York Consortium of Drainage Boards

Biodiversity Action Plan 2013/2014

Derwent House, Crockey Hill, York, YO19 4SR

This Biodiversity Action Plan has been prepared by the York Consortium of Internal Drainage Boards 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.

…… Date ……

Bill Symons

Clerk/Engineer to the Boards

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

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

You can contact us about this Biodiversity Action Plan by writing to the following address:

York Consortium of Drainage Boards
Derwent House
Crockey Hill
York
YO19 4SR

Email: **Bill.Symons@yorkconsort.gov.uk**

Further information is available on the Board's website: **www.yorkconsort.gov.uk**

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1.1

This Biodiversity Action Plan (BAP) has been prepared by the York Consortium Of Drainage Boards for five Internal drainage boards (IDBs) which consist of ten Drainage Board Districts (*Figure 1*).

The five IDBs are:

- Airedale Drainage CommissionersAcaster IDB
- Ainsty (2008) IDB - Acaster District
  -Appleton Roebuck District
  -Marston Moore District
  -North Wharfe District
  -South Wharfe District
- Beverley and North Holderness IDB
- Foss (2008) IDB -Foss District
  -Wilberfoss and Thornton District
- Ouse and Derwent IDB

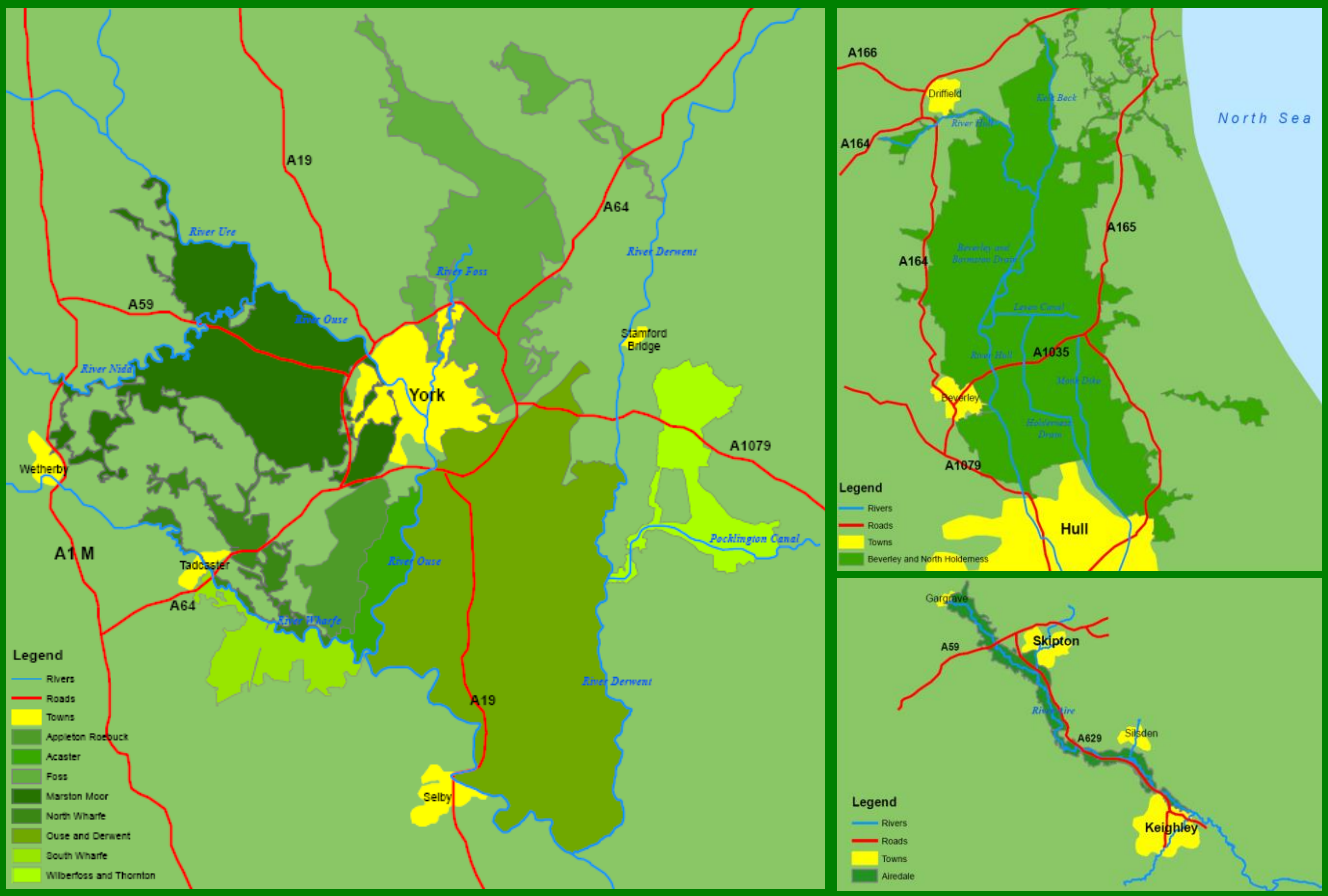


Figure 1: Maps showing the coverage of the Boards that the belong to the Consortium

The Consortium has conducted a biodiversity audit of the Internal drainage boards and districts we look after to identify habitats and species that would benefit from particular management or actions. Using this information, which is presented in later sections, the Consortiums BAP has been developed. The Plan identifies objectives for the conservation and enhancement of biodiversity within the drainage district, and goes on to describe targets and actions that will hopefully deliver these objectives. The intention is to

integrate, as appropriate, biodiversity into the Board's activities, such as annual maintenance programmes and capital works projects.

The action plan will help to safeguard the biodiversity of the drainage district now and for future generations. In particular, it is hoped that implementing the plan will contribute to the achievement of local and national targets for UK BAP priority species and habitats. Species and habitats, which are not listed in the UK BAP but may be locally significant for a variety of reasons, have also been considered. The Plan is an evolving document that will be reviewed and updated on a regular basis.

1.2

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

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

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

1.4

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

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

The Rio Convention includes a global commitment to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level (www.biodiv.org/convention/default.html). The 2002 World Summit in Johannesburg on Sustainable Development subsequently endorsed this target.

1.6

The UK Biodiversity Action Plan (UK BAP) is the UK commitment to Article 6A of the Rio Convention on Biological Diversity. It describes the UK's priority species and habitats, and seeks to benefit 65 priority habitats and 1149 species in total. It identifies other key areas for action such as the building of partnerships for conserving biodiversity and gathering vital biodiversity data.

In England, *Working with the Grain of Nature* sets out the Government's strategy for conserving and enhancing biological diversity, and establishes programmes of action for integrating biodiversity into policy and planning for key sectors, together with appropriate targets and indicators. The Strategy has a Water and Wetlands Working Group and an associated programme of action that includes:

- Integrating biodiversity into whole-catchment management.
- Achieving net gain in water and wetland BAP priority habitats through Water Level Management Plans, Catchment Flood Management Plans, and sustainable flood management approaches.

1.7

For the UK Biodiversity Action Plan to be implemented successfully it requires some means of ensuring that the national strategy is translated into effective action at the local level. The UK targets for the management, enhancement, restoration, and creation of habitats and species populations have therefore been translated into targets in Local Biodiversity Action Plans (LBAPs), which tend to operate at the county level.

1.8

The Natural Environment and Rural Communities Act 2006 places a duty on IDBs to conserve biodiversity. As a public body, every IDB must have regard in exercising its functions, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

The Act states that conserving biodiversity includes restoring or enhancing a population or habitat. In so doing, an IDB should have regard to the list published by the Secretary of State of living organisms and types of habitat that are of principal importance for the purpose of conserving biodiversity. In effect, this list is comprises the Biodiversity Action Plan priority species and habitats for England.

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

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

1.9

The aims of this IDB BAP are:

- To ensure that habitat and species targets from the UK Biodiversity Action Plan and the local LBAP are translated into effective action within the drainage district.
- To identify targets for other habitats and species of local importance within the drainage district.
- To develop effective local partnerships to ensure that programs for biodiversity conservation are maintained in the long term.
- To raise awareness within the IDB and locally of the need for biodiversity conservation, and to provide guidance to landowners, occupiers and their representatives on biodiversity and inland water management.
- To ensure that opportunities for conservation and enhancement of biodiversity are fully considered throughout the IDB's operations, and
- To monitor and report on progress in biodiversity conservation.

2

2.1

To produce this IDB Biodiversity Action Plan, information on the habitats and species present in the catchment was first obtained. This "Biodiversity Audit" involved the collation of existing data held by the IDB and by other biodiversity partners.

2.2

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

Further habitats and species, together with additional targets and actions, may be added in the future, as knowledge is improved and delivery of the 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

For each habitat and species identified as being important to the IDB, conservation objectives and targets 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 related targets have been set to focus IDB programmes of action and to identify outcomes that can be monitored to measure achievement. For each target an indicator has been set – a measurable feature of the target that, when monitored over time, allows delivery to be assessed.

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

Procedural targets and actions have also been considered. These are targets that the Board will use to measure the way in which it considers and incorporates biodiversity across the whole range of its operations. These may involve changes to administrative, management and operating procedures.

