Waveney, Lower Yare and Lothingland Drainage Board

Waveney, Lower Yare and Lothingland Internal Drainage Board

Biodiversity Action Plan

2022-2027

Cover Photo: Peto’s Marsh taken by John Lord

1. Statement

This Biodiversity Action Plan (BAP) has been prepared by the Waveney, Lower Yare and Lothingland Internal Drainage Board in accordance with the commitment in the Implementation Plan of the Defra Internal Drainage Board Review of 2007 for internal drainage boards (IDBs) to produce their own Biodiversity Action Plans. It demonstrates the Board's commitment to fulfilling its duty as a public body to conserve and enhance biodiversity under various legislation and policy including, but not limited to, the Environment Act 2021, the Natural Environment and Rural Communities Act 2006, the 25 Year Environment Plan and Water Framework Directive.

Importantly, it reflects the Board's aspiration to maximise the support it provides to biodiversity, particularly priority UK species and habitats, and the wider environment in general through its day to day activities, by setting clear objectives, actions and targets.

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

…… Date ……01/02/2022…….

Mr. Hamish Thomson-Carrie

Chairman – Waveney, Lower Yare and Lothingland Internal Drainage Board

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

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

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

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2. Introduction

2.1. What is Biodiversity and why is it important?

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.

Biodiversity is part of our natural capital, a vital resource providing:

- Supply of ecosystem services including water, nutrients, climate change mitigation, flood mitigation, carbon storage and pollination;
- Life resources including 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.

This Biodiversity Action Plan is part of a much larger biodiversity framework that encompasses international, national and local levels of legislation and policy and which also include ecosystem services and climate change.

2.2. Legislative Background

When carrying out its functions, an IDB must pay particular regard to the effect on the environment. Some environmental legislation relates specifically to maintaining or restoring the condition of protected sites or protecting certain species, but there are also statutory duties for IDBs to conserve and enhance biodiversity in and alongside the watercourses they manage and the wider landscape.

The Natural Environment and Rural Communities Act 2006 places a duty on IDBs to conserve biodiversity. The Environment Act 2021, extends this duty on IDBs to also enhance biodiversity and report periodically on its actions. Therefore, as a public authority, every IDB must consider what action it can take, consistently with the proper exercise of its functions, to further the conservation and enhancement of biodiversity in England.

Below is a list of key environmental legislation (by no means an exhaustive list) relevant to the work of IDBs:

- The Environment Act 2021
- Conservation of Habitats and Species Regulations 2017
- Eels (England and Wales) Regulations 2009

- Water Environment (Water Framework Directive) (England and Wales) Regulations 2003
- Natural Environment and Rural Communities Act 2006 (Section 40)
- The Environmental Impact Assessment (Land Drainage Improvement Works) (Amendment) Regulations 2017
- Land Drainage Act 1994
- Wildlife and Countryside Act 1981 (as amended)
- The Countryside and Rights of Way Act 2000
- The Protection of Badgers Act 1992
- Flood and Water Management Act 2010
- Salmon and Freshwater Fisheries Act 1975

2.3. Policy & Strategic Background

In 1992 at the United Nations Conference on the Environment and Development, commonly known as the Rio Earth Summit, the UK signed the Convention on Biological Diversity which pledged its commitment to contribute towards halting the worldwide loss of habitats and species and their genetic resources. At the 2010 biodiversity summit in Nagoya, Japan, the UK re-affirmed this commitment and the "Biodiversity 2020" white paper was developed setting out how those commitments would be put into action.

The 2010 report by Sir John Lawton "Making Space for Nature" set out that ecological networks were required in order to halt and reverse the declines seen in many threatened species and habitats. The report succinctly made clear that these ecological networks needed to be bigger, more frequent, better in quality, and more joined up in order to be successful in their ambitions.

The concept of Nature Recovery Networks featured in the Government's Biodiversity 2020 strategy (2011) and 25 Year Environment Plan (2018). The Environment Act 2021 and the development of Local Nature Recovery Strategies (LNRS) expands this concept by also take into account the value of the ecological services provided by non-priority species and habitats such as the carbon sequestration of wetlands, the flood alleviation of tree-planting in the uplands and the wellbeing benefits brought about by green space. As such, this BAP presents the actions planned by the IDB to support both priority and non-priority species.

International reports such as by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have found that climate change in particular is considered to be one of the biggest threats to our biodiversity now, and in the future. Supporting the continuity, connectivity and quality of habitat through management, restoration and expansion may help even the less mobile species to adapt more easily to climate change. This BAP presents the actions the IDB can take to support climate resilience for biodiversity.

2.4. Purpose

This BAP has been produced to demonstrate how the IDB fulfils its legal obligations to conserve and enhance biodiversity and sets out targets and actions that contribute to local, national and international strategies and policies.

While the IDB has a statutory duty to have regard for the environment whilst carrying out their functions, for example on or within drainage assets such as watercourses and their banks, the IDB has also to give consideration to how they can contribute to the enhancement of the wider environment.

It is not within the scope of this document to set out the IDBs' objectives and actions in relation to wider environmental topics, such as reducing carbon emissions or reducing waste. However, strategies to address such topics may be mentioned in connection to the enhancement of habitats and species, such as peatland restoration and carbon sequestration.

The opportunity to work together to support and enhance biodiversity in partnership with other organisations is sought wherever possible, as the IDB recognises the additional value working in such ways can bring to the overall objectives.

The intention is that biodiversity is fully integrated into the Board's activities, policies and procedures such as annual maintenance programs, capital works projects, training and communications.

2.5. Vision

The IDB's vision is:

A drainage district where thriving wildlife is an integral part of delivering efficient and effective water-level management

2.6. Aims

The aims of this BAP are:

- 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.
- 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 and fully considered throughout the IDB'S operations, and

- To monitor and report on progress in biodiversity conservation.

3. The IDB BAP Process

3.1. The Biodiversity Audit

The Waveney, Lower Yare and Lothingland IDB has conducted a biodiversity audit of its drainage district (Figure 1) and identified those habitats and species that would benefit from particular management or actions by the IDB.

This BAP focuses on nationally important priority habitats and species, that is to say those that have been deemed of 'principal importance' in England under the NERC Act 2006. However, those that are not priority species or habitats, but may be locally significant for a variety of reasons have also been considered. Invasive non-native species have also been included.

The information gathered, which is presented in later sections, has been used to develop this IDB's Biodiversity Action Plan.

3.2. Objectives, Targets and Actions

For each relevant habitat and species, conservation objectives have been identified. The action plan then details individual actions required to achieve the objectives, and associated monitoring and reporting of progress and impact.

In order for this BAP to be as effective as possible the targets and actions have been devised to be SMART (Specific, Measurable, Achievable, Relevant and Time-limited).

Procedural targets and actions have also been considered allowing the Board 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.

3.3. Monitoring and Reporting

Monitoring is the on-going process of regularly collecting and analysing relevant information to make sure the actions within the Plan are positively contributing towards the targets and to capture any additional benefit achieved. The Plan sets out how and when this monitoring will take place for example, to regularly review the progress of actions against the plan at Board meetings throughout the life of the plan.

The frequency and type of information reported is also defined by the Plan and includes the publication of progress reports in the public domain via the IDB's website and in accordance with the duty set out in the Environment Act 2021.

The overall plan will be updated at least every 5 years but as this is a dynamic document it may change more frequently. For example, in the light of routine monitoring, changes may be necessary to ensure an objective can be met.

4. The Biodiversity Audit

4.1. The Waveney, Lower Yare and Lothingland Internal Drainage District

The drainage district covers an area of 157km2 and contains approximately 400km of IDB-maintained watercourses. It is located along the Waveney Valley and encompasses the various tributaries of the River Waveney. The River Waveney forms the county divide between Norfolk and Suffolk, therefore the district is split between these counties. It can be simply divided into the following section; Waveney Valley (Suffolk and Norfolk), Lower Yare (Norfolk, and Lothingland (Suffolk).

The following outlines the key details of the District:

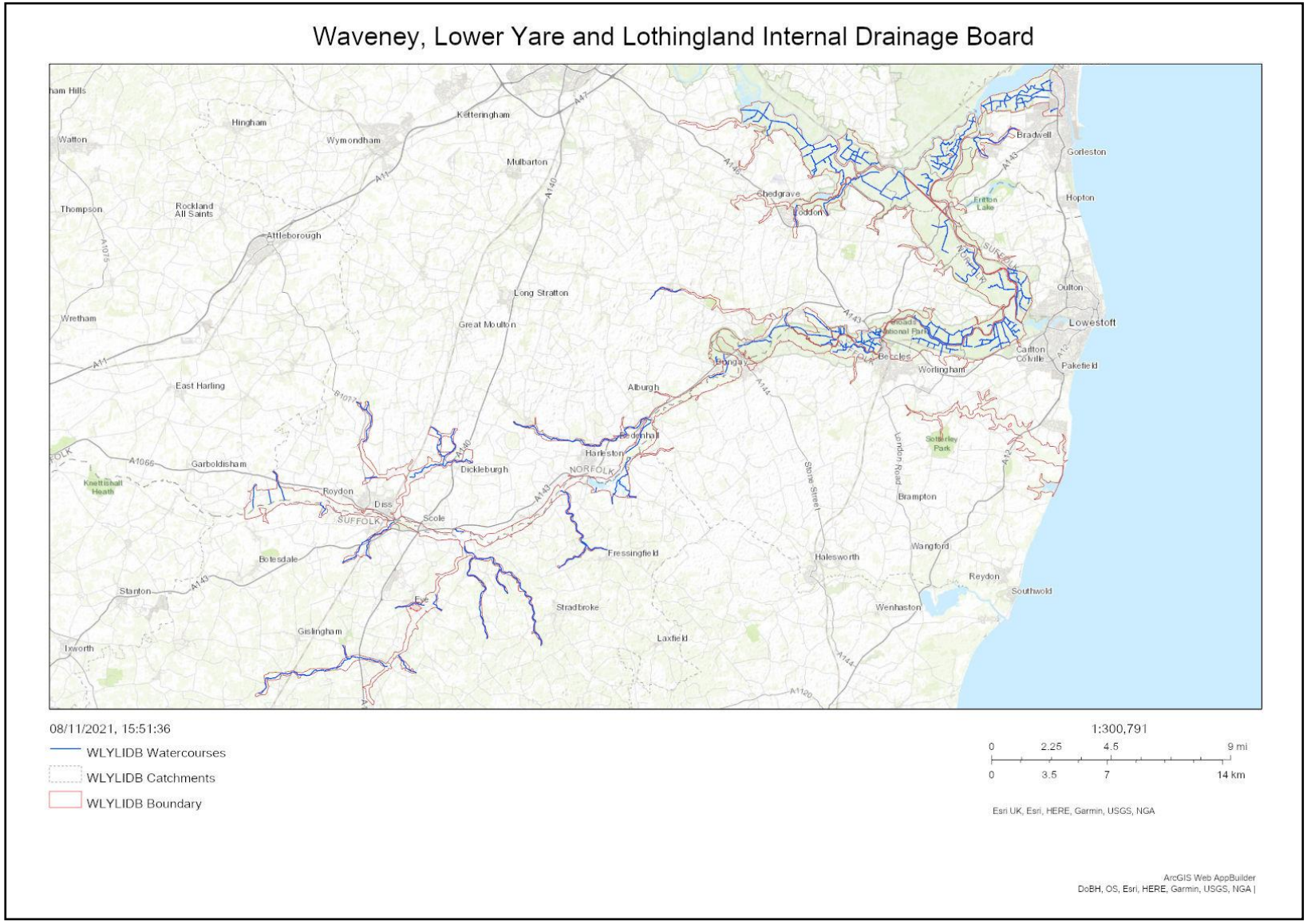
- Total area of the drainage district: **14,770 ha**
- Catchment area draining to and including the District: **13,442 ha**
- Area of agricultural land: **13,056 ha**
- Area of other (non-agricultural) land: **1714 ha**
- Area of Designated Wildlife sites (SSSIs): **620 ha**

Assets for which the Board has operational responsibility:

- Water level control structures: **53**
- Watercourses (maintained): **113,747 m**
- Raised embankments: **TBC**
- Reservoirs: **1 (flood storage lagoon at Burgh Castle marshes)**
- Sustainable drainage systems (SuDS): **None**
- Pumping Stations: **20**

4.2. Map of Audit Area (Drainage District)

Figure 1. Waveney, Lower Yare and Lothingland Internal Drainage District (*OS Licence : 100047016*)



4.3. Geology

The geology of the Waveney, Lower Yare and Lothingland IDB district is dominated by alluvium with some pockets of sand and gravel deposits occurring on the valley sides of the Waveney and its tributaries to the east and west of Diss. The whole valley system was formed by glacial outwash at the end of the great Anglian Glaciation, but parts of it, particularly of the Waveney, seem to overlie deposits associated with a pre-Anglian river known to geologists as the Bytham River.

The flat valley bottom has had a history of poor drainage leading to the deposition of extensive peat deposits. In the Waveney valley these deep bands of river valley peat are generally narrow from Redgrave eastward to Mendham, but broaden out from there to Barnby. A distinct and isolated area of peat occurs in the western area which corresponds with Bressingham and Roydon Fen. Along the valley sides comprise of a variety of deep well drained sandy and coarse loamy soils, some isolated areas of permeable calcareous clayey soils and waterlogged clays such as along the Dove valley.

4.4. 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. For each NCA, there is a prepared profile that characterizes the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The Waveney, Lower Yare and Lothingland IDB district falls under three of these NCA's, The broads (Area 80), Suffolk Coast and Heaths (Area 82) and South Norfolk and High Suffolk Clayland (Area 83). A map of the NCA's can be found in Appendix 1.

<u>The Broads- 80</u>
The northern area of the drainage district which includes the Lower Yare and the Waveney Valley downstream of Bungay to Great Yarmouth is within the Broads NCA. The character of the Broads is very mixed, consisting predominantly of a contrast between large, open, grazing marshes and low-lying wetland which is made up of an intricate mix of Broads (flooded former peat diggings), waterways, reed swamp, fen and carr woodland. In the upper reaches of the river valleys, deciduous woodland, copses and hedgerows give an intimate pastoral character which is more akin to the small valleys incised into the East Anglian glacial till.

<u>Suffolk Coast and Heaths- 82</u>
The Lothingland area of the drainage district that encompasses the Hundred River is situated within the Suffolk Coast and Heath NCA. This area is geologically different from the rest of East Anglia; Crag deposits form deep free-draining acidic sands and gravels, easily worked, giving rise to distinctive topography and landcover. Largely an unspoilt mosaic of estuaries, saltmarsh, intertidal mudflats,, grazing marsh, reedbed, river valleys, arable, heath and woodland, with string coastal influence, e.g. shingle spits and ridges resulting from longshore drift. The northern part of the area, around Great Yarmouth, Gorleston, Lowerstoft and Kessingland, is heavily influenced by the resident urban population and the seasonal influx of tourists. Nonetheless, within the predominantly arable landscape around there towns there are important features.

