

COWICK AND SNAITH
INTERNAL DRAINAGE BOARD
BIODIVERSITY ACTION PLAN

October 2015

This Biodiversity Action Plan has been prepared by the Cowick and Snaith Internal Drainage Board in accordance with the commitment in the Implementation Plan of the DEFRA Internal Drainage Board Review for IDBs to produce their own Biodiversity Action Plans.

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

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

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

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Date

Chairman of the Board

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

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

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Further information is available on the Board's website: www2.eastriding.gov.uk/environment/sustainable-environment/internal-drianage-board/

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I IDB BIODIVERSITY – AN INTRODUCTION

I.1 Introduction

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

The action plan will help to safeguard the biodiversity of the drainage district now and for future generations. Species and habitats which are not listed in the UK BAP (or listed as being of principal importance in the NERC Act) but may be locally significant for a variety of reasons have also been considered.

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

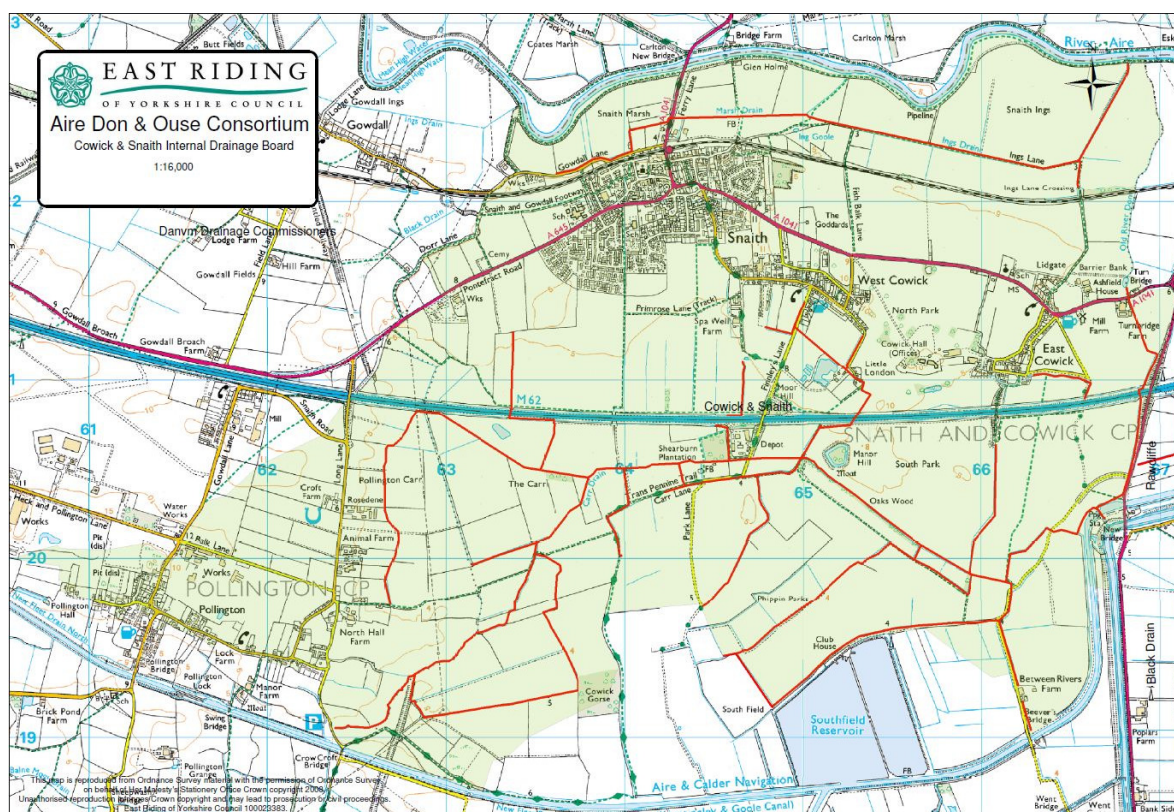


Figure I. Cowick and Snaith Internal Drainage Board area

The IDB area is coloured yellow and covers 1,483 ha. The IDB managed drains and ditches are coloured in red. The motorway is the M62.

I.2 What is Biodiversity?

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

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

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

1.3 The Importance of Conserving Biodiversity

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

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

1.4 The Biodiversity Action Planning Framework

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

1.5 Biodiversity – The International Context

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

The most recent convention on biological diversity was held in Nagoya, Japan in October 2010 and adopted the revised *Strategic Plan for Biodiversity 2011-2020*. This includes new targets which are known as the ‘Aichi targets’ as Nagoya is situated in Aichi prefecture. The 190 countries attending agreed to translate this overarching international framework into revised and updated national biodiversity strategies.

