, due to the blockage of Glass Eel passage into watercourses by means of tidal flaps, sluice gates and pumping stations.
- Problems with Silver Eel escapement into main river and the sea by means of tidal flaps, sluice gates and pumping stations.
- Parasites – *Anguillicolloides crassus* a nematode worm effects the ability of the Eel to alter buoyancy during swimming by attaching to the swim bladder of the animal.
- Water quality.
- Illegal commercial fishing.

5.2.2.4 Legal Status

The Salmon and Freshwater Fisheries Review (2000) recommended new legislation to improve fish passage in England and Wales to improve fish passage on all rivers, not just those containing salmon and sea trout.

The Fish Passage (England and Wales) Regulations (2009) will increase the circumstances in which fish passes will be required to be built or screened and will provide a more robust fish pass authorisation scheme.

The European Eel Regulation (2007) (EU Council regulation 1100/2007) states that the UK must hope to achieve a 40% silver Eel escapement relative to best estimates, with no anthropogenic. A failure to achieve this target will result in a 50% reduction in fishery effort for all life stages.

5.2.3 Barn Owl

The Barn Owl is a much loved and charismatic bird, being distinctive with its white heart-shaped face, white underparts and golden-brown upperparts. It is an iconic bird of open countryside hunting rough grassland, particularly along the banks of watercourses, field margins and road verges, using its acute hearing to detect its small-mammal prey. It usually nests in dark chambers within buildings, large cavities in old trees, and purpose made nest boxes.

KINGS LYNN IDB OBJECTIVE
G. To continue to enhance the range and population of Barn Owls by maintaining or enhancing habitat availability, within the catchment area.

Table 8: KL IDB Barn Owl Action Plan

ACTION	PARTNERS	DATE
18. Continue to contribute to the maintenance and monitoring of nest boxes within the KL IDB area via the Wildlife Conservation Partnership.	WCP	Ongoing
19. Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff, Contractors	Ongoing

5.2.3.1 Current Status

Formerly declining, largely attributed to a decrease in its food, following conservation action, partly under the BAP process, the population is rising once more and nationally the species is no longer considered to be under threat.

5.2.3.2 Threats in Norfolk

- Decrease in food supply by loss of rough grassland habitat, field margins and habitat fragmentation.
- Decrease in availability of nesting sites as hollow trees felled or farm buildings are lost to decay or conversion.
- Increasing urbanisation, resulting in a rapid expansion of Britain's road network and increased vehicle speeds, causing high levels of road mortality in Barn Owls. This has been shown to affect the population density of this bird at the local level.

5.2.3.3 Legal Status

The Barn Owl is listed in Annexes II and IV of the EC Habitats Directive, Appendix I of the Berne Convention and is protected under Schedule II of the Conservation of Natural Habitats and Species Act (2017).

The Barn Owl is protected under Section 1 of the WCA 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or intentionally to destroy its nest, eggs or young, or intentionally or recklessly disturb it whilst preparing to nest or is at the nest with eggs or young or to disturb their dependent young.

Above image: Barn Owl

5.2.4 Kestrel

The Kestrel is our most familiar farmland bird of prey. It is a small falcon which can often be seen hovering over areas of rough grassland, or perching on a post or bush. Using its keen eyesight it uses these elevated vantage points to search out its main prey of small mammals, insects and earthworms. Rough-grassland margins provided by the banks of watercourses are recognised as a vital habitat resource for Kestrels. Careful management of these linear grasslands coupled with the installation of nest boxes offer the opportunity of helping to restore the population of this declining bird in England and Wales.

KINGS LYNN IDB OBJECTIVE
H. To continue to enhance the range and population of Kestrels by maintaining or enhancing habitat availability and nesting opportunities within the catchment area.

Table 9: KL IDB Kestrel Action Plan

ACTION	PARTNERS	DATE
20. Continue to contribute to the maintenance and annual monitoring of nest boxes within the KL IDB area via the Wildlife Conservation Partnership.	WCP	Ongoing
21. Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff, Contractors	Ongoing

5.2.4.1 Current Status

Kestrel numbers have declined by about 30% between 1994 and 2007. The species is Amber Listed in Birds of Conservation on account of a moderate decline of between 25% and 40% over the last 25 years and because there is concern for this species throughout Europe.

5.2.4.2 Threats in Norfolk

- The decrease in the Kestrel population is little understood but may be associated with the decline in Starling abundance, or the rapid increase in the numbers and distribution of Buzzards in Britain during recent times.
- The use of agricultural pesticides, particularly DDT in the mid 1900's, and more latterly second generation anticoagulant rodenticides, which are known to accumulate in the body tissues of Kestrels through secondary poisoning, may also have affected the numbers of this species.

5.2.4.3 Legal Status

The Kestrel is protected under Section 1 of the WCA 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or intentionally to destroy its nest, eggs or young, or intentionally or recklessly disturb it whilst preparing to nest or is at the nest with eggs or young or to disturb their dependent young.

