

**BUCKINGHAM AND RIVER OUZEL
INTERNAL DRAINAGE BOARD**

BIODIVERSITY ACTION PLAN



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This Biodiversity Action Plan has been prepared by the Buckingham and River Ouzel Internal Drainage Board in accordance with the commitment in the Implementation Plan of the DEFRA Internal Drainage Board Review for IDBs to produce their own Biodiversity Action Plans by April, 2010.

It also demonstrates the Buckingham and River Ouzel IDB'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 Buckingham IDB 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 Buckingham and River Ouzel IDB to maximise the biodiversity benefits from its activities and demonstrate its contribution to the Government's UK Biodiversity Action Plan targets.

The IDB 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
Name
Chairman of the Buckingham and River Ouzel
Internal Drainage Board

..... Date
Name
Clerk to the Buckingham and River Ouzel Internal
Drainage Board

This Biodiversity Action Plan is a public statement by the Buckingham and River Ouzel IDB of its biodiversity objectives and the methods by which it intends to achieve them. We would welcome appropriate involvement in the delivery of the Plan from interested organisations, companies, and individuals.

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1 IDB BIODIVERSITY – AN INTRODUCTION

1.1 Introduction

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

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. It covers the entire drainage district of the Buckingham and River Ouzel IDB, as shown in Figure 1.

1.2 What is Biodiversity?

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

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

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

1.3 The Importance of Conserving Biodiversity

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

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

1.4 The Biodiversity Action Planning Framework

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

1.5 Biodiversity – The International Context

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

The Rio Convention 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 Biodiversity – The National Context

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 Local Biodiversity Action Plans

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 Internal Drainage Boards and Biodiversity

Section 12 of The Land Drainage Act 1991 obliges Internal Drainage Boards to further the conservation of wildlife and geological and physiographical features of special interest, consistent with any enactments relating to their functions. Subsequently, the Natural Environment and Rural Communities Act 2006 places a duty on IDBs to conserve biodiversity. As a public body, every IDB must have regard in exercising its functions, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

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

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

This Buckingham and River Ouzel 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 Aims of the Buckingham and River Ouzel IDB Biodiversity Action Plan

The aims of this Buckingham and River Ouzel 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 Buckingham and River Ouzel 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 Buckingham and River Ouzel IDB's operations, and
- To monitor and report on progress in biodiversity conservation.

2 THE IDB BAP PROCESS

2.1 The Biodiversity Audit

To produce this Buckingham and River Ouzel 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 Buckingham and River Ouzel IDB and by other biodiversity partners.

2.2 Evaluating and Prioritising Habitats and Species

The Biodiversity Audit identified those priority habitats and species in the UK Biodiversity Action Plan and the Local Biodiversity Action Plan that can be found 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 Buckingham and River Ouzel IDB BAP is reviewed.

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

2.3 Setting Objectives, Targets and Indicators

For each habitat and species identified as being important to the Buckingham and River Ouzel IDB, conservation objectives and targets have been drawn up and set out in the Plan. The objectives express the Buckingham and River Ouzel IDB’s broad aims for benefiting a particular habitat or species. The related targets have been set to focus Buckingham and River Ouzel 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 Buckingham and River Ouzel IDB will use to measure the way in which it considers and incorporates biodiversity across the whole range of its operations. These may involve changes to administrative, management and operating procedures.

2.4 Implementation

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

2.5 Monitoring

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

2.6 Reporting and Reviewing Progress

It is important to review the implementation of the BAP, assess changes in the status of habitats and species and the overall feasibility of objectives and targets. In addition, it is vital that the successful achievement of targets is recorded and the gains for biodiversity registered in the public domain.

The Plan sets out the methods the Buckingham and River Ouzel IDB will be using to review the delivery of targets and to communicate progress to partner organisations and the public.

3 THE BIODIVERSITY AUDIT

3.1 Introduction

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

3.2 Local Biodiversity Action Plans

The Bedfordshire, Buckinghamshire, Oxfordshire and Northamptonshire Biodiversity Action Plans cover the Buckingham and River Ouzel IDB district. The majority of the district falls within Buckinghamshire with lengths of watercourse east of Leighton Buzzard in Bedfordshire, around Milton Keynes (predominantly to the north and east) within the Milton Keynes Authority. Small lengths north of Bicester fall within Oxfordshire and those around Old Stratford within Northamptonshire.

