SOMERSET IDB BIODIVERSITY ACTION PLAN

April 2010

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Drainage Boards covered	Parrett Drainage Board Lower Brue Drainage Board Lower Axe Drainage Board Upper Brue Drainage Board Upper Axe Drainage Board
IDB Lead officers	Anne Halpin, Ecologist Philip Brewin, Ecologist

This Biodiversity Action Plan has been prepared by the Somerset Drainage Boards Consortium for five Drainage Boards in Somerset.

The Plan has been produced in accordance with the requirement in the Implementation Plan of the DEFRA Internal Drainage Board Review for all Internal Drainage Boards (IDBs) to produce their own Biodiversity Action Plan by April, 2010. The Plan also demonstrates the commitment of the Boards to fulfilling their duties, as public bodies under the Natural Environment and Rural Communities Act 2006, to the conservation of biodiversity.

Many of the routine activities of the Somerset IDBs already benefit biodiversity, not least their water level management and watercourse maintenance work. The intention is to integrate current good practice and biodiversity actions into the Board activities, such as annual maintenance programmes and capital works projects, to help further the conservation of biodiversity in Board areas.

Implementation of the actions listed in the habitats, species and procedural action plans will be principally achieved though the implementation of IDB Water Level Management Plans (WLMPs) and minor changes to IDB watercourse maintenance practices. As part of their work on the new WLMPs, the Somerset IDBs have developed a 3 - 5 year programme of water level management improvements for wetland Sites of Special Scientific Interest (SSSIs) in Somerset. This is an ambitious programme for the IDBs that, when implemented, will deliver significant gains for wetland biodiversity in Somerset.

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

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IDB BIODIVERSITY – AN INTRODUCTION

1.1 Introduction

This Biodiversity Action Plan has been prepared by the Somerset Drainage Boards Consortium (SDBC) for five Drainage Board districts in Somerset (Fig 1):

- Parrett Drainage Board
- Lower Brue Drainage Board
- Lower Axe Drainage Board
- Upper Brue Drainage Board
- Upper Axe Drainage Board

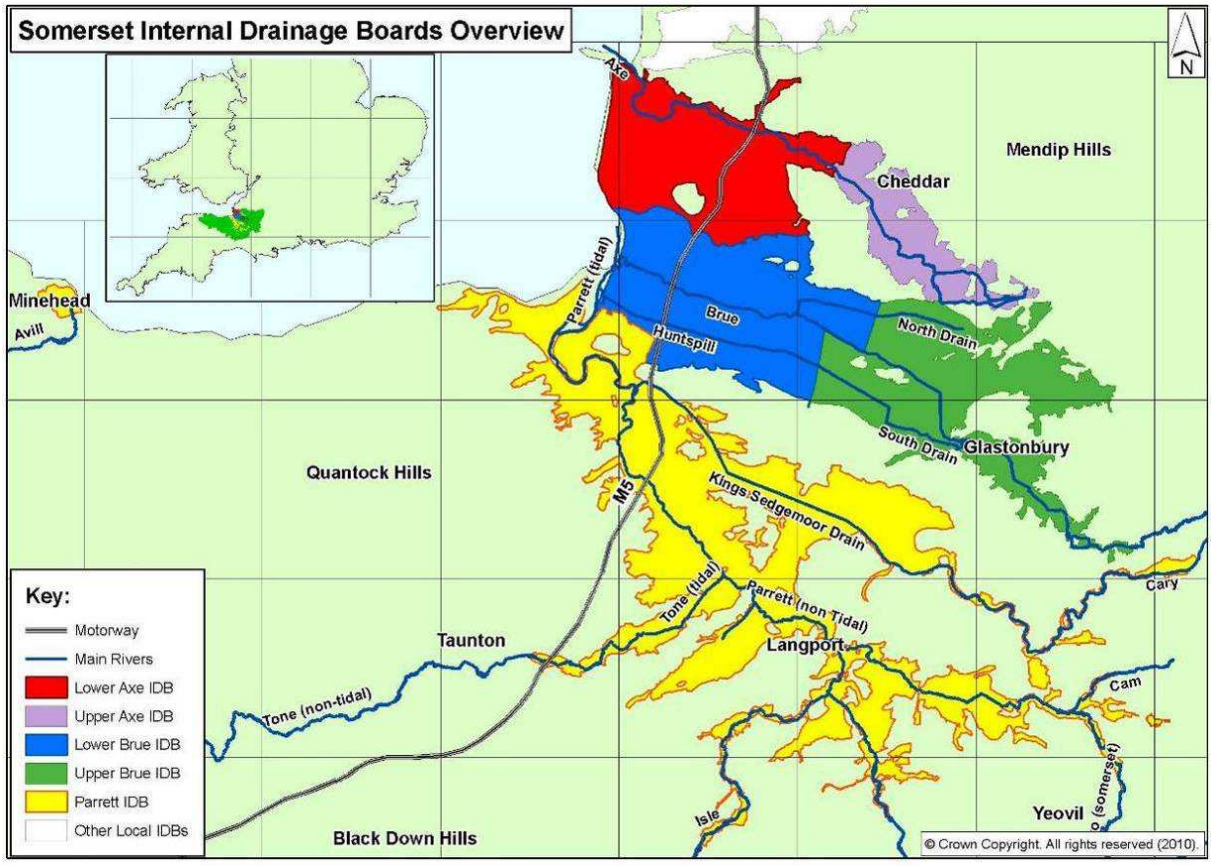
These Boards will be collectively referred to as the Somerset IDBs in this Plan.

The aim of the Plan is to help the Somerset IDBs to increase the biodiversity benefits from their activities and to assist in demonstrating their contribution to the Government's UK Biodiversity Action Plan targets.

A biodiversity audit has been conducted for the Somerset IDB districts and the habitats and species that would benefit from particular management or actions by the IDBs have been identified. This information has been used to develop the IDB Biodiversity Action Plan (BAP). The Plan identifies objectives for the conservation and enhancement of biodiversity within IDB districts and describes the targets and actions that will deliver these objectives. This Biodiversity Action Plan is therefore a public statement by the Somerset IDBs of their biodiversity objectives and the methods by which they intend to achieve them. The Somerset IDBs will adopt this Biodiversity Action Plan as a policy to demonstrate their commitment to its implementation.

The Plan is an evolving document that will be reviewed and updated on a regular basis.

Figure 1: Overview of the Internal Drainage Board Districts in Somerset.



1.2 What is Biodiversity?

The Convention on Biodiversity agreed at the Earth Summit in Rio de Janeiro in 1992 [1] 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.
- 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 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 The International Context

The international commitment to halt the worldwide loss of habitats and species and their genetic resources was agreed in 1992 at United Nations Conference on the Environment and Development commonly known as the Rio Earth Summit [1]. 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. They 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. The 2002 World Summit in Johannesburg on Sustainable Development subsequently endorsed this target.

1.6 The National Context

The UK Biodiversity Action Plan (UK BAP) [2] is the UK commitment to Article 6A of the Convention on Biological Diversity. It describes the UK's priority species and habitats, and has targets and actions to benefit 65 priority habitats and 1149 species. 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* [3] 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 The Local Context

For the UK BAP to be implemented successfully it must be translated into effective action at the local level. The UK targets for the management, enhancement, restoration and recreation 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.

The SDBC has been involved in developing the new LBAPs and has responsibility for implementing some of the LBAP actions for Somersets 'Water and Wetlands' and 'Ditches and Ponds' HAPs.

In addition, Biodiversity South West and the South West Wildlife Trusts have developed the South West Nature Map [4] which shows Strategic Nature Areas (SNAs) within the region. These are "extensive areas of landscape within which mosaics of habitat patches could be rebuilt".

The Somerset IDB District includes most of the Coastal and Floodplain Grazing Marsh SNA for Somerset.

1.8 Internal Drainage Boards and Biodiversity

The Natural Environment and Rural Communities Act [5] 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 conservation of biodiversity. In effect, this list is comprises the BAP priority species and habitats for England.

In 2007, the Government's IDB Review Implementation Plan [6] established a commitment that each IDB should produce its own Biodiversity Action Plan.

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

1.9 The Aims of the IDB Biodiversity Action Plan

- Contribute to achieving 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.
- Safeguard the biodiversity of the drainage district now, and for future generations.
- Develop effective local partnerships to ensure that programmes for biodiversity conservation are maintained in the long term.
- Raise awareness within the IDB and locally of the need for biodiversity conservation, and provide guidance to landowners, occupiers and their representatives on biodiversity and inland water management.
- Ensure that opportunities for conservation and enhancement of biodiversity are fully considered across IDB activities.

- Monitor and report on progress in biodiversity conservation.
- Contribute to landscape-scale delivery of biodiversity conservation.

THE IDB BAP PROCESS

1.10 The Biodiversity Audit

Information on the habitats and species present in the Somerset IDB districts, and the wider catchment area, was obtained from existing data held by the IDBs, including the latest Somerset Environmental Records Centre (SERC) habitat and species data and information held by other biodiversity partners.

1.11 Evaluating and Prioritising Habitats and Species

The Biodiversity Audit identified those priority habitats and species in the UK BAP and the LBAP 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 used to select species and habitats that are of particular importance to the Somerset IDBs and, in particular, 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.