Opposite image: Kestrel © Nick Goodrum

5.2.5 Bats

Bats are likely to be widespread throughout the Board's catchment area, using the watercourses for foraging and commuting and buildings and old culverts may be used for roosting. All species of bats are UK bap priority species; the Norfolk BAP covers 4 species recorded in the county (Soprano Pipistrelle, Noctule, Brown Long Eared and Barbastelle). However, the particular interest to drainage boards are Daubenton's bat and Soprano Pipistrelle bats, both of which are associated with proximity to water and are recorded within the County.

KINGS LYNN IDB OBJECTIVE
I. To expand roosting potential for Bats across the Boards catchment and contribute to improving survey data.

Table 10: KL IDB Bat Action Plan

ACTION	PARTNERS	DATE
22. Establish the current distribution and abundance of bats within the IDB district via survey.	BTO	2018 onwards
23. Investigate bat roost opportunities at sites owned or managed by the KL IDB.	Staff, Contractors	Ongoing

5.2.5.1 Current Status

East Anglia supports a population of Barbastelle bats which is considered to be, "highly significant" within the context of national distribution. There are strong populations in North and West Norfolk.

Brown long eared bats and Soprano Pipistrelles are fairly common throughout the UK but the distribution appears to be less in west Norfolk. This may however be a reflection in survey effort rather than distribution. The hugely successful Norfolk Bat Survey had recently significantly improved bat survey techniques and hugely increased data on bat distribution in the county, though the west of the county still remains patchy probably due to the large areas of arable fields which are not easily monitored for bat distribution.

5.2.5.2 Threats in Norfolk

- Reduction in insect prey due to widespread pesticide use.
- Reduction in quality, quantity and fragmentation of habitats including hedgerows, old trees, ditches, drains, ponds, riverside and pasture habitats.
- Loss of breeding and winter hibernation sites in buildings, old trees and farmyard features.
- Floodlighting of churches and buildings causing disturbance.
- Destruction and disturbance of roosts during reroofing.
- Widespread confusion over/ ignorance of/ ignoring the law regarding bats.
- Deterioration of water quality has also been shown to affect food supply.

5.2.5.3 Legal Status

All species of bats are protected under section 9 of the Wildlife and Countryside Act 1981 (schedule 5) (as amended by the CROW Act 2000), the Natural Environment and Rural Communities Act (2006) and the Conservation of Habitats and Species Regulations 2017.

Above image: Soprano Pipistrelle © Mark Hows

5.2.6 Non Native Invasive Species

A non-native invasive species is a species which has been moved outside its natural range with the aid of humans, is spreading rapidly and is causing problems for the local environment and economy. At a global level, invasive non-native species are now believed to be one of the most significant causes of biodiversity loss. The impacts particularly of freshwater and riparian non-native plant species are of concern at a local level to the hydrological engineer, due to the ease and speed at which many plants can spread and grow, causing major problems by blocking watercourses. The low-lying nature of much of Norfolk and its abundance of watercourses and wetland habitats means that it is particularly at risk from colonisation by these plants.

Floating Pennywort, a highly problematic, prolific and economically draining species can currently be found growing in the Ouse catchment.

In recent years, many of the waterways in nearby Broadland have become infested by the Killer Shrimp *Dikerogammarus villosus.* This species is of particular concern from the biodiversity perspective as it is a voracious predator and can kill other invertebrates and fish fry; seriously impacting on the ecology of river systems.

Another potentially problematic Crustacean in the Kings Lynn IDB area is the Chinese Mitten Crab which migrates into fresh water around estuaries and can cause bank destabilization problems from its burrowing into soft muds.

Table 11: Non-native Invasive Species of Significance to Norfolk

Common Name	Group	Scientific Name
American Mink	Mammal	*Mustella vision*
Grey Squirrel	Mammal	*Sciurus carolinensis*
Killer Shrimp	Crustacean	*Dikerogammarus villosus*
Signal Crayfish	Crustacean	*Pacifastacus leniusculus*
Mitten Crab	Crustacean	*Eriocheir sinensis*
Japanese Knotweed	Vascular plant	*Fallopia japonica*
Floating Pennywort	Vascular plant	*Hyrochotyl ranunculoides*
Giant Hogweed	Vascular plant	*Heracleum mantegazzianum*
Himalayan Balsam	Vascular plant	*Impatiens glandulifers*
Australian Swamp Stonecrop	Vascular plant	*Crassula helmsii*
Parrots Feather	Vascular plant	*Myriophyllum aquaticum*

Above images clockwise: American Mink; Floating Pennywort; Chinese Mitten Crab © Neil Cummings; Parrots Feather; Himalyan Basalm; Japanese Knotweed © Roger Kidd

KINGS LYNN IDB OBJECTIVE
J. To prevent the spread of Non Native Invasive Species during IDB operations. **K.** To promote the prevention, control and eradication of Non Native Invasive Species.