The plan also sets out how York consortium of IDBs intend to implement the actions in the plan and where appropriate identifies partnerships with other organisations or individuals.

2.4

A programme of monitoring which the Board will undertake, in some instances with assistance from partners will measure the Achievements of the targets set. The methods used are described within this plan.

Once targets have been set for habitats and species, the progress of plan implementation will be communicated to ratepayers, partner organisations and local communities. The Successful achievement of targets will be recorded along with registering the gains for biodiversity in the public domain, for example the IDB webpage, various publications and public events.

2.5

York consortium of IDB recognises that it is important to review the implementation of the BAP, due to changes in the status of habitats and species and the overall feasibility of objectives and targets.

The Plan sets out the methods that will be used to review the delivery of targets and to communicate progress to partner organisations and the public.

3

3.1

The following Sections 4, 5 and 6 summarise the results of the Biodiversity Audit, undertaken in 2013. Chapter 4 provides information about the consortiums drainage districts and a list of the nature conservation sites that occur within or bordering its boundaries. Chapters 5 and 6 list respectively the habitats and species occurring within the consortiums districts that are of potential importance to the Boards.

3.2

The following Local Biodiversity Action Plans (LBAPs) cover the drainage districts in some part:

- City of York LBAP
- Harrogate LBAP
- Biodiversity in the East Riding of Yorkshire
- Selby BAP

3.3

The Biodiversity Audit covers the entire districts of the consortium of IDBs, as shown in Figure 1-3 and Appendix 1.

Where data has been obtained that shows a record of a species or habitat in a 1km square or 10km square which the district wholly or partially covers, this has been included in the area of the audit.

3.4

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

- The PDF file accompanying the IDB BAP guidance provides mapped information on priority habitats within the IDB district
- GIS data on priority habitats, which can be downloaded from http://www.gis.naturalengland.org.uk/pubs/gis/GIS_register.asp
- The lower Derwent Project, Environment Agency, Natural England, Yorkshire Water, Lower Ouse Internal Drainage boards
- North and East Yorkshire Ecological Centre (NEYEDC)
- Previous mapping carried out by the Boards.

3.5

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

- Ecological surveys of the drainage district undertaken by the Board
- Protected species surveys of the drainage district undertaken by the Board
- National Biodiversity Network (NBN) Gateway - www.searchnbn.net/
- York Ornithology Group - www.tka.co.uk/yoc
- Yorkshire Wildlife Trust - www.ywt.org.uk/

4

4.1

The drainage district covers an area of 769km^2 and contains 1002km of IDB-maintained watercourses.

Table 1: Drainage Area Districts

IDB District	Area in km^2	Length of IDB maintained watercourses in km
Acaster	13.5	24
Airedale	13.69	5
Appleton Roebuck	13.4	30
Beverley and North Holderness	238.22	233
Foss	90.85	163
Marston Moor	97.08	149
North Wharfe	17.84	45
Ouse and Derwent	198.00	264
South Wharfe	22.64	36
Wilberfoss	34.10	53

Seven of the Consortium's districts are located around the city of York in the low-lying areas. These districts go as far south as Selby, west as far as Wetherby. The consortium also tenders for two other boards Beverley and North Holderness with goes from Driffield in the North Right down to Kingston upon Hull. The other Airedale is a small district located near Skipton.

4.2

The region that encompasses all of the boards in the consortium is underlain by a mixture of rocks laid down in the Triassic in the west and rocks from cretaceous in the east. In the west the bedrock is made up of Sandstone and Murcia Mudstone and in the east it is underlain by chalk, which was brought about due to a rise in sea levels. Another notable rock type Siliciclastic Argillaceous, part of the Lias group appears in a thin band between the Murcia Mudstone and chalk.

Across the region there is a vast amount of glacial deposits, laid down during the last ice age. Boulder clay is the most prominent of all glacial deposits in the region.

4.3

There are no national parks that fall with the Consortiums district. However the North Yorkshire Moors National Park and the Yorkshire Dales National Park are located just outside some of the consortiums IDBs. As many of the rivers that flow through the district are originate form these national parks.

There are also no Areas of Outstanding Beauty that are within the Consortiums Districts.

Natural England has divided the whole of England into a number of Joint Character Areas (JCA) based on characteristic landforms, wildlife and land use. They are not designations and are not confined by traditional administrative boundaries. For each JCA, Natural England has prepared a profile that characterises the

wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The area covered by the consortium falls into many JCA's with The Vale of York and Holderness being the major two, a number of other JCA's slightly overlap the IDB Boundaries which are:

- The Yorkshire Wolds (JCA 27)
- The Humber Head levels (JCA 39)
- Southern Magnesium Limestone (JCA 30)

The vale of York is a low lying gently undulating area of intensive arable cropping, with limited woodland cover and small, fragmented areas of semi natural habitats.

Key Landscape characteristics

- The topography of the land low lying, gently undulating and crossed by low ridges of glacial moraines.
- Woodland is limited in most of the area but there are pockets broadleaved woodland, conifer plantations and ancient woodlands. There are few tree marking hedgerows and riparian watercourses.
- Boundaries are commonly marked by low clipped hedgerows, which enclose various sized plots of land. Ditches can also be found as boundary markers in low lying areas.
- The land is mainly used for intensive arable cropping, with some dairy and mixed farming present.
- The major settle within the area is York and there is a scattering of small towns and large villages across the vale of York.
- There are many semi natural habitats which can be found adjacent to some watercourses, especially on the floodplains of the rivers Ouse, Derwent, Swale, Wharf, Ure and Nidd. There is also some notable areas of remnant heath and semi natural woodland on the sandy soil of the region.

The Holderness area is a low lying or gently undulating plateau jutting into the north sea and divided form the Humber estuary, with rapidly eroding cliffs, sparse woodland cover, dispersed settlement and with predominantly arable and horticultural land use.

Key Landscape characteristics

- The topography consists of glacial till deposits, gravels and alluvium chalk, with many glacial features such as drumlins, moraines and kettle holes.
- The is sparse woodland cover across the area, most of which is of recent origin.
- Boundaries are characterised by ditches on the flood plains and by hedges on higher ground.
- The land is of a high agricultural standard giving rise to arable cultivation and intensive livestock farming.
- The area is predominantly rural with small villages and hamlets situated on the higher grown.
- The area was previously dominated by marshland meres, fragments of this still exist such as Hornsea mere.

There are a number of historical sites in and around the York area of roman origin and land within the Marston Moor IDB was home to a battle in the English Civil war. More information can be found at http://www.historyofyork.org.uk

Tree Preservation Orders (TPO's) will need to be taken into account whenever work on trees is planned. The relevant authority will be contacted when dealing with trees that have a TPO.

4.4

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

Table 2: International designations

Site name	Designation	Features Relevant to IDB
Lower Derwent Valley	Ramsar, SAC	Mainly Ings land which has many ditches and drains which are controlled by the IDB
Strensall Common	SAC	
Skipwith Common	SAC	

The following nationally designated conservation sites are found in the IDBs that surround York: Figure 2: Map showing the locations of all the SSSIs that are in the consortiums districts surrounding York