South Norfolk and High Suffolk Clayland- 83

The Waveney Valley area of the IDB to the west of Beccles falls within the South NORFOLK AND High Suffolk Clayland NCA. This area is composed of a chalky boulder clay plateau with little relief, except where incised by small rivers and streams and the river Waveney. It is slightly undulating land with a more varied topography along the valley sides, where small wooded valleys fringing the Coast and Heaths area and the open, arable plateau. The river valleys are a mixture of arable and pasture land, in general forming a mix of remnant medieval Ancient Countryside (irregular small fields with pollard hedgerow oaks), early coaxial field patterns (east of Scole) and large modern fields devoid of hedges and trees. Settlement comprises of small isolated landholding and estates, with small villages and nucleated market towns.

4.5. Landscape Designations

The Waveney, Lower Yare and Lothingland IDB has two landscape designations within its drainage district.

The Broads:

The Broads are made up of flooded peat pits dug in medieval times that are now reed fringed lakes, many of which are connected to the five rivers that flow through the Broads by dykes. The Broads consists of fens, slow, winding waterways, wet, tangled woodlands, and acres of marshes. They extend from Norwich to Lowestoft and total over 201km of navigation waters, covering an area of some 300km2. It is the largest protected wetland and third largest inland waterway in the UK.

Suffolk Coast and Heaths AONB:

Stretching south from Lowestoft to the river Stour, the AONB protects heathland, reed beds, salt-marsh and mud-flats, a rich mixture of unique and vulnerable lowland landscapes, all of which are under pressure of change.

It is deeply indented by the estuaries of the Blyth, Alde, Deben, Orwell and Stour and bounded by the crumbling cliffs and tidal spits of the North Sea coastline. This is one of the most important wildlife areas in Britain including three National Nature Reserves, many Sites of Special Scientific Interest and the RSPB's Minsmere Reserve. The mud-flats and creeks of the AONB's salt-marsh-fringed estuaries contain wildlife wetland sites of national and international importance, many of which are Ramsar sites and Proposed Special Areas of Conservation and Special Protection Areas.

The low-lying coastal hinterland contains some of England's few remaining areas of ancient open heathland, including the Sandlings whose wild sandy stretches are a vanishing refuge of the nightjar, woodlark, and rare heath butterflies.

4.6. Sites and Monuments

A table of relevant Sites and Monuments within the IDB Boundary can be found in Appendix 2.

4.7. Tree Preservation Orders

A total of 23 groups of trees, and 62 individual tree Tree Preservation Orders across the Great Yarmouth, East Suffolk, Mid Suffolk, and Broads Authority Districts.

4.8. Statutory Nature Conservation Sites

4.8.1 Internationally Designated Sites

The following internationally-designated conservation sites, relevant to the water level management* and/or maintenance activities of the IDB, are found within or adjacent to the drainage district. Maps displaying the Internationally Designated Sites within the IDB Boundary can be found in Appendix 3.

Table 1. Internationally designated sites within or adjacent to the IDB boundary

Site name	Designation	Associated WLMP?*	Features Relevant to IDB
Benacre to Easton Bavents	SPA	No	Comprises of 3 broads that are natural brackish lagoons separated from the sea by a shingle bar, reed-fringed on the landward side and then grading into deciduous woodland. Include semi-natural broadleaved woodland, tall fen vegetation, shingle, dunes and grassland, saltmarsh and coastal lagoons. The habitats are important for breeding, wintering and passage birds.
Benacre to Easton Bavents Lagoons	SAC	No	A series of percolation lagoons on the east coast of England, formed behind shingle barriers. The lagoons show a wide range of salinities, including the extremely low salinity at Easton Broad.
Breydon Water	Ramsar, SPA	Yes, Burgh Castle WLMP	Inland tidal estuary at the mouth of the River Yare and its confluence with the Rivers Bure and Waveney and an adjacent area of drained floodplain. Extensive areas of mudflats that are exposed at low tide and these form the only tidal flats on the east coast of Norfolk. A large area of lowland wet grassland and is internationally important for wintering waterfowl.
Broadland	Ramsar, SPA	Yes, Limpenhoe WLMP	Mosaic of wetland habitats including open water, reedbeds, carr woodland, grazing marsh and fen meadow. International importance for a variety of wintering and breeding raptors and waterbirds.
Redgrave and South Lopham Fens	Ramsar	No	Extensive area of spring-fed valley fen in the headwaters of the River Waveney, saw sedge beds, purple-moor grasslands, peatlands, freshwater marshes. Wetland species such as butterwort, round-leaved sundew, black bog-rush and cross-leaved heat, Fen Raft spider, breeding bearded tit and snipe.
The Broads	SAC	Yes, Geldeston, Gillingham, Long	A system of lakes and ditches in areas of fen, drained marshlands, wet woodlands,

		Dam and Short Dam WLMP, Claxton and Langley WLMP, Barnby WLMP, River Waveney WLMP	naturally nutrient-rich lakes. A wide arrays of rare flora and fauna including the Fen Orchid, Desmoulin's Whorl Snail, Little whirlpool ram's-horn snail, and Otters.
+Waveney and Little Ouse Valley Fens	SAC	No	Calcareous fens, spring-fed valley fen, purple moor-grass. The valley fen supports a population of Desmoulins whorl snail.

*Further information regarding Water Level Management Plans (WLMPs) are given later in the document

4.8.2 Nationally Designated Sites

The following nationally-designated conservation sites, relevant to water level management and/or maintenance activities of the IDB, are found within the drainage district. Maps displaying the Nationally Designated Sites within the IDB Boundary can be found in Appendix 4.

Table 2. Nationally designated sites within or adjacent to the drainage district

Site name	Designation	Component of an International Site	Associated WLMP?*	Features Relevant to IDB
Barnby Broad and Marshes	SSSI	Broadland, SPA, Ramsar The Broads, SAC	Yes, Barnby WLMP	Varied area of open water, carr woodland, fen, grazing marsh and dykes
Benacre	NNR	No	No	Brackish lagoons and marshes, freshwater marshes, Isolated saline lagoons
Breydon Water	SSSI	Breydon Water, SPA, Ramsar	Yes, Burgh Castle WLMP	Extensive area of grazing marsh that has been subject to varying degrees of drainage, reedbeds, brackish water communities
Ducan's Marsh, Claxton	SSSI	Broadland, SPA, Ramsar The Broads, SAC	Yes, Claxton Langley WLMP	Wet valley grassland, calcareous fen, carr woodland
Geldeston Meadows	SSSI	Broadland, SPA, Ramsar The Broads, SAC	Yes, Geldeston, Gillingham, Long Dam and Short Dam WLMP	Traditionally managed grazing meadows, an area of Alder carr and a series of drainage dykes, wet meadow grassland
Gypsy Camp Meadows, Thrandeston	SSSI	No	No	Wet meadows, dry grassland
Hardley Flood	SSSI	Broadland, SPA, Ramsar The Broads, SAC	Yes, Claxton Langley	Shallow lagoons, reedbeds, fen, marsh and swamp – lowland

			WLMP	
Hoxne Brick Pit	SSSI	No	No	Earth Heritage site
Limpenhoe Meadows	SSSI	Broadland, SPA, Ramsar The Broads, SAC	Yes, Limpenhoe WLMP	Fen grassland with dykes, fenland peats, a network of dykes drains
Pakefield to Easton Bavents	SSSI	Benacre to Easton Bavents, SPA Benacre to Easton Bavents Lagoon, SAC	No	Fen, Marsh, Reedbed Lowland with mixed woodland
Poplar Farm Meadows, Langley	SSSI	Broadland, SPA, Ramsar The Broads, SAC	Yes, Claxton Langley WLMP	Small spring-fed calcareous fen situated on the edge of the flood-plain of the River Yare
Redgrave and Lopham Fen	SSSI, NNR	Waveney and Little Ouse Valley Fens, SAC Redgrave and South Lopham Fens, Ramsar	No	Spring-fed valley fen, marsh and swamp – lowland. Important habitat for the Schedule 5 Fen Raft Spider
Shelfanger Meadows	SSSI	No	No	Herb-rich, hay meadows. In addition, diverse marshy grassland has developed in seepage zones where springs emerge on the valley-side.
Sotterley Park	SSSI	No	No	Ancient semi-natural woodland, broadleaved, mixed and yew woodland-lowland
Sprat's Water and Marshes, Carlton Colville	SSSI	Broadland, SPA, Ramsar The Broads, SAC	Yes, Barnby WLMP	Spring-fed mixed fen, open water, alder carr, grazing marsh, peat pools
Stanley and Alder Carr's, Aldeby	SSSI	Broadland, SPA, Ramsar The Broads, SAC	No	Alder carr woodland, fen, marsh and swamp
Wortham Ling	SSSI	No	No	Lowland heath, acid grassland

4.8.3 Local Nature Reserves

The following Local Nature Reserves are relevant to the activities of the IDB are found within the drainage district.

Table 3. Local Nature Reserves within the drainage district

Site name	Associated WLMP?*	Features Relevant to IDB
Bath Hills (12 ha)	No	Sheltered south side of a steep valley, with early blooming spring flowers
Breydon Water (448 ha)	Yes, Burgh	An extensive area of grazing marsh that has been

	Castle WLMP	subject to varying degrees of drainage in recent years, supporting internationally and nationally important numbers of wintering wildfowl and wader species
Broome Heath (31 ha)	No	Grazing land located on Broome Marshes in the Waveney Valley
Roydon Fen (17 ha)	No	A valley fen that is incredibly wet most of the year with the spring-fed, deep peat soils permanently water-logged. Species including Reed and Sedge warbler, and Woodcock

4.8.4 Non-statutory Nature Conservation Sites

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites are important for their contribution to biodiversity and planning policy requires that they are given consideration by the LPA in forming any decision. The following relevant Local Wildlife Sites are to be found within or bordering the drainage district.

A total of 90 County Wildlife Sites are situated within the WLYLIDB district. A table displaying the details of these and a map displaying the Non-statutory Nature Conservation Sites within the IDB Boundary can be found in Appendix 3.

4.9. Habitat Audit Summary

This habitat audit summary lists the UK priority habitats that occur within the drainage district and are identified as likely to be influenced by the Board's activities. Also listed are habitats deemed to be of local importance and/or featured in local nature strategies that occur in the drainage district. Finally, brief notes are included on the potential for the IDB to maintain, restore or expand its important habitats. (A list of relevant Priority habitats can be found at https://jncc.gov.uk/our-work/uk-bap-priority-habitats/). Local status and extent have been synthesized from various sources, including Norfolk and Suffolk Baps.

Table 5. Habitat Audit Summary

National Priority Habitat	National Status & Extent	Local Priority Habitat	Local Status and Extent	Habitat of Importance for IDB	Extent, status and Location of Habitat of Importance within drainage district	IDB Potential for Maintaining, Restoring or Expanding Habitat (high/medium/low)
Coastal and floodplain grazing marsh	The exact extent of grazing marsh in the UK is not known but it is possible that there may be a total of 300,000 ha. England holds the largest proportion with an estimate in 1994 of 200,000 ha.	Coastal and floodplain grazing marsh	Norfolk Grazing marsh is an extensive habitat within Norfolk, estimated to cover some 29,500 ha. Individual blocks vary greatly in size, from 10 ha rising to 2,642 ha for Halvergate Marshes. Suffolk In Suffolk there is over 10.000ha of grazing marsh. The exact extent of wet coastal grazing marsh of nature conservation importance in Suffolk is not known but approximately 2,000ha of wet grassland occurs in SSSIs and CWS and livestock grazes most of this grassland, representing 20% of the total potential area of grazing marsh in Suffolk.	Grazing marsh and associated ditch systems	Throughout District	**High** IDB potential to maintain condition through sensitive management, and landowner partnerships for extending areas.
Lowland Calcareous Grassland	There are no comprehensive figures, but a sample of chalk	Lowland Calcareous Grassland	Norfolk Although chalk underlies about 60% of Norfolk, there is very little typical chalk grassland due to the glacial drift deposits	Lowland Calcareous Grassland	Stuston, South Lopham	**Low** IDB potential to maintain or restore condition by

	sites in England surveyed in 1966 and 1980 showed a 20% loss in that period. Current estimates put the amount of lowland calcareous grassland remaining in the United Kingdom at 40,594 ha.		which cover the county. The main sites which survive are in north-west Norfolk and Breckland. Suffolk Two important regions of lowland heathland are found in Suffolk: the Sandlings, along the coastal belt; and Breckland on the Norfolk/Suffolk border. Heathland in Suffolk is largely confined to these areas although smaller areas can be found in the upper Waveney Valley at Wortham Ling and Redgrave and Lopham Fens.			encouraging landowners to manage appropriately.
Lowland Fens	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	Norfolk Norfolk is particularly rich in fen habitats, supporting a large proportion of the UK total for some types. The Broads natural area possesses some 5,000 ha of rich-fen habitat, mostly of the floodplain type, with some examples of valley fen. Suffolk The area of fen in Suffolk is not known precisely but is thought to be less than 250ha (Beardall & Casey, 1994). There are a few large sites with a range of valley and floodplain fen communities, and probably the majority of fen habitat is within these few sites.	Lowland Fens	Claxton, Carlton, Heckingham, Loddon, Thurlton, Limpenhoe, St Olaves, Barnby, Geldeston, Ellingham, Mendham, Brockdish, Oakley, Roydon, South Lopham and Redgrave Fen	**High** IDB potential to maintain condition through sensitive management and landowner partnerships for maintain and restoring areas.
Lowland Meadows	It is estimated that only 10,521 ha of species-rich neutral grassland survive today in the UK.	Lowland meadows and pastures	Norfolk East Anglia contains a small percentage (21%) of land occupied by permanent pasture and rough grazing (Roberts and Smyth, 1990).	Lowland Meadows	Thrandeston, Shelfhanger, Denham, Ellingham, Haddiscoe, Claxton	**Medium** IDB potential to maintain condition through sensitive management
Purple Moor Grass and Rush		Purple Moor Grass and Rush		Purple Moor Grass and Rush	Broome, Geldeston, Barnby, Haddiscoe, Heckingham, Limpenhoe, Rockland St	**Low** IDB potential to maintain or restore condition

Pastures		Pastures		Pastures	Mary, Belton	
Reedbeds	A rare habitat. The RSPB Reedbed Inventory suggests over 1,540 ha in Norfolk - almost 30% of the UK resource.	Reedbeds	The RSPB Reedbed Inventory suggests over 840 ha of reedbeds in Suffolk – almost 15% of the UK resource. There are five key sites in the county of Suffolk that are over 20 ha, totaling 430 ha (Benacre Broad, Easton Broad, Minsmere, Shottisham & Ramsholt and Walberswick). This is 51% of the total area of reedbed in Suffolk.	Reedbeds	Aldeby, Barnby, Flixton, St Olaves, Chedgrave, Claxton, Belton	**High** IDB potential to maintain condition through maintaining condition through sensitive management, landowner partnership for extending area.
Low Mix Deciduous Woodland	In the 1980s, the Nature Conservancy Council estimated the total extent of this type to be 250,000 ha. It is believed to have declined in extent by 30- 40% over the last 50 years.	Lowland Mixed Deciduous Woodland	<u>Norfolk</u> In Norfolk, there are no precise measurements of the extent of this habitat. Many are ancient woods and they include the classic examples of ancient woodland studied by Rackham (1980) and Peterken (1981) in East Anglia and the East Midlands.	Deciduous Woodland	Throughout District	**Low** IDB potential to maintain or restore condition
Rivers	This habitat type includes a very wide range of types, encompassing all natural and near-natural running waters in the UK.	Rivers, canals and drains	The main rivers that are within the drainage district are the Waveney, Lothingland and Lower Yare and their tributaries. All of these would be classified as lowland rivers, and hence have been influenced by external nutrient inputs. There are widespread modifications along these watercourses for the purposes of flood and water level management.	Rivers, canals and drains	Throughout District	**High** IDB potential to maintain condition through sensitive management, and landowner partnerships for extending areas.
Wet Woodland	There are no precise data on the total extent of wet woodland in	Alder Carr Weet Woodland	<u>Norfolk</u> The woodland in both the Broads and that found on valley fen/mires is a European priority feature under the Conservation	Wet Woodland	Throughout District	**Medium** IDB potential to maintain or restore condition though sensitive

	the UK, but in the late 1980s the Nature Conservancy Council estimated the total extent of this type in ancient semi-natural woodland to be about 25,000–30,000ha. Thus a crude estimate of the total wet woodland area in the UK is 50,000–70,000ha.		(Natural Habitat) Regulations 1994 and has been listed as a feature in both the Broads SAC and Norfolk Valley Fens SAC. <u>Suffolk</u> It is estimated that in Suffolk there is less than 100 ha of W5 woodland and 170 ha of flood plain woodlands.			management

4.10. Species Audit Summary

This species audit summary will include priority and other species including INNS that occur within the drainage district and are identified as likely to be influenced by the Board's activities. Also listed are species deemed to be of local importance and/or identified by local nature strategies. Finally, brief notes are included on the potential for the IDB to improve the status of the species in the drainage district. (A list of relevant Priority species can be found at https://jncc.gov.uk/our-work/uk-bap-priority-species/). Local status and extent have been synthesized from various sources, including Norfolk and Suffolk Baps.