Table 12: KL IDB Non Native Invasive Species Action Plan

ACTION	PARTNERS	DATE
24. Continue to contribute to and work in Partnership with the Norfolk Non-Native Invasive on Invasive control projects.	NNNSI	Ongoing
25. Maintain records for all species of concern using "That's Invasive!" app.	NNNSI, Staff, Contractors	Ongoing
26. Train staff regularly in key non-native species identification.	NNNSI, Staff, Contractors	Ongoing
27. Ensure availability and regular review of identification guides developed for key non-native species to be used by officers, staff and contractors on site.	NNNSI, Staff, Contractors	Ongoing
28. Regularly review and ensure robust biosecurity measures are being maintained across the Board.	Staff, Contractors	Ongoing

5.2.6.1 Priority Habitats benefiting from Non-Native Invasive Species Action Plan (Table 12)

- Ponds
- Reedbed
- Fen
- Coastal and floodplain grazing marsh
- Arable Field Margins

5.2.6.2 Financial Risk

The approach to the invasive problem should be reactive when the species is manageable and relatively cheap to control. This should hopefully prevent the problem from manifesting into a much larger more expensive control strategy. The key to this is communication and knowing where the invasives are nearby, on IDB land or on landowner controlled land, so that an integrated partnership approach may be established.

The Board has a duty under the Wildlife and Countryside Act (1981) to prevent the spread of non-native invasives and therefore it would not simply be a matter of removing large areas of invasives during the maintenance period, as often the processes of flailing strimming or mowing of the species will subsequently result in its continual spread of a plant.

This will occur particularly readily with Floating Pennywort, Australian Swamp Stonecrop, Parrots Feather and Japanese Knotweed, as they all reproduce via an asexual, vegetative means. It is likely that the problem will continue on site from small pieces of material left behind from the mechanical operation, but will result in an additional problem of waterborne material causing a further infestation downstream.

All precautions should be undertaken to keep these and other non-native invasive species out of Kings Lynn IDB watercourses to prevent a huge economic outlay on their control. There is no doubt that if an infestation, particularly of the aquatic non-native invasive species, is left to grow the cost to the board will be considerable.

6. PROCEDURAL ACTION PLAN

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

ACTION	OUTPUTS / OUTCOME	DATE	PARTNERS
Ensure compliance to standard for biodiversity and protected species surveys	All works assessed using agreed standards of information to ensure that appropriate mitigation is delivered for capital / maintenance works and projects to ensure no net loss of biodiversity. Environmental staff to undertake regular training.	Ongoing	NE, EA
Ensure compliance to Boards Standard Maintenance Operations	Assess an annual agreed percentage of maintenance works, to be carried out to an agreed standard and delivered across the whole board and integrated within the Quality Management System ISO14001. Regular review on SMO to ensure compliance with updated guidelines and regulation.	Ongoing	NE, EA
Land Drainage consent and Bylaws	Through the application of Land Drainage Consents and Bylaws, seek to ensure that natural features of conservation interest and habitat importance are maintained or enhanced.	Ongoing	NCC, EA
Attend Local Biodiversity Forums and Meetings	Communication and network opportunities with other organisations to facilitate actions for BAP Species and Habitats. PR and lifting profile of Board	Ongoing	
Raising awareness	Biodiversity training days organised for staff and board members	Ongoing	
Recording	Develop and populate a recording system for IDB priority species and habitats within the Board area, in conjunction with the Engineering team watercourse surveys	Ongoing	NBIS
Communication	A new Environment and Biodiversity section on the website. Share successes with media and promote public awareness.	Ongoing Ongoing	
Monitoring	Continue to develop the WMA's record base and continue to work internally and in partnership with other organisations to ensure that we have up to date information on species to help inform future works.	Ongoing	NBIS

7. IMPLEMENTATION AND MONITORING

Planning for maintenance, capital and non-regular maintenance work will all take into consideration the Boards Biodiversity Action plan targets.

The Board, has part of the Water Management Alliance, has adopted the Environmental Management System ISO 14001, which also helps to integrate the Biodiversity Action Plan within the systems and work of the organisation.

A simple process will be put into place to record actions and help with the reporting. Any new data on habitats and species will be shared with the Norfolk Biological Record Centre.

8. REVIEWING AND REPORTING PROGRESS

The Board recognises the importance of reviewing the implementation of the Biodiversity Action Plan to assess changes in the status of habitats and species and the overall feasibility of objectives and actions. In addition, they recognise the benefit of recording successful achievements and reporting on those achievements.

A comprehensive review of the plan will take place after five years.

The Board, through the Water Management Alliance, will continue to work in partnership with other organisations to ensure the targets and objectives are attained.

