



Broads
Drainage Board

BIODIVERSITY ACTION PLAN

April 2018



FOREWORD

This Biodiversity Action Plan (Second Edition) has been prepared by the Broads 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 Broads IDB with biodiversity policy and more specifically, the Biodiversity document for England, "*Biodiversity 2020: A strategy for England's 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 Henry Cator
Chairman - Broads Internal Drainage Board

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ABBREVIATIONS AND ACRONYMS USED WITHIN THIS DOCUMENT

AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
BESL	Broadland Environmental Services Limited
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
LBAP	Local Biodiversity Action Plan
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 Broads 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.

1.6 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 Broads 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.

1.7 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 Broads 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

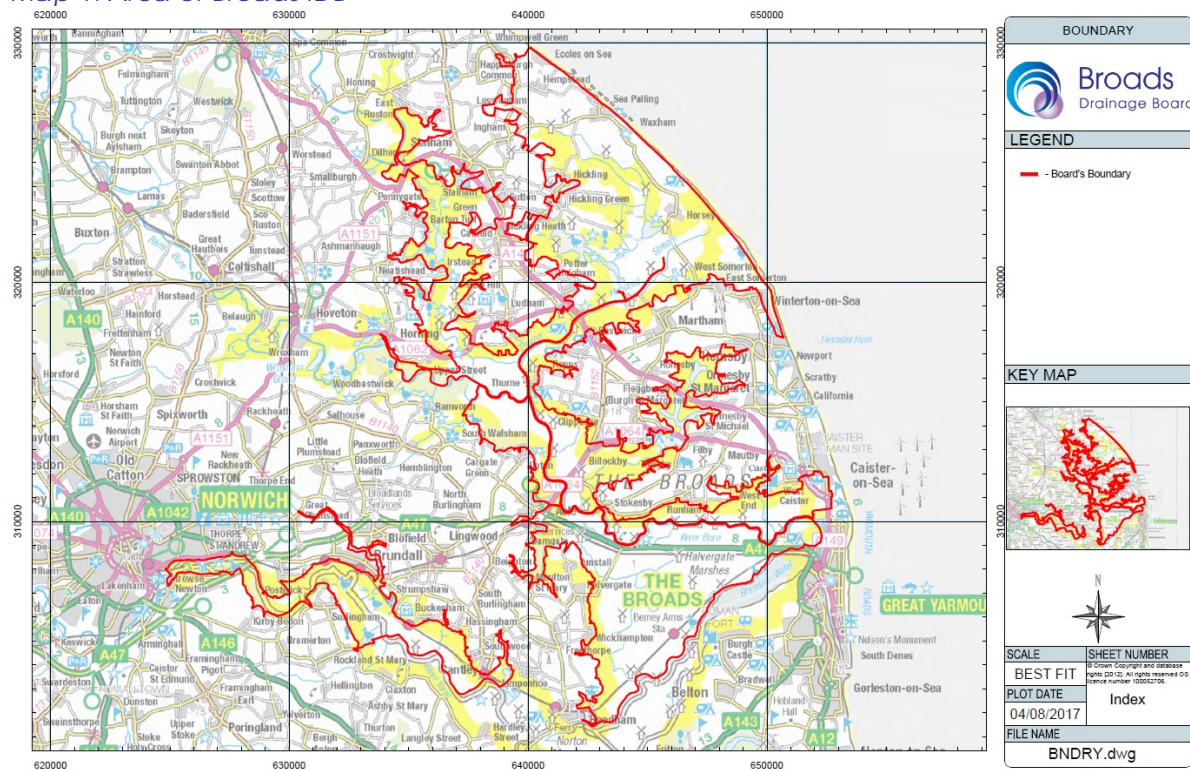
Achievement of the Plan actions will be measured by a programme of monitoring which the Board will undertake, in some instances with assistance from its partners, and the methods to be used are described in the Plan.

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.

Map 1: Area of Broads IDB



3. CURRENT ECOLOGICAL AND GEOLOGICAL STATUS

3.1 The Drainage District

The The Broads (2006) IDB has a catchment area of 456.02km² and contains 326km of IDB maintained watercourses. The area includes some of the country's finest grazing marshes, arable land, several hugely important local, national and internationally designated wildlife sites and the Broads Authority Executive area, which belongs to the family of National Parks. Much of the local economy in the area is derived from agriculture and the thriving tourist and eco-tourist industry created in this internationally acclaimed wildlife haven.

The drainage board district services a largely rural population, with the area having approximately 50,000 people. It drains several large villages such as Hickling, Upton and Sutton, the towns of Acle and Caister as well as small outlying villages and smallholdings.

The drainage district is bounded by the dune system and sandstone cliffs bordering the North Sea to the north east, and by the River Yare to the south. Large areas of farm and marshland have been reclaimed from the sea and a large proportion of the catchment lies below sea level. Salt water inundation can be a problem at certain times of year in the Rivers Bure, Thurne and Yare.

Appropriate water level and watercourse management for all stakeholders is critical to the Broads Internal Drainage Board. Achieving the correct balance between the needs of the environment and defending agricultural land and property in this area is critical. The needs of the ratepayer are achieved by 36 pumping stations, 62 water level control structures and a good working relationship with landowners and conservation bodies alike..

3.2 Geology

The chalk formations of the Cretaceous period are important to Broadland as much of the region's rivers are derived from the groundwater aquifers within it. However the chalk layer itself is set deeper at Great Yarmouth as opposed to Norwich or Wroxham owing to tilting caused by movements of the earth's crust. Norwich Crag was laid down over the chalk in Broadland during the Pleistocene when the area was a shallow sea and consists mainly of iron-rich sands, clays and gravels. As the ice retreated after the Anglian glaciation, chalky boulder clay was laid down covering much of the southern and eastern parts of Broadland. As sea levels rose as the glaciers retreated, the once forested floor of the north sea was submerged; inland the floodplains widened and reedswamp and fen communities prevailed and the beginnings of the organic peat layers were set around 9000 years ago. Various changes in sea level have occurred over time and tidal penetration occurred laying down clay layers inland and between the organic peats.

From an estimated 1000 years a fishing port has been established at Great Yarmouth and the peat laid down in the middle and upper sections of the Broadland river valleys was exploited as a source of fuel by this and other settlements. Some of these extractions were cut deeply into the peat layers laid down between 2000-5000 years ago resulting in some excavations being up to 10m deep. These deep pits later flooded to become the Broads as we know them today. Peat continued to be cut from extensive shallow workings in the fen until the 1920s

3.3 Landscape

3.3.1 Landscape Designations

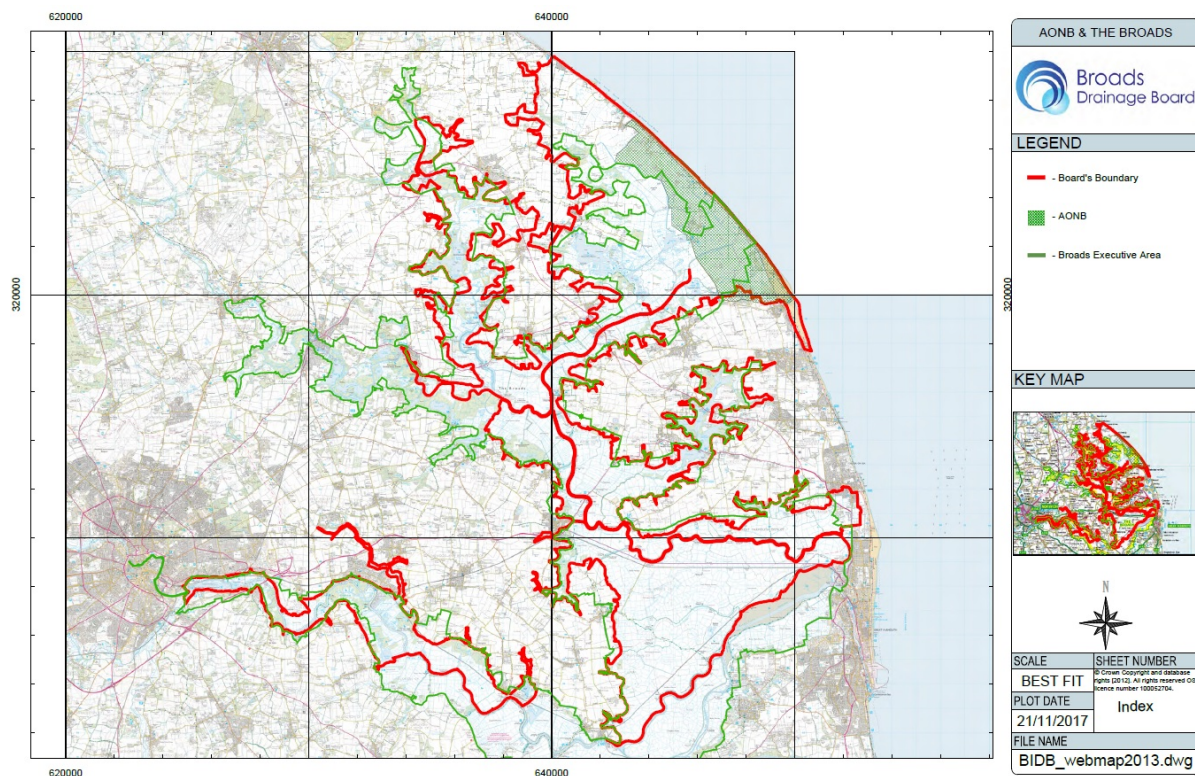
[The Broads: A member of the family of National Parks](#)