Table 6. Species Audit Summary

Common & scientific name	National Status	Local Status	Location of Species of Importance within drainage district	IDB Potential for Maintaining or Increasing Species Population or Range (High/medium/low)
BIRDS				
Barn Owl (*Tyto alba*)	Widely distributed across the UK, barn owl has suffered declines over the past fifty years. This decline, fortunately, has halted in many areas and the population may now be increasing. A survey completed in 1997, indicated a breeding population of 4,000 pairs. The Barn Owl is protected under Section 1 of the WCA 1981.	The drainage district supports a significant population of barn owls, which use ditch banks, pastures and margins for foraging. The population may be limited by lack of nest sites. Rough-grassland margins provided by the banks of watercourses were recognised in 1987 as a vital resource for Barn Owls.	Throughout district	**High** IDB Potential to benefit species from habitat enhancement and partnerships
Bittern (*Botaurus stellaris*)	The bittern is rare and localised in the UK. It is listed on Annex I of the EC Birds Directive and Appendix II of the Berne Convention. It is protected in the UK under Schedule 1 of the WCA 1981.	Present in the Norfolk Broads and The Fens. The Norfolk Broads are thought to host approximately one third of the UK's breeding pairs.	Berney Marshes, Breydon Water, Cantley BF, Reedham, Burgh Castle, Berney, Redgrave and Lopham Fens, Blunderston, Oulton Marshes, Benacre Broad, Castle Marshes	**High** IDB Potential to benefit species from Habitat Action Plans

Breeding Waders	In decline	Present in lowland wetlands across Norfolk and Suffolk, particularly on RSPB Reserves.		**High** IDB Potential to benefit species from Habitat enhancement and partnership with the Suffolk Wader Strategy
Grasshopper Warbler *(Locustella naevia)*	In decline. Red List species Protected in the UK under the Wildlife and Countryside Act, 1981.	Norfolk Fairly common summer visitor and very scarce passage migrant		**Low** IDB Potential to benefit species from Habitat Action Plans
Hirundinidae - Sand Martin, House Martin and Swallow	In Britain, the Swallow occurs in a wide range of habitats, whereas the House Martin usually occurs near buildings, and the Sand Martin usually near water.			**Low** IDB Potential to benefit species from Habitat Action Plans
Kestrel (*Falco tinnunculus*)	The kestrel is included on the Amber List of Birds of Conservation Concern due to the moderate decline of the UK breeding population	In Norfolk kestrel are the most common bird of prey and their numbers are stable.	Claxton, Breydon Water, Rockland St Mary, Buckenham, Cantley, Haddiscoe, Langley Marshes, Carlton Marshes, Homersfield, Redgrave and Lopham Fen, Camps Heath, Somerleyton, Blunderston Marshes, Bungay, East Suffolk, Shipmeadow, Mendham, Syleham	**High** IDB Potential to benefit species from Habitat Action Plans
Kingfisher (*Alcedo atthis*)	Kingfishers are classified in the UK as Amber under the Birds of Conservation Concern 4: the Red List for Birds (2015). Protected in the UK under the Wildlife and Countryside Act, 1981	Norfolk Kingfisher numbers in Norfolk have probably increased in recent years with milder winters undoubtedly enabling greater numbers to survive the winter.	Cantley BF, Breydon Water, Burgh Castle, Bradwell Gapton Marshes, Yarmouth, Rockland St Mary, R Bure west of Yarmouth, Reedham, Herringfleet, Mettingham, Shotford Heath, Redgrave and Lopham Fens	**Low** IDB Potential to benefit species from Habitat Action Plans

Reed Bunting (*Emberiza schoeniclus*)	The decrease of the reed bunting has occurred at the same time as decreases in the numbers and/or range of a suite of other farmland birds. Classified in the UK as Amber under the Birds of Conservation Concern 4: the Red List for Birds (2015) and a section 41 species. Protected in the UK under the Wildlife and Countryside Act, 1981.	There are relatively limited records of reed bunting in drainage district, which use reed fringes along the rivers, drains and ditches. The restoration and careful management of these reed fringes that are addressed by the reedbed HAP offer the opportunity of enhancing the habitat for this species throughout the district.	Claxton Marshes, R Bure west of Yarmouth, Reedham, Berney, Breydon, Redgrave and Lopham Fens, Middle Fen, Oulton Marsh Dyke, Beccles Marshes, Shipmeadow, Oulton Marshes, Somerleyton, Homersfield, Dairy Farm Marshes	**High** IDB Potential to benefit species and enhance reedbed habitat Manage banks so as to maintain and extend areas of adjacent rank grassland
Skylark (*Alauda arvensis*)	One of the most widespread birds of the British Isles, with over 2 million breeding pairs, the resident population is joined in winter by a significant proportion of the northern European population - possibly up to 25 million individuals. The skylark is protected under the EC Birds Directive and the Wildlife and Countryside Act 1981.	Norfolk Still widespread in Norfolk as a breeding and wintering bird throughout the open countryside despite a likely decline in numbers in the county. In the Norfolk Bird Atlas (Kelly 1986), it was found in 97% of 2km squares, the blank squares being built up, plantations or wetlands. Suffolk The Skylark is common and widespread in Suffolk as a breeding and wintering bird throughout the open countryside. However, numbers have declined rapidly in central Suffolk, the main cereal-growing areas and the population is has declined throughout the county since the 1980s.	Claxton Marshes, Breydon Water, R Bure west of Yarmouth, Breydon, Kessingland Levels, Stow Fen, Kessingland, Oulton, Bungay, Redgrave and Lopham Fens	**Low** IDB Potential to benefit species from Habitat Action Plans
Swifts (*Apus apus*)	The European swift population is 4.4 - 12 million pairs, with the UK population standing at 85,000 breeding pairs (N.B. figure from 1988-1991). Between 1994 and 2006, the UK population declined by 29%. The swift is protected under the Wildlife and Countryside Act 1981 (as amended).	Norfolk According to the BTO/JNCC/RSPB Breeding Bird Survey, the swift population appears to be stable in the east of England; however, it declined by 44% in the south-east between 1995 and 2008. Suffolk Swifts are widespread in Suffolk with the records mainly focused in the urban areas.		**Low** IDB Potential to benefit species from Habitat Action Plans

		The species appears to be scarce around the Alde estuary and inland to Tunstall and Rendlesham forests, and there are some notable recording gaps in West Suffolk and along the Waveney Valley.		
Tree Sparrow (*Passer montanus*)	The tree sparrow is patchily distributed on farmland across Britain and Ireland, being scarcer in the uplands, and the far north and west. The tree sparrow is protected under the Wildlife and Countryside Act 1981, Wildlife (Northern Ireland) Order 1985 and EC Birds Directive.	<u>Norfolk</u> Patchily distributed across the county with main concentrations in north and mid Norfolk and the Brecks (RSPB/EN/BTO/Defra Farmland Bird Database). Unobtrusive and easily over-looked. The 1986 Norfolk Bird Atlas recorded tree sparrow in 36% of 2km squares.	Weybread Gravel Pits, Wingfield, Fressingfield, Ellough, Beccles, Beach Farm Marshes, Oulton, Covehithe Churchyard, Covehithe, Benacre Churchyard, Benacre Broad, Benacre Denes and Pits, Beach Farm Marshes, Kessingland Sewage Farm, Benacre, Bacton, Rockland St Mary	**Low** IDB Potential to benefit species from Habitat Action Plans
Western Marsh Harrier (*Circus aeruginosus*)	Classified in the UK as Amber under the Birds of Conservation Concern 4: the Red List for Birds (2015). Protected in the UK under the Wildlife and Countryside Act, 1981.	<u>Norfolk</u> In the early 19th Century they were abundant in Norfolk and throughout East Anglia. However, by the latter part of the century they had become extinct in the UK through habitat loss and persecution. Marsh harriers bred sporadically in the Broads, and occasionally at other sites, from 1927 to 1975. Since then the number of nests in the county has risen steadily. Today more than 100 females nest in Norfolk each year. In winter more than 100 individuals may be seen at roosts around the county.	Cantley BF, Claxton Marshes, Burgh Castle, Breydon Water, Reedham, Haddiscoe Langley Marshes, Breydon, R Bure west of Yarmouth, Buckenham.Cantley, Berney, Rockland Marsh, Yare Valley, Covehithe, Redgrave and Lopham Fens, Camps Heath, Oulton Marsh Dykes, Carlton Marshes, Somerleyton, East Suffolk, Herringfleet Hills	**Low** IDB Potential to benefit species from Habitat Action Plans
FISH				

European Eel (*Anguilla Anguilla*)	Priority Species under the UK Post-2010 Biodiversity Framework. Listed as Critically Endangered on the global IUCN Red List of Threatened Species.	Declines in eel populations have been noted on rivers across Norfolk but the cause is not known	Mettingham, Bungay, Flixton, Homersfield, Mendham, Weybread, Syleham, Brome, Hoxne, Oakley, Stuston	**High** IDB Potential to benefit species from Habitat enhancement, particularly Rivers and Drains
AMPHIBIANS				
Great Crested Newt (*Triturus cristatus*)	The British population of great crested newt is among the largest in Europe but has suffered a decline in recent years and is in unfavourable conservation status. The great crested newt is listed on Annexes II and IV of the EC Habitats Directive, Appendix II of the Bern Convention, and Schedule 5 of the Wildlife and Countryside Act 1981.	Norfolk The newt is locally common/frequent through south and mid Norfolk and Breckland and has suffered a major decline in the Broads. Suffolk Suffolk is believed to be a stronghold for the Great Crested Newt, particularly in the north-east of the county where there is a higher percentage of ponds. At least 115 ponds in Suffolk have populations of Great Crested Newts but survey data is inadequate and the figure is likely to be much higher.	Shipmeadow, Redgrave and Lopham Fens, Palgrave	**Low** IDB Potential to benefit species from Habitat enhancement
REPTILES				
Grass Snake (*Natrix helvetica*)	Grass snakes have become scarcer. There are still some areas where they are locally abundant, but nationally they are in decline. Protected in the UK under the Wildlife and Countryside Act, 1981. Priority Species under the UK Post-2010 Biodiversity Framework.		Reedham, Belton Marshes, Fritton Marshes	**High** IDB Potential to benefit species from Habitat enhancement and restoration (i.e. grass snake pile construction)
MOLLUSCS				

Depressed river mussel (*Pseudanodonta complanata*)	In the UK since 1950 it has been recorded from 63 ten km squares in England and Wales. However the species is easily overlooked, and may be more common than thought. The evidence of recording suggests there has been a decline in distribution, though under-recording is a possibility and new populations have been found in recent years.	Recorded in the Norfolk Broads	Oulton Marsh Dykes, Blunderston, Carlton Colville, Share Marsh Dykes, North Cive, Worlingham, Beccles, Mettingham, Claxton	**Low** IDB Potential to benefit species from Habitat enhancement
Desmoulin's whorl snail (*Vertigo moulinsiana*)	In the UK, Desmoulin's whorl snail is known from a series of sites stretching in a broad band from Dorset to Norfolk. This snail is listed on Annex II of the EC Habitats Directive, and is listed as rare in the GB Red List. National decline of this species is difficult to assess as targeted surveys over the last 15 years have resulted in many additional sites being discovered, but this is not considered to be due to the spread of the species.	Present in the Norfolk Valley Fens	Carlton Marshes, Sprats Water, Oulton, Carlton Colville, Blunderston, Barnby, Barnby Broad and Marshes, North Cove Reserve, herringfleet, Worlingham, Barsham, Claxton	**Low** IDB Potential to benefit species from Habitat enhancement
Narrow-mouthed Whorl Snail (*Vertigo angustior*)	This species has a highly fragmented population over Britain. This localised European species is known in the UK from only eight sites in England and Wales, and one in Scotland. The snail is nationally and globally threatened and is included on Annex II of the EC Habitats Directive. It is listed as vulnerable on the IUCN/WCMC red	Present in most of the Norfolk and Suffolk coastal strip	Blundeston, Somerleyton, Redgrave and Lopham Fens, Waveney Forest	**Low** IDB Potential to benefit species from Habitat enhancement

	list and endangered on the GB Red List.			
Shining ram's-horn snail (*Segmentina nitida*)	In Britain, it has shown a dramatic decline this century. It is now confined mainly to the Norfolk Broads and Pevensey Levels. The species is listed as endangered in the GB Red List. The most severe decline in the range of this species occurred through the 19th and 20th centuries (Kerney, 1999), but there has still been localised decline over the last 10 years.	Norfolk and North Suffolk centered around the Broads	Carlton Marshes, Barnby Broad and Marshes, Barnby, Castle Marshes, North Cove	**Low** IDB Potential to benefit species from Habitat enhancement
INVERTEBRATES				
Dragonflies (*Anisoptera spp*.)	Species richness has increased over time, especially in the northern half of Britain, but also in the south as new species arrive and colonize; increased recording intensity in recent years may explain some of these increases. A trend analyses show that 19 out of 46, just over 40%, of our resident and/or regular migrant dragonfly and damselfly species have increased in occupancy across both Britain and Ireland, while just 11%, five species, have shown significant decline.	Present throughout Norfolk and Suffolk but particularly at Carlton Marshes SSSI	Throughout District. Particularly present in Carlton Marshes.	**Low** IDB Potential to benefit species from Habitat enhancement
Fen Raft Spider (*Dolomedes plantarius*) –	Very rare. Only three known populations in the UK. UK Biodiversity Action Plan priority species. Protected under Schedule	Populations at Castle Marshes SSSI and Barnby, Carlton	Redgrave and Lopham Fens, Castle Marshes	**Low** IDB Potential to benefit species from Habitat enhancement

not on list	5 of the Wildlife and Countryside Act 1981. Classed as 'vulnerable' on IUCN's species Red List.			
Pollinators	Many species of bee, moth, butterfly, hoverfly, fly and beetle pollinate £690 million worth of crops annually. The European Red List reported that one in ten species of wild bee face extinction, and over the past 50 years, half the bee, butterfly and moth species studied in the 2013 State of Nature Report have declined.		Throughout District	**Low** IDB Potential to benefit species from Habitat enhancement
TERRESTRIAL MAMMALS				
Bats (*Barbastella spp., Myotis spp., Eptesicus spp., Nyctalus spp., Pipistrellus spp., Plecotus spp.*)	All bats and their roosts are protected by UK law and they are also covered by the EU Conservation of Habitats and Species Regulations 2010 as European Protected Species.	The distribution of bats is throughout the drainage district.	Throughout District	**High** IDB Potential to benefit species from Habitat enhancement through erecting bat boxes across the district
European Badger (*Meles meles*)	Very common UK species Protected in the UK under the Protection of Badgers Act (1992) and the WCA (1981)	There is some evidence that badgers are increasing in Norfolk but, in many areas of the county they remain scarce or absent.	Throughout District	**Low** IDB Potential to benefit species from Habitat enhancement