1.6 Biodiversity – The National Context

The UK responded to Article 6A of the Rio Convention on Biological Diversity by producing the Biodiversity Action Plan (UK BAP) in 1994. It identified the UK’s priority species and habitats, and national species and habitat action plans (SAPs and HAPs) were prepared for many of these. These BAP priority species and habitats have since been listed as species and habitats of *principal importance for the conservation of biodiversity* under schedule 41 of the Natural Environment and Rural Communities (NERC) Act 2006. This Act places a duty on all public bodies to have regard to biodiversity in the exercise of their functions.

The original UK BAP has been superseded by *Biodiversity 2020: A strategy for England’s wildlife and ecosystem services*. This contains four main themes with a number of actions under each. The most relevant theme for IDBs is *Theme 3: Reducing environmental pressures*. This theme includes the heading ‘Water Management’ which lists Priority Action 3.7 - *Continue to promote approaches to flood and erosion management which conserve the natural environment and improve biodiversity*. Under the heading ‘Invasive Non-Native Species’ it lists priority action 3.9 - *Continue to implement the Invasive Non-Native Species Framework for Great Britain*.

Biodiversity 2020 takes a broader approach to biodiversity than the original UK BAP. It is more focused on environmental outcomes rather than the detailed HAP and SAP targets which characterised the approach of the UK BAP.

1.7 Local Biodiversity Action Plans

The East Riding of Yorkshire Local Biodiversity Plan was adopted by the Council in November 2010. It provides a framework for biodiversity action and should be integrated with other biodiversity action plans and landscape scale approaches to biodiversity.

1.8 Internal Drainage Boards and Biodiversity

Section 40 of the NERC Act 2006 concerns the duty to conserve biodiversity. It states that *every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.*

The Act states that conserving biodiversity includes restoring or enhancing a population or habitat. In so doing, an IDB should have regard to the schedule 41 list published by the Secretary of State of living organisms and types of habitat that are of principal importance for the purpose of conserving biodiversity. This list comprises the original UK BAP priority species and habitats for England.

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

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

1.9 The Aims of the IDB Biodiversity Action Plan

The aims of this IDB BAP are:

- 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; and
- To ensure that opportunities for conservation and enhancement of biodiversity are fully considered throughout the IDB's operations

2 THE IDB BAP PROCESS

2.1 The Biodiversity Audit

To produce this IDB Biodiversity Action Plan, information on the habitats and species present in the catchment was first obtained. This Biodiversity Audit involved the collation of existing data held by the North and East Yorkshire Ecological Data Centre (NEYEDC).

2.2 Evaluating and Prioritising Habitats and Species

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

Further habitats and species may be added in the future, as knowledge is improved and delivery of the IDB BAP is reviewed.

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

2.3 Setting Objectives

For each habitat and species identified as being important to the IDB, conservation objectives have been drawn up and set out in the Plan. The objectives express the IDB's broad aims for benefiting a particular habitat or species. The objectives are considered to be proportionate and practicable given the resources available.

Procedural actions have also been considered. These are actions that the Board will use to consider and incorporate biodiversity across the whole range of its operations. These may involve changes to administrative, management and operating procedures.

2.4 Implementation

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

2.5 Monitoring

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

2.6 Reporting and Reviewing Progress

It is important to review the implementation of the BAP and assess changes in the status of habitats and species and the overall feasibility of the objectives. The Plan sets out the methods the IDB will be using to review the delivery of targets and to communicate progress to partner organisations and the public.

3 THE BIODIVERSITY AUDIT

3.1 Introduction

The following sections 4, 5 and 6 summarise the results of the Biodiversity Audit, undertaken in 2015. Section 4 provides information about the drainage district and a list of the nature conservation sites that occur within or bordering its boundaries. Sections 5 and 6 list respectively the habitats and species occurring within the district that are of potential importance to the IDB.

3.2 Local Biodiversity Action Plans

The following Local Biodiversity Action Plan covers the IDB's drainage district:

- East Riding of Yorkshire Biodiversity Action Plan

3.3 IDB Biodiversity Audit Boundary

The Biodiversity Audit covers the entire district of the IDB. The data search included a 2 km buffer around the IDB boundary. Where data has been obtained that shows a record of a species in a 1 km square or 10 km square which the district wholly or partially covers, this has been included in the area of the audit.

3.4 Sources of Data - Habitats

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

- GIS data on priority habitats – Priority Habitat Inventory (England), published 24/11/2014
- North and East Yorkshire Ecological Data Centre

3.5 Sources of Data - Species

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

- North and East Yorkshire Ecological Data Centre

4 NATURE CONSERVATION SITES

4.1 The Drainage District

The drainage district covers an area of 1,483 ha and contains 28 km of IDB-maintained watercourses. It is located in the Humberhead Levels to the south of Selby and to the west of Goole. The northern boundary of the IDB is the tidal river Aire and the southern boundary reaches the Aire and Calder navigation in two locations.