Though, not technically a national park, the Norfolk and Suffolk Broads is Britain's largest protected wetland and third largest inland waterway, with the status of a national park. It's also home to some of the rarest plants and animals in the UK. The Broads Authority was set up in 1989, with responsibility for conservation, planning, recreation and waterways (See Figure 2)

[Norfolk Coast Area of Outstanding National Beauty](#)

An area between Sea Palling and Winterton, falls within the Broads IDB area and is part of the Norfolk Coast AONB (See Map 2)

Map 2: Norfolk Coast Area of Outstanding Natural Beauty and Broads Authority Executive Area



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 Broads IDB falls under two of these National Character Areas, [North East Norfolk and Flegg \(Area 79\)](#) and [The Broads \(Area 80\)](#).

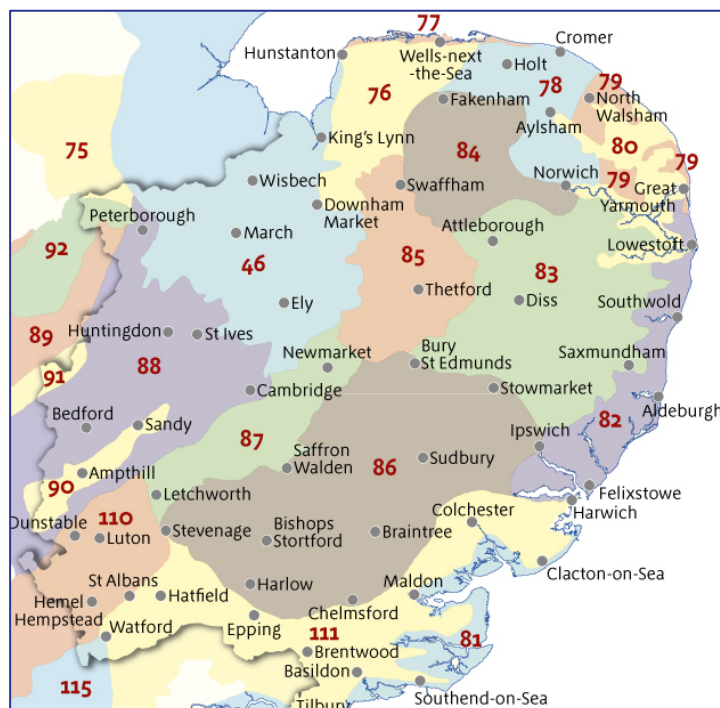
3.3.3 Sites and Monuments Records

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.

Map 3: NCA areas of the East of England



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 2 gives a summary of all the nature conservation sites within the Broads IDB area with their national and international designations, water level management plans and associated BAP habitats. Many BAP priority species are specific to certain sites.

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

3.4.2 Local Nature Reserves

Table 2 shows 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 1: Local Nature Reserves

Site Name		
South Walsham Fen	Breydon Water	Brundall Church Fen

Table 2: Nationally, Internationally Designated Nature Conservation Sites and Water Level Management Plans

Site name	National Designation	International Designation	WLMP	BAP Priority Habitat Description	Habitat features relevant to IDB
Alderfen Broad	SSSI, NNR	Broadland SPA & RAMSAR Broads SAC,	Horning	Broadleaved, mixed and yew woodland – lowland Fen, marsh and swamp – lowland Standing open water and canals	Reedbed, Wet woodland, Open Water, Fresh water dykes
Ant Broads and Marshes	SSSI, NNR (Ant Broads and Marshes & How Hill)	Broadland SPA & RAMSAR Broads SAC,	Ludham Bridge East Chapelfield Sutton	Broadleaved, mixed and yew woodland – lowland Fen, marsh and swamp – lowland Standing open water and canals	Reedbed, Fen,
Breydon Water	SSSI	Breydon SPA, Breydon Water RAMSAR	Lower Bure and Halvergate	Littoral sediment Neutral grassland - lowland	Mudflats, Saltmarsh, Reedbed,
Bure Broads and Marshes	SSSI, NNR	Broadland SPA & RAMSAR Broads SAC,		Broadleaved, mixed and yew woodland – lowland Fen, marsh and swamp – lowland Standing open water and canals	Wet woodland Fen Open Water
Broad Fen Dilham	SSSI	Broadland SPA & RAMSAR Broads SAC,	Wayford Bridge and East Ruston	Fen, marsh and swamp – lowland Standing open water and canals	Wet Woodland, Fen, Reedbed, Fresh water dykes
Burgh Common and Muckfleet Marshes	SSSI	Broadland SPA & RAMSAR Broads SAC,	Hemsby and Muckfleet Marshes	Standing open water and canals Fen, marsh and swamp - lowland	Fen Grazing Marsh
Calthorpe Broad	SSSI, NNR	Broadland SPA & RAMSAR Broads SAC,	Brograve Upper Thurne	Acid grassland - lowland Broadleaved, mixed and yew woodland – lowland Fen, marsh and swamp – lowland	Wet woodland Open Water Swamp Fen Wet Grassland

Site name	National Designation	International Designation	WLMP	BAP Priority Habitat Description	Habitat features relevant to IDB
Cantley Marshes	SSSI	Broadland SPA, Broads SAC, Broadland RAMSAR	Lower Yare Fourth	Standing open water and canals Broadleaved, mixed and yew woodland – lowland	Grazing marsh, Wet woodland, Fresh water dykes
Damgate Marshes, Acle	SSSI	Broadland SPA, Broads SAC,	Lower Bure and Halvergate	Standing open water and canals	Grazing Marsh, Fresh water dykes
Decoy Carr	SSSI	Broadland SPA, Broads SAC, Broadland RAMSAR	Lower Bure and Halvergate	Broadleaved, mixed and yew woodland – lowland Fen, marsh and swamp – lowland	Wet Woodland, Fen, Reedbed
Hall Farm Fen, Hemsby	SSSI	Broadland SPA, Broads SAC, Broadland RAMSAR	Hemsby and Muckfleet Marshes	Fen, marsh and swamp – lowland	Wet grassland,
Halvergate Marshes	SSSI	Broadland SPA, Broads SAC, Broadland RAMSAR	Lower Bure and Halvergate	Standing open water and canals Broadleaved, mixed and yew woodland – lowland Littoral sediment	Grazing marshes with small areas of unimproved pasture, wet fen meadow, reedbeds, Wet woodland Fresh water dykes
Ludham-Potter Heigham Marsh	SSSI, NNR	Broadland SPA, Broads SAC, Broadland RAMSAR	Horsefen Potter Heigham Upper Thurne	Standing open water and canals Fen, marsh and swamp – lowland Acid grassland - lowland Broadleaved, mixed and yew woodland – lowland	Grazing marshes, Fresh water dykes
Priory Meadows	SSSI	Broadland SPA, Broads SAC, Broadland RAMSAR	Hickling	Acid grassland - lowland	Grazing marshes, Fresh water dykes.