European Hedgehog (*Erinaceus europaeus*)	Protected in the UK under the Wildlife and Countryside Act, 1981. Priority Species under the UK Post-2010 Biodiversity Framework. IUCN Red List for British Mammals - vulnerable to extinction.	Hedgehogs were once widespread and common across Norfolk, however they are becoming a rare sight due to long-term decline due to changes in habitat.	Throughout District	**Low** IDB Potential to benefit species from Habitat enhancement
Otter (*Lutra lutra*)	An estimate population size of 11,000 individuals in Great Britain.. The otter is listed on Appendix 1 of CITES, Appendix 11 of the Bern Convention and Annexes 11 and IV of the Habitats Directive. It is protected under Schedule 5 of the Wildlife and Countryside Act 1981 and Schedule 2 of the Conservation (Natural Habitats) Regulations 1994.	Otters now use all major watercourses in Suffolk and Norfolk and populations appear to be recovering. There are significant records of otters throughout the drainage district.	Throughout District	**High** IDB Potential to benefit species from Habitat enhancement
Water Vole (*Arvicola amphibius*)	Long term decline. Declining, both in number of sites occupied and number of individuals per colony. An estimate population size of 132,000 individuals in Great Britain. GB populations are inferred to have declined very rapidly over recent years, equating to a 50% decline over 17 years. S41 species, Listed in WCA 1981	There are significant records of Water Vole throughout the drainage district.	Throughout District	**High** IDB Potential to benefit species from Habitat enhancement and appropriate management of watercourses & predator control
VASCULAR PLANTS				
Native Black Poplar (*Populus nigra*	There are an estimated 7,000 native black poplars in Britain, chiefly occurring south of a line from the Mersey to the Wash.		Bradwell, Hoxne, Stuston Common, Thranderston, Redgrave, Carlton Marshes, Weybred	**Low** IDB Potential to benefit species from Habitat enhancement

betulifolia)				

4.11. Invasive Non-native Species Summary

The IDB has identified the following high risk aquatic and riparian invasive non-native species within the drainage district that are identified as likely to be influenced by, or impact upon the Board's activities.

Table 7: High risk aquatic invasive non-native species summary

Common & scientific name	Location within IDB if known	Year first recorded	Local status / Extent within drainage district	IDB potential for controlling species population or range
Floating pennywort (*Hydrocotyle ranunculoides*)	Brockdish, River Waveney (2015) Scole (2009)	2009	The distribution of floating pennywort in Norfolk is largely restricted to the River Waveney, although there have been reported infestations from other isolated waterbodies in the east of the county	NNNSI management plan and control measures, provide advice and partnership working with landowners, biosecurity measures, and recording.
Parrots Feather (*Myriophyllum aquaticum*)	Somerleyton (1998, 2015)	1998	Parrot's feather is sparsely distributed across the whole of Norfolk, with marginally more records occurring in the east of the county.	Biosecurity measures, and recording.
Himalayan Balsam (*Impatiens glandulifera*)	Throughout district	1990	The plant is now widespread in central and eastern Norfolk and is still expanding its range. It can be seen along the banks of rivers, in wet woodland and on waste ground, often growing in large dense clumps. Widespread distribution.	Partnership working with NNNSI and landowners, provide advice to landowners, biosecurity measures, and recording.
Japanese Knotweed (*Fallopia japonica*)	Thurlton (2017) Loddon (2011) Barsham (1995) Oulton Broad (1970)	1995	Widespread distribution.	Control measures on a case by case basis, partnership working with NNNSI and landowners, provide advice to landowners, biosecurity measures, and recording.

American Mink (*Neovison vison*)	Bludeston (2013) Bungay (1979)	1979	Mink can be found in and around many Norfolk waterways, including many parts of the Broads and rivers including the Waveney Valley. Widespread distribution.	Partnership working with WLRE and the Norfolk Mink Project.
Australian Swamp-Stonecrop (*Crassula hemsii*)	Claxton (2009, 2001) Bressingham (2019)	2001	Australian swamp stonecrop is common across Norfolk	Control measures on a case by case basis, partnership working with NNNSI and landowners, biosecurity measures, and recording.
Water Fern (*Azolla filiculoides*)	Throughout District	1965		Control measures on a case by case basis, partnership working with NNNSI and landowners, provide advice to landowners biosecurity measures, and recording.
Giant Hogweed (*Heracleum mantegazzianum*)	Camps Heath (2015) Bungay (2015) Flixton (1965-2017) Brockdish (1965-2017) Eye (1984)	1965	Giant hogweed is common across Norfolk. Most records of this plant occur in the east of the county, with the area to the south-east of Norwich having a particularly high density of infestations.	Control measures on a case by case basis, partnership working with NNNSI and landowners, provide advice to landowners, biosecurity measures, and recording.
Rhododendron (*Rhododendron ponticum*)	Fritton (1988-2015) Somerleyton (1988-2015) Barnby (2015)	1988		Recording
Quagga Mussel and Zebra Mussel (*Dreissena bugensis rostriformis; Dreissena polymorpha*)	Throughout catchment	2003		Biosecurity measures and recording.
Signal Crayfish (*Pacifastacus leniusculus*)	Reedham (1990)	1990		Biosecurity measures and recording.

Killer Shrimp (*Dikerogammarus villosus*)	Not currently recorded in the IDB district		Present in the Trinity Broads and the Norfolk Broads	Biosecurity measures and recording.

4.12. Water Level Management Plans

Water Level Management Plans (WLMPs) provide a means by which the water level requirements for a range of activities in a particular area, including agriculture, flood defense and conservation, can be balanced and integrated. Guidance for the production of WLMPs by the operating authorities for sites of conservation interest was produced by MAFF/ Defra in 1992, 1999 and 2004. This guidance concentrated on SSSIs, especially those of international importance (SPA or SAC sites).

Where IDBs are the operating authority for sites, they may or may not actively manage the water levels. Active Management by IDB is under review with Natural England.

The table below provides further details of the Water Level Management Plans for which the IDB has some involvement within their drainage district. The full and detailed WLMPs can be found on the IDB's website.

Table 8: Water Level management plans in operation within the drainage district

Site Name & Designation	Reason for WLMP (state main species or habitat)	WLMP lead and other key [partners	Favorable/ unfavorable condition (related to water level management)	WLMP Last Updated
Limpenhoe WLMP - Limpenhoe SSSI – component site of Broadland, SPA, Ramsar and The Broads, SAC	Grazing Marsh, Arable, Woodland, Freshwater dykes. Important for Otters, Marsh Harriers, Cetti's warblers, and many aquatic plant species	Limpenhoe and Reedham IDB, EA, English Nature	Full area in Unfavourable- Recovering condition	
Barnby WLMP - Barnby Broad and Marshes SSSI – component of Broadland, SPA, Ramsar and The Broads, SAC	Grazing marsh, Arable, Carr Woodland, Fen, Reedbed. Important for nationally rare species milk parsley, marsh thistle, grey sallow birch, Norfolk Hawker dragonfly	Oulton, Carleton Coville and Barnby IDB, EA, English Nature	59.93% in favourable condition, 40.07% in unfavorable- recovering condition	2010
Barnby WLMP - Sprat's Water and Marshes, Carlton Colville SSSI – component of Broadland, SPA, Ramsar and The Broads, SAC	Grazing marsh, Arable, Carr Woodland, Fen, Reedbed. Important for invertebrate interest, Norfolk Hawker dragonfly, ramshorn snail, breeding wader species	Oulton, Carleton Coville and Barnby IDB, EA, English Nature	80.48% in favourable condition, 19.19% in unfavourable- recovering condition, 0.33% in unfavourable – no change condition	2010
Geldeston, Gillingham, Long Dam and Short Dam WLMP - Geldeston Meadows SSSI- component of Broadland, SPA, Ramsar and The Broads, SAC	Grazing marsh, Arable, Alder Carr woodland, Fen, Dry meadow grassland. Important for the variable blue damselfly, and breeding wader species	Waveney, Lower Yare and Lothingland IDB	97.18% in unfavourable- no change condition, 2.82% in unfavourable- declining condition	

Burgh Castle WLMP - Breydon Water SSSI- component of Breydon Water, SPA, Ramsar	Grazing marshes, Arable, woodland. Important for a wide range of aquatic vegetation communities, the great silver water beetle, breeding wader species	Waveney, Lower Yare and Lothingland IDB	Full area in favourable condition	2014
Claxton Langley WLMP - Poplar Farm Meadows, Langley- component of Broadland, SPA, Ramsar and The Broads, SAC	Grazing marsh, Arable, Woodland, Spring-fed calcareous fen meadow. Important for nationally rare blunt flowered rush and marsh thistle	Waveney, Lower Yare and Lothingland IDB	Full area in favourable condition	2014
Claxton Langley WLMP - Hardley Flood- component of Broadland, SPA, Ramsar and The Broads, SAC	Grazing marsh, Arable, Woodland, river spillway with reedbeds on the river Chet. Important for nationally rare milk parsley and breeding wader species and migratory bird species	Waveney, Lower Yare and Lothingland IDB	Full area in favourable condition	2014
Claxton Langley WLMP - Ducan's Marsh, Claxton - component of Broadland, SPA, Ramsar and The Broads, SAC	Grazing marsh, Arable, Woodland. Species rich unimproved wet fen meadow. Important for nationally important black bog-rush, marsh fen, narrow leaved orchid, fen pondweed	Waveney, Lower Yare and Lothingland IDB	Full area in unfavourable- recovering condition	2014

5. Habitat and Species Action Plans

5.1. Introduction

Action plans comprise the objectives, targets and actions that the IDB has identified for each habitat and species to be included within the BAP. The following sections contain action plans for each of the habitats and species that have been prioritised by the IDB. Local targets have been synthesized from the Norfolk and Suffolk Baps. A summary table of Biodiversity Action Plan Objectives can be found in Appendix 6 and a summary table of Habitat and Species Action Plans can be found in Appendix 7.

5.2. Habitat Action Plans

5.2.1 Coastal and floodplain grazing marsh

5.2.1.1 National and Local Targets

Table 9:

National Targets	Local Targets
• Maintain the existing habitat extent (300,000 ha) and quality. • Rehabilitate 10,000 ha of grazing marsh habitat which has become too dry, or is intensively managed, by the year 2000. This would comprise 5,000 ha already targeted in ESAs, with an additional 5,000 ha. • Begin creating 2,500 ha of grazing marsh from arable land in targeted areas, in addition to that which will be achieved by existing ESA schemes, with the aim of completing as much as possible by the year 2000.	<u>Norfolk</u> • Maintain the existing habitat extent (29,500 ha) and its quality, rehabilitate 2,950ha (10% of the total resource in Norfolk) of grazing marsh habitat in intensive management and create 350 ha of grazing marsh from arable land on the North Norfolk Coast by 2010. <u>Suffolk</u> • Improve knowledge of extent and quality and encourage the restoration of coastal and floodplain grazing marsh. • Maintain the existing extent of biologically important grazing marsh, ensure no net loss, take steps to restore and re-create 200ha of grazing marsh by 2018. • Integrate grazing marsh restoration into initiatives for reedbed and fens creation.

5.2.1.2 IDB Objectives

Table 10:

IDB Objectives	
1	Continue to maintain or enhance the existing extent and quality of Coastal and Floodplain Grazing Marsh through appropriate river management, delivering river restoration schemes or providing Natural Flood Management solutions.

5.2.1.3 IDB Actions

Table 11:

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	**1a**	Continue to work in partnership with stakeholders to look for opportunities, to enhance grazing marshes by appropriate water level management practice.	Area (ha) of grazing marsh enhanced	Ongoing	Environment Team	SWT, RSPB, NRT, NE, EA, Landowners
1	**1b**	Work in partnership with the Suffolk Wader Strategy Group	Number of meetings attended	Ongoing	Environment Team	Suffolk Wader Strategy Group
1	**1c**	Where funding opportunities arise, prioritise and undertake a review of WLMPs in WLYLIDB SSSIs over the next 5 year period.	WLMPs reviewed	Ongoing	Environment Team	NE

5.2.2 Lowland Fens

5.2.2.1 National and Local Targets

Table 12:

National Targets	Local Targets
• Identify fen sites in critical need of, and initiate rehabilitation by 2005. All rich fen and other sites with rare communities should be considered. • Ensure appropriate water quality and water quantity for the continued existence of all SSSI fens by 2008.	Norfolk • Identify Norfolk fen sites in critical need of rehabilitation by 2005, and initiate restoration by 2010. • Ensure appropriate water quality and water quantity for the continued existence of all Norfolk SSSI fens and complete restoration by 2010. Suffolk • Through survey of existing fen resources, come up with a definition and more accurate picture of extent and variation in Suffolk's fenland resource • Ensure by 2010 the long-term sustainable management (including water resources) of all fens over 5 ha, which are currently in favourable condition or will be brought into favourable condition following restoration • Promote the rehabilitation of degraded or declining fens, and encourage the creation of new fens providing the environmental conditions to allow the development of target fen communities or species to exist

5.2.2.2 IDB Objectives

Table 13:

	IDB Objectives
2	Implement restoration and WLMP objectives for Fen priority habitat within the IDB area.