The Bedfordshire BAP has 15 habitat action plans and 15 action plans relating to species or groups of species. The Buckinghamshire and Milton Keynes BAP has eight habitat action plans but no species action plans operate at the County level. The Northamptonshire BAP has sixteen habitat action plans and two species action plans. The Oxfordshire BAP has 6 habitat action plans but no species action plans operate at the County level.

3.3 Buckingham and River Ouzel IDB Biodiversity Audit Boundary

The Biodiversity Audit covers the district of the Buckingham and River Ouzel IDB, as shown in Figure 1.

3.4 Sources of Data - Habitats

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

- MAGIC Data base
- Thames Valley Environmental Records Centre
- Bedfordshire Biological Records Centre
- Northamptonshire Biodiversity Records Centre
- Biodiversity Co-ordinator for Bedfordshire
- Biodiversity Project Officer, Bucks & Milton Keynes Biodiversity Partnership
- JBA Consulting – BAP Habitats within the Buckinghamshire and River Ouzel Internal Drainage Board

3.5 Sources of Data - Species

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

- NBN Gateway
- MAGIC Data base
- Thames Valley Environmental Records Centre
- Bedfordshire Biological Records Centre
- Northamptonshire Biodiversity Records Centre
- Biodiversity Co-ordinator for Bedfordshire
- Biodiversity Project Officer, Bucks & Milton Keynes Biodiversity Partnership

4 NATURE CONSERVATION SITES

4.1 The Drainage District

The drainage district covers an area of 15,977 ha and contains 448 km of IDB-maintained watercourses. It is predominantly situated to the south of Leighton Buzzard and west of Dunstable, via the River Ouzel to the northern perimeter of Milton Keynes, and westwards along the River Great Ouse and south of Buckingham within the Padbury and Claydon Brook catchments, both tributaries to the River Great Ouse. Major urban areas include Buckingham, Milton Keynes and Leighton Buzzard

4.2 Geology

Given the large area covered by the Buckingham and River Ouzel IDB, there is a wide range of geological conditions present.

The Ouzel valley and Milton Keynes are part of the Bedfordshire and Cambridgeshire Claylands which predominantly comprise of the moderately permeable calcareous clayey soils overlying chalky boulder clay or, in the south, Jurassic cretaceous clays. The broader river valleys have well drained soils over alluvium and river terrace gravels.

The areas south and east of Buckingham hold mudstones overlain by alluvial and river terrace deposits.

The extreme south-east of the district includes the Greensand Ridge, a narrow escarpment running south-west to north-east comprising lower Greensand or Cretaceous sands and sandstones with sandy acidic soils. In contrast, to the extreme south-east of the district is the band of chalk which forms the Chilterns and then, north-eastwards, the East Anglian chalk ridge.

4.3 Landscape

4.3.1 Landscape Designations

No landscape designations apply to the district.

4.3.2 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. 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. Information on Joint Character Areas can be found at: www.countryside.gov.uk/LAR/Landscape/CC/jca.asp.

Buckingham and River Ouzel IDB district is predominantly within the Bedfordshire and Cambridgeshire Claylands JCA with a gently undulating topography and plateau areas divided by broad shallow valleys. Predominantly arable, fields are bounded by either open ditches or sparse, trimmed hedges. The river corridors of the Great Ouse and the Ouzel hold flood-plain grassland, riverine willows and larger hedges. The Greensand Ridge JCA is a narrow escarpment with mixed land use and a high proportion of woods, heath and stock grazed pasture. Arable is present on the dip slope.

The extreme south-east of the IDB district is within the Chilterns JCA and the East Anglian Chalk JCA. The latter is a continuation of the Chilterns and is typified by rolling downland, mainly arable, with beech woodland.

4.3.3 Sites and Monuments Records

In view of the large number of Scheduled Monuments, these are not detailed. Their locations are however available via the MAGIC data base or through English Heritage. The Board's maintenance activities are long-established and therefore will have negligible effect on Scheduled Monuments.

4.3.4 Tree Preservation Orders

None known

4.4 Statutory Nature Conservation Sites

4.4.1 International Sites

No internationally designated sites are present within the Buckingham and River Ouzel IDB district.