Site name	National Designation	International Designation	WLMP	BAP Priority Habitat Description	Habitat features relevant to IDB
Shallam Dyke	SSSI	Broadland SPA Broads SAC Broadland RAMSAR	Thurne Repps	Boundary and linear features Standing open water and canals	Grazing marshes Fresh water dykes
Trinity Broads	SSSI	Broads SAC	Hemsby and Muckfleet Marshes	Broadleaved, mixed and yew woodland – lowland Fen, marsh and swamp – lowland Standing open water and canals.	Wet woodland Fresh water dykes Open water
Upper Thurne Broads and Marshes	SSSI, NNR (Hickling Broad & Martham Broad)	Broadland SPA Broads SAC Broadland RAMSAR	Hickling Horsey Heigham Holmes Potter Heigham Catfield Martham Brograve Somerton Upper Thurne	Standing open water and canals Broadleaved, mixed and yew woodland – lowland Fen, marsh and swamp – lowland	Wet woodland Fen Grazing marsh Fresh water dykes
Upton Broads and Marshes	SSSI	Broadland SPA Broads SAC Broadland RAMSAR	Upton	Fen, marsh and swamp – lowland Broadleaved, mixed and yew woodland – lowland Standing open water and canals	Wet woodland Fen Grazing marsh Fresh water dykes
Winterton to Horsey Dunes	SSSI, NNR	Winterton to Horsey Dunes SAC	Horsey Somerton	Supralittoral sediment	
Yare Broads and Marshes	SSSI, NNR	Broadland SPA Broads SAC Broadland RAMSAR	Lower Yare Fourth Lower Yare First	Fen, marsh and swamp – lowland Broadleaved, mixed and yew woodland – lowland Standing open water and canals	Wet woodland Fen Grazing marsh Fresh water dykes

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 3 shows those local sites found within or bordering the drainage district.

Table 3: County Wildlife Sites

County Wildlife Sites		
Whitlingham Fen	Land south of Hempstead Marshes	Marram Hills
Knacker's Wood	Cow Plantation	Calthorpe Broad Wood
Alder Carr & Guttermere Bridge	Land adj. Witton Lane	East of Bure Broads and Marshes
Wood near Berry Hall	Birch Grove & Dawling's Wood	Marshes North of Marsh Road
Sutton Meadows	Long Meadow, Buckenham Carrs	Marshes at Horse's Head, Upton
Stalham Fen	Highnoon Farm, Braydeston	North of Horning Hall
Ingham Fen	West Coverts & Home Broad	Marshes at Irstead Street
Land adjacent to Horse Fen	Decoy Wood & South Wood	Winterton PCC Land
Land south of Potter Heigham	North Wood	Poor Allotment & Cotton's Marsh
Waxham Sands Holiday Park	Postle's Plantation & Meadow	Damgate Wood
Fords Farm Pasture	Carey's Meadow	Buttle Marsh
Eye Farm Wood	Brickstone Carr	Honing Common, North Walsham & Dilham Canal
Eastfield Wood	Farm Carr	Cremer's Meadow
Commissioner Grassland	Dunham Carr	New Cut
Long Gore Marsh	Lacon Covert	Lambridge Covert
Home Plantation	The Carr	Ash Carr & West of Dovehouse Plantation
Whinmere Plantation	Old Wood	Brick Kiln Coverts
Marstona Wood (Lound Alder Carr)	Whitlingham Marsh	Land near French's Farm
Manor House Wood		

4. HABITATS

4.1 Introduction and Rational

The broad aim of the latest version of the Broads 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 4: Habitat Audit Summary

Broad Habitat Types	Priority Habitat	Local Biodiversity Action Plan Habitat	Habitat of Importance for IDB
Woodland	Wet woodland	Wet woodland	Yes
Rivers, waterbodies and wetlands	Ponds	Ponds	
	Reedbeds	Reedbeds	Yes
	Fen	Fen	Yes
	Rivers and Lakes		Yes
Grassland	Coastal and floodplain grazing marsh	Coastal and floodplain grazing marsh	Yes
	Lowland meadow	Lowland Meadow and Pasture	
	Lowland dry acidic grassland	Lowland Heathland and dry acidic grassland	
	Lowland heathland	Lowland Heathland and dry acidic grassland	
	Purple Moorgrass and Rush Pasture		
Coastal	Coastal Sand Dunes	Coastal Sand Dunes	
	Mudflats	Mudflats	
Farmland	Arable margins	Arable Margin	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
- Fen (and Fen Meadow)
- Wet Woodland
- Rivers and Lakes

The IDB have considered the actions proposed in the Norfolk LBAPs 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.

BROADS 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 5: Broads 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, and NT	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 5)

- Water Vole (*Avricola amphibious*)
- Barn Owl (*Tyto alba*)
- Kestrel (*Falco tinnunculus*)
- 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.

Localised effects arise from:

- 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.
- Sedimentation of dykes

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.

BROADS IDB OBJECTIVE

B. Implement WLMP objectives for SSSIs within the Broads IDB area and identify opportunities elsewhere to restore or enhance reedbed.

Table 6: Broads IDB Reedbed Habitat Action Plan

ACTION	PARTNERS	DATE
2. Map areas of reedbed within the Broads IDB area.	BA, NE, EA and Landowners	2018
3. Continue to work in partnership with stakeholders to ensure sympathetic Water Level Management principles can be applied.	RSPB, NE and BA	2018-23
4. Identify potential sites for habitat restoration and expansion within the Broads IDB area during WLMP and Capital Scheme delivery	NRT, NE, EA and Landowners	2018-23
5. Participate within the Broads Biodiversity Partnership	BA	2018-23

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 6):

- Birds – Bittern (*Botaurus stellaris*), Bearded Tit (*Panurus biarmicus*), Marsh Harrier (*Circus aeruginosus*), Reed Bunting (*Emberiza schoeniclus*), Savi's Warbler (*Locustella luscinioides*)
- Mammals - Otter, Water Vole, Harvest Mouse (*Micromys minutus*)
- Butterflies – Swallowtail (*Papilio Machaon*)
- Moths - Fenn's Wainscot (*Arenostola phragmitidis*) and Reed Leopard (*Phragmataecia castaneae*)

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.

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. Broadland holds 75% of the total calcareous Fen resource for the UK. 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.

BROADS IDB OBJECTIVE

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

Table 7: Broads IDB Fens Habitat Action Plan

ACTION	PARTNERS	DATE
6. Map areas of fen within the Broads IDB catchment area.	NBIS, NE and BA	2018
7. Continue to work in partnership with stakeholders to ensure sympathetic Water Level Management principals can be applied.	RSPB, NE, BA, NWT, and Landowners	2018- 2023
8. Participate within the Broads Biodiversity Partnership	BA	2018
9. Work in partnership with others to consider opportunities for Fen management and rehabilitation	NWT, NE, EA, BA and Landowners	2018- 23
10. Work in partnership with others to implement Fen Restoration within the Broads IDB area whilst undertaking WLMP objectives and Capital projects.	NWT, NE, EA, BA and Landowners	2018-23

4.3.3.1 Current Status

Norfolk is particularly rich in fen habitats, supporting a large proportion of the UK total. The Broads natural area possesses some 5,000 ha of rich-fen habitat, mostly of the floodplain type, with some examples of valley fen. Elsewhere, numerous rich-fens of the valley head type are found associated with the county's rivers. Table 7 lists SSSIs within the Broads IDB area that support an important fen component. Many other fen sites are recognised as County Wildlife Sites, SSSIs or SACs.

Opposite image: Bearded Tit



Table 8: SSSIs within Broads IDB area supporting Fen Habitat

Site Name		
Alderfen Broad	Decoy Carr, Acle	Priory Meadows
Ant Broads and Marshes	East Ruston Common	Smallburgh Fen
Broad Fen, Dilham	Hall Farm Fen	Trinity Broads Upper
Bure Broads and Marshes	Halvergate Marshes	Thurne Broads and Marshes
Calthorpe Broad	Limpenhoe Meadows	Upton Broads and Marshes
Cantley Marshes	Ludham/Potter Heigham	Yare Broads and Marshes

4.3.3.2 Priority Species benefiting from the Fens Habitat Action Plan (Table 7)

- Fen Orchid (*Liparis loeselii*)
- Birds - Bittern, Bearded Tit, Marsh Harrier, Reed Bunting
- Mammals - Water Vole, Otter
- Butterflies – Swallowtail
- Moths – Reed Leopard and Fen's Waistcoat
- Dragonflies – Norfolk Hawker (*Aeshna isosceles*)
- Other invertebrates – Reed Beetle (*Donacia aquatica*), Ground Beetle (*Badister peltatus*), Lesser Water Measurer (*Hydrometra gracilentia*), a weevil (*Melanopium minimum*) and Diving Beetle (*Bidessus unistriatus*).