4.2 Geology

Prior to the extensive drainage works undertaken during the 17th and 18th centuries, most of the area would have been marshland. It would have been subject to flooding from tidal, river and rainfall. The vegetation was probably dominated by reed beds and fen with some wet woodland. As this vegetation rotted down it formed peat. Much of the productive farmland was created by the process of warping. This used repeated temporary flooding of the land with river water to deposit layer upon layer of silt, which built up the level of the land and improved the fertility and mineral content. The present day soils are largely a result of this process.

4.3 Landscape

4.3.1 Landscape Designations

There are no statutory or non-statutory landscape designations within the Cowick and Snaith IDB area.

4.3.2 Landscape Character

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

The Humberhead Levels is a flat, very low-lying and large scale agricultural landscape. It is characterised by large geometric fields bounded by ditches. Much of the area is dependent on pumping to keep the water table down. Tree cover is generally well below the national average and consequently the area has many long views and wide open vistas.

The East Riding Landscape Character assessment classified most of the district as Type 8 (c) – M62 Corridor Farmland.

4.3.3 Sites and Monuments Records

There is one statutory scheduled ancient monument within the IDB district which is the Manor Hill moated site situated at grid reference SE652205.

4.3.4 Tree Preservation Orders

A large part of the centre of Snaith is designated as a Conservation Area. This is a built heritage designation which also provides protection to trees within the designation. There are a number of Tree Preservation Orders (TPOs) covering the outskirts of Snaith. In the rural area, Oaks Wood at SE653203 and the nearby Manor Hill at SE652205 (moated site) are covered by TPOs.

4.4 Statutory Nature Conservation Sites

4.4.1 International Sites

There are no internationally-designated conservation sites within the IDB area.

4.4.2 National Sites

There are no nationally-designated conservation sites within the IDB area.

4.4.3 Local Nature Reserves

There are no Local Nature Reserves within the IDB area.

4.5 Non-Statutory Local Sites

The East Riding of Yorkshire has a system of Local Wildlife Sites (LWS). Whilst these designations do not have statutory status, the sites themselves are important for their contribution to biodiversity and planning policy requires that they are given consideration. The system of LWS in the East Riding has been subject to an extensive review since 2007. As part of the review process all sites are surveyed with landowner permission and assessed against objective guidelines, before being either deleted or adopted as LWS. Candidate LWS are those sites which have not yet been subject to survey and review. The following LWS are situated within or bordering the drainage district:

Table 1. Non-Statutory Designations

Site name	Grid reference	Designation	Features Relevant to IDB
Sand Quarry, Pollington	SE613201	Candidate Local Wildlife Site (cLWS)	None, site mostly scrub, woodland and disturbed open ground
Oaks Wood, Phippin Parks	SE653203	Candidate Local Wildlife Site (cLWS)	None, site is woodland
Snaith Pit	SE649222	Candidate Local Wildlife Site (cLWS)	None, site is woodland

5 HABITAT AUDIT

5.1 Habitat Audit Summary

This habitat audit summary lists the broad habitat types and UK BAP priority habitats that occur within the IDB district as identified by the information-gathering exercise. These habitats are listed in section 41 of the NERC Act as habitats of principal importance for the conservation of biodiversity. Also listed are habitats deemed to be of local importance and/or featured in the county Local Biodiversity Action Plan that occur in the IDB district. Habitats that are of potential importance for the IDB, where water level management or other IDB activities may be of benefit, are identified. Finally, brief notes are included on the potential for the IDB to maintain, restore or expand its important habitats.

Table 2. Habitat Audit Summary

Broad Habitat Types	UK BAP Priority Habitat	Local Biodiversity Action Plan Habitat	Habitat of Importance for IDB	Location of Habitat of Importance for IDB	IDB Potential for Maintaining, Restoring or Expanding Habitat
Broadleaved, mixed and yew woodland	Lowland mixed deciduous woodland	Woodland	Woodland	Approximately 18 ha scattered throughout the area. Nearly all is in blocks less than 3 ha. All woodland in the IDB area is of relatively recent origin. There is no ancient woodland in the IDB area.	Low
Traditional Orchard	Traditional Orchard	Traditional Orchard	Traditional Orchard	Two small sites totalling 0.36 ha in Snaith and Pollington.	Low
Standing Open Water and Canals	Ponds	Ponds	Ponds	There are a few ponds in the IDB area totalling less than 3 ha.	Low
Standing Open Water and Canals	n/a	Drainage ditches	Drainage ditches	Extensive throughout the IDB area.	HIGH
Littoral sediment	Intertidal Mudflats	Intertidal Mudflats	Intertidal Mudflats	The northern boundary of the IDB area is a tidal	Low

				section of the River Aire which includes a narrow strip of mudflats.	
Arable & Horticulture	Arable field margins	Arable field margins	Arable field margins	Extensive throughout the IDB area.	Medium
Boundary and Linear Features	Hedgerows	Hedgerows	Hedgerows	Relatively scarce in the IDB area as many field boundaries are formed by ditches.	Medium