4.4.2 National Sites

There are two nationally designated sites within the Buckingham and River Ouzel IDB district and one immediately outside it. The location of these sites is shown in Appendix 1. Tebworth Marsh, within the IDB district, is the subject of a Water Level Management Plan.

Table 2. National Designations

Site name	Designation	Features Relevant to IDB
Tebworth Marsh	SSSI	One of the largest base-rich marshes in the country, containing a series of springs, unimproved neutral grassland, a stream and swamp carr.
Dropshort Marsh	SSSI	An area of quaking bog, marsh, and neutral unimproved grassland this is a Wildlife Trust reserve.

4.4.3 Local Nature Reserves

There are no Local Nature Reserves, designated by local authorities under Section 21 of the National Parks and Access to the Countryside Act 1949, within the district.

4.4.4 Non-statutory Local Sites

There are 80 County Wildlife Sites within the Buckingham and River Ouzel IDB district. Nine are in Bedfordshire 65 in Buckinghamshire, 3 in Northamptonshire and 3 in Oxfordshire. Their locations are given in Appendix 2.

Whilst these designations do not have statutory status, the sites themselves are important for their contribution to biodiversity and planning policy requires that they are given consideration.

5 HABITAT AUDIT

5.1 Habitat Audit Summary

This summary lists the UK BAP priority habitats, defined by the Report on the Species and Habitats Review (2007), within the Buckingham and River Ouzel IDB district as identified by the information gathering exercise. Also listed are habitats considered as of local importance and/or featured in the county Local BAPs. Habitats that are of potential importance for the Buckingham and River Ouzel IDB, where water level management or other activities may be of benefit, are identified. Finally, the potential for the Buckingham and River Ouzel IDB to maintain, restore or expand its important habitats is identified.

Table 4. Habitat Audit Summary

UK BAP Priority Habitat	Local Biodiversity Action Plan Habitat	Habitat of Importance for Buckingham and River Ouzel IDB	Location of Habitat of Importance for Buckingham and River Ouzel IDB	Buckingham and River Ouzel IDB Potential for Maintaining, Restoring or Expanding Habitat
Rivers	Rivers and Streams (Bucks) Rivers (Northants)	Rivers and Watercourses	River Great Ouse, River Ouzel, Clipstone Brook, Padbury Brook, Claydon Brook	Promote by sensitive management
Ponds	Ponds (Beds, Bucks, Northants)	Ponds,	Across the district	Promote by sensitive management, creation via planning duties
Eutrophic standing waters	Eutrophic standing water (Northants)	Gravel extraction	North of Milton Keynes and Leighton Buzzard	Limited
Arable Field Margins	Arable Margins (Beds) Arable Field Margins (Bucks)	Field margins	Through Ancient and/or species-rich hedgerows out	Promote sensitive management
Coastal and Floodplain Grazing Marsh	Floodplain Grazing Marsh (Northants, Oxon, Beds,)	Floodplain grazing marsh	Ouzel Valley, Great Ouse valley	Promote opportunities for flood storage
Lowland Fens	Lowland Fens (Northants, Oxon)	Fen	Tebworth Marsh	Maintain through appropriate water level management defined by the WLMP
Reedbeds	Reedbeds (Northants, Oxon, and Beds)	Reedbeds	Very limited	Maintain through appropriate water level management
Wet woodland	Wet woodland (Beds, Northants)	Wet woodlands	Limited in the IDB District	Maintain through appropriate water level management

Ancient and/or species-rich hedgerows	Ancient and/or species-rich hedgerows (Bucks) Hedgerows (Northants)	Hedgerows	Throughout	Maintain through sensitive management
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6 SPECIES AUDIT

6.1 Species Audit Summary

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This summary lists the UK BAP priority species, defined by the Report on the Species and Habitats Review (2007), within the Buckingham and River Ouzel IDB district as identified by the information gathering exercise. Also listed are species considered as of local importance and/or featured in the county Local BAPs. Species that are of potential importance for the Buckingham and River Ouzel IDB, where water level management or other activities may be of benefit, are identified. Finally, the potential for the Buckingham and River Ouzel IDB to maintain or increase the population or range of species of importance is identified.