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.

4.3.4 Wet Woodland

Wet woodland occurs on waterlogged or seasonally waterlogged soils. They are frequently associated with river valleys, flood plains flushes and plateau woodlands.

BROADS IDB OBJECTIVE
D. To work closely with Norfolk Wildlife Trust, other partners and consultants to ensure Wet Woodland is considered within the consultation process prior to maintenance, WLMP and Capital Scheme delivery, with a view to maintain, enhance and restore the current extent of wet woodland in the Broads area.

Table 9: Broads IDB Fens Habitat Action Plan

ACTION	PARTNERS	DATE
11. Carry out a desk study audit of wet woodland locations in the Broads IDB area.	NWT	2018
12. Consult Norfolk Wildlife Trust 100% time prior to work through or near County Wildlife Sites.	NWT	2018
13. Include wet woodland conservation in all aspects of IDB maintenance, WLMP and Capital scheme delivery with a view to enhancement and restoration.	NE, NWT, EA, NT and NCC	2018

4.3.4.1 Current Status

The habitat type has been poorly recorded nationally and within Norfolk. However, it is estimated that nationally there is between 50,000 - 70,000 ha of wet woodland. East Anglia is noted nationally for the concentration of wet woodland it retains, particularly on fenland.

4.3.4.2 Priority Species benefiting from the Fens Habitat Action Plan (Table 9)

- Birds – Spotted Flycatcher (*Muscicapa striata*), Song Thrush (*Turdus philomelos*),
- Mammals – Otter (*Lutra lutra*), Bats – Brown Long Eared (*Plecotus auritus*), Noctule, (*Nyctalus noctula*) Pipistrelle (*Pipistrellus pipistrellus*), Whiskered (*Myotis mystacinus*) and Natterer's (*Myotis nattereri*)
- BAP Invertebrates – a leaf rolling weevil (*Byctiscus populi*), Common Foot Moth (*Pechipogo strigilata*), Beautiful Hook-Tip Moth (*Laspeyria flexula*) and White Satin Moth (*Leucoma salicis*)
- BAP Liverwort – Veilwort (*Pallavicinia lyellii*)

4.3.4.3 Threats in Norfolk

- Succession causing woodland to change and become drier. This may be brought about by the accumulation of silt, cessation of management and or changes in water levels.
- Inappropriate or no management of the wet woodland, causing changes in the structure and flora, leading toward the poor regeneration and changes in floristic diversity.
- Poor water quality- leading to changes in flora and invertebrate communities.
- Changes in the flow patterns in the land drainage systems causing changes to woodland hydrology.
- Colonisation of woodland by non-native species eg. Himalayan Balsam, Giant Hogweed.
- Disease: a fungus *Phytophthora* is killing alder trees along several of the UK's major river systems. This may be exacerbated by the onset of Global Warming

4.3.4.4 Legal Status

East Anglia is noted in the national context for the concentration of wet woodlands, particularly those on fens. Woodland found in the Broads has been listed as a European Priority feature under the Conservation of Habitats and Species Regulations (2017) and is designated in the Broads SAC. Many other non-statutory sites such as County Wildlife Sites and the wider countryside also support wet woodland. Many of the wet birch woods and willow woodlands have developed on open wetland habitats, sometimes after the end of active management.

4.3.5 Rivers and Lakes

There is a national BAP for rivers. The qualifying features for the Broadland rivers would be that they are surrounded by wetlands, with the occurrence of Annex II Habitats Directive species.

Broads IDB Issue	IDB Potential to Resolve
Water quality entering Broads and Broadland rivers is maintained by setting appropriate water levels behind pumps.	Monitor peat shrinkage on marsh side of pumps using piles.
	Undertake a review of Water Level Management Plans.
Saline incursion and <i>Prymnesium</i> blooms cause fish kills on the river side of the pumps. Fish are prone to packing into dyke systems during these events eg. Hundred stream, Catfield Dyke.	Pump in small bursts or employ variable speed drives to allow a more constant fresh water feed to freshen the water in the dyke systems during saline events or <i>Prymnesium</i> outbreaks, to reduce fish stress and deaths.

BROADS IDB OBJECTIVE
<p>E. To explore infrastructure or pumping regime improvements at Boards pumps for the benefit of the Broadland's rivers and lakes.</p> <p>F. Undertake a review of water levels in catchments behind pumping stations with a view to informing water quality management within the Upper Thurne system.</p>

Table 10: Broad's IDB Rivers and Lakes Habitat Action Plan

ACTION	PARTNERS	DATE
14. Continue to contribute to funding the Pymnesium research project in partnership with the John Innes Centre.	John Innes Centre	2018 - 23
15. Work in partnership with the EA to maintain a flow from the pumps on the Upper Thurne during times of high saline flows up the Thurne River.	EA and Local Angling Clubs	As required
16. Install a pile to monitor future peat shrinkage on agreed catchments on the Upper Thurne.	NE and Landowners	2018
17. Review water levels at pumping stations and ensure they are calibrated via GIS verification and recorded.		2018-19
18. Produce a prioritised list of WLMP review requirements from pumping stations within the Upper Thurne system.		2018-19

5. SPECIES

5.1 Introduction and Rationale

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

- Water Vole
- European Eel (*Anguilla anguilla*)
- Barn Owl
- Kestrel
- Breeding Waders
- Grasswrack Pondweed (*Potamogeton compressus*)
- Floating Water Plantain (*Luronium natans*)
- Great Tassle Stonewort (*Tolypella prolifera*)
- 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.

BROADS IDB OBJECTIVES

G. 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.

Table 11: Broads IDB Water Vole Action Plan

ACTION	PARTNERS	DATE
19. 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.		2018-23
20. Send Water Vole survey records to the Norfolk Biodiversity Records Centre.	NBIS	2018-23
21. Continue to work in partnership on the Norfolk Mink Control Project.	NNNSI	2018-23
22. Take opportunities to enhance Water Vole habitat where appropriate during Capital or river/wetland restoration schemes.	NE, EA, NWT and Landowners	2018-23

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 Broads IDB area beneficial to Water Vole

- Coastal and Floodplain Grazing marsh
- Ponds
- Reedbed
- Fen
- Rivers and Lakes

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.



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.

BROADS IDB OBJECTIVE

H. To contribute toward the Eel Regulations (2009) and the Eel Management Plan.

Table 12: Broads IDB Eel Action Plan

ACTION	PARTNERS	DATE
23. Work in Partnership with the Environment Agency to assess the current status of Eel populations within the Board's Area.	EA and ZSL	Ongoing
24. 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 Priority Habitats within the Broads IDB area beneficial to European Eel

- Coastal and Floodplain Grazing marsh
- Reedbed
- Fen
- Rivers and Lakes

5.2.2.4 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 – *Anguillicoloides 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.

5.2.2.5 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.

BROADS IDB OBJECTIVE

- I. To continue to enhance the range and population of Barn Owls by maintaining or enhancing habitat availability, within the catchment area.

Table 13: Broads IDB Barn Owl Action Plan

ACTION	PARTNERS	DATE
25. Continue to contribute to the maintenance and monitoring of nest boxes within the Broads IDB area.	WCP	Ongoing
26. Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff and 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.

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.

BROADS IDB OBJECTIVE

J. To continue to enhance the range and population of Kestrel by maintaining or enhancing habitat availability and nesting opportunities within the catchment area.

Table 14: Broads IDB Kestrel Action Plan

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

5.2.5 Breeding Waders

Breeding wader species are characteristic of lowland wet grasslands such as those found in Broadland, with an appropriate flooding or water regime with an abundance of lower growing grasses, rushes and sedges which require regular management through cutting or grazing. Wet grasslands are frequently of high nature conservation value and support a wide range of invertebrate, plant, reptile, amphibian and bird species and communities.

BROADS IDB OBJECTIVE

K. To work in partnership to enhance wet grassland for breeding waders within the Boards' area.

Table 15: Broads IDB Breeding Waders Action Plan

ACTION	PARTNERS	DATE
29. Continue to work in partnership with stakeholders to look for opportunities, where appropriate, to enhance grazing marshes by appropriate water level management practice.	RSPB, BA and NWT	Ongoing
30. Undertake capital improvement to improve freshwater availability to the Halvergate SSSI.	RSPB, BA and NWT	2018-20
31. Where funding opportunities arise, prioritise and undertake a review of WLMP in Broads IDB SSSI's 3 SSSI over 5 years.	RSPB, BA and NWT	2018-23
32. Look for opportunities to create scrapes on wetland SSSI's. One per year.	RSPB, BA and NWT	2018-23

5.2.5.1 Current Status

Populations of the many wading bird species that breed on wet grasslands have historically undergone severe reductions in number and distribution, primarily as a result of this habitat loss and degradation.