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10. APPENDICES

Appendix I: Biodiversity Action Plan Objectives

KINGS LYNN IDB BIODIVERSITY ACTION PLAN OBJECTIVES	
A.	To continue to maintain enhance and expand the existing extent and quality of Coastal and Floodplain Grazing Marsh within the Board's area via Capital Schemes, WLMP delivery or Natural Flood Management solutions.
B.	To maintain, enhance and expand the area of reedbed and reed availability within the Boards' district.
C.	To implement restoration and WLMP objectives for Fen priority habitat within the Boards IDB area.
D.	To ensure the appropriate sensitive management of watercourses and wetlands which will facilitate the maintenance and enhancement of the current distribution and abundance of the Water Vole in the IDB District.
E.	To facilitate control of American Mink within the KL IDB catchment.
F.	To contribute toward the Eel Regulations (2009) and the Eel Management Plan.
G.	To continue to enhance the ange and population of Barn Owls by maintaining or enhancing habitat availability, within the catchment area.
H.	To continue to enhance the range and population of Kestrels by maintaining or enhancing habitat availability and nesting opportunities within the catchment area.
I.	To expand roosting potential of Bats across the Boards catchment and contribute to improving survey data.
J.	To prevent the spread of Non Native Invasive Species during IDB operations.
K.	To promote the prevention, control and eradication of Non Native Invasive Species.

Appendix II: Habitats and Species Action Plan

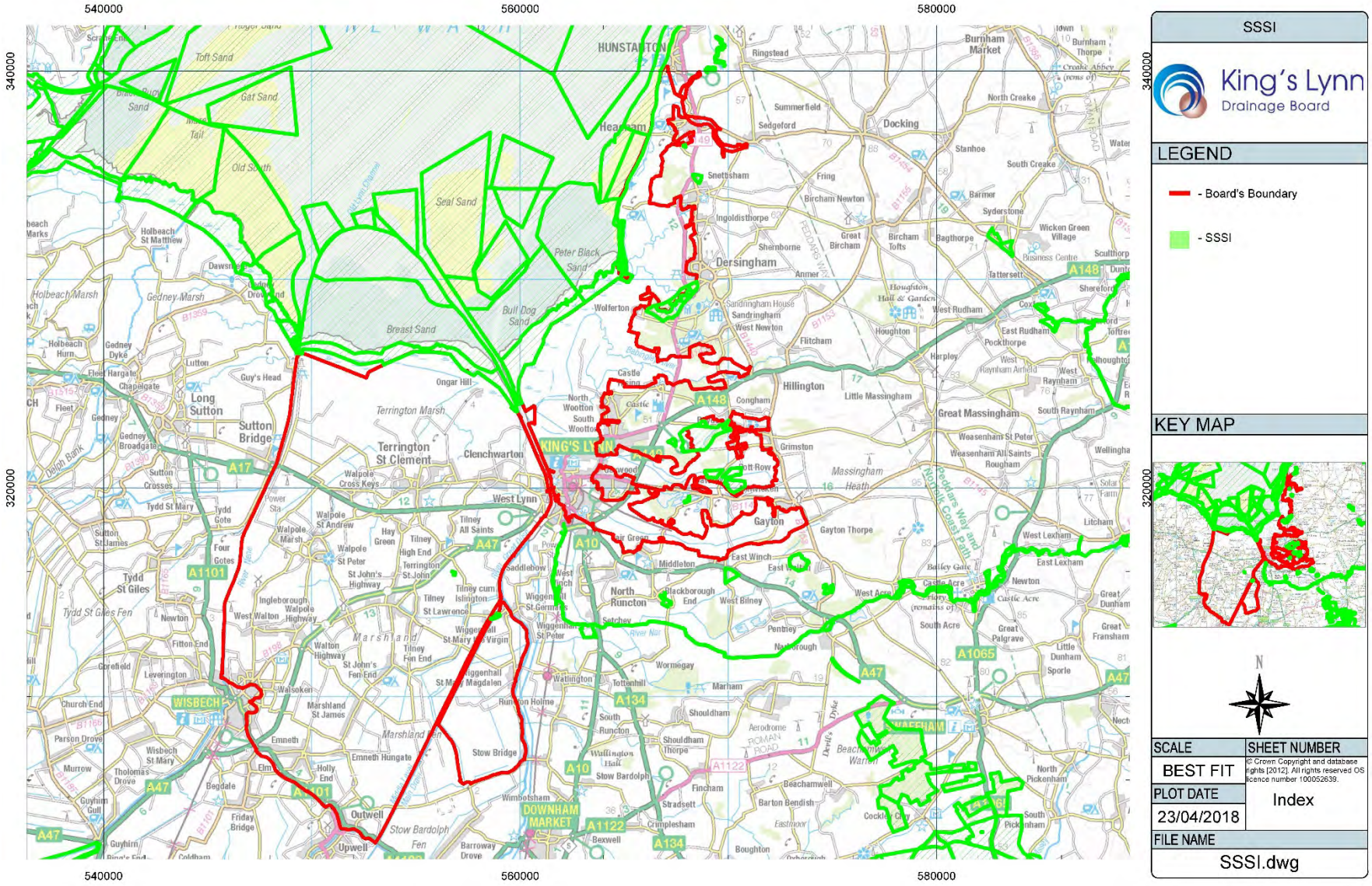
	ACTION	PARTNERS	DATE
COASTAL AND FLOODPLAIN GRAZING MARSH			
1.	Continue to work in partnership with stakeholders to look for opportunities, to enhance grazing marshes by appropriate water level management practice.	NWT, NE, EA Landowners, RSPB, NT	Ongoing
2.	Map the area of floodplain grazing marsh in the area.	NE	2018-2019
3.	Look for opportunities and explore partnerships for creating new coastal floodplain grazing marsh in the catchment	NWT, NE, EA, Landowners, RSPB, NT, NRT	Ongoing
REEDBED			
4.	Map areas of reedbed and reed fringe within the KL IDB area.		2018
5.	Maintain reedbed fringe habitat on the Boards main drains where applicable to do so.		Ongoing
6.	Identify potential sites for habitat restoration and expansion within the KL IDB area and look for funding opportunities.	NRT, NE, EA SWT, Landowners	Ongoing
FENS			
7.	Map areas of fen within the KL IDB catchment area.	NBIS NE	2018
8.	Work in partnership with others to consider opportunities for Fen management and rehabilitation.	NWT NE, EA Landowners, BA	Ongoing
9.	Review water level management on Leziate Sugar and Derby Fens and Roydon Common.	NE, Landowners	2020