5.2.2.3 IDB Actions

Table 14:

Action Plan						
Objective ref.	**Action number**	**Action**	**Measurable / Indicators**	**Completion date**	**Action Lead**	**Partners**
2	**2a**	Continue to work in partnership with stakeholders to look for opportunities, to enhance fen habitat by appropriate water level management practice.	Area (ha) of fen habitat enhanced	Ongoing	Environment Team	RSPB, NE, NWT, Landowners
2	**2b**	Work in partnerships to implement Fen Restoration within the IDB area whilst undertaking ELMS objectives and Capital projects.	Area (ha) of Fen restoration achieved	Ongoing	Environment Team	NWT, NE, EA, Landowners

5.2.3 Reedbeds

5.2.3.1 National and Local Targets

Table 9:

National Targets	Local Targets
• Identify and rehabilitate by the year 2000 the priority areas of existing reedbed (targeting those of 2 ha or more) and maintain this thereafter by active management. • Create 1200 ha of new reedbed on land of low nature conservation interest by 2010. This should be in blocks of at least 20 ha: in areas near to existing habitat; linked with existing habitat wherever possible.	Norfolk • Maintain existing area and quality as a minimum. Identify and rehabilitate by the year 2010 the priority areas of existing reedbed which are not currently at favourable conservation status. • Create new reedbed to replace reedbeds likely to be lost due to changes to coastal management and create an additional 600 hectares of new reedbed safe from future threat of sea level rise within Norfolk by 2010. Suffolk • Maintain and enhance existing overall area and quality as a minimum, including the creation of at least 445 ha in the next 20 years to replace any losses through natural coastal processes. • Develop new reedbeds away from the coast, particularly broad reed dominated pool margins, ensuring newly created reedbeds are targeted to areas of most benefit.

5.2.3.2 IDB Objectives

Table 10:

	IDB Objectives
3	Implement restoration of reedbeds and WLMP objectives for the IDB and identify opportunities elsewhere to restore or enhance reedbed, particularly via the river restoration process.

5.2.3.3 IDB Actions

Table 11:

Action Plan						
Objective ref.	**Action number**	**Action**	**Measurable / Indicators**	**Completion date**	**Action Lead**	**Partners**
3	**3a**	Continue to work in partnership with stakeholders to look for opportunities, to enhance reedbeds by appropriate water level management practice.	Area (ha) of reedbed habitat enhanced	Ongoing	Environment Team	RSPB, NE
3	**3b**	Identify potential sites for habitat restoration and expansion within the IDB area during WLMP and Capital Scheme delivery and consider future management planning on these sites during this process. .	Number of sites identified	Ongoing	Environment Team	NRT, NE, EA, SRT, SWT, Landowners
3	**3c**	Enhance and maintain reedbed fringe habitat on the Boards main drains.	Number of SMO audits achieved	Ongoing	IDB Ops	
3	**3d**	Explore opportunities to create new reedbeds and link with other reedbed projects to create corridors for wildlife.	Area (ha) of new reedbeds created	Ongoing	Environment Team	NRT, NE, EA, SRT, SWT, Landowners

5.2.4 Rivers, Canals and Drains

5.2.4.1 National and Local Targets

Table 9:

National Targets	Local Targets
Unknown	Unknown

5.2.4.2 IDB Objectives

Table 10:

IDB Objectives	
4	Enhance and maintain habitat and species diversity on watercourses maintained by the Board.
5	Enhance and maintain the flora and fauna of the watercourses maintained by the Board.
6	Ensure compliance to Boards Standard Maintenance Operations (SMO) to maintain rivers and drains.

5.2.4.3 IDB Actions

Table 11:

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
4	**4a**	Work with the planning department to review the boards culverting policy	Review undertaken	2024	Environment Team	Planning Department

4	**4b**	Identify opportunities to record species present in watercourses managed by the board	Number of records	Ongoing	Environment Team	NBIS, SBIS
5	**5a**	Work in partnership with the EA to report pollution incidents within the IDD	Partnership maintained	Ongoing	Environment Team	EA
6	**6a**	The SMO will be produced	SMO produced	2022	Environment Team	
6	**6b**	Ensure compliance with the IDB SMO by auditing on identified number of maintenance works jobs annually, to ensure they are being carried out to an agreed standard across the whole board.	Number of maintenance works audited	Annually	Environment Team, IDB Ops	

5.3. Species Action Plans

5.3.1 Barn Owl and Kestrel

5.3.1.1 National and Local Targets

Table 15:

National	Local
Unknown	Unknown

5.3.1.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
7	Continue to enhance the range and population of Barn Owls and Kestrels by maintaining or enhancing habitat availability and creating nesting opportunities, within the catchment area.

5.3.1.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
7	**7a**	Continue to monitor nest boxes within the IDB area working in partnership with the Suffolk Community Barn Owl Project	Number of boxes monitored	Ongoing	Environment Team	WCP

7	**7b**	Continue to maintain, repair or replace nest boxes in the IDB area working in partnership with the Suffolk Community Barn Owl Project	Number of boxes maintained, repaired or replaced	Ongoing	Environment Team	Suffolk Community Barn Owl Project
7	**7c**	Continue to maintain sward height during bankside maintenance mowing of 150mm.	Areas maintained to sward height	Ongoing	IDB Ops	Staff, Contractors

5.3.2 Breeding Waders

5.3.2.1 National and Local Targets

Table 15:

National	Local
Unknown	Unknown

5.3.2.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
8	Work in partnership to enhance wet grassland for breeding waders within the Boards area.

5.3.2.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	**Action number**	**Action**	**Measurable / Indicators**	**Completion date**	**Action Lead**	**Partners**
8	**8a**	Attend the Suffolk Wader Strategy Group meetings	Number of meetings attended per year	Annually	Environment Team	Suffolk Wader Strategy Group
8	**8b**	Where funding opportunities arise, prioritise and undertake a review of WLMP in WLYLIDB SSSI's over 5 years.	Number of reviews undertaken	Ongoing	Environment Team	RSPB, BA, NWT, SWT

8	**8c**	Look at opportunities to create scrape on wetland SSSI's whilst working in partnership. One per year.	Number of scrapes created	Annually	Environment Team, IDB Ops	RSPB, BA, NWT, SWT
8	**8d**	Look for opportunities when undertaking Capital schemes to improve habitat for wading birds	Area (m) of habitat improved	Ongoing	Environment Team, IDB Ops	Suffolk Wader Strategy Group, RSPB, NE, SWT

5.3.3 European Eel

5.3.3.1 National and Local Targets

Table 15:

National	Local
UK BAP targets = Maintain the current range & achieve an increase in range (both across 10km2 areas)	Maintain and increase current range

5.3.3.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
9	Contribute toward the Eel Regulations legislative requirements (2009) and the Eel Management Plan.
10	Undertake EDNA water sampling for Eel

5.3.3.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
9	9a	Work in Partnership with the Environment Agency to access the current status of Eel populations at pumping stations within the Boards Area.	Number of pumping stations with Eel populations reviewed	Ongoing	Environment Team	EA, ZSL

9	**9b**	Work in Partnership with the Environment Agency to identify barriers to migration in the Boards area and assess options for overcoming these.	Number of barriers to migration identified	Ongoing	Environment Team	EA, ZSL
9	**9c**	Review Eel passing points at IDB pumping stations and sluices.	Number of Eel passes installed	Ongoing	Environment Team	EA
10	**10a**	Undertake EDNA water sampling at pumping stations for fish, including Eel (As part of pumping station replacement)	Number of samples collected	Ongoing	Environment Team	EA
10	**10b**	Report EDNA results to the NBIS and SBIS	Results reported	Ongoing	Environment Team	NBIS, SBIS

5.3.4 Grass Snake

5.3.4.1 National and Local Targets

Table 15:

National	Local
Unknown	Unknown

5.3.4.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
11	Maintain and where possible increase the range of Grass Snake within the Board's area.

5.3.4.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	**Action number**	**Action**	**Measurable / Indicators**	**Completion date**	**Action Lead**	**Partners**
11	**11a**	Determine the extent and distribution of the existing populations at the Board's pumping stations and on key drains using ESRI maps.	Maps produced with site locations	Ongoing	Environment team	SBIS, NBIS
11	**11b**	Using the distribution data, develop Hibernacula and egg laying sites at pumping stations or key locations where appropriate.	Number of produced egg laying sites	Ongoing	Environment team	

11	**11c**	In partnership with ARG UK (The Amphibian and Reptile groups of the UK), monitor the status of this species in certain key areas.	Number of sightings during ecological surveys	Ongoing	Environment team	ARG UK

5.3.5 Fen Raft Spider

5.3.5.1 National and Local Targets

Table 15:

National	Local
A Species Action Plan, first produced in 1999 and revised in 2005 and 2008, sought to address this issue with the following ambitious targets for its future status: the number of sites with sustainable populations of *D. plantarius* nationally should be increased to 12 by 2020.	An increase to the overall range of *D. plantarius* at Redgrave and Lopham Fen National Nature Reserve, East Anglia, to 13 ha of habitat occupied three years in five by 2010, and to 65 ha by 2020.

5.3.5.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
12	Understand the status, distribution and ecology of fen raft spiders in the IDB district

5.3.5.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
12	**12a**	Survey and monitor for Fen Raft Spiders within the relevant IDB drains	Lengths of surveys undertaken	May - September ongoing	Environment Team	SWT

12	**12b**	Produce a management plan for Water soldier in IDB drains to enhance feeding and nesting opportunities for Fen Raft Spider	Management plan produced	Ongoing	Environment Team	SWT

5.3.6 Bats (All Species)

5.3.6.1 National and Local Targets

Table 15:

National	Local
Unknown	Unknown

5.3.6.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
13	Understand the status, distribution and ecology of bats in the IDB district
14	Maintain and enhance the current distribution and abundance of bats within the Board's area.

5.3.6.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	**Action number**	**Action**	**Measurable / Indicators**	**Completion date**	**Action Lead**	**Partners**
13	**13a**	Survey and monitor bat presence around IDB pumping stations as part of the BTO Norfolk Bat Survey.	Number of surveys undertaken	Ongoing	Environment Team	BTO
14	**14a**	Install bat boxes for roosting and hibernation on suitable IDB structures	Number of bat boxes installed	Ongoing	Environment Team	

5.3.7 Water Vole

5.3.7.1 National and Local Targets

Table 15:

National	Local
UK BAP targets = Maintain the current range & achieve an increase in range (both across 10km2 areas)	Maintain and increase current range

5.3.7.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
15	Control mink with the IDB catchment
16	Better understand population and extent within the Boards area.
17	Ensure the appropriate sensitive management of watercourses which will facilitate the maintenance and enhancement of the current distribution and abundance of the Water Vole in the IDB District.

5.3.7.3 IDB Actions

Table 17: Species action plan

Action Plan

Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
15	**15a**	Continue to contribute funding to the Norfolk Mink Project and SWT for mink control/ eradication	Funding contributed	Annually	Environment team	WLRE, SWT
15	**15b**	Continue to work with the WLRE and the Norfolk Mink Project on mink eradication.	Number of steering group mink meetings attended each year	Annually	Environment team	WLRE, Norfolk Mink Control Project
16	**16a**	Undertake yearly recording by operational staff and report to local biodiversity record centres	Number and location records collected and submitted to local biodiversity records office	Annually	IDB Opps	NBIS, SBIS
17	**17a**	Ensure compliance with the IDB SMO by auditing 4 jobs per year jobs, to ensure they are being carried out sensitively and to an agreed standard across the Board.	Number of maintenance works audited	Annually	Environment team, IDB Opps	

5.3.8 Native Black Poplar

5.3.8.1 National and Local Targets

Table 15:

National	Local
Unknown	Unknown

5.3.8.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
18	Establish Black Poplar at appropriate sites within the IDB district

5.3.8.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	**Action number**	**Action**	**Measurable / Indicators**	**Completion date**	**Action Lead**	**Partners**
18	**18a**	Liaise with the Suffolk Black Poplar Working Group to identify suitable sites and opportunities for planting Native Black Poplar within the IDB district	Number of sites identified	Ongoing	Environment Team	NCC, SCC, Suffolk Black Poplar Working Group
18	**18b**	Plant young Black Poplar at suitable sites	Number of Black Poplar planted	Ongoing	Environment Team	NCC, SCC

5.3.9 Non Native Invasive Species

5.3.9.1 National and Local Targets

Table 15:

National	Local
Unknown	Unknown

5.3.9.2 IDB Objectives

Table 16: IDB Objectives

IDB Objectives	
19	Promote the prevention, control and eradication of non-native invasive species within the Board's area.
20	Raise awareness of the presence and undertake control or eradication of mink in the catchment

5.3.9.3 IDB Actions

Table 17: Species action plan

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
19	**19a**	Establish a partnership with the NBIS and SBIS to receive up to date records of Invasives within the local area.	Partnerships established	Ongoing	Environmental Team	NBIS, SBIS

19	**19b**	Continue to contribute to and work in partnership with the Norfolk Non-Native Species Initiative (E.g. Floating pennywort).	Partnerships maintained	Ongoing	Environment Team	NNNSI
19	**19c**	Maintain records for all species of concern using the 'iRecord' app.	Number of reviews undertaken	Ongoing	Environment Team	NNNSI, Staff, Contactors
19	**19d**	Train staff regularly in key non-native species identification.	Number of staff trained	Ongoing	Environment Team	NNNSI, Staff, Contactors
19	**19e**	Ensure availability and regular review of identification guides developed for key non-native species to be used by officers, staff and contractors on site.	Number of reviews undertaken	Ongoing	Environment Team	NNNSI, Staff, Contactors
19	**19f**	Regularly review and ensure robust biosecurity measures are being maintained across the Board.	Number of reviews undertaken	Ongoing	Environment Team	Staff, Contractors
20	**20a**	To continue to work in partnership with Mink control/eradication groups	Number of meetings per year	Ongoing	Environment team	Norfolk Mink Project, WLRE
20	**20b**	Maintain 10 IDB traps within the catchment	Number of traps maintained in the catchment	Ongoing	Environment team	Norfolk Mink Project, WLRE
20	**20c**	Report catches to the WLRE and the Norfolk Mink Project	Number of catches per year, Catch per unit effort	Ongoing	Environment team	Norfolk Mink Project, WLRE

6. Procedural Action Plan

6.1. Introduction

A number of procedural targets and actions have been established to better integrate biodiversity considerations into IDB practices and procedures.