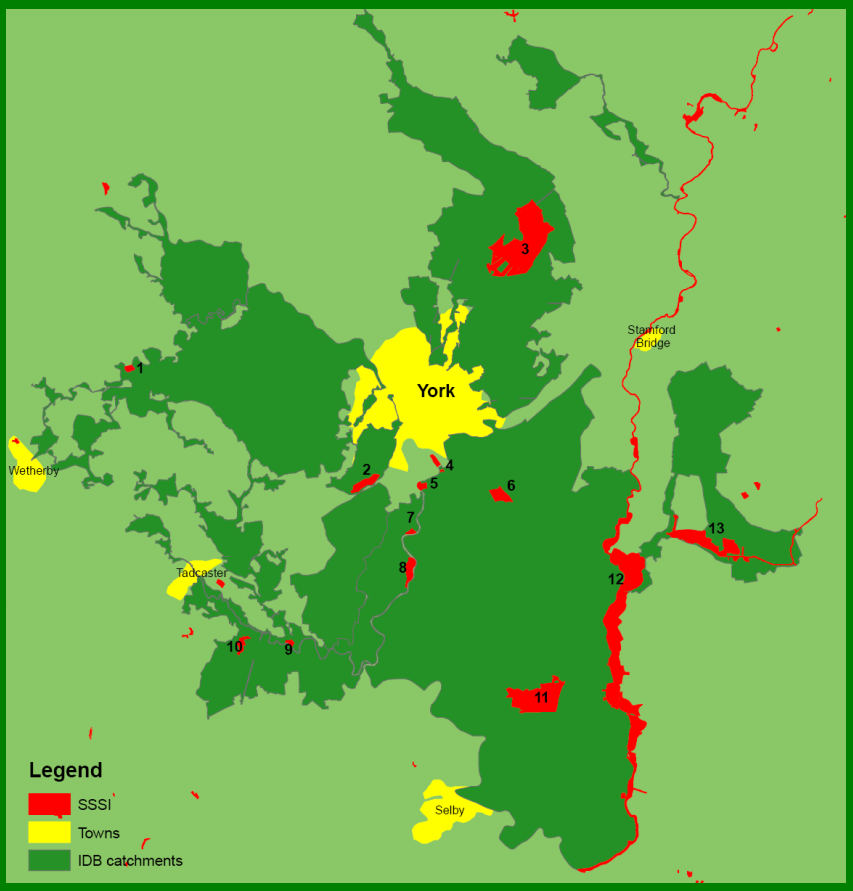


Figure 2: Locations of SSSI inside the IDBs that surround York

Table 3: National designations, Vale of York

Number	Site name	Designation	Description
1	Askham Bog	SSSI	The bog is the remnant of a valley-mire, which formed between two ridges of glacial moraine southwest of York. Ground water draining has led to the development of rich fen community, which demonstrates stages in serial succession to fen woodland.
2	Aubert Ings	SSSI	Comprises of an area of unimproved neutral grassland within a meander of the river Nidd. Flora of particular interest include of the clustered bell flower, early purple orchid, cowslip, meadow saffron and wild tulip.
3	Strensall Commmon	SSSI, NNR	The common is a northern example of acidic lowland heath and is one of only two extensive areas of open heath land remaining in the Vale of York. The complex mosaic of sands and clays gives rise to equally diverse vegetation comprising wet and dry heath, woodland and wetland.
4	Fulford Ings	SSSI	Fulford Ings is an important example of flood plain mire located on low lying land next to the River Ouse. It supports a sequence of plant communities which reflect the topography, with alluvial grassland adjacent to the flood bank, a transitional zone of rich fen meadow and swamp in most low lying areas furthest from the river.
5	Naburn Marsh	SSSI	Comprises of a mosaic if species rich flood meadow grassland with swamp and inundation communities. This type of meadow is now nationally rare and further threatened by conversion to arable alnd or more intensive grassland.
6	Heslington Tillmire	SSSI	Situated on silt and clay drift deposits on low lying, flat land in the Vale of York. It is important for its tall herb fen plant community and for its marshy grassland and associated assemblage of breeding birds.
7	Church Ings	SSSI	Comprises of two unimproved alluvial flood meadows. These meadows are of particular importance of their neutral grassland plant community which is increasingly rare habitat type, threatened as a result of drainage and agricultural improvement.
8	Acaster South Ings	SSSI	Consists of two large alluvial flood meadows, The grasslands represent an increasingly rare habitat type which is threatened as a result the neutral grassland flora is of particular importance.
9	Bolton Percy Ings	SSSI	Consists of two large alluvial flood meadows, The grasslands represent an increasingly rare habitat type which is threatened as a result the neutral grassland flora is of particular importance.

Number	Site name	Designation	Description
10	Kirkby Wharfe	SSSI	One of very few remaining sedge and rush dominated marshland communities in the Vale of York. It supports a rich array of marshland flora, in higher margins there is drier neutral grassland. Also an osier bed exists which is still in active production.
11	Skipwith Common	SSSI, NNR	An extensive tract of heathland on a spur of glacial sands which forms the watershed between two valleys. The vegetation is extremely varied and includes areas of both dry and wet heath, poor fen and reeds. In many places birch and scots pine have colonised the open heath.
12	Derwent Valley Ings	SSSI, NNR	Represents one of the best british examples of the classic river profile. The Lowland section supports diverse communities of aquatic flora and fauna many of which are nationally significant.
13	Melbourne and Thornton Ings	SSSI	Comprises of a series of flood meadows, pasture and woodland. It supports a rich diversity of plant species and of outstanding ornithological interest.

The following nationally designated conservation sites are found in the Beverley and North Holderness IDB.

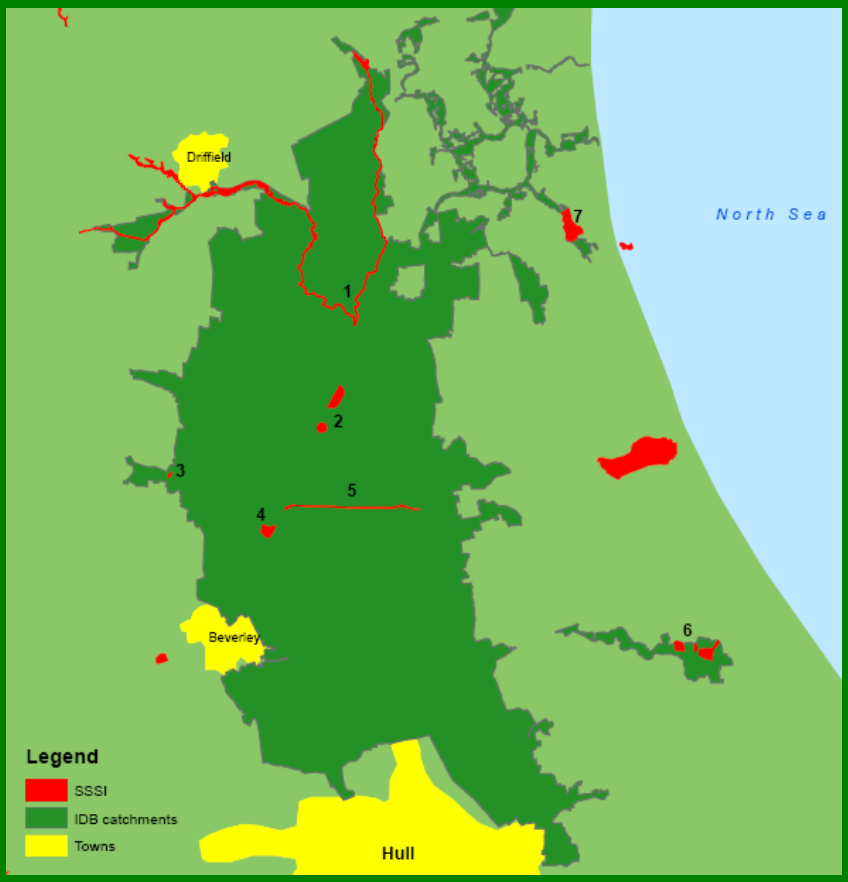


Figure 3: Locations of SSSI inside the Beverley and North Holderness IDB catchment

Table 4: National designations, Beverley and North Holderness

Number	Name	Designation	Description
1	River Hull Head Waters	SSSI	Most northerly chalk stream system in Britain. Interests in the site are areas of riverside grassland, woodland and fen; remnants of habitats formerly more widespread but now limited in distribution because of agriculture and development. There is also a wide array of flora and fauna.
2	Taphill Low	SSSI	Two artificial storage reservoirs situated in the river Hull valley. The Site is important as one of few inland standing open water bodies suitable for wintering wildfowl in North Humberside. Important concentrations of Gadwell, Shoveler and Tufted Duck as supported by these reservoirs.
3	Bryan Mills Field	SSSI	Comprises of a tall fen community which are located around areas of standing water fed by springs. Numerous marsh and swamp species can be found.
4	Pulfin Bog	SSSI	One of the last remnants of fenland reed swamp community in the Hull valley. It is valued both for its botanical interest and for the reed bed habitat it provides for breeding birds.
5	Leven Canal	SSSI	The canal was cut in 1802 across the marshes and meres of the Hull Valley. Following the drainage of surrounding marshland it provided a refuge for wetland plants and now supports an important remnant of this once much more widespread vegetation. The canal is fed by calcareous springs supplying water of a very high Quality.
6	Lambwath meadows	SSSI	Consists of a series of low-lying seasonally flooded hay fields. The meadows are important as one of the best examples of agricultural un improved species rich, damp neutral alluvial grassland in North Humberside.
7	Skipsea Bail Mere	SSSI	An area of agricultural land in the north of east of the district. The interest lies in the lake deposits underlying the fields and is only accessed by auger or borehole. It is important for the interpretation of the vegetational history of the northern part of the Holderness coastal plain.

Further information regarding national designations can be found by visiting www.natureonthemap.org.uk.

5

5.1

This habitat audit summary lists the broad habitat types and UK BAP priority habitats that occur within the Consortiums Districts. 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 as high, medium or low. Some of the Habitats that fall into the medium and high classifications are taken forward and explored at a greater level.

Table 5. Habitat Audit Summary

Broad Habitat Types	Habitat of Importance to the IDBs	Location	Potential for maintaining, restoring or expanding of habitat by IDBs
Broadleaved, mixed and yew woodland	Wet Woodland	Widely spread across all districts	Medium
	Lowland Mixed Deciduous Woodland	Small patches located in many of the Districts	Low
	Upland Oak woods	Small patches located in Ouse and Derwent IDB	Low
Flowing Water	Rivers	River Ouse River Nidd River Derwent River Foss River Wharfe River Aire River Ure	Low - medium
	Ditches and Drains	Common across all IDB districts	High
Improved Grassland	Coastal and Floodplain Grazing Marsh	Common in all of the IDB generally associated with land adjacent to watercourses.	Medium
Fen, marsh and swamp	Lowland Fens	Located mainly on the floodplains of the rivers within the IDBs	Medium
	Reedbeds	Found on the upper reaches of the River Hull, Strensall and Skipwith Commons and Weldrake Ings	Medium
Neutral Grassland	Lowland Meadows	Located adjacent to many of the major watercourses eg River Ouse and Derwent	Medium
Dwarf Shrub Heath	Lowland Heath	Found at Strensall and Skipwith Commons	Low
Acid Grassland	Lowland Dry Acid Grassland	Small area in the Ouse and Derwent IDB	Low
Boundary and linear features	Hedgerows	Common across all IDB districts	Medium
Arable and Horticulture	Arable Field Margins	Common across all IDB districts	Medium

5.2

The following section provides more information on the habitats that were identified as having medium or high importance or potential importance. The status and location of the habitats within the drainage districts is also presented, alongside a national overview and the potential threats to the habitats.