1.12 Setting Objectives, Targets and Indicators

For each habitat and species identified as being important to the Somerset IDBs, conservation objectives and targets have been set out. The objectives express the broad aims for benefiting a particular habitat or species. The targets have been set to focus action and to identify outcomes that can be monitored to measure achievement. For each target an indicator has been set to allow delivery to be monitored and assessed over time.

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

Procedural targets and actions have also been considered. These are targets that the IDBs will use to measure how they consider and incorporate biodiversity across the whole range of their operations. These may involve changes to administrative, management and operating procedures.

The successful delivery of IDB BAP actions will often depend on the active involvement of Board members, partner organisations and private individuals. A Working Group of individuals and organisations, with a shared interest in water management, will be established to assist in developing shared objectives and actions, and to facilitate the delivery of the Somerset IDB BAP.

The Plan also sets out how the Somerset IDBs intend to implement the actions in the Plan and, where appropriate, identifies partnerships with other organisations or individuals.

1.13 Monitoring and Reporting

Achievement of Plan targets will be monitored by IDB officers and reported to the individual Drainage Boards at least once a year. Appropriate monitoring data from partner organisations will be used to assess outcomes and monitor changes in BAP habitats and species in the Somerset IDB districts.

Progress on Plan implementation will be communicated to ratepayers, partner organisations and local communities. IDB officers will record the successful achievement

of targets and register the gains for biodiversity in the public domain using, for example, the Biodiversity Action Reporting System (BARS), the IDB webpage, local and nation publications and public events.

1.14 Review Progress

The Somerset IDBs will monitor the implementation of this Plan and periodically review the feasibility of the BAP objectives and targets. The Plan sets out the methods that the Somerset IDBs will use to review the delivery of targets.

THE BIODIVERSITY AUDIT

1.15 Introduction

The following Sections 4, 5 and 6 summarise the results of the Biodiversity Audit undertaken in 2008-2009. Section 4 provides information about the drainage district and a list of the nature conservation sites that occur within or bordering its boundary. Sections 5 and 6 list respectively the habitats and species occurring within the district that are of potential importance to the Somerset IDBs.

1.16 Local Biodiversity Action Plans

The following Local Biodiversity Action Plans (LBAPs) cover the IDBs drainage districts [7]:

- 'Wild Somerset – The Somerset Biodiversity Strategy 2008-2018' [8].
- Mendip Biodiversity Action Plan
- Sedgemoor District, Somerset
- South Somerset Biodiversity Action Plan
- Taunton Deane Biodiversity Action Plan
- West Somerset Biodiversity Action Plan

The LBAP districts and a list of the Habitat and Species Action Plans are shown in Appendix 1.

1.17 IDB Biodiversity Audit Boundary

The Biodiversity Audit covers the entire districts of the Upper and Lower Axe Boards, the Upper and Lower Brue Boards and the Parrett Drainage Board (see Figure 1 and Appendix 1).

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

1.18 Sources of Data - Habitats

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

- Geographical Information Systems (GIS) data on priority habitats from Natural England [9].
- The Somerset Environmental Records Centre [10].
- National Biodiversity Network (NBN) Gateway [11].

1.19 Sources of Data - Species

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

- Ecological and environmental assessments undertaken by the Board.
- SERC (includes records from many local wildlife groups) http://www.somerc.com/.
- The Environment Agency (EA) water vole survey [12].
- Biodiversity Action Reporting System http://www.ukbap-reporting.org.uk/.
- National Biodiversity Network Gateway http://www.nbn.org.uk/.
- Somerset Wildlife Trust (SWT) website http://www.somersetwildlife.org/.
- The Royal Society for the Protection of Birds (RSPB) website http://www.rspb.org.uk/.
- ARKive http://www.arkive.org/.
- Various National Vegetation Classification (NVC) Surveys.

PLAN AREA

1.20 The Drainage Districts

The drainage districts cover 550km^2 and contain 1364km of IDB maintained watercourses:

Table 1: Drainage District Areas

IDB District	Area in km^2	Length of IDB maintained watercourses in km
Lower Axe	78	129.18
Upper Axe	34	84.44
Lower Brue	96	180.52
Upper Brue	94	214.53
Parrett	248	755.28

The Somerset IDB districts are located on the Somerset Levels and Moors to the south of the Mendip Hills. They cover the floodplains of the Axe, Brue and Parrett rivers and extend from the coast at Steart down to Taunton in the south-west, to the boundary with Dorset in the east then up to the west of Castle Cary, south of Wells and across, via Cheddar, to Bleadon in the north-west.

There is also a small sub-district of the Parrett IDB at Dunster, close to Minehead, to the north of the Quantocks.

1.21 Geology

The Somerset Levels and Moors are underlain by Triassic rocks, predominantly of a calcareous clay known as the Mercia Mudstone which represent ancient desert plains and evaporated lake deposits [13, 14].

The Polden Hills, which divide the Parrett Catchment in the south from the Brue and Axe in the north, are capped by Jurassic Blue Lias Limestone and some rocky outcrops to the north, such as Brent Knoll and Glastonbury Tor, also date back to Jurassic times [14, 15].

In more recent times, periodic inundation of the Somerset Levels and Moors, resulting from changing sea levels due to climatic changes, have led to the laying down of marine clays, followed by peat, accumulated during times of lower sea levels [13]. Patches of shelly sand and clay, known as the Burtle Beds, that are raised above the alluvial deposits of the Somerset Levels represent the deposits of a marine incursion during a warmer climatic period approximately 200 000 years ago [14].

Following the melting of the last ice sheet around 10 000 years ago, the sea levels rose and again deposited marine clays on the Somerset Levels. A subsequent drop in sea levels meant that, by around 3500 BC, the area was predominantly freshwater wetlands and deposits of peat began to form, particularly in the Brue Valley [14].

NATURE CONSERVATION SITES

1.22 Landscape

1.22.1 Landscape Designations

There are no National Parks that fall within the Somerset IDB Districts however Exmoor National Park extends to the edge of Dunster in the Parrett district [16].

Only one of the Areas of Outstanding Natural Beauty (AONB) [AONBs, 17] in Somerset, the Mendip Hills AONB, overlaps the Lower Axe District for a small area (1.3km^2) between Loxton and Yarberry.

1.22.2 Landscape Character

Natural England has divided the whole of England into a number of Joint Character Areas (JCA) based on characteristic landforms, wildlife and land use [15]. They are not statutory 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.

Whilst the major JCA within the Somerset IDB Districts is the Somerset Levels and Moors JCA, a number of other JCAs slightly overlap the IDB Boundaries (see Appendix 2):

- 140. Yeovil Scarplands
- 141. Mendip Hills
- 142 / 143. Somerset Levels and Moors/Mid Somerset Hills
- 146. Vale of Taunton and Quantock Fringes

The Somerset Levels and Moors [18] are characterised by:

- Flat, open landscape of wet pasture, arable and wetland divided up by wet ditches or 'rhynes'.
- Surrounded, and divided up, by low hills, ridges and islands which form distinctive skylines.
- Peat working and nature reserves contrasting with the rectilinear planned landscape of the Moors.
- Dramatic and prominent hills such as Brent Knoll, the Isle of Avalon and Burrow Mump, rising above the Levels and Moors.
- Sparse tree cover on Levels and Moors contrasting with woodland, hedges and orchards of surrounding hills.
- Sparsely populated Moors but settlements common on hills, ridges and islands.
- Historic landscape strongly evident in features ranging from prehistoric track ways and lake villages to post-medieval enclosures and peat working.
- International nature-conservation significance for wetland, waders and waterfowl.
- A narrow dune belt fringing Bridgwater Bay.
- Raised rivers and levees, with main roads and causeways flanked by houses.
- Flooding in winter over large areas.

1.22.3 Strategic Nature Areas

Strategic Nature Areas (SNAs) are not formal environmental designations but represent large scale areas of opportunity. They do include formally designated sites but also include land that has no designation for biodiversity conservation. They were formulated to improve habitat networks and to sustain wildlife within them. A map showing the south west SNAs can be found at the Biodiversity South West website [19, 20].

1.22.4 Archaeological Sites

There are a number of Scheduled Monuments within the IDB Districts as summarised in Appendix 3 [21].

1.22.5 Tree Preservation Orders

Tree Preservation Orders (TPO's) will need to be taken into account whenever work on trees is planned but TPO data is not included in this report.

1.23 Statutory Nature Conservation Sites

1.23.1 International Sites

The following internationally designated conservation sites are found within the district and are mapped in Appendix 4 [22, 23]:

Table 2: International Designations

Site name	Designation	Description	Water Level Management Plan Areas	Refs
Severn Estuary	RAMSAR SPA	The Severn Estuary is internationally important for the significant number of migratory and overwintering wildfowl & waders it attracts. The site also supports significant populations of breeding waders	Bridgwater & Pawlett	[24] [25]
Somerset Levels and Moors	RAMSAR SPA	This site is internationally important for supporting significant numbers of migratory and overwintering wildfowl & waders. It also supports significant populations of breeding waders as well as important ditch fauna and flora.	South Drain North Drain Currymoor Kings Sedgemoor & Allermoor Northmoor Othery, Middlezoy, Westonzoyland & Chedzoy West Moor West Sedgemoor Wet Moor	[26] [27]

Only a small part of the Severn Estuary Ramsar / SPA site falls within the IDB District and much of this overlap occurs at Pawlett Hams, an area which is subject to a Water Level Management Plan (WLMP).