6.2. Objectives and Targets

Table 18:

	IDB Objectives
1	Ensure compliance to standard for biodiversity and protected species surveys
2	Ensure compliance to Boards Standard Maintenance Operations
3	Land Drainage consent and Bylaws
4	Attend Local Biodiversity Forums and Meetings
5	Raising awareness
6	Recording
7	Communication
8	Monitoring

6.3. IDB Actions

Table 19:

Action Plan						
Objective ref.	**Action number**	**Action**	**Measurable / Indicators**	**Completion date**	**Action Lead**	**Partners**
1	**1a**	All works assessed using agreed standards of information to ensure that appropriate mitigation is delivered for capital / maintenance works and projects to enhance biodiversity	License returns to NE / Number of audits undertaken	Ongoing	Ecologist	NE
1	**1b**	Environmental staff to undertake regular training	Number of staff trained	Ongoing	Ecologist	NE, NWT, SWT
2	**2a**	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 ISO 14001	Number of audits undertaken / QMS audit	Annually	Ecologist	WT
2	**2b**	Regular review on SMO to ensure compliance with updated guidelines and regulations	5 year review undertaked	Ongoing		LA's
3	**3a**	Through the application of Land Drainage Consents and Bylaws, seek to ensure that natural features of conservation interest and habitat importance are enhanced	Review Planning and Bylaw strategy	2024		
4	**4a**	Communication and network opportunities with other organisations to facilitate actions for BAP Species and Habitats	Meetings attended	Ongoing		
4	**4b**	PR and lifting profile of Board	Newspaper/magazine articles / website blogs	Ongoing		
5	**5a**	Biodiversity training days organised for staff and board members	Number of training days organised	Ongoing		
6	**6a**	Develop and populate a recording system for IDB priority species and habitats within the Board area, in conjunction with the Engineering team and watercourse surveys	iRecord reports	Ongoing		NBIS, SBIS
7	**7a**	A new Environment and Biodiversity section on the website	Environment section produced	Ongoing		
7	**7b**	Share successes with media and promote public awareness	Social media reaches,	Ongoing	ICT team,	

			Newspaper/magazine articles / website blogs		Environment Team, Ops Team	
8	**8a**	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 of species to help inform future works	Partnership established with NIBIS and SBIS	Ongoing		NBIS, SBIS

7. Implementation

The actions within the BAP will be executed via the following means:

- Panning 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 and the Suffolk Biological Record Centre.
- Carbon Net Zero is a legislative commitment set out by the UK government to be achieved by 2050. The Waveney, Lower Yare and Lothingland IDB will be instigating a carbon baselining exercise with a view to setting a target for achieving Carbon Net Zero on or before this date for all its operational and day to day activities.

8. Monitoring

Appropriate indicators have been set for each of the IDB's biodiversity actions. Indicators have been chosen which provide the IDB with ways of measuring both the current status of biodiversity and also ways of measuring achievements in delivering biodiversity objectives and targets. The individual action plans set out the indicators and measurables which will be used to assess progress and execution against the plan. The IDB will routinely monitor biodiversity actions using the indicators and measurables and will review actions and indicators at least annually.

The overall plan will be updated at least every 5 years but is a dynamic document so may change more frequently for example in the light of monitoring outcomes.

9. Reporting

The Board is responsible for ensuring that progress against the Plans' targets are routinely reported, at least annually, at Board meetings to allow the Board to discuss and review BAP activity and to modify the BAP and actions to meet the objectives where necessary.

Annual summary progress reports will detail which actions have been progressed according to the plan, any new opportunities identified, risks and issues affecting the objectives or actions, and the contribution actions have made towards achieving the objectives. Recommendations will be made in the light of the monitoring outcomes.

Making this information available to a wider audience is important in increasing the understanding of the importance of the Boards' actions regarding biodiversity and inspiring people about biodiversity. As such, the IDB will make the summary reports available externally in the following ways:

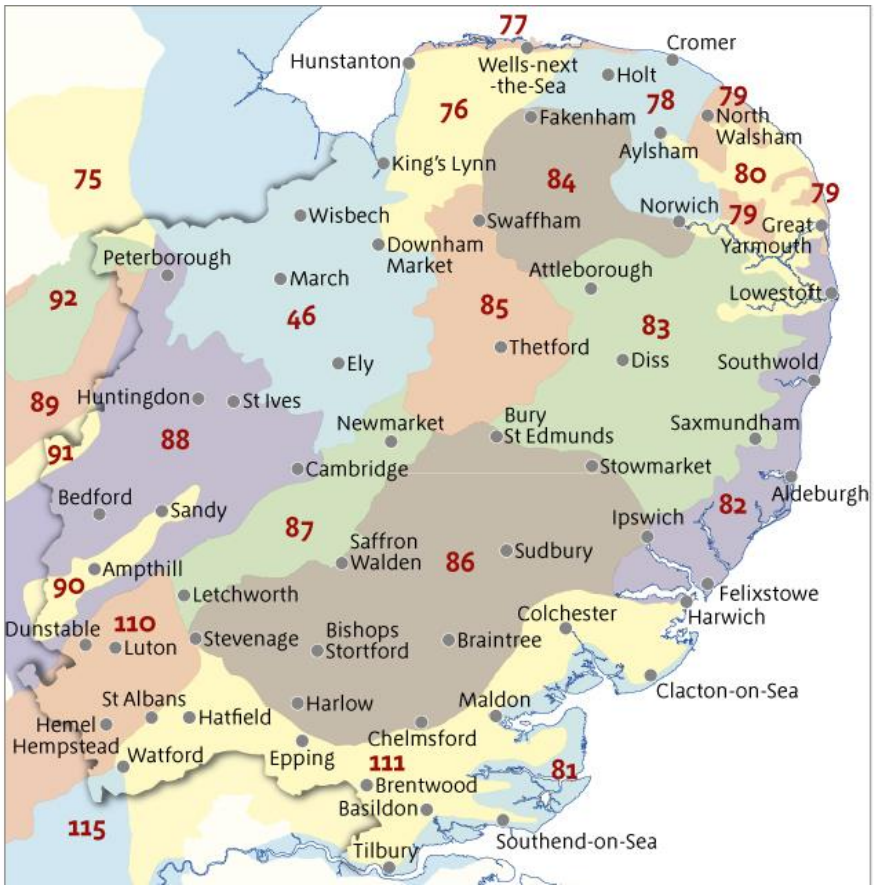
- In the public domain via the IDB's website;

- Provided to conservation partners to assist with further local biodiversity conservation planning;
- Provided to local authorities in order to contribute towards their legislative biodiversity reporting requirements including the NERC 2006 Act, Habitats Directive, Environment Act and the Local Nature Recovery Strategies;
- The Local Biological Records Centre.
- To the Board through a comprehensive review of the plan that will take place after five years.

10. Appendices

10.1. Appendix 1: Landscape Character

A map showing the limits of the National Character Areas. For the WLYLIDB see 80 (The Broads), 82 (Suffolk Coast and Heaths), and 83 (South Norfolk and High Suffolk Clayland)

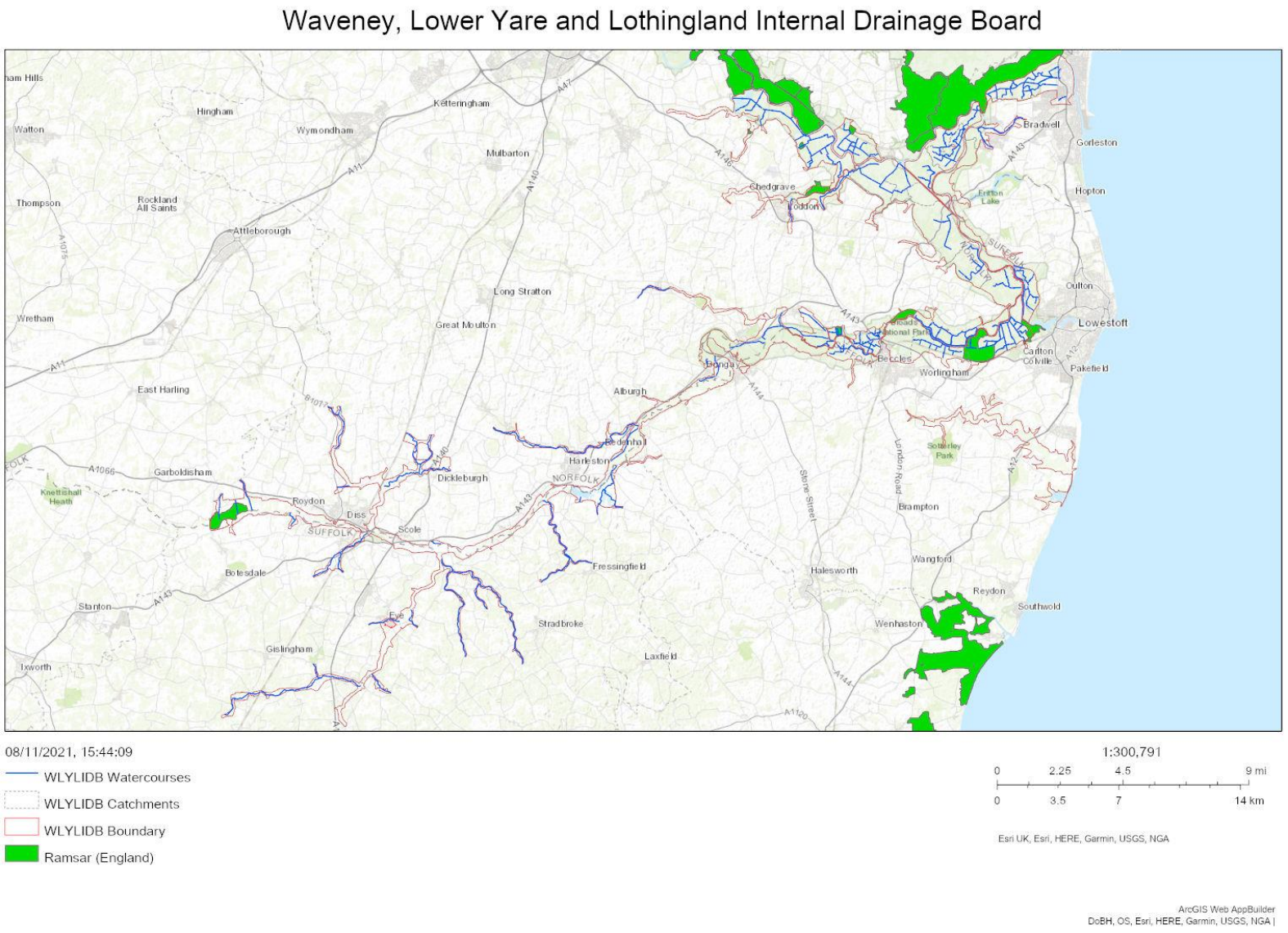


10.2. Appendix 2: Sites and Monuments

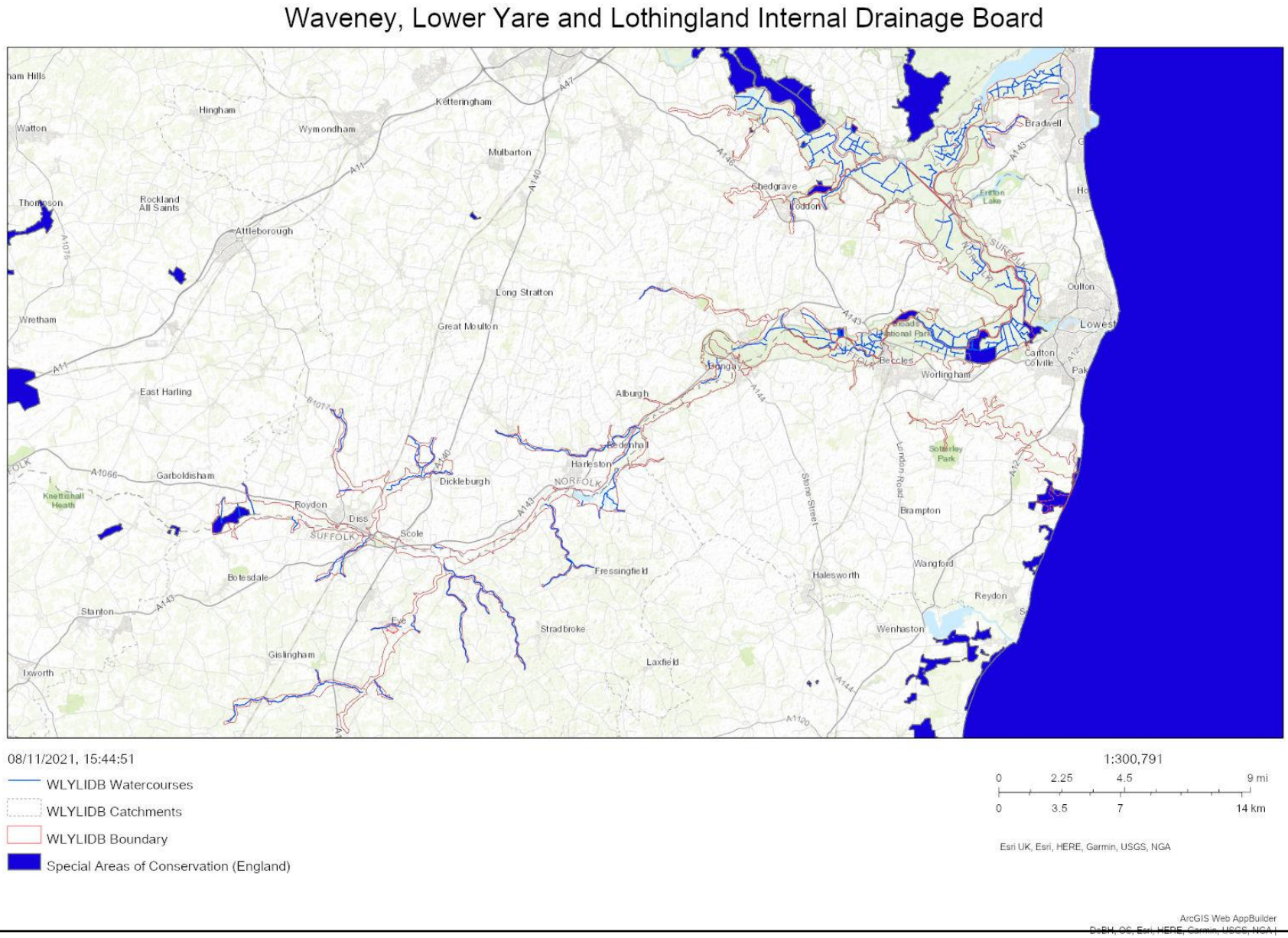
Scheduled Sites and Monuments		
SITE	**LOCATION**	**PROTECTED STATUS**
Burgh Castle Roman fort, vicus, pre-Conquest monastery and Norman motte and bailey castle	TG 47 04 Great Yarmouth, Norfolk	Scheduled Monument, Listed Building
Berney Arms windmill	TG 4651 0496 Reedham, Broadland, Norfolk	Scheduled Monument
Mill Hill bowl barrow, 650m north east of Caldecott Hall	TG 4780 0188 Belton with Branston, Great Yarmouth, Norfolk	Scheduled Monument
St Olave's Priory	TM 458 995 Great Yarmouth, Norfolk	Scheduled Monument, Listed Building
Langley Abbey	TG 3624 0291 Langley with Hardley, South Norfolk, Norfolk	Scheduled Monument, Listed Building
Claxton Castle	TG 3345 0367 Claxton, South Norfolk, Norfolk	Scheduled Monument, Listed Building, SHINE
Long barrow and round barrows on Broome Heath	TM 3446 9130 Ditchingham, South Norfolk, Norfolk	Scheduled Monument, SHINE
Earthwork on Broome Heath	TM 3428 9115 Ditchingham, South Norfolk, Norfolk	Scheduled Monument, SHINE
Scole Roman settlement	TM 1425 7892 Scole, South Norfolk, Norfolk	Scheduled Monument