5.2.1 Farmland Corridors (Arable Field Margins)

Description:

Arable field margins refer to strips on land lying between arable crops and field boundaries and extending for a limited distance into the crop (usually between 3 and 6m). They are managed to create favourable conditions for key farmland species.

Current status:

Arable farmland covers an estimated area of 1,403,000ha in the UK, of which 95,000ha of that are field margins. A large amount of arable land is situated within the IDBs. As a result the margins around this land benefit the wildlife without having a detrimental effect on the remaining cropped around.

Conservation Issues:

The main factors causing the loss or decline of arable field margins include arable intensification, cultivation to field edges, removal of field boundaries to increase field size and inappropriate techniques aimed at 'aesthetics'

5.2.2 Ditches and Drains

Description:

Ditches and drains are man made linear features for storage and transport of water. This that hold water for most of the year are considered as open water, as there is often little or no flow of water. Ditches and drains are usually components of a pumped drainage system and tend to hold plant species very similar to pond habitats, because of their largely static nature.

Current status:

Ditches and drains are largely unmonitored. Being man made drainage features, their distribution is widespread and they occur in high densities in areas where drainage is a priority. Ditches are common place within the consortiums districts as the land is low lying and prone to flooding in many areas.

Conservation Issues:

Unsympathetic maintenance, introductions of invasive species and low water quality pose the greatest threat to ditches and drains. The frequency of maintenance is important, as infrequent maintenance can lead to a build up of silts and the infilling of the ditch or drain. However this can be attributed to the development of swamp habitats.

5.2.3 Coastal and Floodplain Grazing Marsh (CFGM)

Description:

CFGM is periodically inundated pastures, or meadows with ditches, which maintain the water levels, containing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay silage.

Current status:

The exact extent of grazing marshes is unknown but it is estimated that there is a total of 300,000ha. England holds the largest proportion with and estimate of 200,000ha. Only a small proportion (around 5000ha in England and 10,000ha in the UK) of this grassland is semi natural supporting a high diversity of native plant species.

Conservation Issues:

The main issues surrounding CFGM include: arable intensification, decline in traditional livestock farming, lack of traditional land management, increases in use of pesticides and insecticides, aggregate extraction along river corridors, groundwater abstraction, sea level rise and pollution of groundwater.

5.2.4 Hedgerows (including Ancient and Species Rich Hedgerows)

Description:

Hedgerows following ancient boundaries can often contain remnants of ancient woodland vegetation. The definition of a species rich hedgerow is generally accepted as those with more than 5 woody species in a 30m sample. Ancient hedgerows are defined as those that were in existence before the 1720 –1840 enclosure acts.

Current status:

Between 1984 and 1990 the net loss of hedgerow length in the UK was estimated to be between 21% and 27%. The current remaining UK resource is estimated at 450,000km of which 19,000km is believed to be ancient and/or species rich. It is estimated that only 10% of all hedgerows are being managed favourably for conservation. The exact amount of hedgerow in the consortiums districts is unknown. However many of the arable fields are separated with hedgerows.

Conservation Issues:

The majority of issues relate to changes in agriculture and/or poor management. Other issues include non agricultural development and introduction of non native species.

5.2.5 Wet Woodland

Description:

Wet woodland exists in areas of poorly drained or seasonally wet soils. The predominant tree species are usually birch, willow and alder. Wet woodland can occur in various soil types on floodplains, fens, mires, bogs and peaty hollow. It is usually found as small sections within other woodland or wetland habitats

Current status:

There is no exact figure that can be place on the amount of wet woodland in the UK. It was estimated that there was between 50,000ha and 70,000ha of which around 25,000ha is thought to be ancient semi natural. On a local scale there are many small areas of wet woodland scattered around all the drainage districts.

Conservation Issues:

The main issues surrounding wet woodland are land drainage and flood defence which can reduce the amount of water in the woodland, clearance of woodland to accommodate other land uses, poor water quality and pollution. Climate change can also be attributed to the changes to wet woodland.

5.2.6 Fens

Description:

Fens occur in places where there is a water logging is at least periodical. Swamps, mires, spring flushes and fenny fields all fall under the tag of fens. They can support a wide range of plants communities due to the conditions in fens. They are often associated with other habitats such as wet woodland, wet grassland and open water.

Current status:

The extent of fens in the UK is approximated at 18,000ha. Marsh and swamp habitats have seen a UK wide decline; the main decline has been seen in areas of farmed lowland areas. The are many area of high quality fen habitat that occur across the UK, many belong to sites of interest. On a local scale much fen land is congrated round many of the rivers on the floodplains of the rivers Ouse and Derwent. Other small pockets can be found in other lowland areas.

Conservation Issues:

The main issues surrounding fens involve the intensification of arable farming, groundwater extraction, land drainage and flood defences, removal of materials such as aggregates and woodland and the pollution of groundwater and surface water through pesticide and herbicide use.

5.2.7 Reedbeds

Description:

Reedbeds are wetlands dominated by stands of common reed *Phragmites australis.* They contain few plant species and the water level remains at or above level for most of the year. They tend to incorporate areas of open water, ditches and other areas of land that are predominantly saturated.

Current status:

There is approximately 5000ha of reed beds in the UK. But many areas are small in size with only a handful of locations being larger than 20ha. It is particularly important to birds some of which are nationally rare such as the Bittern *botaurus stellaris and Marsh Harrier Circus aeruginosus*

Conservation Issues:

The main issues surrounding Reedbeds include: drainage of the land and water extraction, conversion of reed bed to arable land, removal of reeds to improve flow of water, siltation, pollution from agricultural and other sources,

5.2.8 Flowing Water

Description:

Flowing water comes in many forms but predominatly as rivers and streams. Rivers and streams host a variety of sub habitats such as shingle beds and the shape of river banks. They also act as wildlife corridors which shelter species such as ottter *Lutra lutra* and kingfisher *Alcedo atthis*.

Current status:

Every river is different so current status I relatively unknown, thus making accurate assessment difficult. Many rivers across the areas have their own individual management plans to improve the biodiversity.

Conservation Issues:

Rivers and streams are suceptable to a wide range of threats which can be related to water abstraction or transfer, inappropriate management, damage or disturbance from recreational activities, non native plant and animal species and detrimental activities within the catchment

5.2.9 Lowland meadows

Description:

Lowland meadows include most forms of unimproved neutral grassland and enclosed lowland landscapes. Lowland meadows have undergone a remarkable decline in the 20th century, almost entirely due to changing agricultural practice from meadow grasses used for hay to arable crops. Other practices have led to the development of nutrient demanding grasslands that have replaced traditional hey-making grassland.

Current status:

As one of the habitats feature in the UK BAP lowland meadows are considered to be a threatened habitat. Many local areas of lowland meadows are part of SSSI. Located on ings land next to some of the rivers in the districts as land that is deemed unsuitable for arable farming due to flooding.

Conservation Issues:

The issues surrounding lowland meadows are closely linked to farming practices. They are affected by ploughing, re seeding, fertiliser, slurry application to support intensive grazing or silage production.

6

6.1

This species audit summary lists the BAP priority species that occur within the IDB district as identified by the information gathering exercise. Also listed are species deemed to be of local importance and/or identified in the county Local Biodiversity Action Plan that occur in the 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.

Table 6 - Species Audit Summary

Species	Group	UK BAP Priority species	Local BAP species	Species of Importance to the IDBs	Location with the IDB districts	Potential for maintaining/ increasing species population or range
Common Toad, *Bufo Bufo*	Amphibian	Yes	No	Yes	Wood dike	Low
Great Crested Newt, *Triturus cristatus*	Amphibian	Yes	No	Yes	Along river Ure, Haxby	Low
Grass Snake, *Natrix natrix*	Reptile	Yes	No	Yes	Wheldrake, Naburn	Low
Common lizard, Zootoca vivipara	Reptile	Yes	No	No	Askham Bog	-
Barn Owl, Tyto alba	Bird	No	Yes	Yes	Various locations, small in numbers	High
Common Kingfisher *Alcedo atthis*	Bird	No	No	Yes	River Ouse, Ure, Nidd, Wharfe	Low
Greater spotted woodpecker *Dendrocopos major*	Bird	No	No	Yes	Wheldrake, Deighton, Acaster, Naburn	Low
Reed Bunting Emberiza schoeniclus	Bird	Yes	Yes	Yes	Arable land throughout the IDBs	Medium
Lapwing *Vanellus Vanellus*	Bird	Yes	Yes	Yes	Arable land throughout the IDBs	Medium
Skylark *Aluada arvensis*	Bird	Yes	Yes	Yes	Arable land throughout the IDBs	Medium