The Somerset Levels and Moors Ramsar / SPA fall entirely within the IDB Districts in Somerset and are subject to a number of WLMPs.

1.23.2 National Sites

The following nationally-designated conservation sites are found within the district and are mapped in Appendix 5 [28, 29]:

Table 3: National Designations

Site name	Designation	Description	WLMP	Refs
Babcary Meadows	SSSI	One of the last remaining areas of traditionally managed unimproved neutral grassland in south Somerset and contains a rich variety of herbs.	None	[30]
Berrow Dunes	SSSI	This site provides a wide range of coastal habitats including salt marsh, fore, grey and yellow dunes, stable dune grassland, dune slacks, scrub and a freshwater lagoon. It supports a large number of rare species of plants and invertebrates and is important for breeding and overwintering birds.	None	[31]
Bridgwater Bay	SSSI	The site is nationally important for the number of overwintering and migrant waders and waterfowl it supports. A wide variety of aquatic and bankside plant species including nationally restricted species use the site as well as Red Data Book and nationally scarce invertebrates.	Bridgwater & Pawlett	[32]
Catcott, Edington & Chilton Moors	SSSI	The site is important for its wet grassland and ditch habitats which include a diversity of aquatic and bankside vascular plant species. The site has a diverse invertebrate fauna including nationally rare species. The area is also an important feeding and nesting habitats for wildfowl and waders and is an important habitat for breeding wetland birds.	Brue Valley (South)	[33]
Cheddar Reservoir	SSSI	This deep-water reservoir supports large numbers of wildfowl, 11 species of which occur regularly. It is important for over-wintering diving ducks, coots and grebes. It also has significant numbers of dabbling ducks especially in autumn and when water levels are low.	None	[34]
Curry & Hay Moors	SSSI	Curry and Hay Moors support nationally scarce plants and a diverse ditch flora and fauna including nationally rare & scarce species. The area also provides suitable habitat for overwintering waterfowl and waders and is important for breeding wetland birds. Rare vertebrate species are also present.	Currymoor	[35]
Fivehead Woods & Meadows	SSSI	This woodland complex is situated on a ridge of land overlooking West Sedgemoor and it supports a large breeding colony of Grey Herons *Ardea cinerea*.	None	[36]

Site name	Designation	Description	WLMP	Refs
Kings Sedgemoor	SSSI	Kings Sedgemoor supports herb-rich neutral grassland habitats. The area is important for its ditch flora, its diverse invertebrate fauna including nationally rare species, its breeding waders and rare vertebrates such as otters.	Kings Sedgemoor & Allermoor	[37]
Langmead & Weston Level	SSSI	The site supports nationally rare plants and habitats, a diverse ditch flora and a diverse invertebrate fauna including nationally rare and scarce species.	None	[38]
Moorlinch	SSSI	Moorlinch is important for its mesotrophic grasslands and species rich mire communities. It supports botanical rich ditch systems which, in turn, support rare aquatic invertebrates. It is an important area for overwintering wildfowl and waders and for breeding water birds.	Moorlinch	[39]
North Moor	SSSI	North Moor supports diverse neutral grasslands including scarce plants. There is an exceptional diversity of aquatic plants including nationally scarce species and a rich community of aquatic invertebrates including nationally rare species. Breeding waterfowl and overwintering wildfowl and waders regularly use the area and the site supports rare mammals such as otters.	North Moor	[40]
Severn Estuary	SSSI	Internationally important for wintering and passage wading birds.	None	[41]
Shapwick Heath	SSSI	This former raised bog includes remnants of this rare habitat including good examples of nationally rare and threatened species rich ‘mire’ type meadows. The site also supports large populations of orchids and heath-like communities, a diverse aquatic and bank-side flora and diverse communities of terrestrial and aquatic invertebrates including national rarities. At least 64 species of breeding birds have been recorded and the area is important for otters.	Brue Valley (South)	[42]
Sharpham Moor Plot	SSSI	This site is mainly important for its research value and it is one of the best documented examples of natural succession. It also supports a hybrid sedge never recorded elsewhere.	None	[43]
Southlake Moor	SSSI	Southlake supports diverse communities of aquatic and bankside plants including many locally important species. There is a diverse aquatic invertebrate community including notable, local and rare species. During flooding, large numbers of wildfowl use the area and the site is suitable for breeding waders. Otters and palmate newts have been recorded on the site.	Othery, Middlezoy, Westonzoyland and Chedzoy	[44]

Site name	Designation	Description	WLMP	Refs
Street Heath	SSSI	Street Heath supports uncommon mire communities with a rich flora and fauna. Important archaeological and botanical studies of peat stratigraphy were carried out here. The site has a high entomological interest with several notable rarities.	None	[44]
Tealham & Tadham Moors	SSSI	This site is very diverse and 113 species of aquatic and bankside plants have been recorded. It also supports a diverse invertebrate fauna associated with the ditches including some national rarities. The site includes important feeding and nesting habitat for a range of waterfowl and waders and supports a range of vertebrates including otters.	Brue Valley (North)	[45]
West Moor	SSSI	Some of the most diverse aquatic plant communities in the country. A rich invertebrate fauna with many nationally and locally rare species. Extensive winter flooding provides feeding grounds that attract waterfowl. Wet grassland and withy beds that are important habitats for regionally important populations of birds. Otters.	West Moor	[46]
West Sedgemoor	SSSI	Diverse flora including locally rare species in the rhynes. A rich invertebrate fauna including scarce species. Populations of waterfowl and waders breeding and overwintering on the moor.	West Sedgemoor	[47]
Westhay Heath	SSSI	Nationally rare fen communities including a diverse assemblage of breeding and wintering birds. Otters, harvest mice grass snake and common frog are present.	Brue Valley (North)	[48]
Westhay Moor	SSSI	Westhay Moor supports a variety of botanical communities including relict raised bog areas containing species with restricted distributions. Over 135 aquatic and bankside plant species have been recorded. The site also supports nationally outstanding communities of terrestrial and aquatic invertebrates including thirteen Red Data Book species. The site is important for breeding birds, including waterfowl and waders, and for other vertebrates such as otters, grass snakes and common frogs.	Brue Valley (North)	[49]
Wet Moor	SSSI	Wet moor is internationally important for overwintering wildfowl and waders and is important for breeding waders. The site also supports a variety of grassland types, a diverse aquatic flora and invertebrate fauna. Common frogs are present.	Wet Moor	[50]
Bridgwater Bay	NNR	Important bird populations with large numbers of wintering waterfowl and waders.	Bridgwater & Pawlett	[51]

Site name	Designation	Description	WLMP	Refs
Ham Wall	NNR	Ham Wall is an important site for overwintering birds. Rare species including water voles, otters and bitterns.	Brue Valley (North)	[52]
Huntspill River	NNR	The river enters Bridgwater Bay (RAMSAR). It holds stock of coarse fish and otters are regularly recorded along its banks. Barn owls breed in the area. The area is also of archaeological interest.	None	[53]
Shapwick Heath	NNR	Shapwick Heath is a diverse site with wetlands, wet woodland, fen and ditches and a richness of aquatic plants and invertebrates. Otters and many species of birds have been recorded. The Sweet Track was found in this area.	Brue Valley (South)	[54]
Somerset Levels and Moors	NNR	Important for its wet grassland communities.	Various	[55]
Westhay Moor	NNR	Westhay Moor supports internationally important populations of waterfowl and waders and a diverse invertebrate community.	Brue Valley (North)	[56]

1.23.3 Local Nature Reserves

The following Local Nature Reserves, which are designated by local authorities under Section 21 of the National Parks and Access to the Countryside Act 1949, are found within the district [57]:

Table 4: Local Designations

Site name	Designation	Features Relevant to IDB	WLMP	Refs
Screech Owl	LNR	Mosaic of ponds, reedbeds and areas of scrub.	None	
Street Heath	LNR	Also a SSSI. Supports various rare and notable, bog / marsh plant species. Protected mammals, notable bird species and a wide range of invertebrates including some rarities are found.	Brue Valley (South)	[58]

Additional Local Nature Reserves were in the process of being designated, including Apex Park at Burnham on Sea which is within the Somerset IDB District.

1.24 Local Sites (Non-Statutory)

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites are important for their contribution to biodiversity. The following local sites are to be found within or bordering the drainage district:

Table 5: Non-Statutory Designations

Site name	Designation	Features Relevant to IDB	WLMP	Refs
Greylake Nature Reserve	RSPB	Overwintering wildfowl & waders. Ground nesting birds, including waders.	Kings Sedgemoor & Allermoor	[59]
Ham Wall	RSPB (also an NNR)	Overwintering birds. Rare species including water voles, otters, bitterns and numerous species of birds.	Brue Valley (North)	[52]
West Sedgemoor	RSPB	Wet meadows. Large flocks of overwintering wildfowl & waders. Spring nesting wildfowl and waders.	West Sedgemoor	[60]
Catcott Heath	SWT (also part of a SSSI)	Wet fen meadow and areas in varying states of succession to carr woodland.	Brue Valley (South)	[61]
Catcott Lows	SWT	Important wintering, spring passage and breeding bird interest due to the flooded winter conditions and soft ground till early summer. The ditches and fields have increasingly good aquatic flora and faunal interest.	Brue Valley (South)	[62]
Sharpham Moor Plot	SWT (also part of a SSSI)	Damp carr woodland with clearings surrounded by peat diggings.	None	[63]
Street Heath	SWT (also a LNR)	Carr woodland and wet and dry heath on the remaining open area, with bog plants on very wet peat. Significant botanical species present and a wide range of invertebrate species including significant species such as the bog bush cricket.	Brue Valley (South)	[64]
Westhay Heath	SWT (also part of a SSSI)	The site is very important for large numbers of breeding birds such as marsh harriers, many wetland invertebrates such as the nationally notable hairy dragonfly and plants with restricted national distribution e.g. milk-parsley.	Brue Valley (North)	[65]
Westhay Moor	SWT (also an NNR & part of a SSSI)	A mosaic of open water, reed-bed, carr and the remnants of acid raised mire, damp heath, fen and wet grassland habitats on cut over acid raised mire and fen-peat.	Brue Valley (North)	[66]

In addition to these, there are 148 Sites of Nature Conservation Importance (SNCIs) and 145 Local Wildlife Sites although many sites have more than one designation. There is also one Local Geological Site on the edge of the Currymoor district however IDB activities are unlikely to significantly affect this site (see Appendix 6).