10.3. Appendix 3: Internationally Designated Sites

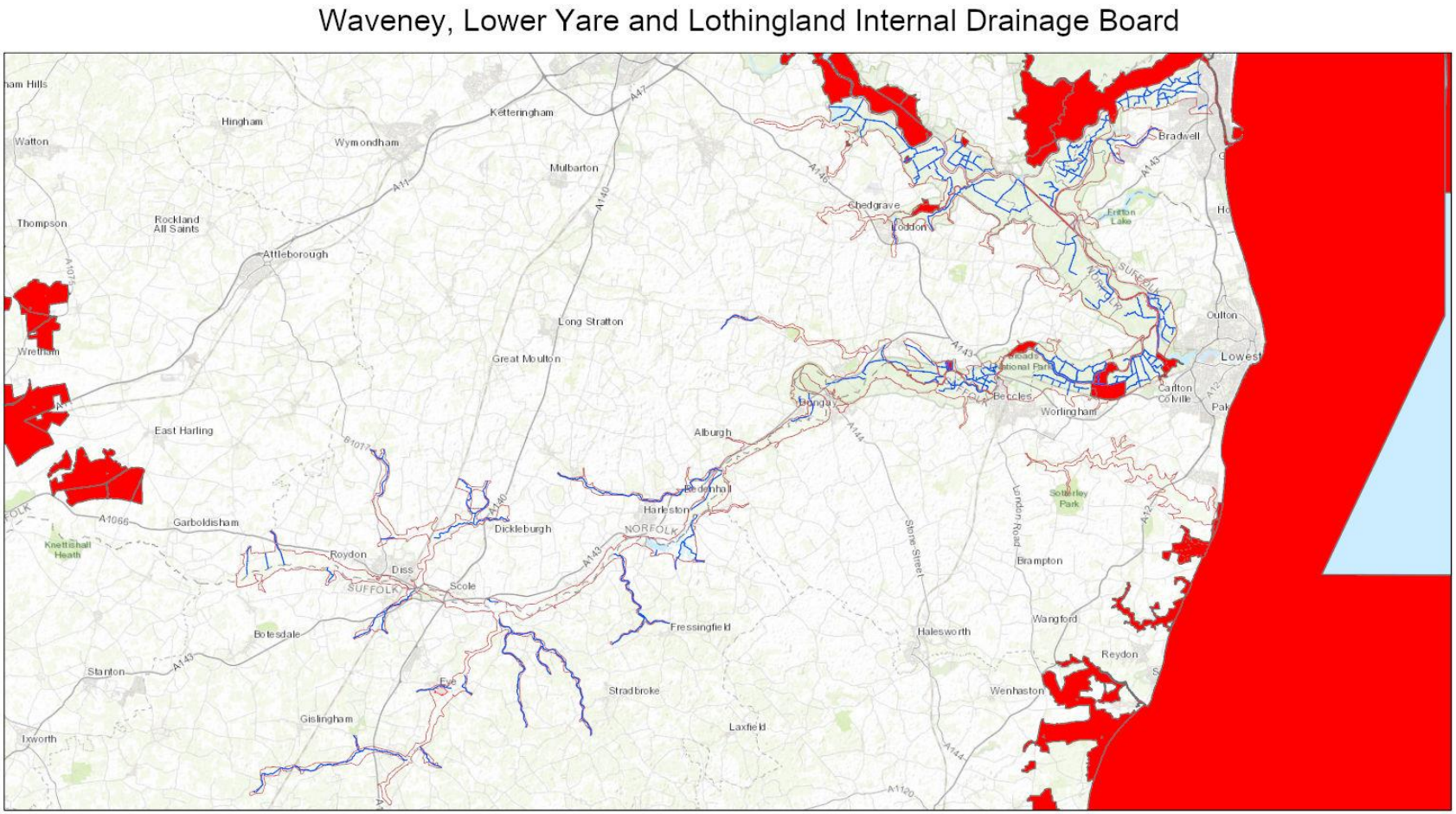
A map displaying Ramsar (England) sites within the WLYLIDB Boundary. (*OS Licence : 100047016*)



A map displaying Special Areas of Conservation (England) within the WLYLIDB Boundary. (*OS Licence : 100047016*)

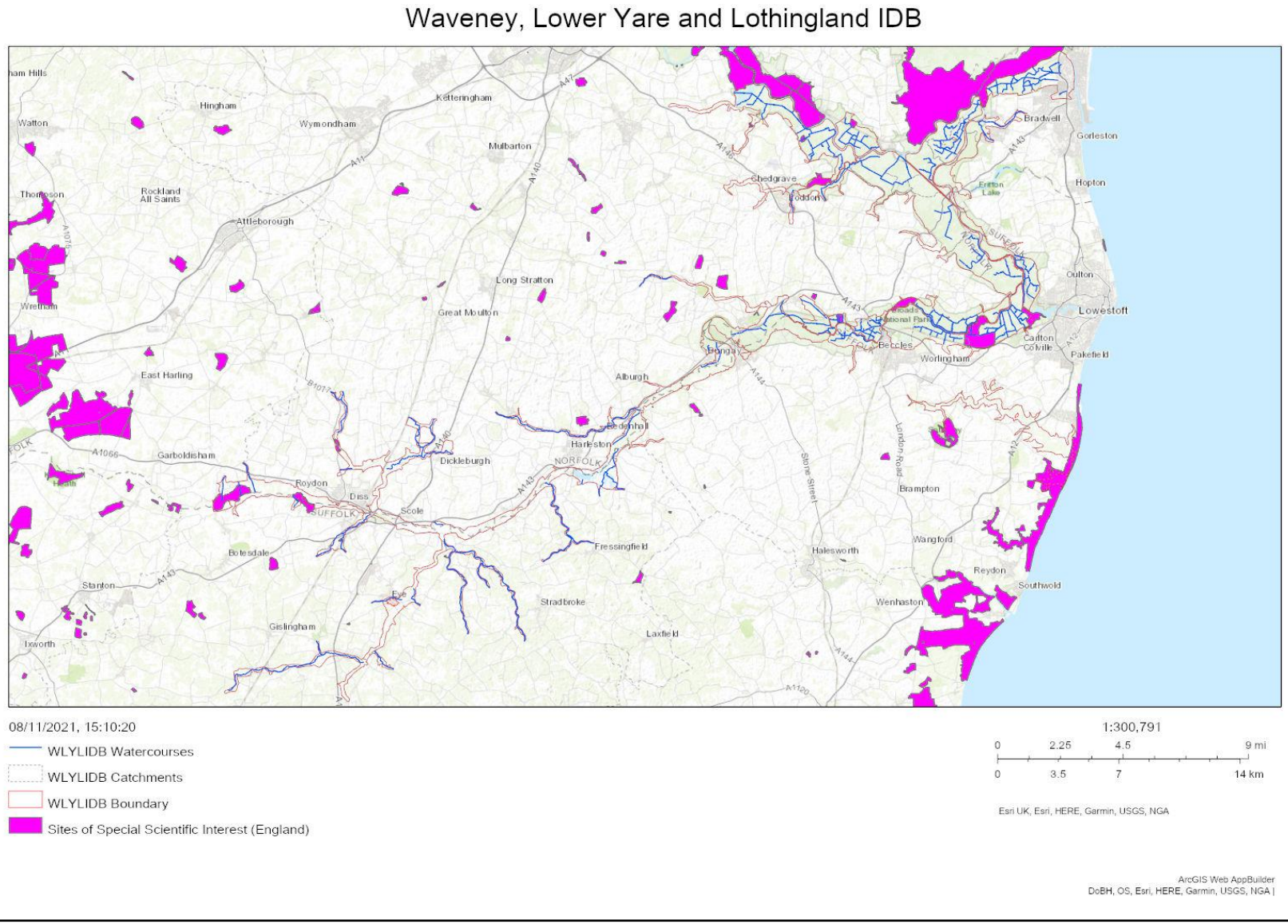


A map displaying Special Protection Areas (England) within the WLYLIDB Boundary. (*OS Licence : 100047016*)



10.4. Appendix 4: Nationally Designated Sites

A map displaying Sites of Special Scientific Interest (England) within the WLYLIDB Boundary. (*OS Licence : 100047016*)



10.5. Appendix 5: Non-Statutory Nature Conservation Sites

Table 4. Non-Statutory sites within the drainage district

Site name	Designation	Features Relevant to IDB
Adjacent to Little Fen	CWS	Area of dense scrub adjacent to the northern edge of Little Fen SSSI.
Adjoining River Waveney	CWS	Semi-natural woodland to the north of the River Waveney
Bath Hills Wood & Vineyard Wood	CWS	Woodland, grazing marshes, neutral-calcareous grassland. Supports breeding great crested newts
Beccles Common	CWS	Fen, acid grassland, lowland heath, scrub and woodland. Important for common lizards
Beccles Marshes	CWS	Grazing marsh. Important for Norfolk hawker dragonfly
Billingford Common	CWS	Ungrazed grassland, scattered scrubs and trees, fen, semi-natural woodland
Bremar Pony Stud	CWS	Species-rich marsh and neutral grassland
Bressingham Fen	CWS	Wet semi-natural woodland, carr woodland
Brockdish Common and Adj. Grassland	CWS	Semi-natural young woodland and scrub, supports various aquatic vegetation species
Burgh Castle	CWS	Semi-improved natural grassland, Reedbeds and tidal mudflats. Important for breeding and wintering birds.
Chedgrave Common and Marshes	CWS	Marshy Grassland, grazing marshes. Important for marsh plants and birds.
Dairy Farm Marshes	CWS	Consists of two marshes, grazed marshland underlain by peat
Dark Belt	CWS	Species-rich marshy grassland, semi-natural woodland
Depperhaugh Wood	CWS	Ancient woodland
Devil's End Meadows	CWS	Grassland, wet woodland, dry woodland, wet ditches dominated by reed
Dickleburgh Moor	CWS	Water meadow, species-rich ditches, open water, colonized by aquatic plants, mixed deciduous woodland, supports breeding birds
Ditchingham Park	CWS	Deciduous woodland, grazed meadows, supports interesting lichen communities
Dockeney Marsh	CWS	Network of grazing marshes, winter flooding provides good habitat for wintering birds, excellent vegetation communities
Ducan's Marsh	CWS	Damp neutral grassland, wet deciduous woodland, Old Fen, one of the richest areas of unimproved, wet valley grassland in East

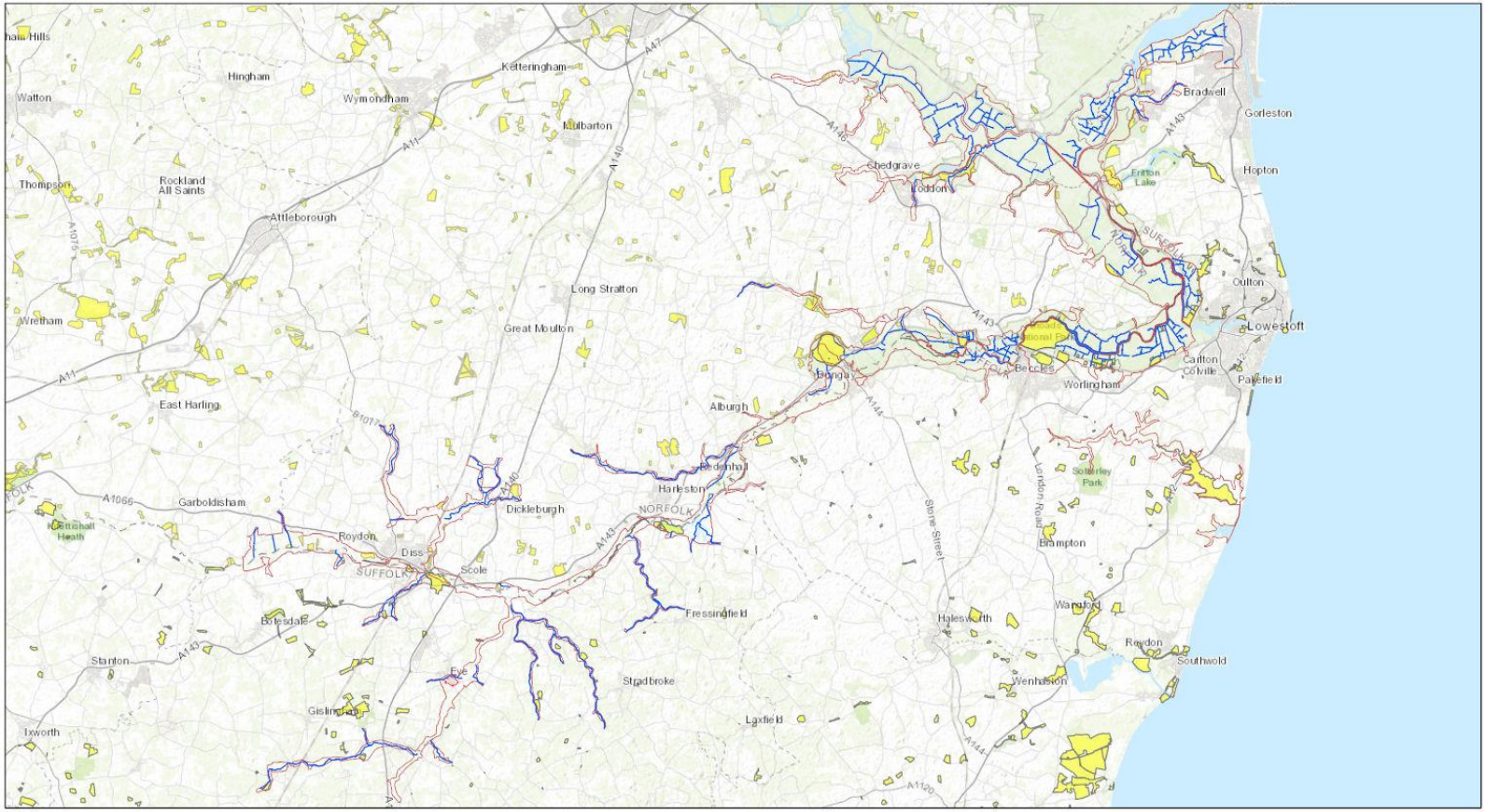
		Norfolk. Important for many plant communities and invertebrates
East of Billingford Common	CWS	Patchwork of wet woodland and swamp, parts of which are very overgrown and impenetrable
Flixton Decoy	CWS	Open water, alder carr woodland, important aquatic habitat for plants, invertebrates, fish and birds
Frenze Beck	CWS	Wetland, meadow, pasture, scrub, reedbeds, improved and semi-improved grassland, open swamp vegetation
Fritton Warren South	CWS	Low-lying grazing marsh with fen vegetation and carr, semi-improved neutral grassland, Alder dominated carr
Geldeston marshes	CWS	Grazing marsh lying in the floodplain of the River Waveney, herb-rich shorter grassland
Grassland at Aldeby Hall	CWS	Woodland and moderately species-rich marshy grassland
Grove Wood	CWS	Small ancient woodland
Hall Farm Meadow	CWS	Low-lying site that is wet year round, species diverse grassland, lightly grazed. Supports wintering birds
Hellington Low Common	CWS	Marshy grassland, acid grassland, scrubland. Important for Birds and Wetland plants.
Herringfleet Marshes	CWS	Grass heath surrounded by bracken, low scrub and woodland. Important for marsh plants, wading birds, and reptiles.
High Road Meadow	CWS	Fen, swamp and grassland lying in the valley of the River Waveney.
Horse Fen	CWS	Wet grassland which has been heavily invaded by scrub, and is generally neutral
Horse Fen Carr	CWS	Semi-natural woodland divided into two sections, to the north there is fairly open, alder dominated canopy, to the south fairly neglected, open canopy. Woodland surrounded by heavily vegetated ditches
Howards Common, Belton Common North and Wild Duck Caravan Park	CWS	Heathland, dwarf shrub heath, dry acidic grassland, scattered acidic scrub, broadleaved semi-natural woodland
Hoxne Meadow	CWS	In an area of ancient woodland, species rich mature hedge, herb-rich unimproved grassland
Kessingland Levels	CWS	Grazing marsh. Important for Norfolk hawker dragonfly, short eared owl, breeding birds
Kessingland Reedbed	CWS	Semi-natural habitat, reedbed, low scrub, species-diverse grassland. Supports breeding Cetti's warbler, grasshopper warbler, reed bunting
Land near Frenze	CWS	Large pond with well developed marginal vegetation surrounded by semi-natural woodland. Provides a good variety of habitats