In Europe, breeding waders have also been undergoing quite dramatic population declines in recent decades. For example, Snipe *Gallinago gallinago*, (61% decline) Curlew *Numenius arquata* (40% decline), Lapwing *Vanellus vanellus* (38% decline) and Redshank *Tringa totanus* (29% decline) all declined in England and Wales between 1982 and 2002 (Eglington, 2008).

The recent European Red List of Birds has listed both Blacktailed Godwit *Limosa limosa* and Ruff *Philomachus pugnax* as Endangered (EN), while Eurasian Oystercatcher, Northern Lapwing *Vanellus vanellus*, Eurasian Curlew *Numenius arquata* and Common Redshank *Tringa totanus* have been listed as Vulnerable (VU).

5.2.5.2 Priority Habitats within the Broads IDB area beneficial to Breeding Waders

- Coastal and Floodplain Grazing marsh
- Fen

5.2.5.3 Threats in Norfolk

- Inappropriate water level management
- Agricultural practices; overstocking of animals, nutrient enrichment, compaction of soils
- Lack of open areas of wet mud near to suitable nesting sites.



Above image: Halvergate Marshes © Mike Page

5.2.5.4 Legal Status

Areas for Birds or internationally designated wetland habitats (RAMSAR sites). These sites are protected under the Conservation of Habitats and Species Regulations (2017). The Broads IDB is responsible for the Water Level management and the production of Water Level Management Plans for each of these SSSI sites. All breeding birds are covered generally by the Wildlife and Countryside Act (1981) as amended by the CROW Act 2000.

5.2.6 Grasswrack Pondweed

Grasswrack Pondweed is a rooted aquatic with long (up to 20cm) and narrow 5-veined leaves. It is a species of still or slow flowing, calcareous mesotrophic water such as rivers, drainage dykes and lakes. It is an annual plant but flowers and fruits sparingly. New plants are generally formed vegetatively from turions (reduced branches) which fall to the sediment during autumn.

BROADS IDB OBJECTIVE

L. To maintain and where possible increase the range of Grasswrack Pondweed within the Boards' area.

Table 16: Broads IDB Grasswrack Pondweed Action Plan

ACTION	PARTNERS	DATE
33. Continue annual monitoring of the species in South Walsham and Upton Marshes.	BESL, NWT, J.Halls and Landowners	Ongoing
34. Continue management timings and practices as they currently stand for the species.	Staff and NWT	Ongoing
35. Work in partnership with BESL and/or landowners to carry out some clearance work on the soke dyke and new dyke system whilst our machine is in the area to maintain the current habitat.	BESL, Landowners and J.Halls	Ongoing

5.2.6.1 Current Status

The distribution of this species is concentrated in central England, the Welsh borders and the Norfolk Broads. It has been reported in Scotland, but a 2003 publication suggested that there were 11 extant sites in Britain. More recently, the species has been confirmed in the Trent and Nene, suggesting that *P. compressus* is re-colonising or has managed to survive in the East Midlands river network. A report by English Nature (2002) describes this species as being restricted to two sites within the Norfolk Broads: within a ditch at Upton Fen at the edge of the Norfolk Wildlife Trust Reserve (TG3813) and within a ditch at South Walsham Marshes (TG3714). Baseline surveys of rare and scarce plants within the South Walsham Marshes were commissioned by BESL in 2004, in advance of flood defence improvement works; these recorded grass-wrack pond weed in parts of the soke dyke and adjoining marsh dykes.

5.2.6.2 Priority Habitats within the Broads IDB area beneficial to Grasswrack Pondweed

- Coastal and Floodplain Grazing marsh

5.2.6.3 Threats in Norfolk

- Eutrophication of its aquatic habitats and lack of appropriate management; the species is thought to be unable to compete when shaded out by other plants;
- Neglect and drying out of canals and ditches;
- Saline incursion into drainage ditches;
- Inappropriate management of drainage dykes.

5.2.6.4 Legal Status

In Great Britain, this species is classified as *Endangered*. It receives general protection under the Wildlife and Countryside Act 1981 (as amended).



5.2.7 Floating Water Plantain

Floating Water Plantain is a slender aquatic perennial, with long-stalked elliptical floating leaves. The flowers are about 15mm across, with three white petals each with a yellow spot. Found in canals and other quiet waters.

BROADS IDB OBJECTIVE

M. Monitor and maintain the Broadland population of Floating Plantain and explore opportunities for translocation to other sites.

Table 17: Broads IDB Floating Water Plantain Action Plan

ACTION	PARTNERS	DATE
36. Write a management plan for the species	NE, J.Halls and Landowners	2018-19
37. Sensitively manage the Luronium dyke system under licence and supervision from NE, to improve the habitat for the species. This can be done whilst undertaking IDB watercourse maintenance.	NE, J.Halls and Landowners	2020
38. Monitor the plants at Potter Heigham	J.Halls	2019-23
39. Work with partners to find an appropriate translocation site for the plant, within Broadland.	Landowners, J.Halls, NE and BA	2020-22

5.2.7.1 Current Status

The distribution of this plant is localised in the UK, with records from Wales, the West Midlands, northern England and Scotland. According to data published on the Biodiversity Action Reporting System (BARS) as part of the 2008 Defra reporting round, *Luronium natans* was recorded from 55 sites in the UK (18 in England; 36 in Wales; and one in Scotland). A recent national assessment of the available data by Lockton (2008) has suggested that the total number of extant sites is increasing.

L. natans has been recorded from the Potter Heigham area since the 1950s, and this is currently the only known site of the species in the county. *L. natans* was also recorded from Calthorpe Broad in the 1970s, but there have been no recent records.

A recent survey in 2016 found there to be several plants within the localised dyke system on the Potter Heigham Marshes.

5.2.7.2 Priority Habitats within the Broads IDB area beneficial to Floating Water Plantain

- Coastal and Floodplain Grazing marsh

5.2.7.3 Threats in Norfolk

- Intensive dyke maintenance
- Lack of channel management
- Poor water quality
- Intensive horse poaching at the site

5.2.7.4 Legal Status

Floating water-plantain is one of the most highly protected plant species in Britain. It is listed on Annexes II and IV of the Habitats Directive and protected under Schedule 4 of the Conservation of Habitats and Species Regulations 2017 and Schedule 8 of the Wildlife and Countryside Act 1981.



5.2.8 Great Tassel Stonewort

Great Tassel Stonewort is an aquatic charophyte species of clean alkaline ditches. It is a large stonewort with stems up to 40cm long. It has whorls of branches, some of which are incurved, bending back toward the stem. These form dense ball-like heads. It prefers deep water and will benefit from periodic disturbance and often occurs in quantity after ditch clearances.

BROADS IDB OBJECTIVE

N. To maintain and where possible increase the range of Great Tassel Stonewort within the Boards' Area.

Table 18: Broads IDB Great Tassel Stonewort Action Plan

ACTION	PARTNERS	DATE
40. Carry out maintenance work appropriate to Great Tassel Stonewort in the Cess Road area.		Ongoing
41. Continue the annual monitoring programme for the species in the Cess Road area.	NE	Ongoing
42. Carry out surveys after capital works involving drain reprofiling	NE	Ongoing

5.2.8.1 Current Status

The species has been identified at only a few sites in England since 1970; namely in Cambridgeshire, Gloucestershire and Somerset. In Norfolk, the species was recorded at Cess Road Martham in 2006, 2007 and 2011.

5.2.8.2 Priority Habitats within the Broads IDB area beneficial to Great Tassle Stonewort

- Coastal and Floodplain Grazing marsh

5.2.8.3 Threats in Norfolk

- Lack of periodic disturbance eg ditch clearance, leading to overcrowding by other vegetation.
- Water enrichment by agricultural run off.

5.2.8.4 Legal Status

In the UK it is classified as endangered and received general protection under the Wildlife and Countryside Act 1981.

5.2.9 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.

In recent years, many of the waterways in 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 Broads 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.