HABITAT AUDIT

1.25 Habitat Audit Summary

This section lists the broad habitat types and UK BAP priority habitats that occur within the Somerset IDB districts. Also listed are habitats deemed to be of local importance and / or featured in the county LBAP and habitats of importance for the IDBs, where water level management or other IDB activities may be of benefit. Finally, brief notes are included on the potential for the IDBs to maintain, restore or expand its important habitats.

Table 6: Habitat Audit Summary

Broad Habitat Type	Priority Habitat Type	Local Habitat Action Plan	Important to IDB	Location	Potential IDB action
Standing Open Water	Ditches	Somerset Ditches & Ponds. Somerset Water & Wetlands	Yes	Common across all IDB districts.	Yes
	Ponds	Somerset Ditches & Ponds	Yes	Widely spread across entire district	Yes
Fen, Marsh & Swamp	Reedbeds	Somerset Water & Wetlands	Yes	Common across all IDB districts. Extensive reedbeds in Brue Valley.	Yes
	Lowland Fens, Purple Moor Grass & Rush Pasture, Lowland Raised Bogs	Somerset Water & Wetlands. Taunton Deane Purple Moor Grass & Rush Pasture.	Limited	Small patches concentrated in the Brue Valley, Moorlinch & West Sedgemoor, but also found in small amounts elsewhere.	Limited
Neutral Grassland	Lowland meadows	Sedgemoor / South Somerset / Taunton Deane Calcareous & Neutral Grassland. Somerset Water and Wetlands	Yes	Common across all IDB districts, especially in the Brue Valley, West Sedgemoor, Kings Sedgemoor, Moorlinch, OMW & Northmoor.	Yes
	Coastal and Floodplain Grazing Marsh		Yes	Common across all IDB districts.	Yes
Improved Grassland	Coastal & Floodplain Grazing Marsh	Somerset Water and Wetlands	Yes	Common across all IDB districts.	Yes
Acid Grassland	Coastal and Floodplain Grazing Marsh	Somerset Water & Wetlands	Yes	Across all IDB districts	Yes
Broadleaved, mixed & yew woodland	Lowland beech & yew woodland	Sedgemoor / Taunton Deane / West Somerset Woodland	No	Small patch in far north of Upper Axe catchment.	Limited
	Wet woodland		Limited	Small patches in far east of Upper Brue and north-east of Cary Valley.	Limited
	Traditional Orchards	Somerset Traditional Orchards	No	Small patches in all IDB districts.	No
Boundary and Linear Features	Hedgerows	Somerset Hedgerow & Hedgerow Trees	Yes	Common across all IDB districts.	Limited

Broad Habitat Type	Priority Habitat Type	Local Habitat Action Plan	Important to IDB	Location	Potential IDB action
Dwarf Shrub Heath	Lowland Heathland	Sedgemoor / Taunton Deane Heathland	No	Small patches at Shapwick, Brue Valley.	No
Arable and Horticulture	Arable Field Margins	South Somerset / Taunton Deane / West Somerset Native Wildflowers of Arable Land	Limited	Common across all IDB districts.	Limited
Coastal Sand Dunes	Coastal Sand Dunes	Sedgemoor / West Somerset Coastal & Marine	No	Brean and Berrow.	No
Coastal Saltmarsh	Coastal Saltmarsh		Limited	Bridgewater Bay (Steart, Pawlett, Huntspill).	Limited

References: [9, 67-71]

1.26 Habitats of Importance for the IDBs

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

1.26.1 Coastal and Floodplain Grazing Marsh

Description: "Periodically inundated pasture or meadow, usually mesotrophic, with ditches which maintain water levels, containing standing brackish or fresh water. These ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut as hay or silage. Grazing marshes are particularly important for the number of breeding waders such as snipe *Gallinigo gallinigo*, lapwing *Vanellus vanellus* and curlew *Numenius arquata* they support. Internationally important populations of wintering wildfowl also occur including Bewick swans *Cygnus bewickii* and whooper swan *Cygnus cygnus* (UK BAP). The priority habitat Lowland Meadows may in some cases occur within areas of grazing marsh and where this happens, land parcels may be recorded as belonging to both habitats. This habitat definition may include semi-natural floodplain grassland, washland, active water meadows and areas of wet grassland with intensive water level management such as the Somerset Levels" [72, 73].

Coastal and Floodplain Grazing Marsh is a complex of different habitats and can include patches of the other habitats described in this section.

National status and local county status: UK Priority Habitat. The exact extent of grazing marsh in the UK is not known. It is possible that there may be a total of 300,000 ha, however, only a small proportion of this grassland is semi-natural supporting a high diversity of native plant species [74].

An important feature of the Somerset Water and Wetlands HAP [75].

Status and locations within the drainage district: Extensive, covering a large proportion of the IDB Districts. The Somerset Levels and Moors represent the largest area of lowland wet grassland in the UK (46 621ha or 21.25% of the National Area) [13, 76].

Potential improvements: The implementation of IDB WLMPs will provide improvements to water level management that will benefit wetland biodiversity and enable wetland SSSIs in Somerset to achieve favourable condition.

The IDBs will continue to work with farmers and partner organisation to provide water level regimes that support new and existing agri-environment agreements and will contribute to

large landscape scale projects such as the SWT Brue Valley Living Landscapes Project, the European Somerset WAVE Project and the RSPB Great Crane Project.

1.26.2 Standing Open Water and Canals

Description: This type includes natural systems such as lakes, meres and pools, as well as man-made waters such as reservoirs, canals, ponds and gravel pits. It includes the open water zone which may contain submerged, free floating or floating-leaved vegetation, and water fringe vegetation. It also includes adjacent wetland habitats with contiguous water levels that are less than 0.25ha. Ditches with open water for at least the majority of the year should also be included in this type. Small areas of open water in a predominately terrestrial habitat such as bog pools or temporary pools on heaths should be included in the appropriate terrestrial broad habitat type [77].

National status and local county status: Somerset is particularly important because of the nature and extent of aquatic habitats. Covered within the Somerset Ditches and Ponds HAP.

Status and locations within the drainage district: Extensive, occurring throughout the Somerset IDB Districts.

Potential improvements: The implementation of IDB WLMPs and minor changes to IDB watercourse maintenance practices will help to maintain and enhance the quality of open water habitats in Somerset.

1.26.3 Lowland Meadows

Description: Lowland Meadows are taken to include most forms of unimproved neutral grassland across the enclosed lowland landscapes of the UK [78]. Unimproved neutral grassland has undergone a remarkable decline in the 20th century, almost entirely due to changing agricultural practice. Improvements through drainage, ploughing, re-seeding, fertiliser treatment, slurry application, conversion to arable and a shift to silage production has led to the extensive development of nutrient-demanding grasslands that have widely replaced traditional hay-making grassland [78].

National status and local county status: UK Priority Habitat. Locally it is covered within the 'Water and Wetlands' and the 'Calcareous & Neutral Grassland' HAPs.

Status and locations within the drainage district: Spread throughout the districts with concentrations in the Brue Valley, West Sedgemoor, Kings Sedgemoor, Moorlinch, Northmoor and Othery, Middlezoy and Westonzoyland [79].

Potential improvements: See Coastal and Floodplain Grazing Marsh above.

1.26.4 Purple Moor Grass & Rush Pasture

Description: Purple moor grass and rush pastures occur on poorly drained, usually acidic soils in lowland areas of high rainfall in Western Europe. Their vegetation has a distinct character and consists of various species-rich types of fen meadow and rush pasture. Purple moor grass and rushes, especially sharp-flowered rush, are usually abundant. Just as the best examples of lowland heath contain a wide range of plant communities, so the same is true for this habitat: the characteristic plant communities often occur in a mosaic with one another, together with patches of wet heath, dry grassland, swamp and scrub [80].

National status and local county status: UK Priority Habitat. Most patches on the Somerset Levels and Moors fall within SSSIs with Water Level Management Plans. Covered within the Somerset Water and Wetlands, Purple Moor Grass and Rush Pasture and Calcareous & Neutral Grassland HAPs.

Status and locations within the drainage district: Concentrated in the Brue Valley, Moorlinch and West Sedgemoor [75, 81, 82].

Potential improvements: See Coastal and Floodplain Grazing Marsh above.