5.2 Habitats of Importance for the IDB

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

5.2.1 Drains and Ditches

Description: Drains and ditches are man-made watercourses which help to lower the water table and store and transport water. The water in these systems is usually slow flowing and so the aquatic plant and animal communities are similar to those found in ponds. In addition to the aquatic habitats, the ditches also support terrestrial semi-natural vegetation on the banksides. This habitat is usually dominated by grasslands but may also include hedgerows and trees. Both the aquatic and terrestrial habitats can support a range of species and can also be important as corridors for wildlife. Drainage channel networks are important semi-natural habitats in landscapes dominated by intensive arable farming.

Relevance to IDB: The IDB is responsible for the management of the majority of the drain and ditch habitat in the district. Drains and ditches require regular maintenance work on a cyclical basis to maintain their land drainage function. The biodiversity interest also requires a sympathetic management regime to sustain the habitats and species. If the drains and ditches were not managed the watercourses would become choked with dense swamp vegetation, such as reeds, and the banksides would be colonised by trees and bushes.

6 SPECIES AUDIT

6.1 Species Audit Summary

This species audit summary lists the BAP priority species that occur within the IDB district as identified by the information-gathering exercise. These species are listed in section 41 of the NERC Act as species of principal importance for the conservation of biodiversity. Also listed are species deemed to be of local importance and/or identified in the county Local Biodiversity Action Plan that occur in the IDB district. Species that are of potential importance for the IDB, where water level management or other IDB activities may be of benefit, are identified. Finally, brief notes are included on the potential for the IDB to maintain or increase the population or range of species of importance.

The IDB district is likely to be unrecorded, but the inclusion of the 2 km buffer in the search area shows species recorded close to the IDB area, some of which may be present within the IDB area.

Table 3. Species Audit Summary

Common Name	Group	Order	Scientific Name	UK BAP / NERC section 41 Species	Local Biodiversity Action Plan(s) Species	Non-BAP Species But Important in IDB District	Location of Species of Importance for IDB	IDB Potential for Maintaining or Increasing Species Population or Range
Great Crested Newt	Herptiles	Amphibian	<i>Triturus cristatus</i>	Yes	Yes		A pond approximately 1.6 km north west of the IDB area	Low
Water Vole	Terrestrial mammals	Terrestrial mammals	<i>Arvicola amphibius</i>	Yes	Yes		East Drain SE667226 (2013)	HIGH
Otter	Terrestrial mammals	Terrestrial mammals	<i>Lutra lutra</i>	Yes	Yes		The river Aire north of Cowick	Medium
Reed Bunting	Birds	Bird	<i>Emberiza schoeniclus</i>	Yes	Yes		Recorded outside IDB area but likely to be present in IDB	Medium

Barn Owl	Birds	Bird	<i>Tyto alba</i>	No	Yes		Recorded outside IDB area but likely to be present in IDB	Medium
Bats	Terrestrial mammals	Terrestrial mammals		Yes			Several species recorded in the IDB area	Low
Eel	Fish	Fish	<i>Anguilla anguilla</i>	Yes			Not recorded within IDB area but almost certain to be present	Medium

6.2 Species of Importance for the IDB

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

6.2.1 Water Vole

Description: It is larger than other vole species, a similar size to rats but with a more rounded muzzle. It lives in burrows in river and ditch banks and feeds on a wide range of bankside vegetation. Water voles are protected under the 1981 Wildlife and Countryside Act (as amended) (W&C Act).

Relevance to IDB: Water voles are dependent on both the aquatic and bankside habitats in the drainage network. The majority of these habitats in the drainage district are managed by the IDB and therefore appropriate management by the IDB is of key importance for the conservation of water vole populations.

7 HABITAT AND SPECIES ACTION PLANS

7.1 Habitat and Species Action Plans

The Habitat and Species Action plans comprise the objectives and actions that the IDB has identified for each of its habitats and species of importance. The action plan format has been slightly revised to reflect the development of UK biodiversity policy. The action plans focus on objectives and actions rather than targets.

In addition to the Habitat and Species Action Plans, a Procedural Action Plan has been developed which addresses cross-cutting issues which may affect biodiversity. An Invasive Non-Native Species Action Plan has been developed to address the specific threat posed by these species to the drainage district.

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

8 HABITAT ACTION PLANS

8.1 Drains and Ditches

Drains are the main channels which transport water to the main river systems, where it is usually discharged by pumping. Ditches are the smaller channels which feed into the drains. Drains are normally wider than ditches and have some water all year round. Some ditches dry out in summer and this may vary from year to year depending on the weather. The water flow is usually very slow and therefore they can support a similar range of plants and invertebrates to those found in ponds.