BROADS IDB OBJECTIVE

- O.** To prevent the spread of Non Native Invasive Species during IDB operations.
- P.** To promote the prevention, control and eradication of Non Native Invasive Species.

Table 19: Broads IDB Non Native Invasive Species Action Plan

ACTION	PARTNERS	DATE
43. Continue to contribute to and work in Partnership with the Norfolk Non-Native Species Initiative	NNNSI	Ongoing
44. Maintain records for all species of concern using "That's Invasive!" app.	NNNSI, Staff and Contractors	Ongoing
45. Train staff regularly in key non-native species identification.	NNNSI, Staff and Contractors	Ongoing
46. 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 and Contractors	Ongoing
47. Regularly review and ensure robust biosecurity measures are being maintained across the Board.	Staff and Contractors	Ongoing

Table 20: Non-native Invasive Aquatic or Riparian Species of Significance to Norfolk

Common Name	Group	Scientific Name
Japanese Knotweed	Vascular plant	<i>Fallopia japonica</i>
Floating Pennywort	Vascular plant	<i>Hydrocotyl ranunculoides</i>
Giant Hogweed	Vascular plant	<i>Heracleum mantegazzianum</i>
Himalayan Balsam	Vascular plant	<i>Impatiens glandulifera</i>
Australian Swamp Stonecrop	Vascular plant	<i>Crassula helmsii</i>
Parrots Feather	Vascular plant	<i>Myriophyllum aquaticum</i>

5.2.9.1 Priority Habitats benefiting from Non-Native Invasive Species Action Plan (Table 18)

- Wet woodland
- Ponds
- Reedbeds
- Fen
- Rivers and Lakes
- Coastal and floodplain grazing marsh
- Lowland meadow
- Lowland dry acidic grassland
- Lowland heathland
- Purple Moorgrass and Rush Pasture
- Coastal Sand Dunes
- Mudflats
- Arable margins

5.2.9.2 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 Broads 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.



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

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	NBRC
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, as 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

BROADS 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.	Implement WLMP objectives for SSSIs within the Broads IDB area and identify opportunities elsewhere to restore or enhance reedbed.
C.	To implement restoration and WLMP objectives for Fen priority habitat within the Broads IDB area.
D.	To work closely with Norfolk Wildlife Trust, other partners and consultants to ensure Wet Woodland is considered within the consultation process prior to maintenance, WLMP and Capital Scheme delivery, with a view to maintain, enhance and restore the current extent of wet woodland in the Broads area.
E.	To explore infrastructure or pumping regime improvements at Boards pumps for the benefit of the Broadland's rivers and lakes.
F.	Undertake a review of water levels in catchments behind pumping stations with a view to informing water quality management within the Upper Thurne system.
G.	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.
H.	To contribute toward the Eel Regulations (2009) and the Eel Management Plan.
I.	To continue to enhance the range and population of Barn Owls by maintaining or enhancing habitat availability, within the catchment area.
J.	To continue to enhance the range and population of Kestrel by maintaining or enhancing habitat availability and nesting opportunities within the catchment area.
K.	To work in partnership to enhance wet grassland for breeding waders within the Boards' area.
L.	To maintain and where possible increase the range of Grasswack Pondweed within the Boards' area.
M.	Monitor and maintain the Broadland population of Floating Plantain and explore opportunities for translocation to other sites.
N.	To maintain and where possible increase the range of Great Tassle Stonewort within the Boards' Area.
O.	To prevent the spread of NNIS during IDB operations.
P.	To promote the prevention, control and eradication of NNIS.

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
REEDBEDS			
2.	Map areas of reedbed within the Broads IDB area.	BA, NE, EA and Landowners	2018
3.	Continue to work in partnership with stakeholders to ensure sympathetic Water Level Management principles can be applied.	RSPB, NE and BA	2018-23
4.	Identify potential sites for habitat restoration and expansion within the Broads IDB area during WLMP and Capital Scheme delivery.	NRT, NE, EA and Landowners	2018-23
5.	Participate within the Broads Biodiversity Partnership	BA	2018-23
FENS			
6.	Map areas of fen within the Broads IDB catchment area.	NBIS, NE and BA	2018
7.	Continue to work in partnership with stakeholders to ensure sympathetic Water Level Management principals can be applied.	RSPB, NE, BA, NWT, and Landowners	2018- 2023
8.	Participate within the Broads Biodiversity Partnership	BA	2018
9.	Work in partnership with others to consider opportunities for Fen management and rehabilitation	NWT, NE, EA, BA and Landowners	2018- 23
10.	Work in partnership with others to implement Fen Restoration within the Broads IDB area whilst undertaking WLMP objectives and Capital projects.	NWT, NE, EA, BA and Landowners	2018-23

ACTION		PARTNERS	DATE
WET WOODLAND			
11.	Carry out a desk study audit of wet woodland locations in the Broads IDB area.	NWT	2018
12.	Consult Norfolk Wildlife Trust 100% time prior to work through or near County Wildlife Sites.	NWT	2018
13.	Include wet woodland conservation in all aspects of IDB maintenance, WLMP and Capital scheme delivery with a view to enhancement and restoration.	NE, NWT, EA, NT and NCC	2018
RIVERS AND LAKES			
14.	Continue to contribute to funding the Pymnesium research project in partnership with the John Innes Centre.	John Innes Centre	2018 - 23
15.	Work in partnership with the EA to maintain a flow from the pumps on the Upper Thurne during times of high saline flows up the Thurne River.	EA, Local Angling Clubs	As required
16.	Install a pile to monitor future peat shrinkage on agreed catchments on the Upper Thurne.	NE and Landowners	2018
17.	Review water levels at pumping stations and ensure they are calibrated via GIS verification and recorded.		2018-19
18.	Produce a prioritised list of WLMP review requirements from pumping stations within the Upper Thurne system.		2018-19
WATER VOLE			
19.	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.		2018-23

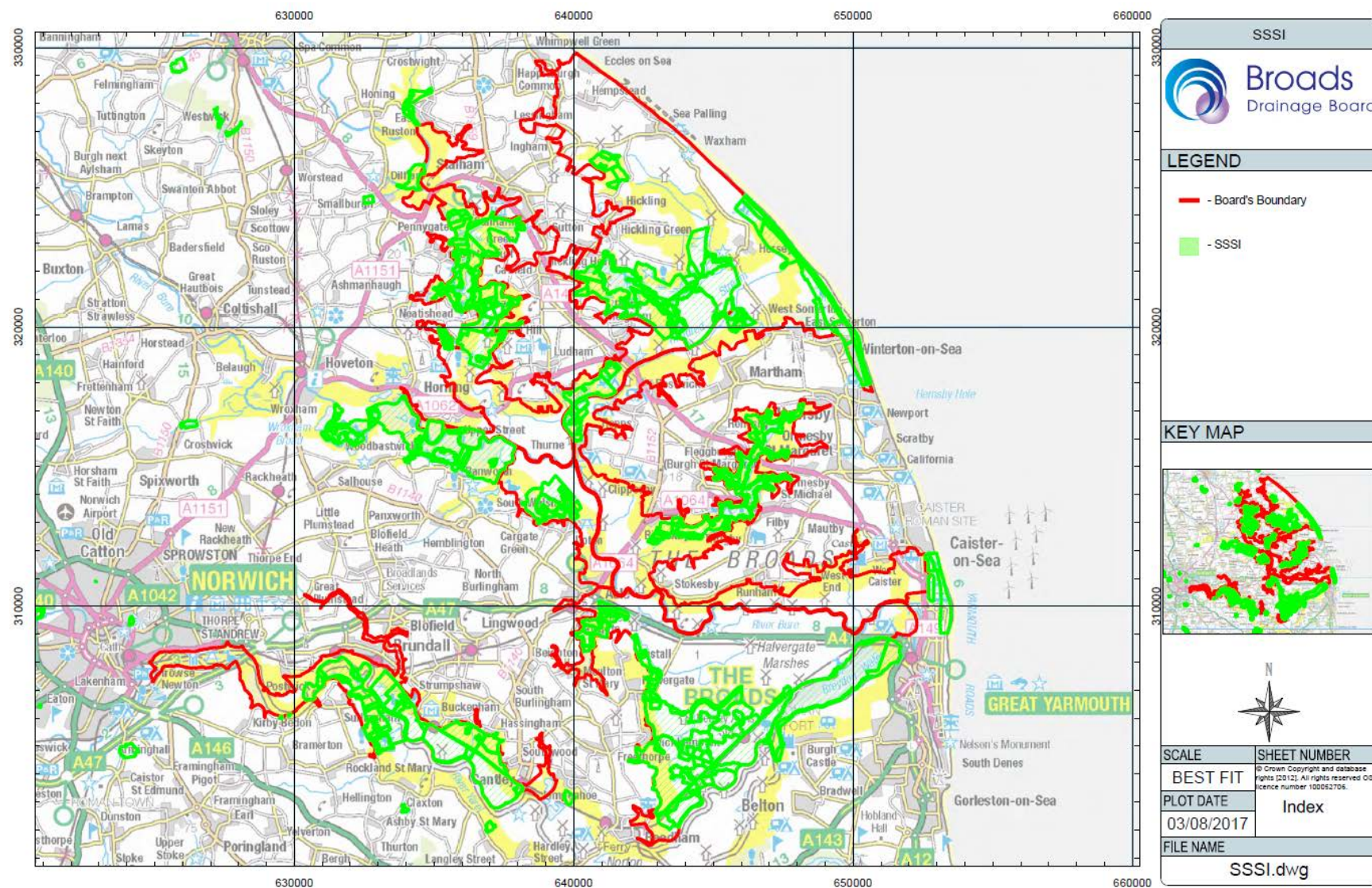
20.	Send Water Vole survey records to the Norfolk Biodiversity Records Centre.	NBIS	Ongoing
21.	Continue to work in partnership on the Norfolk Mink Control Project.	NNNSI	Ongoing
22.	Take opportunities to enhance Water Vole habitat where appropriate during Capital or river/wetland restoration schemes.	NE, EA, Landowners, NWT	Ongoing
EEL			
23.	Work in Partnership with the Environment Agency to assess the current status of Eel populations within the Board's Area.	EA, ZSL	Ongoing
24.	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			
25.	Continue to contribute to the maintenance and monitoring of nest boxes within the Broads IDB area via the Wildlife Conservation Partnership.	WCP	Ongoing
26.	Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff, Contractors	Ongoing
KESTREL			
27.	Continue to contribute to the maintenance and annual monitoring of nest boxes within the Broads IDB area via the Wildlife Conservation Partnership.	WCP	Ongoing
28.	Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff, Contractors	Ongoing