1.26.5 Lowland Raised Bogs, Fens and Reedbeds

Description: Three Priority Habitats which occur on the Somerset Levels and Moors within the IDB Districts, predominantly within existing SSSIs or Nature Reserves.

Lowland raised bogs are peatland ecosystems which develop primarily in lowland areas such as along river flood-plains. Drainage may be impeded by a high groundwater table or by low permeability substrata such as estuarine, glacial or lacustrine clays. The resulting water logging provides anaerobic conditions which slow down the decomposition of plant material, which in turn leads to an accumulation of peat. Continued accrual of peat elevates the bog surface above regional groundwater levels to form a gently-curving dome. In the UK remnants of lowland raised bogs occur in some southern localities, including Somerset [83].

Fens are peatlands which receive water and nutrients from the soil, rock and ground water as well as from rainfall; they are minerotrophic. Two types of fen can broadly be distinguished: topogenous and soligenous. Topogenous fens are those where water movements in the peat or soil are generally vertical. They include basin fens and floodplain fen. Soligenous fens, where water movements are predominantly lateral, include mires associated with springs, rills and flushes in the uplands, valley mires, springs and flushes in the lowlands, trackways and ladder fens in blanket bogs and laggs of raised bogs [84].

Reedbeds are wetlands dominated by stands of the common reed *Phragmites australis*, where the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches. Small areas of wet grassland and carr woodland may be associated with them [85].

National status and local county status: UK Priority Habitats. Covered within the Somerset Water and Wetlands HAP.

Status and locations within the drainage district: Predominantly within the Brue Valley, but reedbeds also occur near Berrow on the coast. These habitats are all waterlogged systems and alterations to the rate of water loss will destabilise them [83]. Drainage pressure occurs because these habitats are in a drained agricultural landscape, and perimeter drainage and water abstraction from underlying aquifers may limit the wetting potential of certain sites [83, 84]. Losses to agriculture due to peat extraction, land drainage, conversion to agriculture and a lack of, or inappropriate, management of leads to losses in habitat extent [85].

Potential improvements: See Coastal and Floodplain Grazing Marsh above.

SPECIES AUDIT

1.27 Species Audit Summary

A list of species that are either legally protected, the subject of a Biodiversity Action Plan or locally notable, was created by combining data from the IDB guidance list, data from SERC and from the NBN Gateway website. Species recorded as extinct or not recorded for over 30 years and vague records on the edge of the IDB Districts were removed from the list. This audit produced a long list of over 850 species within the IDB districts. This list was then assessed for relevance to IDB operations to produce the short list of 98 species shown in Appendix 7.

1.28 Species of Importance for the IDBs

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.

1.28.1 Water Vole, *Arvicola amphibious*

Description: Small, semi-aquatic mammal (rodent), superficially similar to a rat, but with a rounded face, small ears and a furry tail.

National status and local county status: Nationally declining (slowing) [86].

Status and locations within the drainage district: Although the national trends are for decline, the Somerset Levels and Moors are thought to be a national stronghold and that conservation measures 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.

1.28.2 European Eel, *Anguilla anguilla*

Description: Long, narrow fish with a complex lifecycle that encompasses living in both fresh and sea water. Thought to spawn in the Sargasso Sea, European Eels enter UK Rivers as glass eels. They then spend up to 20 years (possibly longer) in freshwater before migrating back out to sea to return to their spawning grounds.

National status and local county status: Critically endangered [87].

Status and locations within the drainage district: European Eel numbers have declined in Somerset, in line with national trends, but they remain relatively common across the Levels. The local rivers (particularly the River Parrett) still support commercial fisheries.

Potential improvements: Increased monitoring and sharing of records. Reduce obstructions to migration through the provision of eel passes and improve security of structures to prevent tampering during illegal elver fishing.

1.28.3 Breeding Waders – Species Assemblage

Description: Includes a number of species such as Curlew, Lapwing, Redshank and Snipe.

National status and local county status: Many UK Priority species.

Status and locations within the drainage district: The Somerset Levels and Moors support nationally important populations of breeding waders and many protected sites are designated for their breeding wader assemblage.

Potential improvements: Implementation of IDB WLMPs, landowner liaison and advice.

1.28.4 Overwintering Wildfowl and Waders – Species Assemblage

Description: Includes a number of species such as Lapwing, Snipe and Bewick's Swan.

National status and local county status: Many species have UK SAPs.

Status and locations within drainage district: The Somerset Levels and Moors support internationally important populations of wintering wildfowl and waders and many protected sites are designated for their wintering wildfowl and wader assemblage.

Potential improvements: Implementation of Water Level Management Plans, sensitive site management, landowner liaison and advice.

1.28.5 Aquatic Invertebrate Assemblage

Description: The Somerset Levels and Moors are home to a wide array of invertebrate life, both aquatic and terrestrial, however, in Coastal and Floodplain Grazing Marshes, much of the invertebrate interest lies in the water bodies rather than the grasslands [88]. On the Somerset Levels, the watercourses require regular maintenance to prevent them from becoming overgrown. Ideally a balance needs to be struck between the drainage and biodiversity functions of a ditch as an all-or-nothing approach is likely to be damaging for many invertebrate species [89]. Maintaining relatively high water levels throughout the year is preferable and large, sudden changes in water levels should be avoided [88].

National status and local county status: The Somerset Levels and Moors support a wide variety of invertebrates ranging from extremely common right through to red listed species [10].

Status and locations within the drainage district: As above.

Potential improvements: The implementation of IDB WLMPs and minor changes to IDB watercourse maintenance practices to maintain a mosaic of habitats for invertebrates.

1.28.6 Aquatic Plant Assemblage

Description: The Somerset Levels and Moors support a diverse plant community including many rare species and species assemblages. Much of the botanical interest is associated with the water bodies however there are areas of species rich flood pasture and remnant bog, fen and woodland communities [13].

National status and local county status: The Somerset Levels and Moors are one of the largest and richest areas of traditionally managed wet grassland habitats in lowland UK [27].

Status and locations within the drainage district: Most of the species rich areas are concentrated on the peat moors, many of which are either internationally or nationally designated sites. Many of the eutrophic standing water habitats of the Somerset Levels, including ditches, are of high biodiversity value.

Potential improvements: The implementation of IDB WLMPs and minor changes to IDB watercourse maintenance practices to improve habitat diversity.

1.28.7 Otters, *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 and local county status: National BAP species, protected under national and international law. The Somerset Levels and Moors are an important stronghold.

Status and locations within the drainage district: Following national declines from the 1950s to late 1970s [90], numbers are thought to be increasing in Somerset.

Potential improvements: Record signs and share records. Potential for improvements through the building of otter holts. This species would also benefit from more general habitat improvements including the sympathetic management of watercourses.

1.28.8 Barn Owl, *Tyto alba*

Description: A medium - large owl with grey and 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 [91].

National status and local county status: Barn Owls are protected under Schedule 1 of the Wildlife and Countryside Act 1981 [92]. Despite being a widespread species in the UK, numbers have been in decline since the 19th century due to agricultural intensification, a loss of nest sites and hunting [91].

Status and locations within the drainage district: Barn owls are known to be present in the district both through records from the Somerset Environmental Records Centre [10] and through sightings by IDB staff.

Potential improvements: Minor changes to the management of bankside vegetation to provide improved feeding habitat for Barn Owls. The installation of nest boxes alongside drainage channels could help to improve breeding success in the area.

1.28.9 Bat Species Assemblage

Description: Small, nocturnal flying mammals. All UK species are insectivorous and roost in enclosed spaces such as hollows in trees, caves or roof spaces [93].

National status and local county status: All 17 UK species of bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 [92] due to a decline in numbers over the past century.

Status and locations within the drainage district: 15 of the 17 UK species of bat have been recorded on the Somerset Levels [10] however, some of the records are old or from areas where the IDB can have little effect on populations. The species commonly and recently found within the IDB District are the Barbastelle (*Barbastella barbastellus*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri*), the Noctule (*Nyctalus noctula*), the Common Pipistrelle (*Pipistrellus pipistrellus*) and the Soprano Pipistrelle (*Pipistrellus pygmaeus*).

Potential improvements: The sensitive management of bankside trees and the installation of bat boxes on buildings or trees near drainage channels could help bats to thrive on the Somerset Levels and Moors.

HABITAT ACTION PLANS

1.29 Coastal and Floodplain Grazing Marsh

Coastal and floodplain grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water [73]. Rather than being a specific habitat, coastal and floodplain grazing marsh is comprised of a mosaic of other habitats that might include grassland, heathland, open water and coastal habitats. It may also be closely associated with other habitats such as wet woodland, bogs, fens, marshes and swamps. In the Somerset IDB Districts, the majority of this habitat is freshwater floodplain grazing marsh, with only small patches of brackish water coastal grazing marsh around Bridgwater Bay.

The floodplain grazing marshes of the Somerset Levels and Moors are a national stronghold for a large number of wetland species, including internationally important wildfowl and wader populations, rare or scarce species of plants, rare or scarce invertebrates and nationally protected mammals such as water voles and otters.

Actions for other habitats and species assemblages that are closely associated with floodplain grazing marshes will also be included in this Habitat Action Plan including reedbed, fen, wintering wildfowl and breeding waders. Biodiversity outcomes achieved through the implementation of the IDB WLMPs are also incorporated into this Habitat Action Plan.