The bankside vegetation also forms an important semi-natural habitat. This is usually dominated by grassland, but can also include hedgerows and scattered trees. The bankside habitats can support a range of invertebrates such as butterflies; mammals such as voles; and birds such as reed bunting and barn owl. It can also be important as a corridor helping to link other areas of semi-natural habitat, such as woodlands and road verges.

Management Issues

The biodiversity value of drains and ditches is dependent on their management. If they were not managed the open water and bankside grassland habitats would change over time to other habitats. The watercourses would be colonised by reeds and eventually wet woodland. The bankside grasslands would be colonised by trees and bushes. This process of change from one vegetation type to another is called succession in ecology. Management of the drainage network halts and reverses this process and therefore helps to maintain the open water and grassland habitats. However the intensity, frequency and timing of the management can have significant impacts on biodiversity. Over-intensive management can significantly reduce the biodiversity value of the drains and ditches.

After a watercourse has been de-weeded there is little or no floating, or submerged vegetation. However this vegetation will start to recolonize and after a few years is at an optimal stage of succession for many aquatic invertebrates, as there is still plenty of open water. Eventually the vegetation becomes dominated by emergent swamp species, such as reeds and bulrushes. At this stage there is little open water, as the vegetation is too dense, and the aquatic flora and fauna is lost. The drains and ditches therefore need to be de-weeded at appropriate intervals. This is typically around every seven years depending on the rate of weed growth. It is also important to manage the watercourses on a cyclical rotation so that there are also different stages of vegetation growth throughout the drainage network. This fits very well with the practical management of the system as only a small proportion of the watercourses need to be de-weeded in any one year. De-silting is usually only required on a much longer cycle. In practice this should be only when necessary depending on the amount of sediment deposition.

A similar principle of cyclical maintenance should be applied to the bank side vegetation to maintain the grassland-dominated habitats. This vegetation should be cut or flailed annually on the main drains, with the smaller ditches cut every two to three years.

The timing of the management of both the watercourses and banksides is important. To avoid adverse effects upon biodiversity, such as damaging flora and fauna during their reproductive cycles, management should be carried out in autumn, typically September / October. This allows the bankside vegetation to flower and set seed, and avoids the bird nesting season. It is also practical as it takes place after crops have been harvested.

There will always be some fluctuations in water levels within the drainage network. This will typically include occasional very high levels after storm events, usually in autumn and winter. There will also be periods of low water levels during summer droughts. These will lead to some ditches drying out and in some cases this will happen in most summers. This is not entirely negative from a biodiversity perspective as drying out removes fish from these ditches, benefitting some invertebrates and amphibians whose larvae / tadpoles may be predated by fish. However, large fluctuations in water levels can have negative impacts on some biodiversity, including water voles. Main drains should remain permanently wet to maintain populations of aquatic plants and invertebrates.

The growth of aquatic weeds and algae can become excessive and problematic due to high nutrient levels in the water. This is called eutrophication and can be caused by agricultural fertilisers, such as nitrates and phosphates, entering the water through run-off.

In general, pesticides should not be used for routine maintenance to avoid potential pollution harming non-target species. There may be circumstances in which pesticides are the only practical option to treat certain pernicious weeds, such as giant hogweed, which cannot be controlled effectively by other means. Only those products which are permitted to be used near watercourses should be used.

Invasive non-native species are an important issue which are addressed in a separate action plan (see section 11).

Local Status

Drainage ditches occur extensively throughout England. The density of drainage ditches is particularly high in areas which have been reclaimed from former extensive marshlands. These are principally in the lowlands of eastern England and some other coastal areas. In the East Riding there are extensive networks of drainage ditches in Holderness, the Humberhead Levels and parts of the Vale of York.

Status within the Drainage District

The extent of drains and ditches within the IDB district which are managed by the IDB is 28 km. This includes all the main drains within the IDB, and some smaller ditches, and accounts for the majority of this habitat within the district. There are also many smaller ditches within the district.