Table 6. Species Audit Summary

Common Name	Group	UK BAP Priority Species	Local BAP species *	Non-BAP Species but Important in Buckingham and River Ouzel IDB District	Buckingham and River Ouzel IDB Potential for Maintaining or Increasing Species Population or Range
Water Vole <i>Arvicola terrestris</i>	Terrestrial mammals	Yes	Beds, Northants		Undertake ditch management to benefit water vole
Otter <i>Lutra lutra</i>	Terrestrial mammals	Yes	Beds, Northants		Undertake ditch management to benefit otter
Bats	Terrestrial mammals	Some species	Beds		Sympathetic tree management
Kingfisher <i>Alcedo atthis</i>	Bird	No		Yes	Maintain nesting banks
European eel <i>Anguilla anguilla</i>	Fish	No		Yes	Ensure easy passage of elvers
White-clawed crayfish <i>Austropotamobius pallipes</i>	Invertebrate	Yes			Appropriate management

* Oxfordshire and Buckinghamshire do not have species action plans.

7 HABITAT AND SPECIES ACTION PLANS

7.1 Habitat and Species Action Plans

The Action Plans contained in the following sections comprise the objectives, targets and actions that the Buckingham and River Ouzel IDB has identified for each habitat and species in so far as they are relevant to the pursuance of its functions. These have been identified principally in collaboration with the Buckinghamshire Biodiversity Partnership whose input, together with that of the Bedfordshire Biodiversity Partnership and the Wildlife Trust is gratefully appreciated by the Buckingham and River Ouzel IDB. In principle, the actions proposed will support or contribute to the actions proposed within the Buckinghamshire and Milton Keynes and the Bedfordshire Biodiversity Action Plans whose remit covers the majority of the IDB district. These plans will be reviewed and updated periodically.

A Procedural Action Plan has also been devised.

In Buckinghamshire, Biodiversity Opportunity Areas have been identified and work proposed within this BAP will be concentrated within those areas which overlap with the IDB district, namely the Ouzel Valley the Ouse Valley (which covers the area of the Ouse Valley north of Milton Keynes), the Greensand Ridge and the Claydon and Padbury Streams .

8 ARABLE MARGINS ACTION PLAN

8.1 Introduction

The farmed countryside can be important for wildlife with the majority of, though not all, species using the land being found on the margins of cropped land, including ditches, hedges and field margins. Species which may be present include the suite of farmland birds, many of which are themselves UK BAP Priority species including grey partridge, skylark and yellowhammer, arable wildflowers and invertebrates. The value of arable land for wildlife has declined, largely due to the intensification of production including cropping regimes, herbicide and pesticide use and reduction of marginal habitats.

8.2 National Status

Agricultural land comprises 67% of the total land area of the United Kingdom and, of this, 33% is in arable production. In Eastern England the figures are 71% and 86% respectively (Source: Defra). Within the Buckinghamshire there are around 28569 ha under arable cultivation and 39258 ha in Bedfordshire (Source: Defra statistics).

Arable Field Margins are the subject of a UK Biodiversity Action Plan whose targets relate to improved management via Agri-Environmental Schemes.

8.3 Local Status

Arable field margins are currently excluded from the Oxfordshire and Northamptonshire BAPs but are covered specifically by the Bedfordshire and Luton Arable Margins BAP and Buckinghamshire and Milton Keynes BAP. The former's objective is to increase the area of the margins and the latter's objective is to maintain, and where possible expand, the range of margins and to maintain and where possible improve their condition.

8.4 Status within the Drainage District

Arable field margins are common within the Buckingham and River Ouzel IDB district.

8.5 Buckingham and River Ouzel IDB Objectives and Targets

1. Encourage the enhancement of habitats adjacent to watercourses and reduce soil wash off into the watercourses.

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Enhance adjacent habitats	1.1	Encourage use of buffer strips adjacent to watercourse by promoting the Environmental Stewardship Scheme *	Landowners	As approached	Number of approaches	As approached

* NB This will not preclude the margins being used on occasion

8.6 Associated Species

The following species will also benefit from this habitat action plan
Farmland birds including UK BAP Priority Species grey partridge, yellow hammer, reed bunting, and skylark
Schedule 1 species Barn owl.

9 PONDS ACTION PLAN

9.1 Introduction

Ponds can vary in size from 1 sq m to 2 ha and may be permanent or temporary features providing that they hold water for at least four months of the year. They hold a varied range of species and are particularly important for UK BAP species holding 80-90 species.