National UK BAP Targets

- To maintain the extent of the existing habitat with no net loss.
- To maintain the condition of the habitat in favourable condition and establish management to secure favourable condition for all areas currently judged as unfavourable, by 2010.
- To restore and improve 25 000ha of relict habitat that does not currently qualify as Coastal and Floodplain Grazing Marsh by 2020.
- To re-establish 3 200ha of Coastal and Floodplain Grazing Marsh of high wildlife value from appropriate land sources by 2020.
- Establish 8 new landscape scale wetland complexes by 2020, at least one in each country in which Coastal and Floodplain Grazing Marsh is a major component along with other wetland types.

Local Biodiversity Action Plan Targets

The Somerset Biodiversity Partnerships strategy for Somerset seeks to “Develop and implement Water Level Management Plans for the Levels and Moors that maintain existing wildlife sites and seek opportunities for environmental enhancements over large areas”[94].

In addition, there are a number of specific actions within the local BAPs in particular the ‘Water and Wetlands HAP’ and the ’Ditches and Ponds HAP’.

Local Status

A large proportion of the Priority Habitat on the Somerset Levels and Moors is Coastal and Floodplain Grazing Marsh [9] and the Somerset Levels and Moors represent the largest area of lowland wet grassland in the UK (46 621 ha or 21.25% of the National Area) [13, 76]. Most of this priority habitat falls within the Somerset IDB districts and there is great potential for biodiversity enhancement.

IDB Objectives and Targets

1. Prepare and approve IDB Water Level Management Plans for all wetland SSSIs.
2. Maintain and increase the area of grazing marsh habitat with water levels that are favourable to overwintering wildfowl and waders (see Appendix 8).
3. Maintain and increase the area of grazing marsh habitat with water levels that are favourable to breeding waders (see Appendix 8).
4. Maintain and increase the area where of grazing marsh habitat with water levels that are favourable to aquatic invertebrates and plants of ditches (see Appendix 8).
5. Work with farmers and local partner organisations to provide water level regimes that support new and existing agri-environment agreements.
6. Actively contribute to large landscape scale projects in Somerset, including the SWT Brue Valley Living Landscapes Project, the European Somerset WAVE Project and the RSPB Great Crane Project.
7. Provide advice and guidance to IDB staff and contractors, landowners and farmers.
8. Share data and knowledge with local partners.

Table 7: Projected biodiversity outcomes from IDB WLMPs – area of grazing marsh habitat to be maintained, enhanced or restored through WLMP implementation.

Grazing Marsh Habitat feature	Area (ha) maintained or enhanced (already achieving favourable conservation status)	Area (ha) restored (not currently achieving favourable conservation status)	Total area
Roosting habitats for wintering wildfowl and waders	193	451	644
Feeding habitats for wintering wildfowl and waders	2479	2904	5383
Aquatic invertebrates and plants in ditches	4563	2202	6764
Habitat for breeding waders	1492	549	2041
Open water and reedbed	60	159	218

Associated Species

The majority of the species listed in the Somerset IDB Biodiversity Audit are closely associated with this priority habitat, see Appendix 7.

This Action Plan covers actions that will benefit

- Wintering wildfowl and waders
- Breeding waders
- Aquatic mammals
- Aquatic plant assemblage
- The aquatic invertebrate assemblage
- Other habitats associated with coastal and floodplain grazing marsh such as lowland meadows, purple moor grass and rush pasture, lowland raised bogs, fens and reedbeds.

Coastal and Floodplain Grazing Marsh – IDB Habitat Action Plan

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
GM 1	Prepare and approve new IDB Water Level Management Plans for all wetland SSSIs in IDB Districts	GM 1.1	Complete the preparation and consultation for the new IDB WLMPs	NE, EA	End 2010	IDB, EA and NE approval of IDB WLMPs	End 2010
GM 2	Maintain and enhance conditions on over 8700ha of wetland SSSIs that are currently in favourable condition.	GM 2.1	Maintain suitable water levels through the implementation of IDB WLMPs.	NE, EA	2015	Area with suitable water levels maintained.	Annual
GM 3	Improve conditions on over 6200ha of wetland SSSIs that are not currently in favourable condition.	GM 3.1	Restore suitable water levels through the implementation of IDB WLMPs.	NE, EA	2015	Area with suitable water levels restored.	Annual
GM 4	Improve knowledge of habitat conditions outside SSSIs and the potential for biodiversity enhancement through changes in water level management and / or agri-environment agreements.	GM 4.1	Map habitat conditions outside SSSIs and assess the potential to change water level management to benefit wetland biodiversity.	NE, SWT	2015	Area mapped	Annual
GM 5	Seek opportunities for additional wetland habitat creation or restoration.	GM 5.1	Provide advice and work with landowners on potential floodplain grassland restoration and / or creation schemes.	NE, EA, SWT, RSPB	ongoing	Area created / restored	Annual
GM 6	Restore peat voids to high quality wetland habitats.	GM 6.1	Work with the local peat extraction industry to implement restoration schemes for peat voids that are compatible with the surrounding drainage system and that provide high value wetland habitats.	NE, SCC	ongoing	Area of open water and reedbed created.	2015
GM 7	Secure appropriate water levels at suitable sites for breeding European Crane.	GM 7.1	Work with landowners and the RSPB to secure appropriate water levels.	RSPB, NE	2015	Number and size of areas with suitable water levels for breeding European Crane.	2015

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
GM 8	Develop and demonstrate an integrated approach to wetland habitat management that incorporates winter flood water storage and viable farming systems.	GM 8.1	Implement IDB / RSPB Habitat and Floodplain Connectivity Project for the RSPB Greylake Reserve.	RSPB, NE	2011	Implementation of Connectivity Project.	2011

1.30 Ditches

This habitat falls under the 'Standing Open Water and Canals' broad habitat type and includes both permanent water bodies and those that hold water for the majority of the year [95]. The flow of water is typically slow-moving and can be in either direction.

Around half of the Priority Habitat in Somerset is Coastal and Floodplain Grazing Marsh that form the extensive freshwater floodplain habitats commonly known as the Somerset Levels. This area contains a very high density of ditches and these habitats are extremely important locally. Within the Somerset IDB districts, there are over a thousand kilometres of IDB maintained viewed rhynes and more than 500km of Environment Agency Main Rivers. There are also several thousand kilometres of 'ordinary' ditches, maintained by riparian owners. These watercourses collectively form an interconnecting drainage network that is used to artificially regulate water flows (i.e. water levels) for a wide range of purposes, including agricultural production, flood protection and the maintenance of wetland biodiversity. Many ditches on the Somerset Levels also act as stock-proof barriers between fields.

Without routine maintenance, ditches undergo natural succession from open water through to a completely silted up ditch with thick vegetation that restricts water flow. Routine maintenance is therefore important to sustain the drainage and water supply function of the system. Maintenance requirements typically include the management of channel and bank vegetation, the removal of blockages and occasional silt removal. Routine maintenance also helps sustain the biodiversity of both ditch habitats and the wide range of wetland habitats that depend on appropriate seasonal water levels for their management.

National UK BAP Targets

- Drainage ditches are not a UK BAP habitat.

Local Biodiversity Action Plan Targets [96]

- Establish a framework for monitoring ditch habitat quality both within and outside SSSIs.
- Review Water Level Management Plans and associated maintenance programs to identify and implement management regimes that sustain and enhance wetland biodiversity interest.
- Manage ditches and rhynes to take account of biodiversity including ditch management plans for specialist late succession invertebrates in key areas.
- Best practice ditch management training in place for all IDB contractors.
- Best practice guidance for ditch management produced and disseminated to contractors, land owners and farmers including all IDB ratepayers.

Local Status

Threats to the extent and quality of ditch habitats include

- Inappropriate maintenance regimes.
- Poor water level management.
- Excessively low water levels in winter that can cause bank erosion.
- Filling in of ditches for agricultural land gain.
- Under or over management of adjacent fields.
- Culverting for development.
- Pollution from run-off or urban areas and illegal dumping.
- Threats from non-native species.

IDB Objectives and Targets

1. All IDB maintenance to be carried out in line with best practice guidelines set out in the Drainage Channel Biodiversity Manual [97].
2. Raise awareness of the wildlife value of ditches and rhynes.
3. Share data and knowledge with local partners.

Associated Species

Many of the species listed in the Somerset IDB Biodiversity Audit are closely associated with this priority habitat, see Appendix 7.

This Action Plan covers actions that will benefit:

- Aquatic mammals.
- European eel and other fish species.
- The aquatic plant assemblage.
- The aquatic invertebrate assemblage.
- Habitats associated with Open Water habitats including Coastal and Floodplain Grazing Marsh, Lowland Meadows and Purple Moor Grass and Rush Pasture.