	ACTION	PARTNERS	DATE
WATER VOLE			
10.	Undertake a review of the current Standard Maintenance Operations (SMO) document		2018
11.	Ensure compliance with the IDB SMO by auditing an identified number of maintenance works jobs annually, to ensure they are being carried out sensitively and to an agreed standard across the Board.		Ongoing
12.	Send Water Vole survey records to the Norfolk Biodiversity Records Centre.	NBIS	Ongoing
13.	Continue to work in partnership on the Norfolk Mink Control Project.	NNNSI	Ongoing
14.	Take opportunities to enhance Water Vole habitat where appropriate during Capital or river/wetland restoration schemes.	NE, EA, Landowners, NWT	Ongoing
EEL			
15.	Work in Partnership with the Environment Agency to assess the current status of Eel populations within the Board's Area.	EA, ZSL	Ongoing
16.	Work in Partnership with the Environment Agency to identify barriers to migration in the Board's Area and assess options for overcoming these.	EA,ZSL	Ongoing
BARN OWL			
17.	Continue to contribute to the maintenance and monitoring of nest boxes within the KL IDB area via the Wildlife Conservation Partnership.	WCP	Ongoing
18.	Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff, Contractors	Ongoing

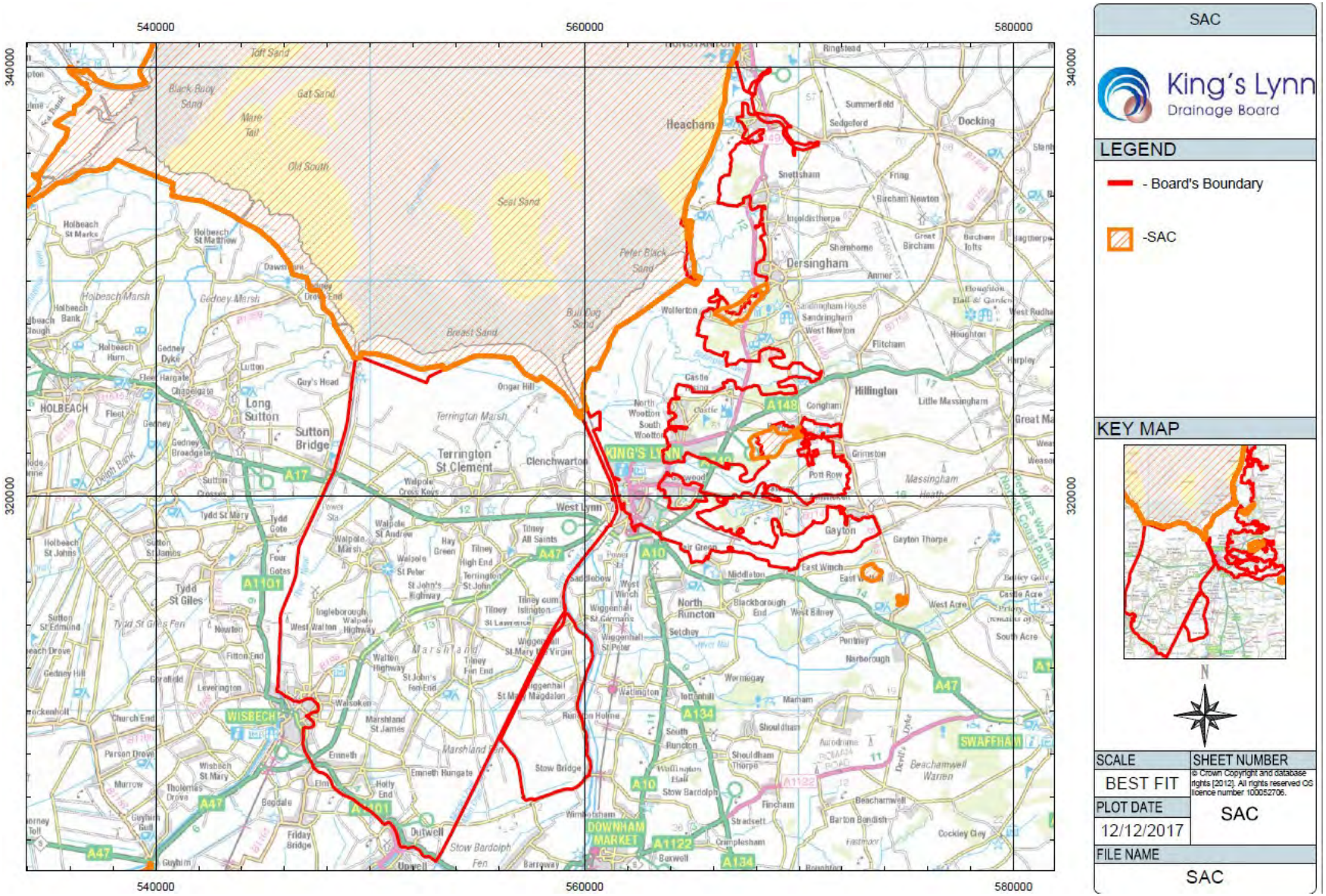
	ACTION	PARTNERS	DATE
KESTREL			
19.	Continue to contribute to the maintenance and annual monitoring of nest boxes within the KL IDB area via the Wildlife Conservation Partnership.	WCP	Ongoing
20.	Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff, Contractors	Ongoing
BATS			
21.	Establish the current distribution and abundance of bats within the IDB district via survey.	BTO	2018 onwards
22.	Investigate bat roost opportunities at sites owned or managed by the KL IDB.	Staff, Contractors	Ongoing
NON NATIVE INVASIVE SPECIES			
23.	Continue to contribute to and work in Partnership with the Norfolk Non-Native Invasive on Invasive control projects.	NNNSI	Ongoing
24.	Maintain records for all species of concern using “That’s Invasive!” app.	NNNSI, Staff, Contractors	Ongoing
25.	Train staff regularly in key non-native species identification.	NNNSI, Staff, Contractors	Ongoing
26.	Ensure availability and regular review of identification guides developed for key non-native species to be used by officers, staff and contractors on site.	NNNSI, Staff, Contractors	Ongoing
27.	Regularly review and ensure robust biosecurity measures are being maintained across the Board.	Staff, Contractors	Ongoing