Threats

The key threats to the biodiversity of drains and ditches are as follows:

- A lack of management, leading to loss of the open water and grassland habitats;
- Over-intensive management which harms the reproductive cycles of flora and fauna;
- Pollution e.g. from farm pesticides, industrial outfalls, accidental discharges;
- Eutrophication from run-off / seepage of agricultural fertilisers;
- Large fluctuations in water levels; and
- Invasive non-native species (including aquatic and terrestrial species)

Objectives

Objective Reference	Objective	Action Reference	IDB Actions	Partners	Date
1	Maintain open water (early succession stage) aquatic habitat	1.1	De-weed as necessary on a rotational basis	Contractors	As necessary
		1.2	De-silt drains and ditches only when necessary	Contractors	As necessary
		1.3	Maintain water levels to ensure main drains always carry water	Contractors	On-going
2	Maintain (tall) grassland- dominated habitat on banksides	2.1	Cut bankside vegetation on main drains every year in late summer / autumn	Contractors	Annually
		2.2	Cut bankside vegetation on ditches every 2-3 years in late summer / autumn	Contractors	Biennially
3	Minimise large changes in water levels	3.3	Manage water levels to minimise impacts of high rainfall events and droughts	Contractors	On-going
4	Minimise impact of pesticides & herbicides	4.1	Use pesticides & herbicides only in special exceptional circumstances (e.g. giant hogweed)	Contractors	As necessary
5	Minimise pollution of watercourses from agricultural chemicals	5.1	Encourage farmers to maintain buffer strips adjacent to watercourses	Farmers	On-going
		5.2	Promote responsible use of agricultural pesticides	Campaign for the Farmed Environment / Voluntary Initiative	On-going

Associated Species

Water vole
Eel
Barn owl
Reed bunting

9 SPECIES ACTION PLANS

9.1 Water Vole *Arvicola amphibius*

The water vole is much larger than other species of voles in the UK. It is about the size of a brown rat *Rattus norvegicus* with which it is often confused. Water voles have a much blunter muzzle and less prominent ears than brown rats. They also have a more uniform body profile in contrast to the larger hind quarters of rats which give them a more pear-shaped appearance. Water voles occur on slow-flowing rivers, canals, drains and ditches. They feed on a wide variety of waterside vegetation and sometimes leave distinctive feeding 'lawns'. They can also be detected by their latrines of droppings which are usually found near the water's edge. They live in bankside burrows which are a similar size to those of brown rat.

The populations and range of water voles had declined considerably by the 1990s. This is considered to be largely due to predation from American mink *Neovison vison*. Other factors such as habitat degradation, pollution and large fluctuations in water levels can also adversely affect water voles. Its decline led to it being listed as a UK BAP species and on the NERC section 41 list of species of principal importance for the conservation of biodiversity.

Legal Protection Status

Water voles are protected under schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes protection against intentional capture, killing or injuring. It is also an offence to damage, destroy or block access to their places of shelter, or to disturb them in their places of shelter. These offences apply to actions which were on purpose or undertaken with a lack of care.

Local Status

Although water voles have declined nationally, they are still relatively widespread in lowland areas of the East Riding, including the Humberhead Levels. There is no recent detailed information on population levels or trends within the Humberhead Levels.

Water voles are associated with drainage networks and populations may move around a network. Therefore the individual drains and ditches used by a local population may vary from year to year.

Status within the Drainage District

The Biodiversity Audit identified that there are recent records of this species in the north east of the IDB area. It is, however, likely to be more widespread within the area.

Threats

The key threats to water voles are as follows:

- Predation by American mink;

- Damage to burrows from engineering works;
- Loss of bankside feeding habitat due to over-intensive vegetation management;
- Pollution e.g. from farm pesticides, industrial outfalls, accidental discharges; and
- Large fluctuations in water levels, leading to drowning of animals in their burrows

Objectives

Objective Reference	Objective	Action Reference	IDB Actions	Partners	Date
1	Establish baseline information on distribution and populations of water vole within the IDB district	1.1	Survey for water voles	ERYC Biodiversity	Annually
2	Maintain and enhance quality of existing water vole habitat	2.1	Assess existing habitat suitability for water voles	ERYC Biodiversity	2016
		2.2	Identify areas where suitable bankside vegetation can be maintained	ERYC Biodiversity	2016
3	Ensure IDB works comply with legislation protecting water voles	3.1	Survey banks for water voles before undertaking any engineering works affecting any potential water vole places of shelter	ERYC Biodiversity	As necessary
		3.2	Ensure appropriate mitigation for any works which would affect water vole places of shelter	ERYC Biodiversity	As necessary

10 PROCEDURAL ACTION PLAN

Introduction

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

Objectives

Objective Reference	Objective	Action Reference	IDB Actions	Partners	Date
1	Comply with relevant environmental legislation	1.1	Keep awareness and knowledge of all relevant environmental legislation up to date	ERYC	On-going
2	Ensure biodiversity impacts are properly considered in any consents issued by the IDB	2.1	Consult relevant environmental experts when considering applications for consents	ERYC	On-going
3	Promote best practice in all drainage works	3.1	Liaise with other IDBs and relevant bodies	ERYC	On-going
4	Improve awareness of protected and priority species among all partners, including contractors	4.1	Work with ERYC Biodiversity and partners	ERYC	On-going
5	Record and report protected, priority species	5.1	Work with ERYC Biodiversity and partners	ERYC / NEYEDC	Annually
6	Ensure refurbishment of assets take into account the Eel Directive	6.1	Build appropriate specification into asset refurbishment programme	EA	Annually
7	Support Water Framework Directive Initiatives	7.1	Work with relevant partners	EA / Project leads	n/a