Species	Group	UK BAP Priority species	Local BAP species	Species of Importance to the IDBs	Location with the IDB districts	Potential for maintaining/ increasing species population or range
Otter *lutra lutra*	Mammal	Yes	Yes	Yes	Various locations along major rivers	High
Water Vole, Arvicola amphibius	Mammal	Yes	Yes	Yes	Various locations across the IDBs	High
Common Pipistrelle, *pipistrellus sensu lato*	Mammal	Yes	No	Yes	Various locations through the IDBs	Low
Brown hare, Lepus europaeus	Mammal	Yes	Yes	Yes	Throughout Ouse and Derwent IDB	Low
Long eared bat	Mammal	Yes	Yes	Yes	Wheldrake	Low
Hedgehog *Erinaceus europaeus*	Mammal	Yes	No	No	Various	-
European Eel, *Anguilla anguilla*	Fish	Yes	Yes	Yes	River Derwent	High
White Clawed Crayfish, *Autrioitamo-bius pallipes*	Crustacean	Yes	Yes	Yes	Wheldrake	High
Greater Water Parsnip, *Sium Latifolium*	Plant	Yes	Yes	Yes	Lower Derwent Valley	Medium
Tubular Water-dropwort *Oenanthe fistulosa*	Plant	Yes	No	No	Various locations across IDBs	Low
White-letter Hairstreak *Satyrium w-album*	Butterfly	Yes	No	No	Various locations across the IDBs	-
Grizzled Skipper, Pyrgus malvae	Butterfly	Yes	No	No	Various locations across the IDBs	-

Full listings of all species can be found at www.searchnbn.net.

6.2

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, *Arvicola terrestris*

Description:

Small, semi Aquatic mammal (rodent), Superficially similar to a rat, but with a rounded face, small ears and a fury tail.

National status:

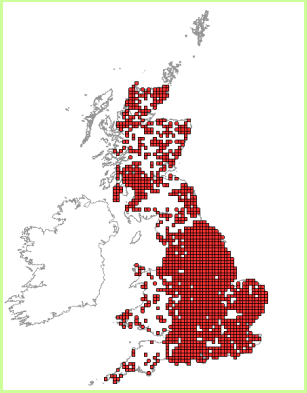
Nationally declining, National BAP species

Status and locations within drainage district:

Although the national trends are for decline, the Vale of York and the Holderness region are strongholds as shown in figure 6 and that conservation measures and improved land management are proving successful.

Potential improvements

Increased monitoring and sharing of records, minor changes to IDB watercourse maintenance practices, the development of guidance on how to mitigate for disturbance/ loss of habitat and the dissemination of information to riparian owners and farmers.



6.2.2 Great Crested Newt, *Triturus cristatus*

Description:

small amphibious creature, grey brown in colour with spots.

National status:

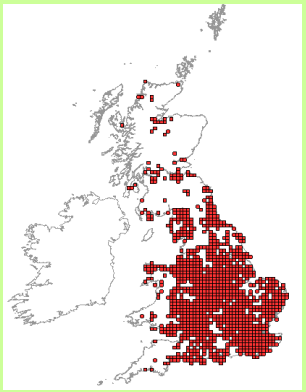
nationally declining. National BAP species

Status and locations within drainage district:

Numbers have declined in but populations can still be found in many on the consortiums districts. However there is no exact number for the amount Great Crested Newts in the districts due to the habitats that they live in.

Potential improvements:

Increase amount of monitoring and sharing of records to increase knowledge regarding Great Crested Newt numbers, Improve water and general overall quality of their habitats.



6.2.3 Otter, *lutra lutra*

Description:

Medium sized, semi aquatic mammal in the family *mustelidae*. They are predominantly brown in colour with a pale underside, have long slim bodies, short limbs and webbed feet.

National status:

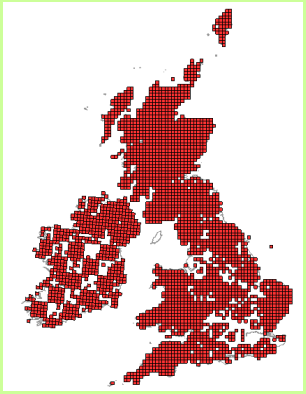
National BAP species, protected under national and international law.

Status and locations within drainage district:

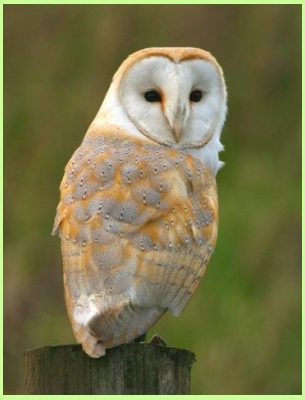
Over recent years the population has increased and most recently in the northern part of the Holderness region otters have re colonised in the upper reaches of the River Hull.

Potential improvements:

Provide necessary road underpasses for otters, encourage the adoption of water course management method that benefit otters.



6.2.4 Barn owl, *Tyto alba*



Description:

large owl with grey gold plumage on the head and back with a pure white front and a pale, heart shaped face. It is predominantly crepuscular and feeds on small rodents, frogs and insects.

National status:

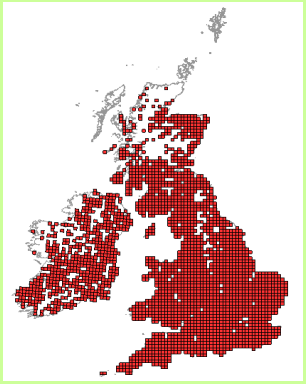
Barn owls are protected under Schedule 1 of the wildlife and countryside act 1981. Numbers have declined since the 19th century due to agricultural intensification, a loss of nesting sites and hunting

Status and locations within drainage district:

Despite the national picture, certain parts of the consortiums districts have a larger than average population.

Potential improvements:

Further surveys to aid in the production of new plans to increase numbers, identify areas to increase populations, increase knowledge of farmers to improve practices in order to be more environmentally friendly towards Barn owls.



6.2.5 Farmland Birds

Description:

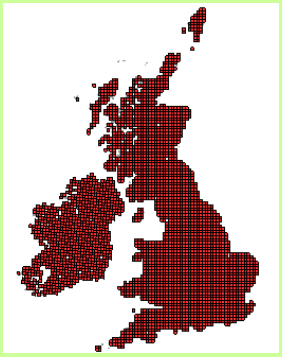
Many farmland birds have seriously declined during the past 30 years and several are identified as priorities for conservation in the UK BAP for example Reed Bunting, Skylark and Lapwing.

Factors affecting farmland birds:

- The switch form spring-sown to autumn sown cereals, resulting in loss of winter stubbles and suitable condtions for species which nest in short vegetation (e.g. lapwing and skylark)
- Intensive pesticide and herbicide use which reduces the availability of seed and invertebrate food.
- Loss of marginal habitats such as uncropped headlands, wet field corners etc

Status and Habitat:

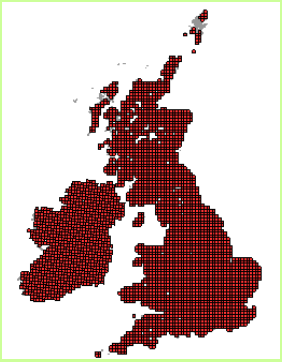
***Lapwing*:**
They can be found in areas with spring sown crops, rotational set a side or un intensive grassland (rough pasture/hay meadows) and damp hollows which are associated for chick feeding. The Lapwing mainly breeds in open countryside in large fields. Locally there is a small and declining population, however there are sizeable flocks of migrant birds, which boost the numbers outside the breeding season.



Skylark*, Alauda arvensis*:
They breed in arable, rotational set-aside and un intensive grassland. Short to medium height vegetation is required for nesting. The Skylark requires invertebrates for chick food and seeds, grains and shoots throughout the year. It is still very common within the districts to see Skylark, this is probably due to the large acreage of spring sown crops.

Reed Bunting*, Emberiza schoeniclus*:

Reed Bunting nest in wetlands, ditches and on river banks with tall vegetation. They frequently feed on weedy stubbles and rotational set aside. They mainly occur along river floodplains and farmland drains within the districts. Like other species their numbers have declined in recent years in local areas.



Potential Improvements:

Maintaining food recourses for seed-eating species throughout the year, widespread improvement in breeding habitats and numbers of invertebrates needed for chick food. Carefully target farm conservation schemes aimed at priority species

7

7.1

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

The following Habitat Action Plans are included for the York Consortium of IDBS;

- Ditches and drains
- Hedgerows and Arable Margins
- Wetlands

The following Species Action Plans are included for the York Consortium of IDBS;

- Water Vole
- Otter
- Barn Owl

8

8.1

Drains and ditches are man made watercourses used to remove surface water run off, and have intrinsic value for biodiversity. Other features associated with drains and ditches can include hedgerows/ trees, rough bank side habitat, grassy banks, margins for aquatic plants, field margins, along channel itself.

Drains and ditches also act as a wildlife corridor between areas of framed land giving refuge to many declining species such as water voles. Maintenance can be vital in the provision of varied watercourses and margins, offering a range of habitats to suite an array of species.

Without routine maintenance, ditches undergo natural succession from open water through to completely silted up ditch with thick vegetation that restricts flow. Therefore it is important to maintain ditch and drain systems in order to sustain the water supply and drainage functions. Maintenance of ditches and drains involves the management of channel and bank vegetation, the removal of blockages and occasional silt removal.