Appendix III: Nationally and Internationally Designated Nature Conservation Sites

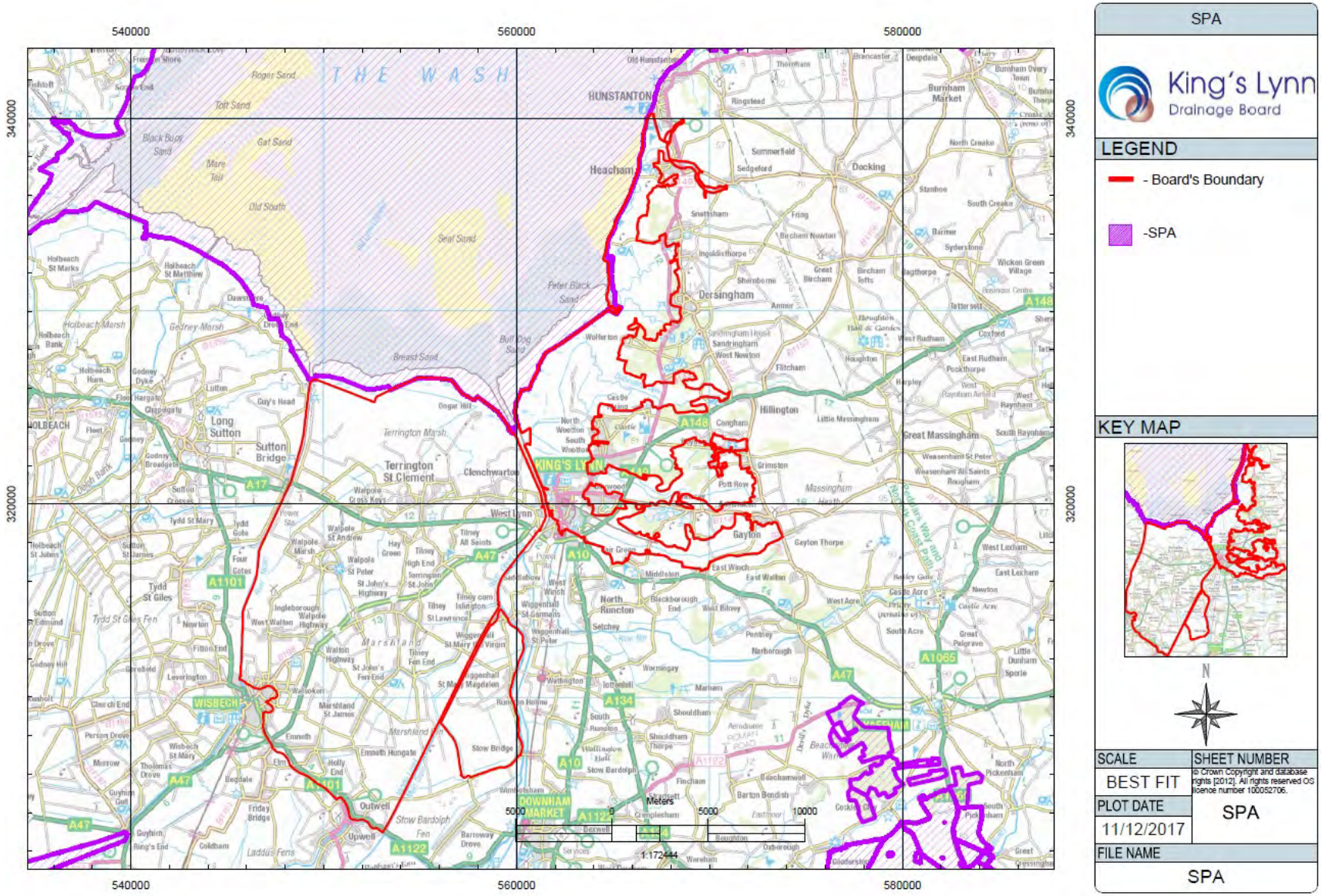
i. Map of Sites of Special Scientific Interest.