II INVASIVE NON-NATIVE SPECIES ACTION PLAN

Introduction

Invasive non-native species (INNS) are defined by the Invasive Non-Native Species Framework Strategy for Great Britain as those *whose introduction and / or spread threaten biological diversity or have other unforeseen impacts* (Defra, 2008). This strategy was produced by the Great Britain Non-Native Species Secretariat and has since been updated by the Great Britain Non-Native Species Strategy (August 2015). The term non-native is interchangeable with the term ‘alien’ used by the Convention on Biological Diversity (CBD). The European Union has recently published Regulation 1143/2014 on Invasive Alien Species.

Several INNS pose a significant threat to drainage systems. Species such as floating pennywort can clog watercourses and are expensive to try and remove. The quagga mussel can colonise and clog pumps and therefore increase maintenance costs. Giant hogweed does not affect drainage but poses a risk to human health as the sap can cause serious burns to the skin.

Control of INNS can be expensive and eradication of well-established species is often not practical. The Great Britain Non-Native Species Strategy therefore follows the CBD hierarchical approach stressing prevention, followed by early detection and rapid response, and finally long-term management and control. Early detection is therefore vital as it is far more cost effective to control or eradicate INNS at the initial stages of colonisation before they become more widespread.

Invasive species can be transported by human activity, such as contractors’ machinery or recreational clothing and equipment. Watercourses are another key route for colonisation by INNS and aquatic species can spread quickly if not controlled. The IDB is vulnerable in this way because of its proximity to the river Aire and the Aire & Calder navigation. Both these watercourses flow through areas with serious INNS infestation, including species such as floating pennywort and giant hogweed.

There are two national campaigns which aim to reduce the spread of INNS. The ‘Check-Clean-Dry’ campaign is aimed at improving bio-security by professional and recreational users of waterways. The ‘Be Plant Wise’ campaign aims to stop the general public dumping aquatic garden plants into the wild.

Objectives

Objective Reference	Objective	Action Reference	IDB Actions	Partners	Date
1	Monitor drainage network for INNS plants	1.1	Survey main drains for INNS. Control or eradicate high priority INNS plants listed in Table 5	ERYC	Annually in mid-late summer
2	Monitor for zebra and quagga mussels	2.1	Place tethered bricks at sample points and monitor at least quarterly. Send photos to ERYC Biodiversity for identification	ERYC	Quarterly
3	Ensure INNS are not spread by IDB operational activities	3.1	Check for presence of high priority INNS plants (listed below) before works and notify ERYC Biodiversity of potential INNS	ERYC	Annually in summer
4	Ensure all staff and contractors follow ‘Check-Clean-Dry’ bio-	4.1	Notify contractors of ‘Check-Clean-Dry’ bio-security measures and make spot checks	Contractors	On-going

	security measures	4.2	Produce laminated INNS identification cab cards for machinery operatives	ERYC	2016
5	Promote awareness of non-native species and 'Check-Clean-Dry' at Sugar Mill Ponds	5.1	Liaise with Friends of Sugar Mill Ponds group and provide education material about INNS and biosecurity, particularly with regard to the Aire & Calder navigation	Friends of Sugar Mill Ponds	By March 2016
6	Support initiatives to control American mink	6.1	Co-operate with appropriate and legitimate initiative to control American mink	As appropriate	n/a
7	Report all INNS to ERYC / NEYEDC	7.1	Report INNS to ERYC with photos where possible to confirm identification	ERYC / NEYEDC	On-going

Table 5. List of high priority INNS plants

Common Name	Scientific Name
Water fern	<i>Azolla filiculoides</i>
Floating pennywort	<i>Hydrocotyle rannunculoides</i>
Water primrose (3 species)	<i>Ludwigia peploides</i> / <i>grandiflora</i> / <i>uruguayensis</i>
Parrot's feather	<i>Myriophyllum aquaticum</i>
Australian stonecrop (New Zealand pygmy-weed)	<i>Crassula helmsii</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
Japanese knotweed	<i>Fallopia japonica</i>

These species are a high priority for the IDB because they are all aquatic species, with the exception of giant hogweed and Japanese knotweed. These two species are both classed as controlled wastes.

12 IMPLEMENTATION

12.1 Implementation

This BAP will be implemented by integration with the IDB management regime and also through specific actions as detailed in the action plans. To conserve biodiversity within the IDB area it is important that the IDB's operational maintenance regime is conducted in a manner which conserves, enhances, or at least minimises impacts on biodiversity. There are many key aspects of the IDB's work where this approach can succeed without major conflicts between operational maintenance and biodiversity.