8.2

Ditches and drains are widespread especially in areas where drainage is artificially managed, which accounts for most of lowland Britain. The quality of ditches and drains has declined in recent years due to nutrient enrichment and diffuse pollution. However ditches and drains that are monitored by IDBs offer important habitats for a range of nationally threatened species of flora and fauna.

8.3

There is no precise data available on the distribution of ditches and drains with the region as a whole. However given the low lying nature of the area, ditches and drains are important, widely distributed features of the landscape.

8.4

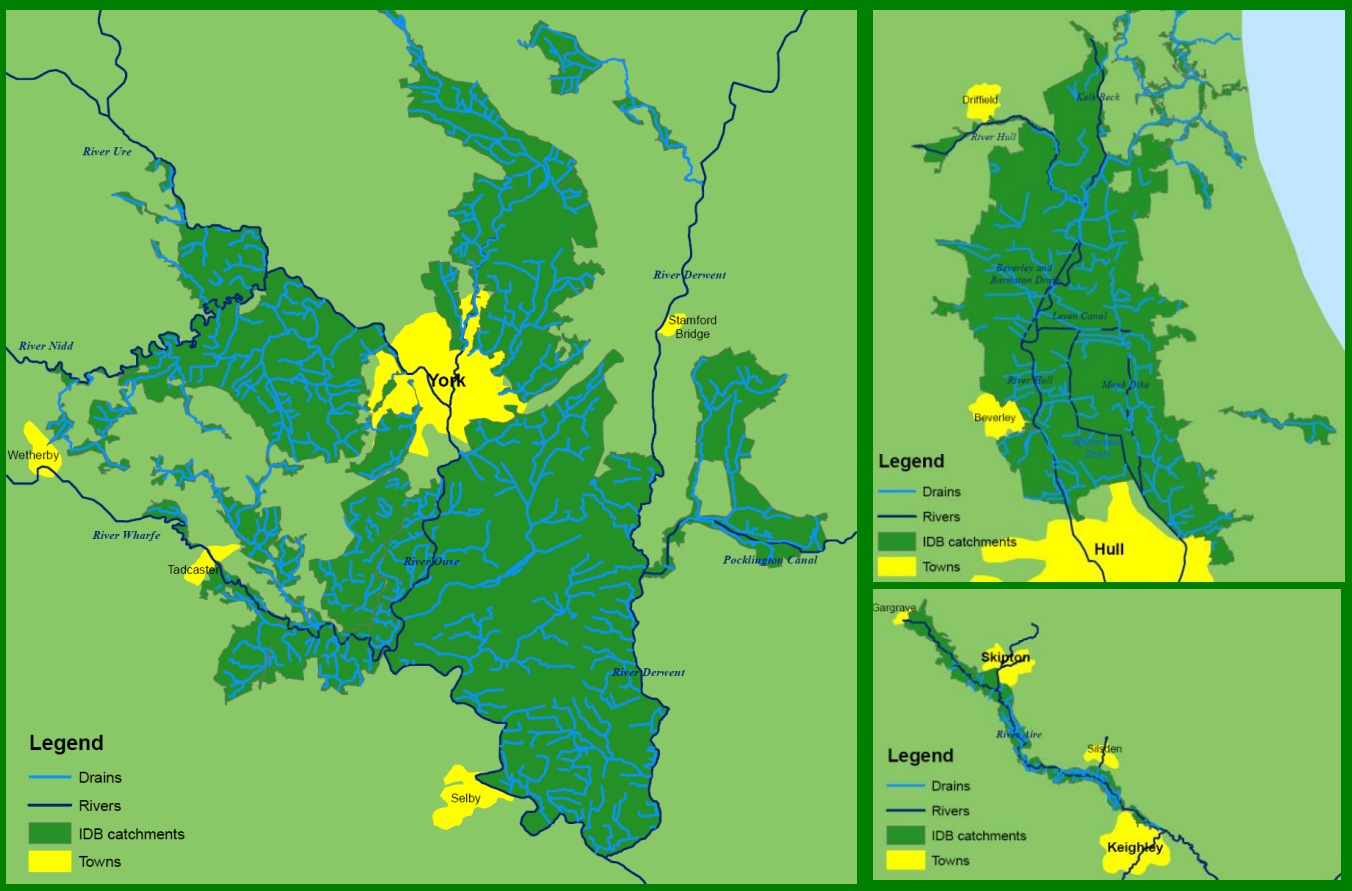


Figure 4: Illustration of watercourses that the Consortium is responsible for.

The Biodiversity Audit identified that the Consortium is responsible for around 1000km of this habitat across all the IDBs. The ditches and drains are used to manage water levels and act as a flood defence. All the ditches and drains in the boards are managed to benefit the efficiency of the systems and the flora and fauna within them.

8.5

The main issues that can reduce the quality of the environment in drains and ditches include:

- Pollution, including eutrophication and acidification
- Inappropriate maintenance regimes
- Under and over management of adjacent fields, including overgrazing
- Poor water level management, can cause bank erosion
- Invasive plant species

8.6

- All IDB maintenance to be carried out in line with best practice guidelines set out in the drainage channel biodiversity manual.
- Raise awareness of the wildlife value of ditches and drains
- Share data and knowledge with local partners

Table 7: IDB Habitat action plan - Ditches and Drains

Target Ref.	Target	Action Ref.	IDB Actions	Partners	Date	Indicators	Reporting
DD1	Maintain and enhance the existing habitat species diversity of watercourses	DD 1.1	Ensure the management of adopted watercourses is appropriate		Ongoing		Annually
		DD 1.2	Review IDB maintenance activities and update maintenance manuals, seeking opportunities to enhance the biodiversity interest				
		DD 1.3	Asses IDB watercourses for habitat quality		Ongoing	Length of ditch assessed	
		DD 1.4	Review all applications for 'consent for works affecting IDB watercourses' to ensure minimal environmental impacts to aquatic habitat.				
DD2	Monitor and control invasive species on IDB watercourses	DD 2.1	Record and monitor non native invasive plants and animals and pass on information to relevant parties				
		DD 2.2	Assess the feasibility of controlling strands of invasive plants				
DD3	Maintain and improve for native established species	DD 3.1	Identify trees near watercourses that could provide natural habitats for animals such as Bats and Barn owls.				
		DD 3.2	Seek opportunities to aid such species e.g. nesting boxes				

8.7

The following UKBAP, LBAP and the consortiums IDB action plans are associated with this plan and will benefit from actions detailed above:

- Water vole
- Otter

9

9.1

Arable margins and hedgerows run through farmland land acting as habitat links for various flora and fauna. They are both important in their own right, hedgerows are important as they provide nesting sights for important species of butterflies, moths, birds and bats. Also in lowland Britain they are significant as they provide essential refuge for much woodland, farmland plants including mature trees. Hedgerows facilitate the dispersal of various species by providing links between various habitats.

Arable margins are sited around fields of arable crop; they can be seen as herbaceous strips or blocks, which usually form a 2-10m margin at the field edges. They are managed specifically to provide benefits to various forms of wildlife. Arable margins are usually made up of natural grassland which has self seeded or sown. The vegetation in arable margins is managed to prevent scrub invasion. They provide effective cover for many small creatures from invertebrates to small mammals and birds. This is also important for predator species such as barn owl, which feed on the small mammals and birds.

9.2

Both arable margins and hedgerows are listed as UK BAP habitats. It is estimated that there is 100,000ha of arable margins, however if margins were 6m around all fields an extra 95,000ha would be available for wildlife without having adverse effects on arable production.

It is currently estimated that there is 450,000km of hedgerow remain in the UK, with approximately 154,000km classified as ancient and/or species rich. However across the UK there has been a decline estimated in the region of 20% during the 1980s especially in eastern counties of England.

9.3

Arable margins are widespread in local areas but the quality and quantity is relatively unknown. Many new margins and hedgerows were developed with aid from countryside stewardship schemes between 1991 and 1998.

9.4

There is no precise data on the extent on the extent or quality of arable margins and hedgerows within the districts. However they can are widespread as large amounts of arable land are present within the districts.

9.5

The main issues that surround arable margins and hedgerows are;

- Spraying of pesticides on crops can leach into margins and hedgerows reducing their value to wildlife.
- Nutrient enrichment and pollution can occur from agricultural runoff.
- Intensification of farming to improve production leading to the removal of hedgerows and reduction in size of arable margins.

9.6

- All IDB maintenance to be carried out in line with best practice guidelines set out in the drainage channel biodiversity manual.
- Raise awareness of the wildlife value of arable margins and hedgerows
- Share data and knowledge with local partners

Table 8 - IDB Habitat action plan – Arable Margins and Hedgerows

Target Ref.	Target	Action Ref.	IDB Actions	Partners	Date	Indicators	Reporting
AMH 1	Maintain and improve the quality of arable margins within the IBD districts	AMH 1.1	Encourage appropriate management techniques for arable margins that are adjacent to IDB watercourses	FWAG			
		AMH 1.2	Reduce the disturbance to ground nesting animals adjacent to IDB watercourses				
AMH 2	Maintain and improve the quality of hedgerows within the IBD districts	AMH 2.1	Encourage appropriate management techniques for hedgerows that are adjacent to IDB watercourses				
		AMH 2.2	Reduce the disturbance to nesting species and any wildlife that inhabit the hedgerows adjacent to IDB watercourses				
		AMH 2.3	Any hedgerow removal should be followed up by the planting of new species rich hedgerows where possible				
AMH 3	Maintain and expand the current extent of arable margins and hedgerows within the IDB districts	AMH 3.1	Encourage the uptake of agri-environment/ stewardship schemes to increase the amount of arable margins adjacent to the IDBs watercourses				
		AMH 3.2	Encourage the growth of natural bird feed and wild flowers for sources of pollen within arable margins.				
		AMH 3.3	Promote the enhancement of the arable margins that already exist, eg filling in gaps, extending margins and traditional management practices.				