Ditches – IDB Habitat Action Plan

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
D 1	Promote ditch management practices that benefit biodiversity.	D 1.1	Develop best practice guidelines for ditch management.	NE, FWAG, SWT	2012	Guidance produced	2012
		D 1.2	Publish best practice guidance for ditch maintenance in the IDB newsletter and on the IDB website.	NE, FWAG, SWT	2013	Information published	2013
		D 1.3	Organise at least one training event (workshop) for contractors and farmers, including demonstration of ditch management techniques.	NE, FWAG, SWT	2013	Number of events held	2013
D 2	Sustain biodiversity interest of IDB maintained watercourses.	D 2.1	Continue established maintenance programme for IDB managed watercourse.		ongoing	Annual maintenance programme complete	Annual
		D 2.2	Review IDB maintenance activities and update maintenance manuals, seeking opportunities to enhance the biodiversity interest of IDB watercourses.		2013	Maintenance review complete	2013
		D 2.3	Develop survey methodology for assessing ditch habitat quality.		2013	Methodology established	2013
		D 2.4	Assess IDB watercourses for habitat quality.		2015	Length of ditched assessed	2015
		D 2.5	Carry out a trial of maintenance techniques to improve the habitat quality and stability of ditches in soft peat soils.		2013	Trials complete	2013
D 3	Seek to ensure no net loss of ditch habitat as a result of IDB consents or activities.	D 3.1	Encourage the creation of new ditches as compensation for habitat lost through development.	Planning Authorities Developers NE, EA	ongoing	Length of ditch created and lost as a result of IDB consents and projects	Annual

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
D 4	Monitor and control invasive aquatic plants on IDB watercourses.	D 4.1	Maintain record of reports of invasive species and disseminate information to relevant parties including landowners, NE, EA and SERC.	NE, EA, SERC, Ratepayers.	ongoing	Information collected and shared	Annual
		D 4.2	Implement control measures for outbreaks of invasive species in or near to IDB watercourses.	NE, EA, Ratepayers.	ongoing	Number of sites treated	Annual
D 5	No loss or damage to existing Black Poplars as a result of IDB operations.	D 5.1	Produce and maintain a map of known Black Poplar trees within the IDB districts.	NE, SERC	2013	Map produced	2013
		D 5.2	Ensure IDB activities take account of Black Poplar.		ongoing	Routinely assess capital schemes for environmental impacts.	Annual
D 6	Maintain and improve habitat for bats.	D 6.1	Identify trees near watercourses that could provide natural nesting sites for bats and manage trees by pollarding, where appropriate.		ongoing	Number of trees pollarded	Annual
		D 6.2	Seek opportunities to install bat boxes at suitable locations close to watercourses.	SWT	2015	Number of bat boxes installed	2015
D 7	Maintain and improve habitat for Barn Owl.	D 7.1	Identify trees near watercourses that could provide natural nesting sites for Barn Owls and manage trees by pollarding, where appropriate.		ongoing	Number of trees pollarded	Annual
		D 7.2	Seek opportunities to install Barn Owl boxes at suitable locations close to watercourses.	SWT	2015	Number of Barn Owl boxes installed	2015

1.31 Ponds

Ponds of high biodiversity value are a UK Priority habitat. They are small bodies of standing water of man-made or natural origin which is between 1m² and 2ha in area and which hold water for four months of the year or more [98]. These 'priority ponds' support a wide range of species and they can be extremely important habitats for rare invertebrates, amphibians and plants. In the UK, it is estimated that only 20% of the 400 000 ponds (outside of gardens) achieve 'Priority Pond' status [98] and there is plenty of scope for improvement.

National UK BAP Targets

- To maintain the number of priority pond sites.
- To maintain the quality of flagship pond sites.
- To restore pond sites to deliver Species Action Plan targets.
- To create new pond sites with high quality potential.

Local Biodiversity Action Plan Targets [96]

- To identify and protect ponds of high biodiversity value within Somerset by completing a baseline sample survey.
- Maintain and, where appropriate, enhance the ecological quality and diversity of ponds and their associated fauna and flora.
- Increase awareness of the biodiversity value of ponds and promote the principles of good pond management and creation.
- Restore or create ecologically sensitive ponds to help counteract the estimated national annual loss of 1% per year.

Local Status

Ponds, whether permanent or temporary, are an integral part of the wider wetland landscape of the Somerset Levels and Moors and, although there are relatively few ponds that are designated as Local Wildlife Sites [10], there are likely to be many undesignated, temporary ponds within the Somerset IDB Districts.

IDB Objectives and Targets

1. No loss of priority ponds.
2. Promote the creation of ponds in appropriate locations.
3. Provide advice and best practice guidance for the restoration of ponds for wildlife.
4. Work with local partner organisations to promote the creation, restoration and maintenance of ponds of high biodiversity value.
5. Share data and knowledge with local partners.

Associated Species

Many of the species listed in the Somerset IDB Biodiversity Audit are closely associated with this priority habitat, see Appendix 7.

This Action Plan covers actions that will benefit:

- Aquatic mammals.
- The aquatic plant assemblage.
- The aquatic invertebrate assemblage.
- Habitats associated with Ponds such as Coastal and Floodplain Grazing Marsh, Lowland Meadows and Purple Moor Grass and Rush Pasture.

Ponds – IDB Habitat Action Plan

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
PD 1	Encourage the creation of new ponds, and the restoration of exiting ponds.	PD 1.1	Publish best practice guidance for pond creation and maintenance in the IDB newsletter and on the IDB website		2012	Information published	2012
		PD 1.2	Provide advice and assistance to landowners and farmers who are seeking to build new ponds, or restore existing ponds.	Landowners and managers	ongoing	Number of ponds created or restored	Annual
PD 2	Seek opportunities for pond creation.	PD 2.1	Encourage pond creation in IDB consented development projects and capital schemes.		ongoing	Number of ponds created	Annual
PD 3	Sustain biodiversity interest of IDB managed flood attenuation ponds.	PD 3.1	Continue established maintenance programme for IDB managed flood attenuation ponds, seeking opportunities to enhance the wildlife interest of these ponds.		ongoing	Number of ponds maintained	Annual

SPECIES ACTION PLANS

1.32 Water Vole, *Arvicola amphibius*

The Water Vole was once a common mammal in Britain however increased development, pollution, habitat fragmentation and the introduction of the American Mink have led to a substantial decline in their population [86, 99]. In the UK, Water Voles are very strongly associated with aquatic habitats, are herbivorous and dig underground tunnels. They are prolific breeders and can produce up to five litters of up to seven pups during the summer breeding season [100].

Legal Protection Status

In April 2008, the Water Vole received full protection under the Wildlife & Countryside Act 1981 (as amended) [101]. It is now an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It will continue to be an offence to disturb them in their breeding or resting places.

National UK BAP Targets

- 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, using the Vincent Wildlife Trust survey of 1989 / 90 as a baseline, by the year 2010 [86].

Local Biodiversity Action Plan Targets

Water voles are not currently a local BAP species.

Local Status

Water Vole numbers in Somerset have declined in line with national trends, however, the area remains a stronghold for Water Voles and there are encouraging signs that numbers are now on the increase [102]. This partial recovery is likely, in part, to be a consequence of the ongoing work to control American Mink in Somerset [103] and the implementation of more sensitive maintenance practices by the IDBs and the EA.

IDB Objectives and Targets

- 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.

Water Vole – IDB Species Action Plan

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
WV 1	Ensure all IDB activities comply with relevant legislation protecting Water Voles and their habitat.	WV 1.1	Develop best practice guidelines for capital works for IDB staff and contractors.		2012	Guidance produced	2012
		WV 1.2	Provide training to IDB staff on legislation regarding Water Voles and their habitat.		2013	Training event held	2013
		WV 1.3	Ensure presence of water voles is taken into account in all IDB capital works activities (especially where banks may be disturbed).		ongoing	Routinely assess capital schemes for environmental impacts	Annual
WV 2	Maintain and enhance suitable habitat for Water Voles within the drainage district.	WV 2.1	Continue established maintenance programme for IDB watercourses.		ongoing	Annual maintenance programme complete	Annual
		WV 2.2	Ensure presence of water voles is taken into account in all IDB maintenance works (especially where banks may be disturbed).		ongoing	Routinely assess maintenance programme for environmental impacts	Annual
		WV 2.3	Review IDB maintenance activities and update maintenance manuals, seeking opportunities to enhance Water Vole habitat in IDB watercourses.		2013	Maintenance review complete	2013
		WV 2.4	Seek opportunities to improve Water Vole habitat through reprofiling banks or widening ditches to enhance areas of aquatic marginal and bankside vegetation.	Landowners	2015	Length of ditch with enhanced Water Vole habitat	2015
WV 3	Record and monitor populations of Water Voles within the drainage district.	WV 3.1	Undertake monitoring of Water Voles populations at key sites (e.g. where changes in water level management are required for SSSI favourable status).		ongoing	Number of sites surveyed	Annual
		WV 3.2	Collect water vole records that arise during the course of IDB activities and share data with SERC.	SERC	ongoing	Data collected and shared	Annual
		WV 3.3	Record mink sightings and report to Natural England, SERC and the British Association for Shooting and Conservation (BASC)	NE, SERC, BASC	ongoing	Data collected and shared	Annual

1.33 European Eel, *Anguilla anguilla*

European eels have a complex lifecycle that starts in the Sargasso Sea. Newly hatched leptocephali (transparent eel larvae) then drift in the Gulf Stream to the western coast of Europe, by which time they have grown to the 'glass eel' stage. As the elvers move into freshwater, they become pigmented and can then spend up to 20 years in the freshwater system before returning to the sea as a mature 'silver eel' [104].

Although scientific knowledge of the species is still limited, the European Eel is now classified as 'critically endangered' on the IUCN Red List and the levels of recruitment (eels reaching Europe) are thought to have declined significantly over the past 30 years [104-107]. The major causes of this decline include anthropogenic factors, changes in sea temperature, changes in sea currents and introduced parasites [108, 109].