ACTION		PARTNERS	DATE
BREEDING WADERS			
29.	Continue to work in partnership with stakeholders to look for opportunities, where appropriate, to enhance grazing marshes by appropriate water level management practice.	RSPB, BA, NWT	Ongoing
30.	Undertake capital improvement to improve freshwater availability to the Halvergate SSSI.	RSPB, BA, NWT	2018-20
31.	Where funding opportunities arise, prioritise and undertake a review of WLMP in Broads IDB SSSI's over 5 years.	RSPB, BA, NWT	2018-23
32.	Look for opportunities to create scrapes on wetland SSSI's. One per year.	RSPB, BA, NWT	2018-23
GRASSWRACK PONDWEED			
33.	Continue annual monitoring of the species in South Walsham and Upton Marshes.	BESL, NWT, J.Halls & Landowners	Ongoing
34.	Continue management timings and practices as they currently stand for the species.	Staff & NWT	Ongoing
35.	Work in partnership with BESL and/or landowners to carry out some clearance work on the soke dyke and new dyke system whilst our machine is in the area to maintain the current habitat.	BESL, Landowners & J.Halls	Ongoing
FLOATING WATER PLANTAIN			
36.	Write a management plan for the species	NE, J.Halls & Landowners	2018-19
37.	Sensitively manage the Luronium dyke system under licence and supervision from NE, to improve the habitat for the species. This can be done whilst undertaking IDB watercourse maintenance.	NE, J.Halls & Landowners	2020
38.	Monitor the plants at Potter Heigham	J.Halls	2019-23
39.	Work with partners to find an appropriate translocation site for the plant, within Broadland.	Landowners, J.Halls, NE, BA	2020-22

ACTION		PARTNERS	DATE
GREAT TASSLE STONEWORT			
40.	Carry out maintenance work appropriate to Great Tassle Stonewort in the Cess Road area.		Ongoing
41.	Continue the annual monitoring programme for the species in the Cess Road area.	NE	Ongoing
42.	Carry out surveys after capital works involving drain reprofiling	NE	Ongoing
NON NATIVE INVASIVE SPECIES			
43.	Continue to contribute to and work in Partnership with the Norfolk Non-Native Invasive on Invasive control projects.	NNNSI	Ongoing
44.	Maintain records for all species of concern using "That's Invasive!" app.	NNNSI, Staff, Contractors	Ongoing
45.	Train staff regularly in key non-native species identification.	NNNSI, Staff, Contractors	Ongoing
46.	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
47.	Regularly review and ensure robust biosecurity measures are being maintained across the Board.	Staff, Contractors	Ongoing

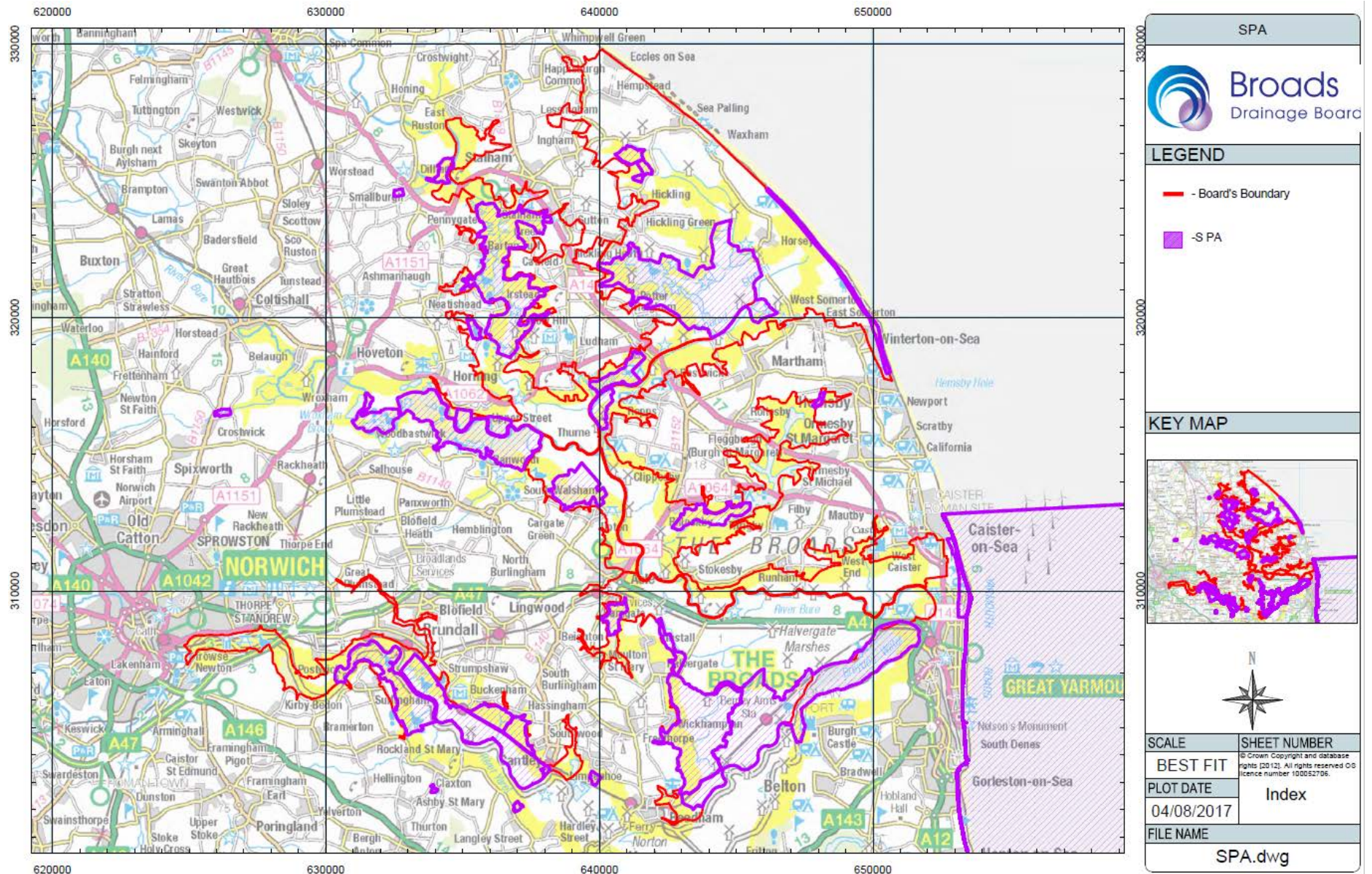
Appendix III: Nationally and Internationally Designated Nature Conservation Sites

i. Map of Sites of Special Scientific Interest.