9.7

The following UKBAP, LBAP and the consortiums IDB action plans are associated with this plan and will benefit from actions detailed above:

10

10.1

Wetlands is a term used to describe a range of habitats found in Britain. Wetlands are categorised by the hydrological and edaphic status. Wetlands generally fall into two categories; ombrogenous (supplied only by rainfall) and topogenous (supplied by both rainfall and ground or surface water).

A number of habitats fall under the bracket of wetlands;

- **Coastal and floodplain grazing marsh** – Periodically inundated pasture or meadow with ditches which maintain water levels containing standing brackish or fresh water.
- **Marsh** – topogenous mire that develops on a mineral soil. Frequently drained and improved
- **Reedbed** – wetland dominated by common reed where the water table is at or above ground level for most of the year.
- **Fen** – Develop in topogenous basins or in river valleys on peaty soils. They have a variable pH and in some cases can be base-rich and contain rare species.
- **Lowland raised bog –** ombrogenous habitat found in wide river valleys. They are characterised by low pH and species diversity. However rare species of flora and fauna can be found in the habitat. Frequently cut for peat, for this reason many are now degraded.

10.2

Since the 1940s there has been a large decline in the coverage of wetland habitats across the UK. It is estimated that the UK has last 20% of its peatlands and bogs since the 1940s to drainage and a futher 6% to afforestation. Since the middle ages around 97% of original fen wetlands have been lost to drainage and development leaving behind small, isolated areas.

A range of wetland habitats are included in the UK BAP, including lowland fens, lowland raised mires, coastal and floodplain grazing marsh and blanket bog.

10.3

Wetlands were once very common in the Vale of York and the East Riding of York with land being flat and dotted with wetland meres. Many wetland areas within the region have been degraded in terms of extent and quality.

10.4

There are a variety of wetland habitats scattered throughout the IDBs. Coastal and floodplain grazing marsh is particulary widespread with noticeable areas occurring adjacent to the major rivers that flow through the area. Also in these areas there are important flood meadows , with some fens and mires.

Many of the SSSI present in the IDBs are of different wetland habitat. Majority are comprised of coastal floodplain grazing marsh and flood meadows such as Bolton Percy Ings, Fulford Ings and Derwent Ings. Fens and marsh can also be found alongside the already mentioned habitats at Melbourne and Thorton Ings and Naburn Marsh.

Askham Bog is made up of marsh and wet woodland and is situated on the edge of the Marston Moor Drainage Board. This is a significantly important site as rare flora and fauna can be found there.

10.5

The main issues surrounding wetland habitats are;

- Land Drainage
- Pear Extraction
- Development
- Pollution

10.6

- Improve and maintain quality and extent of wetlands, through enhancement works and management
- Increase area of wetland throughout the IDB areas

Table 9 - IDB habitat action plan - Wetlands

Target Ref.	Target	Action Ref.	IDB Actions	Partners	Date	Indicators	Reporting
WET 1	Improve and maintain quality and extent of wetlands within the IDB areas	WET 1.1	Asses feasailitiy of undertaking enhancement works on wetlands in the districts	FWAG			
		WET 1.2	Report and investigate any pollution incidents in wetland areas within the districts				
		WET 1.3	Encourage land owners to utilise buffer zones near wetlands				
		WET 1.4	Continue to work in partnerships including the lower Derwent valley project to ensure appropriate management of wetland sites				
WET 2	Increase total area of wetland in the IDB areas	WET 2.1	Encourage landowner uptake of agri-environment schemes to create wetlands				
		AMH 2.2	Where possible as part of capital works incorporate wetland creation				
		AMH 2.3	Cooperate and work with landowners wishing to create wetlands on there land.				

10.7

There are many species and habitats featured in the UK BAP and Local BAP that are associated with this plan and will benefit from the actions

- Bittern
- Reed Bunting
- Otter
- Barn Owl
- Low land raised bog

11

11.1

The water vole is the UK's largest vole species. It is frequently confused with the brown rat, but they be distinguished by their furred tails, blunt muzzles and more discreet ears. Water voles occur along vegetated banks of slow flowing rivers, streams, ditches, dykes and lakes where they feed on grasses and other waterside vegetation.

Signs of the presence of water voles can include cropped 'lawns' of grazed vegetation, latrines of droppings and networks of burrows and tunnels in banks and surface vegetation. Water vole burrows are generally between 4-8cm in diameter and can be confused with holes made by brown rats – the lack of spoil created by water voles and a slightly smaller opening are differing features.

11.2

In 2008, the Water Vole received full protection under the Wildlife & Countryside Act 1981. It is now an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding and resting places. It will continue to be an offence to disturb them in their breeding or resting places.

11.3

The water vole was once a common mammal in Britain however through increased development, pollution, habitat fragmentation of the American Mink have led to a substantial decline in their population. A survey in 1996-1998 by the Vincent Wildlife Trust found that the occupancy of sites where water voles had previously been recorded had declined by 89%. The decline has been further exacerbated by records of decreased numbers of individuals in occupied sites, indicating the 89% decline under estimates the scale of the problem.

11.4

- To maintain the current distribution in order to arrest the decline of the species in Britain.
- Maintain the current abundance in order to arrest the decline of the species in Britain.
- To restore water voles to their former widespread distribution.

11.5

The water vole has been recorded extensively throughout the York and East Riding Areas. The local distribution is generally wide spread, with no reported high concentrations but more individual scatted records. Populations of Water Voles do however seem to be increasingly slightly, this increase could be attributed to the implementation of more sensitive maintenance practices by the IDBs and the EA.

11.6

The following can be attributed to the reduction of Water Vole numbers within the IDBs:

- Pollution resulting in poor water quality.
- Predation by the non-native American Mink
- Habitat loss due to intensive agricultural practices, inappropriate vegetation management, intensive flood defence and drainage engineering (culverting, bank reinforcement) and bank erosion from heavy grazing
- Variation in water levels, fluctuating water levels can flood burrow systems and drown Water Voles. The drying out of watercourses may also be detrimental, leaving burrow entrances exposed and Water Voles vulnerable to predators.

11.7

- Take Water Voles into account in IDB capital works and maintenance activities.
- Prepare generic method statements, detailing the requirements for Water Vole survey and mitigation for IDB capital works and maintenance activities.
- Maintain and enhance ditch habitats for water voles through IDB maintenance activities.

- Collect records of Water Vole sightings across IDB Districts and carry out detailed Water Vole population monitoring in selected locations
- Share data and knowledge with local partners

Table 10: IDB Species Action Plan - Water Vole

Target Ref.	Target	Action Ref.	IDB Actions	Partners	Date	Indicators	Reporting
WV1	Ensure all IDB Activities comply with relevant legislation protecting Water Voles and their habitat	WV 1.1	Provide training to IDB employees on legislation regarding water voles and their habitat		Ongoing	Amount of employees trained	Annually
		WV 1.2	Ensure Water Vole surveys are conducted prior to any bank improvement, drainage or other engineering works		Ongoing	Number of surveys taken	Annually
WV 2	Maintain and enhance suitable habitat for water voles within the drainage districts	WV 2.1	Ensure appropriate habitat management with known Water vole populations		Ongoing	Length (m) managed/maintained	Annually
		WV 2.2	Review maintenance regimes and identify watercourses where the mowing and weed cutting regime can be altered to enhance and increase Water Vole habitat		2010 onwards	Length (m) enhanced	Annually
		WV 2.3	Asses existing habitat suitability for water voles with the IDB Districts		2011/ 2012	Length (m) assessed	Annually
		WV 2.4	Work with landowners for potential opportunities to improve Water Vole Habitat through re profiling banks or widening ditches	Landowners	Ongoing	Number of land owners advised	Annually
WV 3	Monitor populations of Water voles with in the drainage districts	WV 3.1	Undertake monitoring of key Water Vole Colonies		2010 onwards	Length (m) surveyed	Annually
		WV 3.2	Collect water vole records that arise during course of IDB activities		Ongoing	Number of records collected	Annually
		WV 3.3	Investigate the distribution of Mink and record any sightings within the IDB districts		Ongoing	Numbers counted/ length (m) assessed	Annually

11.8

The following UKBAP, LBAP and the consortiums IDB action plans are associated with this plan and will benefit from actions detailed above:

- Otter
- Ditches and Drains

12

12.1

The otter is a semi aquatic mammal that mainly feed on fish and other water based vertebrates and amphibians. They have long slender bodies and webbed feet, which make them well equipped for swimming through water. The otter can produce between one and five young and breed all year round. The young generally stay with the mother until they have fully developed and have learnt how to survive independently. Adult otters have no natural predators, however gamekeepers have heavily persecuted them in the past.