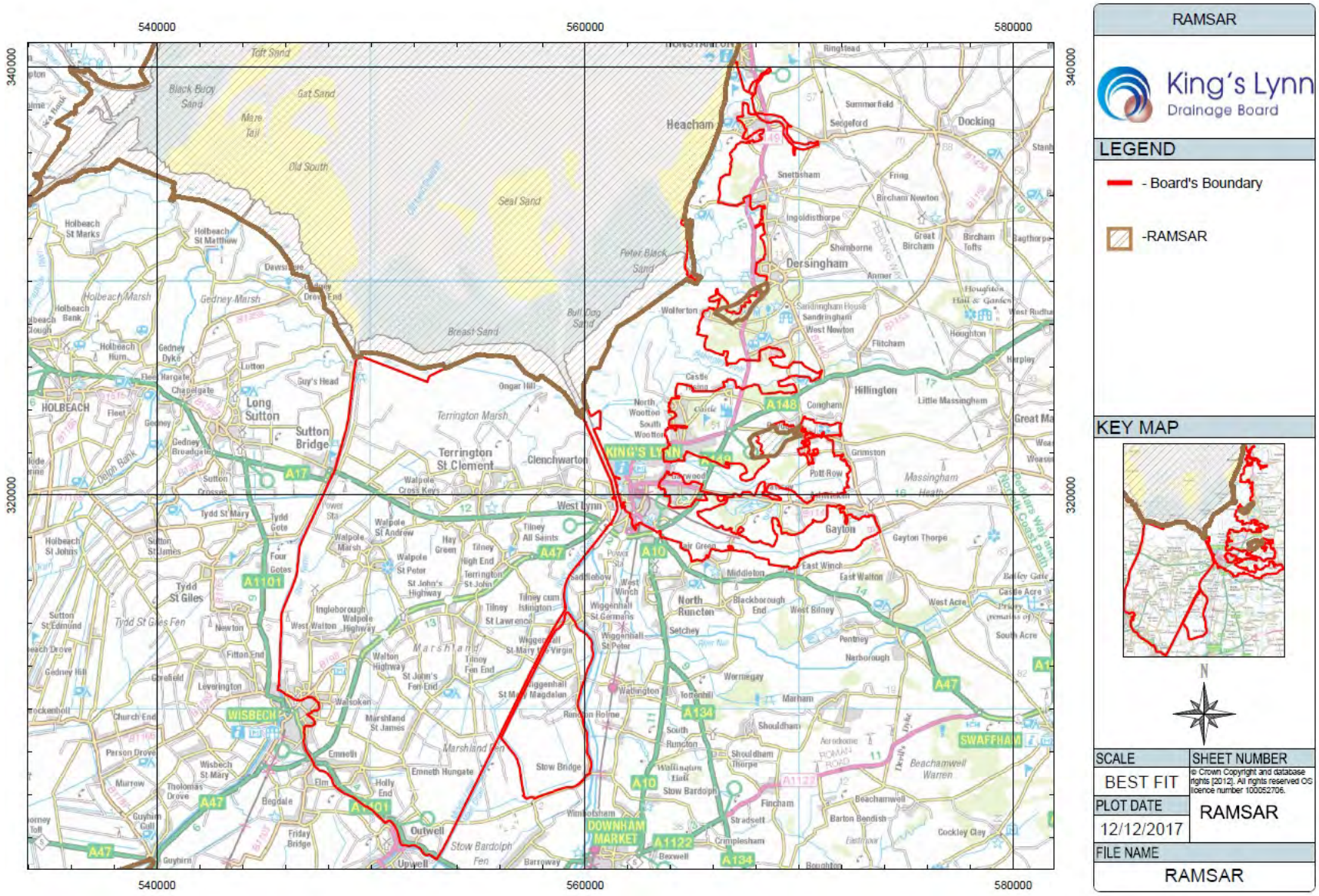
ii. Map of Special Areas of Conservation