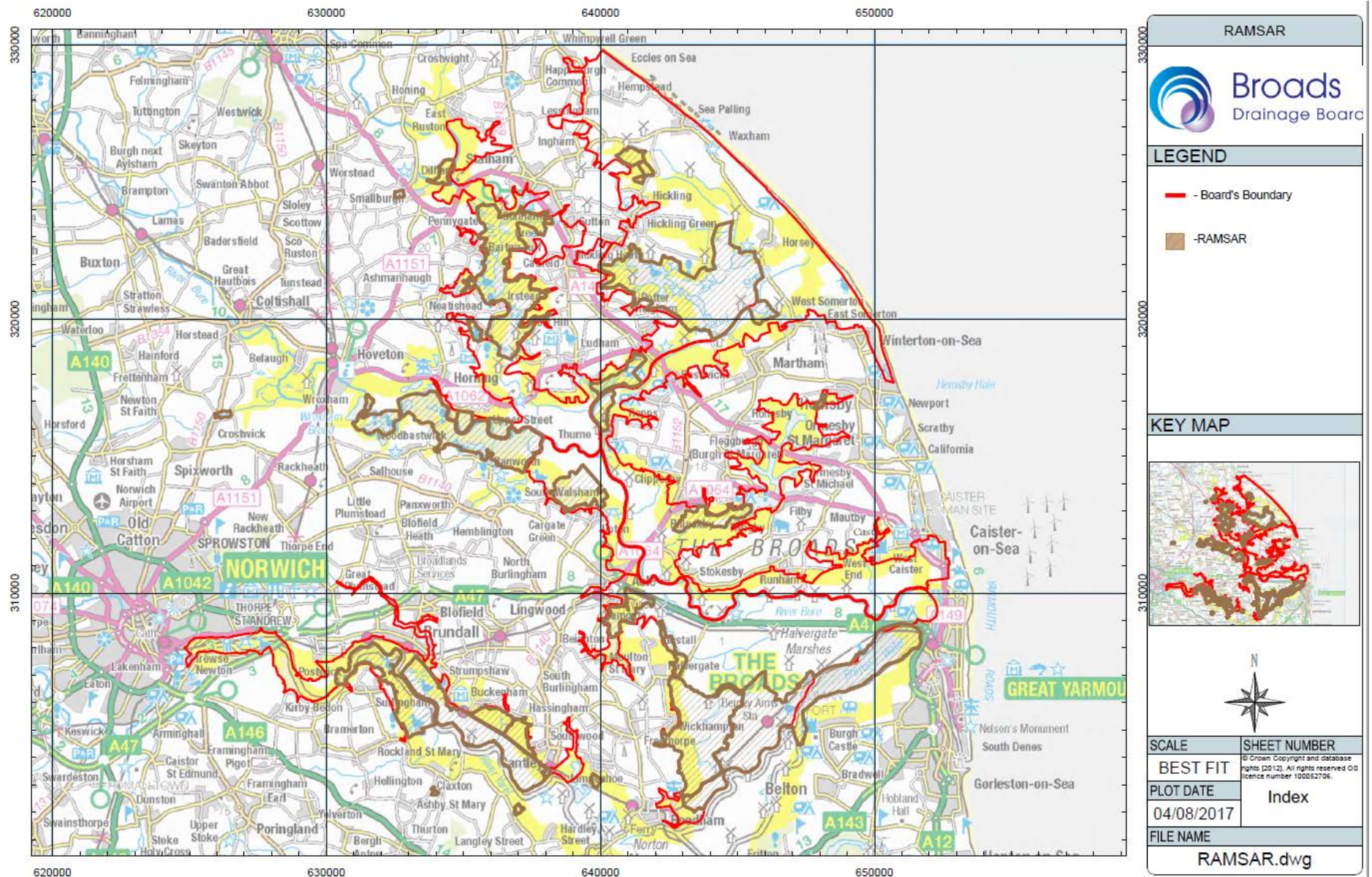




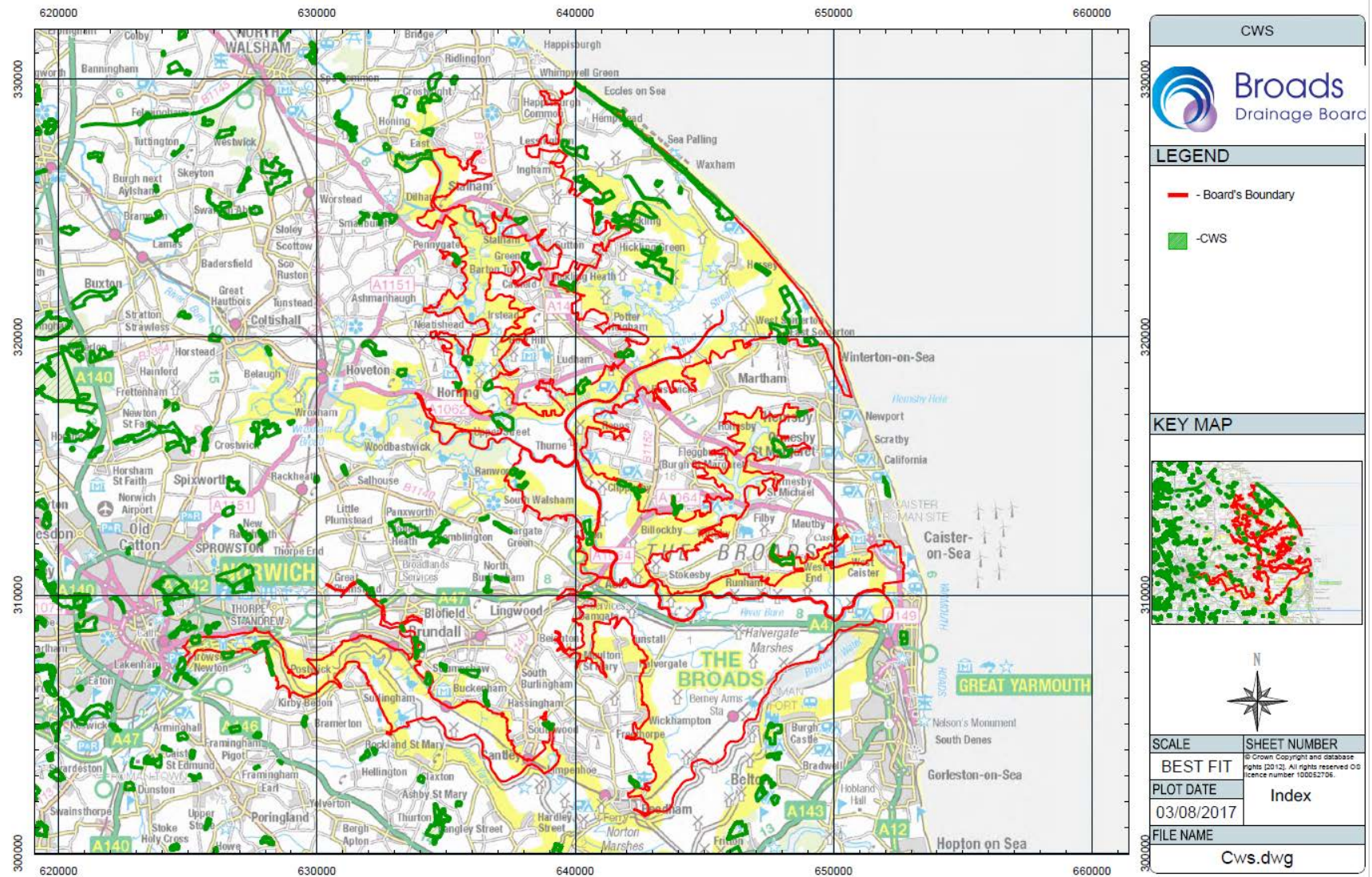
iii. Map of Special Protection Areas



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:

Broads Internal Drainage Board
Kettlewell House
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PE30 1PH

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



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