The decline of the otter can be attributed to the loss of habitat, pollution, hunting and other human activities. In the 1950s to late 1970s, otter numbers declined significantly. The introduction of stronger agricultural pesticides can be linked to the decline. Only in recent years have otter numbers increased due to protective legislation and conservation programmes.

12.2

Otters are protected by European Law and protected under the Wildlife and Countryside Act 1981 and Habitat Regulations 1994, which make it an offence to kill, injure, capture, or disturb otters, or to damage or destroy the habitats they use for shelter and protection.

12.3

The otter is a UK BAP species due to the rapid decline in numbers during the 1950s-1970s. In certain areas of the UK they became effectively extinct such as the Midlands and south-east England. However populations remained in Wales, Scotland and southwest England, where coastal colonies are amongst the largest in Europe. Recently the numbers have increased across the whole of the UK, which has seen the return of otters to former sites where they were once prominent.

12.4

- Maintain the current distribution of the otter throughout the UK
- Expand the distribution of otters to achiever 85% occupancy of 10km squares by 2015.

12.5

The Otter can be found in various locations along the rivers in the districts. There are also populations that reside away from the main rivers in larger streams and dykes.

12.6

Even though a large amount of effort is being focused on otter conservation, the biggest threat to otters is still the pollution of watercourses. This leads to poor water quality, which does not only affect the otter directly but also indirectly as many of its prey are affected. Also the loss of habitat features important for otter breeding is having a detrimental affect on efforts trying to increase otter numbers. Other problems for otters include accidental mortality mainly due to roads and drowning in fishing traps.

12.7

- Maintain and enhance habitat for otters through the maintenance regime.
- Take otters into account in all IDB work.
- Share data and knowledge with local partners.

Table 11 – IDB Species Action Plan - Otter

Target Ref.	Target	Action Ref.	IDB Actions	Partners	Date	Indicators	Reporting
OT 1	Maintain and enhance suitable habitat for otter within the drainage district	OT 1.1	Work with land owners to improve riparian habitat for otter.				
		OT 1.2	Encourage the fencing off of watercourses to prevent damage to the water course by livestock.				
OT 2	Ensure all IDB works comply with relevant legislation protecting otter and their habitat	OT 2.1	Ensure maintenance and improvement works take into account the needs of otters, retaining as much otter habitat as possible				
		OT 2.2	Provide training to IDB employees on legislation pertaining to Otter and their habitat.				
OT 3	Record and monitor otter activity with the drainage district	OT 3.1	Collate records that are taken during the course of IDB work.				

12.8

The following UKBAP, LBAP and the consortiums IDB action plans are associated with this plan and will benefit from actions detailed above:

- Water Voles
- Ditches and Drains

13

13.1

The barn owl is the most distinctive of owls with their white heart shaped faces and white and golden brown under parts. Barn owls occur in the countryside, hunting in rough grassland particularly along banks of watercourses, field margins and road verges. They tend to inhabit dark chambers within buildings, large cavities in old trees and purpose made nest boxes.

During the mating season the barn owl can travel up to 9km away from its home, to find a mate and food. They primarily eat small mammals such as field vole, mice and shrews. Virtually all hunting is carried out under darkness as the barn owl uses its acute hearing to detect its prey.

13.2

The Barn owl is protected under the Wildlife and Countryside Act 1981 which make it an offence to kill, injure, capture, or disturb barn owls, or to damage or destroy the habitats they use for shelter and protection. The Act affords additional and special protection making it unlawful to intentionally or recklessly disturb the barn owl whilst it is preparing to nest or is at the nest with eggs or young to disturb their young.

13.3

The barn owl was once a widespread bird across the UK, however its numbers plummeted throughout the 20th century. There was a decline from 12,000 breeding pairs to 3800 between 1935 and 1985. A more recent survey has indicated a similar breeding population of 4000 pairs suggesting that although numbers remained low, the decline may have halted.

13.4

The barn owl is not part of the UK BAP as overall numbers are deemed to be acceptable. However this does not make it an important species as much work is carried out by the RSPB and other wildlife charities to improve barn owl numbers and habitats.

13.5

Compared to the number of barn owls across the country, the vale of York seems to be a stronghold for barn owls. Research has shown that the Derwent valley has one of the largest populations of barn owls within the UK. Their numbers are also evenly distributed across the all areas of the IDBs.

13.6

The following can be attributed to the reduction of Water Vole numbers within the IDBs:

- Decrease in food supply caused by the loss of rough grassland habitat through intensive methods of farming and urbanisation.
- Increasing use of agricultural pesticides in the mid1900s, which have caused issues of secondary poisoning as toxins have accumulated in tissues over time.
- Urbanisation has led to the expansion of the road network and increased vehicle speeds have seen increases in road mortality.

13.7

- Create and manage the network of rough grassland habitat corridors with in the IDB districts.
- Provide artificial nesting sites on habitat corridors, having regard for existing pairs.
- Raise awareness of board staff regarding the significance of barn owls within the IDB districts
- Share data and knowledge with local partners

Target Ref.	Target	Action Ref.	IDB Actions	Partners	Date	Indicators	Reporting
BO 1	Maintain and enhance suitable habitat for Barn Owls within the drainage district	BO 1.1	Maintain and adopt management practices to improve rough grassland adjacent to IDB watercourses.		Review in 2020	Length and quality of habitat	Annually
		BO 1.2	Cut alternate banks on a rotational basis to maintain sufficient bank vegetation		Review in 2020	Quality of habitat	Annually
BO 2	Provide artificial nesting sites on habitat corridors	BO 2.1	Instigate a programme regarding nest box installation taking into account existing breeding pairs	Wildlife conservation partnership	Ongoing	Number of nest boxes installed	Annually
		BO 2.2	Undertake monitoring of nest boxes		Ongoing	Results found from monitoring	Annually
BO 3	Ensure all IDB works comply with relevant legislation protecting the barn owl and their habitat	BO 3.1	Provide relevant training to IDB board members, staff and contractors involved in IDB work		Ongoing	Amount of staff trained	Annually
		BO 3.2	Asses possible impacts to barn owls and their habitat during IDB works		Ongoing	-	Annually
OT 4	Record and monitor Barn Owl activity with the drainage district	OT 3.1	Collate records of sightings and or signs that are taken during the course of IDB work to aid future conservation.	Wildlife conservation partnership	Ongoing	Amount of records collected	Annually

13.8

The following UKBAP, LBAP and the consortiums IDB action plans are associated with this plan and will benefit from actions detailed above:

- Arable margins and Hedgerows
- Ditches and Drains

14

14.1

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 to promote best practice methods and contribute to biodiversity gain, outside the targets identified in the specific habitat and species action plans

14.2

Target Ref.	Target	Action Ref.	IDB Actions	Partners	Date	Indicators	Reporting
PAP 1	Promote best practice in all drainage works	PAP 1.1	Train all IDB staff and contractors in environmental best practice		Ongoing	Number of staff trained	Annually
		PAP 1.2	Advise land owners on environmental best practice		Ongoing	Number of owners advised	Annually
PAP 2	Prevent habitat loss or degredation by taking biodiversity into account when planning and undertaking capital works.	PAP 2.1	Control non-essential culverting and bank revetment works through IDB consents to reduce habitat loss.	Planning and consenting authorities	Ongoing		Annually
		PAP 2.2	Review all applications “consent for works affecting IDB watercourses” to ensure minimal environmental impacts on the aquatic habitat		Ongoing	% of consents reviewed	Annually
PAP 3	Improve understanding of species populations present within the IDBs	PAP 3.1	Submit any findings to the relevant body.		Ongoing	Amount of records	Annually
PAP 4	Improve BAP delivery through partnership working with organisations and landowners	PAP 4.1	Develop existing partnerships to deliver BAP targets and seek new partners to allow delivery through joint working or funding	EA, Yorkshire Wildlife, City of York council, Natural England, RSPB	Ongoing	Number of targets delivered through partnership	Annually

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- The actions detailed in the habitat and species actions plans in the previous chapters will be implemented through minor changes to IDB management and maintenance methods, whilst still allowing the boards to fulfil its responsibilities to drainage.
- Any capital works undertaken by the boards will allow the implementation of BAP actions.
- Working with partners, other interested organisations and individuals will allow several actions to be implemented through sharing of information and the collation of data monitoring.

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- Monitoring of the BAP will be required to ensure that the actions detailed in the habitat and species action plans are being implemented.
- Monitoring of the indicators detailed in the action plans will be undertaken and recorded, generally on an annual basis
- Species and habitats vary naturally over time. Any changes in habitats and species will be monitored and incorporated into the BAP to improve add extra information.

17

- This IDB BAP is an evolving document that will be periodically reviewed to take account of new information and the progress made on actions. A full review will be undertaken after five years (in 2018) at which point any new habitats or species action plans will be considered. It will be possible for the IDB to review and update the BAP whenever it feels necessary to do so within this time frame.
- The reporting of information will be done through various forms of media such as websites and leaflets and through meetings held by the drainage boards.