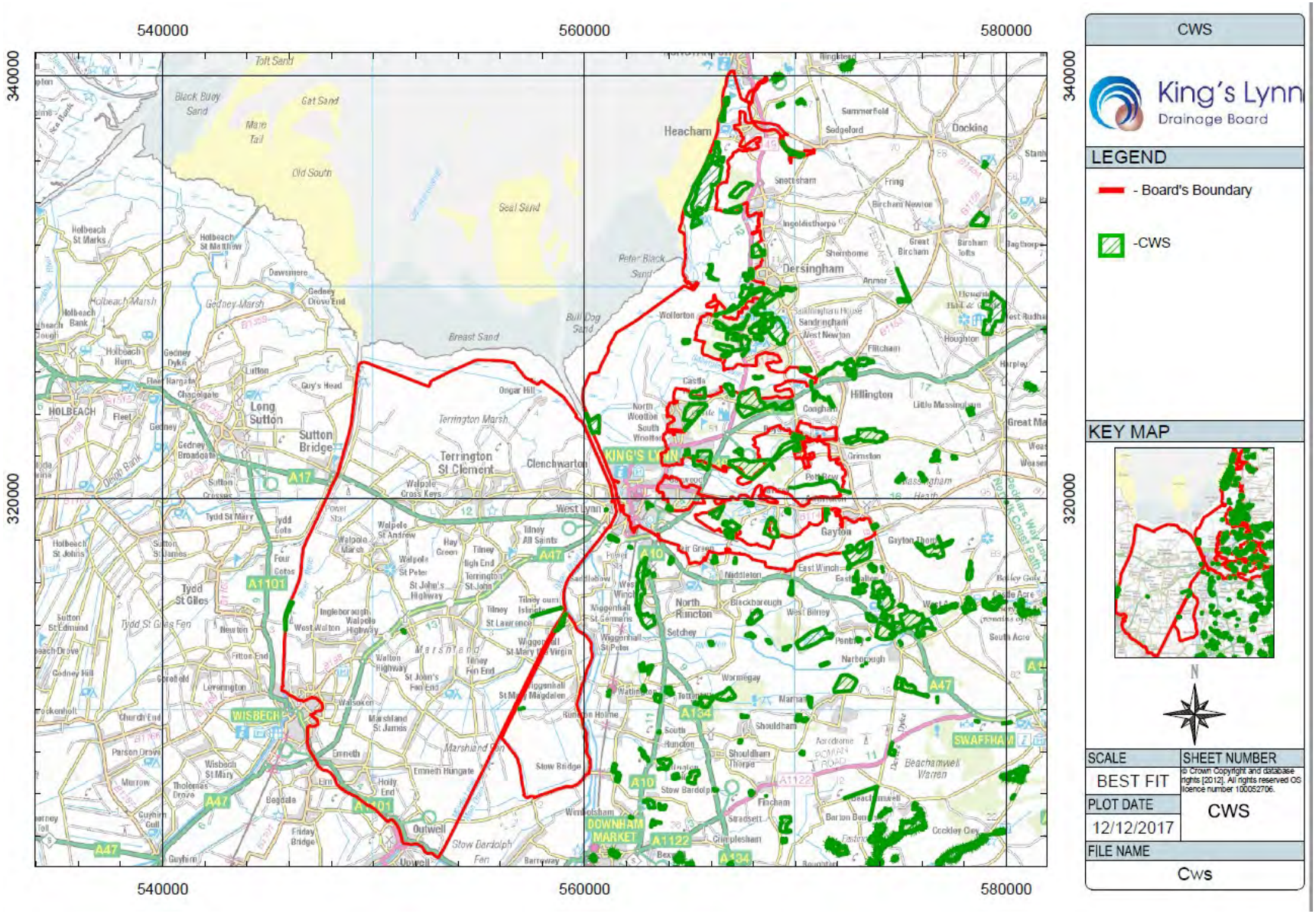
iii. Map of Special Protection Areas



iv. Map of RAMSAR sites



APPENDIX IV: NON-STATUTORY LOCAL SITES – MAP OF COUNTY WILDLIFE SITES



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 emailing info@wlma.org.uk or writing to the following address:

Kings Lynn Internal Drainage Board
Kettlewell House
Austin Fields Industrial Estate
Kings Lynn
Norfolk
PE30 1PH

Further information is available on the Board's website: www.wlma.org.uk/kings-lynn-idb

Water Management Alliance

CONTACT US

Water Management Alliance, Kettlewell House,
Austin Fields Industrial Estate, King's Lynn, Norfolk, PE30 1PH
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