In addition to operational maintenance, capital work and IDB consents can also be managed in a way that conserves or enhances biodiversity, or minimises impacts on biodiversity.

In addition to these approaches other project initiatives within the IDB may provide opportunities to enhance biodiversity and the Board should co-operate with such initiatives where possible.

13 MONITORING

13.1 Monitoring

Monitoring of action plans will normally be undertaken on an annual basis. However if significant issues arise, more frequent monitoring may be required for those specific issues.

Monitoring will focus on the Board's actions in relation to biodiversity rather than attempting to measure local changes in populations of protected and BAP priority species. This is because local populations of these species will have natural fluctuations.

14 REVIEWING AND REPORTING PROGRESS

14.1 Reviewing and Reporting Progress

The BAP will be reviewed after a period of five years. However, an interim review may be carried out earlier if the board or East Riding of Yorkshire Council decides that it is desirable. The review and reporting of progress may be disseminated to partner organisations and/or the wider public, as appropriate.

REFERENCES

The East Riding of Yorkshire Local Biodiversity Action Plan Strategy, (2010) East Riding of Yorkshire Council

The East Riding Landscape Character Assessment, (2005) East Riding of Yorkshire Council

The Invasive Non-Native Species Framework Strategy for Great Britain, (2008) Defra

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Best Practice guide for IDBs on accessing environmental and other specialist expertise, (2015)

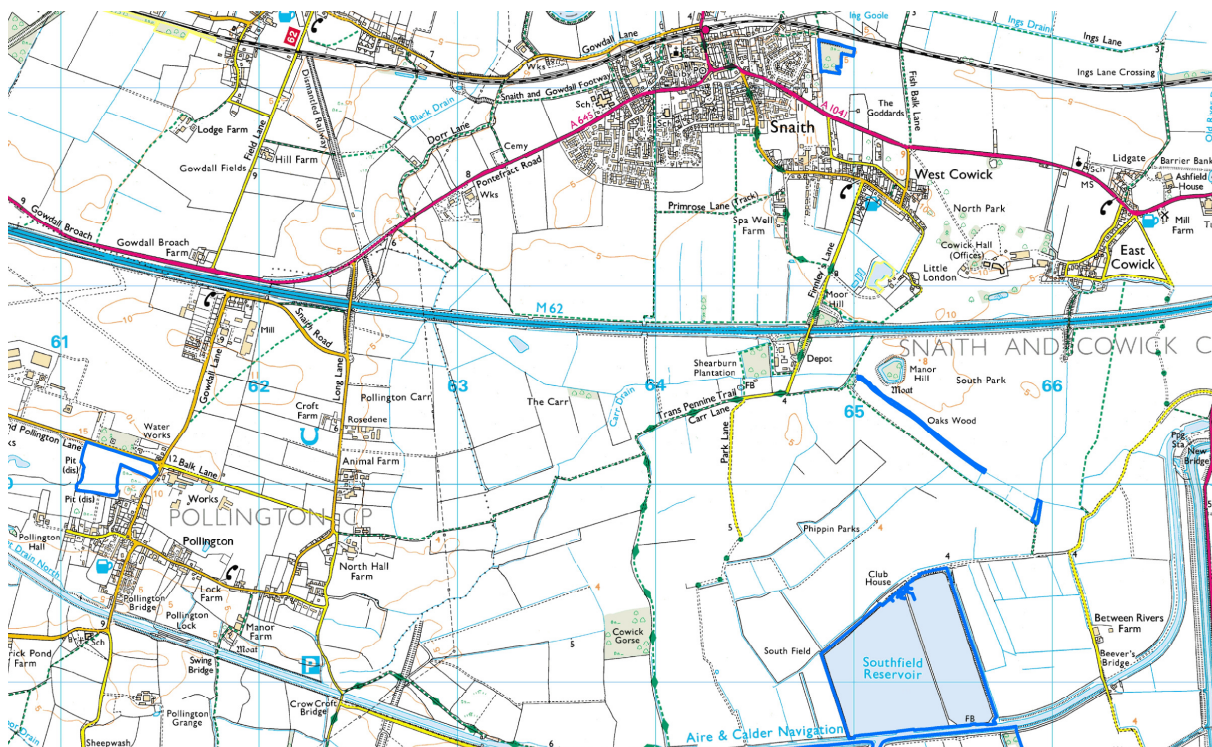
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The Drainage Channel Biodiversity Manual – Integrating wildlife and flood risk management, (2008)
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Eel Management plans for the United Kingdom – Humber River basin District, (2010) Environment Agency

APPENDICES

Appendix A – Local Wildlife Sites in Cowick & Snaith IDB



Local Wildlife Sites outlined in blue.

Appendix B – Tree Preservation Orders and Conservation Areas in Cowick & Snaith IDB