		for birds
Land South of Frenze hall	CWS	Mixed deciduous wet woodland following the course of Frenze beck to the west
Lang Fen (South)	CWS	Carr woodland dominated by willow, other trees include alder, birch, and guelder-rose. Open area of fen dominated by reed
Limbourne Common Dykes	CWS	A network of drains associated with surrounding grazing marsh. Supports a diverse community of invertebrates, breeding birds, aquatic vegetation
Loddon Common & Heron House Marsh	CWS	Species-rich grassland and species-poor swamp adjacent to the River Chet and an area of alder carr.
Long Row	CWS	Typical of an ancient woodland
Low Road Meadows	CWS	Damp neutral or marshy grasslands, deep and wide drainage channels
Marsh Farm Meadows	CWS	Species-rich marshy grassland and broadleaved woodland in the Waveney valley
Marsh Lane Farm Marsh	CWS	Spring fed marshland, supports a variety of wetland plants including southern marsh-orchid and lesser spearwort
Meadows at Boon's Plantation	CWS	Species-rich marshy grassland in the Waveney valley, cattle grazed
New Dyke and Shipmeadow Marshes	CWS	Grazing marshes, small dyke system supporting a range of aquatic plants and overwintering bird species
North Cove Alder Carrs	CWS	Alder carr and wetland meadow. Important for birds and invertebrates
Norton Villa	CWS	Damp, peaty soils, orchard
Old Hall Carr and Marshes	CWS	Broadleaved woodland and coniferous plantation, marshy grassland and swamp in the Chet valley
Old Osier Bed	CWS	Reedbeds
Oulton Marsh	CWS	Unimproved marshes, reedbed, wet grazing marshes, provides good habitat for birds
Oulton Marsh Dykes	CWS	A marsh dyke system, supports a variety of marsh plant species, significant population of water soldier
Outney Common	CWS	Acid grassland, grazed common land, marshy meadows, prone to winter flooding, supports nesting bird species
Railway Meadows	CWS	Low-lying meadows, dense, species-rich hedges, grazing land
Redlingfield Wood	CWS	Woodland dominated by oak and ash, ancient woodland indicators
River Waveney (sections)	CWS	Species rich aquatic flora, Reedbed. Important for Depressed river mussel and Desmoulins

		whorl snail
RIver Waveney Meadows	CWS	Consisting of 3 meadows, acid grasslands, grazing meadows, low-lying waterlogged wetlands
Roydon Fen	CWS	Mosaic of woodland, scrub and fen
Scotland	CWS	Wet woodland situated adjacent to a river, varied canopy and shrub
Share Marsh Dykes	CWS	Semi-improved grazing marshes, supports wintering waders, raptors, aquatic plants
Shimpling Pond	CWS	Small pond fed by ditches, open water surrounded by a wide band of marginal vegetation
Station Road Meadow	CWS	Marshy grassland crossed by wide dykes, cattle grazed, species rich, supports charophyte species
Stuston Common	CWS	Lowland calcareous grassland, neutral and acid grassland. Supports great crested newts, breeding birds, and invertebrates
Syleham Churchyard	CWS	Wet, unimproved grassland which supports a good number of devil's-bit scabious and meadow saxifrage
The Beck Meadow	CWS	Consists of 3 damp meadows north of the Hellington Beck, listed for their species-rich fen flora
The Carr	CWS	Marshy species-rich grassland, open fen, patchy scrub, wet carr
Thrandeston Marsh	CWS	Poor grassland, dominated by rye grass, grazing land, unimproved wet meadows
Timber Shrubs	CWS	Plants typical of an ancient woodland
Topcroft Farm Meadows	CWS	Herb-rich grassland, flood meadow, rush dominated pasture
Weybread Marshes	CWS	Small floodplain grazing marshes, supports a species-rich wetland plant community
Weybread Pits	CWS	Disused pits colonized mainly by alder, with smaller pits surrounded by scrub woodland. Supports breeding great crested grebe, wader species
Wheatacre marshes	CWS	Semi-natural carr and marshy grassland at the edge of the Waveney valley flood plain, cattle-grazed grassland
Willow Farm Meadow	CWS	Marshy grassland which is bisected by a stream, cattle-grazed

A map displaying the County Wildlife Sites within the WLYLIDB District (*OS Licence : 100047016*)

Waveney, Lower Yare and Lothingland Internal Drainage Board



08/11/2021, 15:19:01

- WLYLIDB Watercourses
- WLYLIDB Catchments
- WLYLIDB Boundary
- County Wildlife Sites Norfolk
- County Wildlife Sites Suffolk

1:300,791

0 2.25 4.5 9 mi

0 3.5 7 14 km

Esri UK, Esri, HERE, Garmin, USGS, NGA

ArcGIS Web AppBuilder
DoBH, OS, Esri, HERE, Garmin, USGS, NGA |

10.6. Appendix 6: Biodiversity Action Plan Objectives

Waveney, Lower Yare and Lothingland IDB Biodiversity Action Plan Objectives	
1	Continue to maintain or enhance the existing extent and quality of Coastal and Floodplain Grazing Marsh through appropriate river management, delivering river restoration schemes or providing Natural Flood Management solutions.
2	Implement restoration and WLMP objectives for Fen priority habitat within the IDB area.
3	Implement restoration of reedbeds and WLMP objectives for the IDB and identify opportunities elsewhere to restore or enhance reedbed, particularly via the river restoration process.
4	Enhance and maintain habitat and species diversity on watercourses maintained by the Board.
5	Enhance and maintain the flora and fauna of the watercourses maintained by the Board.
6	Ensure compliance to Boards Standard Maintenance Operations (SMO) to maintain rivers and drains.
7	Continue to enhance the range and population of Barn Owls and Kestrels by maintaining or enhancing habitat availability and creating nesting opportunities, within the catchment area.
8	Work in partnership to enhance wet grassland for breeding waders within the Boards area.
9	Contribute toward the Eel Regulations legislative requirements (2009) and the Eel Management Plan.
10	Undertake EDNA water sampling for Eel
11	Maintain and where possible increase the range of Grass Snake within the Board's area.
12	Understand the status, distribution and ecology of fen raft spiders in the IDB district
13	Understand the status, distribution and ecology of bats in the IDB district
14	Maintain and enhance the current distribution and abundance of bats within the Board's area.

15	Control mink with the IDB catchment
16	Better understand population and extent within the Boards area.
17	Ensure the appropriate sensitive management of watercourses which will facilitate the maintenance and enhancement of the current distribution and abundance of the Water Vole in the IDB District.
18	Establish Black Poplar at appropriate sites within the IDB district
19	Promote the prevention, control and eradication of non-native invasive species within the Board's area.
20	Raise awareness of the presence and undertake control or eradication of mink in the catchment

10.1. Appendix 7: Habitats and Species Action Plans

Waveney, Lower Yare and Lothingland IDB Biodiversity Action Plan Actions		Partners	Date
COASTAL AND FLOODPAIN GRAZING MARSH			
1a	Continue to work in partnership with stakeholders to look for opportunities, to enhance grazing marshes by appropriate water level management practice.	SWT, RSPB, NRT, NE, EA, Landowners	Ongoing
1b	Work in partnership with the Suffolk Wader Strategy Group	Suffolk Wader Strategy Group	Ongoing
1c	Where funding opportunities arise, prioritise and undertake a review of WLMPs in WLYLIDB SSSIs over the next 5 year period.	NE	Ongoing
LOWLAND FENS			
2a	Continue to work in partnership with stakeholders to look for opportunities, to enhance fen habitat by appropriate water level management practice.	RSPB, NE, NWT, Landowners	Ongoing
2b	Work in partnerships to implement Fen Restoration within the IDB area whilst undertaking ELMS objectives and Capital projects.	NWT, NE, EA, Landowners	Ongoing
REEDBEDS			
3a	Continue to work in partnership with stakeholders to look for opportunities, to enhance reedbeds by appropriate water level management practice.	RSPB, NE	Ongoing
3b	Identify potential sites for habitat restoration and expansion within the IDB area during WLMP and Capital Scheme delivery and consider future management planning on these sites during this process. .	NRT, NE, EA, SRT, SWT, Landowners	Ongoing

3c	Enhance and maintain reedbed fringe habitat on the Boards main drains.		Ongoing
3d	Explore opportunities to create new reedbeds and link with other reedbed projects to create corridors for wildlife.	NRT, NE, EA, SRT, SWT, Landowners	Ongoing
RIVERS, CANALS AND DRAINS			
4a	Work with the planning department to review the boards culverting policy	Planning Department	2024
4b	Identify opportunities to record species present in watercourses managed by the board	NBIS, SBIS	Ongoing
5a	Work in partnership with the EA to report pollution incidents within the IDD	EA	Ongoing
6a	The SMO will be produced		2022
6b	Ensure compliance with the IDB SMO by auditing on identified number of maintenance works jobs annually, to ensure they are being carried out to an agreed standard across the whole board.		Annually
BARN OWL AND KESTREL			
7a	Continue to monitor nest boxes within the IDB area working in partnership with the Suffolk Community Barn Owl Project	WCP	Ongoing
7b	Continue to maintain, repair or replace nest boxes in the IDB area working in partnership with the Suffolk Community Barn Owl Project	Suffolk Community Barn Owl Project	Ongoing
7c	Continue to maintain sward height during bankside maintenance mowing of 150mm.	Staff, Contractors	Ongoing
BREEDING WADERS			
8a	Attend the Suffolk Wader Strategy Group meetings	Suffolk Wader Strategy	Annually

		Group	
8b	Where funding opportunities arise, prioritise and undertake a review of WLMP in WLYLIDB SSSI's over 5 years.	RSPB, BA, NWT, SWT	Ongoing
8c	Look at opportunities to create scrape on wetland SSSI's whilst working in partnership. One per year.	RSPB, BA, NWT, SWT	Annually
8d	Look for opportunities when undertaking Capital schemes to improve habitat for wading birds	Suffolk Wader Strategy Group, RSPB, NE, SWT	Ongoing
EUROPEAN EEL			
9a	Work in Partnership with the Environment Agency to access the current status of Eel populations at pumping stations within the Boards Area.	EA, ZSL	Ongoing
9b	Work in Partnership with the Environment Agency to identify barriers to migration in the Boards area and assess options for overcoming these.	EA, ZSL	Ongoing
9c	Review Eel passing points at IDB pumping stations and sluices.	EA	Ongoing
10a	Undertake EDNA water sampling at pumping stations for fish, including Eel (As part of pumping station replacement)	EA	Ongoing
10b	Report EDNA results to the NBIS and SBIS	NBIS, SBIS	Ongoing
GRASS SNAKE			
11a	Determine the extent and distribution of the existing populations at the Board's pumping stations and on key drains using ESRI maps.	SBIS, NBIS	Ongoing
11b	Using the distribution data, develop Hibernacula and egg laying sites at pumping stations or key locations where appropriate.		Ongoing

11c	In partnership with ARG UK (The Amphibian and Reptile groups of the UK), monitor the status of this species in certain key areas.	ARG UK	Ongoing
FEN RAFT SPIDER			
12a	Survey and monitor for Fen Raft Spiders within the relevant IDB drains	SWT	May - September ongoing
12b	Produce a management plan for Water soldier in IDB drains to enhance feeding and nesting opportunities for Fen Raft Spider	SWT	Ongoing
BATS			
13a	Survey and monitor bat presence around IDB pumping stations as part of the BTO Norfolk Bat Survey.	BTO	Ongoing
14a	Install bat boxes for roosting and hibernation on suitable IDB structures		Ongoing
WATER VOLE			
15a	Continue to contribute funding to the Norfolk Mink Project and SWT for mink control/ eradication	WLRE, SWT	Annually
15b	Continue to work with the WLRE and the Norfolk Mink Project on mink eradication.	WLRE, Norfolk Mink Control Project	Annually
16a	Undertake yearly recording by operational staff and report to local biodiversity record centres	NBIS, SBIS	Annually
17a	Ensure compliance with the IDB SMO by auditing 4 jobs per year jobs, to ensure they are being carried out sensitively and to an agreed standard across the Board.		Annually
NATIVE BLACK POPLAR			
18a	Liaise with the Suffolk Black Poplar Working Group to identify suitable sites and opportunities for planting Native Black Poplar within the IDB district	NCC, SCC, Suffolk Black Poplar	Ongoing

		Working Group	
18b	Plant young Black Poplar at suitable sites	NCC, SCC	Ongoing
NON NATIVE INVASIVE SPECIES			
19a	Establish a partnership with the NBIS and SBIS to receive up to date records of Invasives within the local area.	NBIS, SBIS	Ongoing
19b	Continue to contribute to and work in partnership with the Norfolk Non-Native Species Initiative (E.g. Floating pennywort).	NNNSI	Ongoing
19c	Maintain records for all species of concern using the 'iRecord' app.	NNNSI, Staff, Contactors	Ongoing
19d	Train staff regularly in key non-native species identification.	NNNSI, Staff, Contactors	Ongoing
19e	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, Contactors	Ongoing
19f	Regularly review and ensure robust biosecurity measures are being maintained across the Board.	Staff, Contractors	Ongoing
20a	To continue to work in partnership with Mink control/eradication groups	Norfolk Mink Project, WLRE	Ongoing
20b	Maintain 10 IDB traps within the catchment	Norfolk Mink Project, WLRE	Ongoing
20c	Report catches to the WLRE and the Norfolk Mink Project	Norfolk Mink Project, WLRE	Ongoing