Legal Protection Status

The European Eel is currently on Appendix II of the CITES Convention [110] which lists species that are not necessarily threatened with extinction but that may become so unless trade is closely controlled.

In January 2010, the Eels (England and Wales) Regulations 2009 came into force [111] as a Statutory Instrument to implement Eel Management Plans.

In March 2010, Eel Management Plans were published by DEFRA [112] which referred to data from the International Council for the Exploration of the Sea, which "indicates that the stock of the European Eel, *Anguilla anguilla*, is outside safe biological limits across European Waters [112, 113].

National UK BAP Targets

There are no national targets for this species.

Local Biodiversity Action Plan Targets

There are currently no Local BAP targets for this species.

Local Status

The European Eel is an important part of the natural heritage of Somerset and there is a long tradition of glass, silver and yellow eel fishing in the County. There are currently around 200 licensed elver fishermen in the south west region, 150 of which fish on the River Parrett [114].

Eels are also food for many of the predatory birds and mammals [104] that inhabit the Somerset Levels and Moors and are an integral part of the food chain.

IDB Objectives and Targets

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

European Eel – IDB Species Action Plan

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
EE 1	Reduce the impacts of barriers to the migration of European Eels at IDB managed water control structures.	EE 1.1	Indentify significant barriers to elver passage at IDB control structures.	EA	2012	Investigation complete	2012
		EE 1.2	Seek funding under the local European Eel Management Plan, or other sources, for the installation of elver passes on new and existing IDB water control structures.	EA	2013	Funding secured	2013
		EE 1.3	Install elver passes on priority structures to allow eel passage.	EA	2015	Number o passes installed	2015
EE 2	Record sightings of European Eels.	EE 4.1	Collate records that arise during the course of IDB work and send to SERC.	EA, SERC	Ongoing	Data collected and shared	Annual

1.34 Otter, *Lutra lutra*

Otters are largely nocturnal and lie up in holts (a cavity in a bank, brash or log-piles) during the day. They have long slender bodies and webbed feet which make them excellent swimmers. Their linear territories can be as long as 40km, although this is exceptional. They feed primarily on fish such as eels, but are also known to take other vertebrates such as water-birds and amphibians, and invertebrates such as crayfish and crabs [115].

In the 1950s till the late 1970s, otter numbers declined significantly and, although there has been some recovery since, they are still not as wide spread as they once were [90]. It is therefore important that the measures that have allowed otters to make a partial comeback are continued and that further measures are taken to improve their range and numbers in the future. Otters are an excellent indicator of the quality of wetlands and waterways as they rely heavily on clean rivers, streams and the associated land to supply their food and on at least one bankside having well developed vegetation to provide cover [115].

Legal Protection Status

Otters are protected by European Law and are protected under the Wildlife and Countryside Act 1981 [92] and the Habitat Regulations 1994 [116], 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.

National UK BAP Targets

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

Local Biodiversity Action Plan Targets

- Support the continuing monitoring of otter populations in Somerset.
- Collect and collate survey data to measure trends and identify shortfalls.
- Improve river habitats through projects and opportunities provided by development.
- Identify and alleviate physical threats to otters and barriers to free movement of elvers and migratory fish.
- Provide advice to farmers, fishery owners and others on appropriate management for otters.

Local Status

The otter is an important part of the natural heritage of Somerset, which holds internationally important populations [115].

IDB Objectives and Targets

- 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.

Otters – IDB Species Action Plan

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
OT 1	Maintain and enhance suitable habitat for Otters within the drainage district.	OT 1.1	Ensure maintenance works take into account the needs of Otters, retaining features such as trees, scrub and overhanging root systems.	EA, NE, SWT	ongoing	IDB maintenance programme reviewed	Annual
OT 2	Ensure all IDB activities comply with relevant legislation protecting Otters and their habitat.	OT 2.1	Ensure surveys for Otter activity are conducted prior to bank works, or other engineering works, that might disturb Otters.		ongoing	Routinely assess capital schemes for environmental impacts	Annual
		OT 2.2	Provide training to IDB employees on legislation relating to Otters and their habitat.	Somerset Otter Group	2012	Training carried out	2012
OT 3	Record sightings of otters within the drainage district.	OT 3.1	Collate records that arise during the course of IDB work and send to SERC.	SERC	ongoing	Data shared	Annual

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.

IDB Objectives and Targets

- Improve biodiversity awareness amongst IDB staff and contractors.
- Introduce training for staff and / or contractors in conservation management of drainage channels.
- Extend partnership working.
- Produce and circulate best practice guidance.
- Improve data and information exchange (share data and knowledge with local partners).
- Minimise habitat loss or degradation due to inappropriate revetment works or culverting.

IDB Procedural Action Plan

Target Reference	Target	Action Reference	IDB Actions	Partners	Date	Indicators	Reporting
P 1	Provide training on IDB BAPs and conservation management for all relevant staff and contractors.	P 1.1	Establish a programme of courses for IDB staff and contractors.	NE, SWT, RSPB, other specialists	Ongoing	Number and type of courses held	Annual
P 2	Prevent habitat loss or degradation by taking biodiversity into account when undertaking development control work.	P 2.1	Control non-essential culverting and bank revetment works through IDB consents to reduce habitat loss.	Planning & Consenting Authorities	Ongoing	All consents assessed for environmental impacts	Annual
		P 2.2	Develop and publicise environmental best practice guidelines for bank revetment work and culverting.		2011	Guidelines published on IDB webpage	2011
P 3	Prevent habitat loss or degradation by taking biodiversity into account when planning and undertaking capital works.	P 3.1	Incorporate environmental best practice into the planning and undertaking of IDB capital works.		Ongoing	All capital schemes assessed for environmental impacts	Annual
P 4	Improve BAP delivery through partnership working with organisations and landowners.	P 4.1	Develop existing partnerships to deliver BAP targets and seek new partners to improve delivery through joint working or funding.	A wide range of partners	Ongoing	Number of partnership groups	Annual
P 5	Publicise examples of environmental best practice	P 5.1	Publish examples of best practice on SDBC website.		2013	Examples published on website	2013
		P 5.2	Carry out at least two public events or talks on water level management and wetland biodiversity.		Ongoing	Number of events held	Annual
P 6	Access to relevant ecological and environmental information.	P 6.1	Maintain agreement with Somerset Environmental Records Centre for access to relevant data including protected species records.	SERC	Ongoing	SLA with SERC	Annual
		P 6.2	Collate records that arise during the course of IDB work and send to SERC.	SERC	ongoing	Data shared	Annual

IMPLEMENTATION

Implementation of the actions listed in the habitats, species and procedural action plans will be principally achieved though the implementation of IDB Water Level Management Plans (WLMPs) and minor changes to IDB watercourse maintenance practices. This will include updating IDB Maintenance and Operating Manuals to take account of best practice, and the publication of guidance and advice on ditch management on the IDB website.

New WLMPs are being prepared by the Somerset IDBs that will be implemented over the same five year period as this BAP, which cover the following areas:

- South Drain
- North Drain
- Bridgwater & Pawlett
- Currymoor
- Kings Sedgemoor & Allermoor
- Northmoor
- Othery, Middlezoy, Westonzoyland and Chedzoy
- West Moor
- West Sedgemor
- Wet Moor

As part of their work on the new WLMPs, the Somerset IDBs have developed a 3 - 5 year programme of water level management improvements for wetland SSSIs in Somerset. This is an ambitious programme that, when implemented, will deliver significant gains for wetland biodiversity on the Somerset Levels and Moors. Information about the new WLMPs is available on the IDB website http://www.somersetdrainageboards.gov.uk/.

The Somerset IDBs are active members of the following partnership groups:

- The Somerset Biodiversity Partnership.
- A European Union funded WAVE project (Water Adaptation is Valuable for Everyone).
- RSPB Great Crane Project Forum.
- SWT Brue Valley Living Landscapes Project.
- Somerset Water Management Partnership.
- Multi-Agency Project (for SSSI remediation).
- Viridor Whitehouse Hams Project.

The Somerset IDBs have policy statements regarding the preparation and implementation of WLMPs and the culverting of watercourses. The IDBs will consider the adoption of additional policies that could assist the implementation of BAP actions.

The Somerset IDBs have an established process for assessing capital works for their environmental impacts. The IDB Ecologist will continue to comment on capital works and consents and suggest best practice options.

IDB WLMPs, operating manuals and maintenance programmes will be reviewed regularly to incorporate new measures for biodiversity as required.

MONITORING AND REPORTING

Monitoring of the Somerset IDB BAP will be necessary to ensure that the actions are being implemented. Each Somerset IDB will collect information on the BAP action indicators and will use these indicators to report on the actions at least once a year. The achievement of BAP actions will be reported on the national Biodiversity Action Reporting System (BARS), as well as the Somerset IDB website.

Training on monitoring BAP action indicators will be provided to IDB staff and contractors.

Species records collected by the IDB will be shared with the Somerset Environmental Records Centre.

REVIEW PROCESS

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 2015), at which point the need to add further habitat or species plans will be considered. It will be possible however, to review and update the BAP if an IDB feels able to increase or enhance their targets, or if additional funding becomes available, during the five years of the Plan.

Information about the review of this IDB BAP will be reported on the Somerset IDB website.

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