9.2 National Status

It is estimated (Pondlife data) that there are around 385 000 ponds in the UK in upland and lowland locations within a range of habitats. Despite the apparently high number, the habitat is at risk as there has been a significant long-term loss of ponds despite the loss slowing in recent years.

Ponds are the subject of a UK Biodiversity Action Plan. Not all ponds qualify however and there are criteria to determine what should be included as a priority pond. These criteria relate to inclusion within the Habitats Directive, presence of protected and other species of high conservation importance, important assemblages of species, high ecological quality (based on plant and invertebrate scores) and other important ponds.

9.3 Local Status

There are relatively few natural ponds in the area and their decline is due to land drainage, river channelisation and in-filling. However, attenuation ponds are increasingly being constructed as part of development projects. While these may develop ecological value, their principal function is to protect people and property. Many ponds are nutrient –rich which may limit the range of aquatic plants and invertebrates.

There is an estimate of 2865 ponds in the County of Bedfordshire (Ponds Habitat Action Plan, 2008) while analysis of the GIS landline overlay suggests in the region of 3680 ponds. Survey within Bedfordshire has shown a loss of 4% within 31 1km squares. In the County of Buckinghamshire, estimates of the number of ponds ranges from 2000- 6000 especially on farm land and common land used or previously used to water livestock. Between 1947 and 1985, 64% of ponds were lost.

Ponds are the subject of a local BAP (Bedfordshire and Luton Biodiversity Partnership, 2008) whose objectives are to maintain the number of Priority Ponds as established by survey, restore 102 pond sites by 2022 to high quality status to deliver Species Action Plan targets and to create 80 new pond sites of high quality potential by 2015. They are additionally the subject of a BAP in Buckinghamshire where the objective is to maintain the numbers of high quality ponds, the quality of Flagship

Ponds, to restore ponds to high quality status to deliver SAP targets and to create new pond sites of high quality potential.

9.4 Status within the Drainage District

No precise figures for pond numbers are available for the IDB district. The Ouzel Valley BOP has been identified as containing potential BAP ponds and the Claydon and Padbury Streams and Greensand Ridge BOPs are considered to have the potential to deliver pond targets.

The extent of Northamptonshire and Oxfordshire falling within the IDB district is small and it is not considered that the total number of ponds will change appreciably.

9.5 Buckingham and River Ouzel IDB Objectives and Targets

1. Provide support for the Pond LBAP.

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Support positive management of Priority Ponds	1.1	Provide assistance in manpower and machinery and information	Bedslife; Bucks & Milton Keynes Biodiversity Partnership	As required	Request and help provided	On completion
2	Identify areas where ponds of high quality potential could be created	2.1	Via development control and reporting to partners	Bedslife; Bucks & Milton Keynes Biodiversity Partnership	Ongoing	Action undertaken	On completion

9.6 Associated Species

Many species are associated with ponds including foraging bats, amphibians, grass snakes, fish, and a range of invertebrate and plant species. The precise range will depend on the water quality.

10 HEDGEROWS ACTION PLAN

10.1 Introduction

Hedgerows provide strong landscape features and are important in their own right, as well as for biodiversity (for example by providing habitats for a range of invertebrates and birds and foraging for bats) and also for cultural and archaeological reasons. They have the important function of providing a wildlife corridor for many animals including snakes, small mammals and invertebrates thus allowing dispersal and providing a refuge for many woodland and farmland plants and animals. They are often the most important feature in the agricultural lowlands and this is particularly true within the fens.

Hedgerows are a primary habitat for at least 47 species of conservation concern in the U.K. The Hedgerows Regulations 1997 provides protection for 'Important' hedges

10.2 National Status

It is estimated that the total UK resource of hedges is around 450 000 km, of which 329 000 km are in England. It has been estimated that 42% of these hedges are either ancient or species-rich. Between 1984 and 1990, the net loss of hedgerow length in England has been estimated as 21% (UK Steering Group).

Hedgerows are the subject of a UK Biodiversity Action Plan.

10.3 Local Status

Hedgerows in Bedfordshire, Buckinghamshire, Oxfordshire and Northamptonshire provide a major semi-natural habitat within a generally intensively managed agricultural landscape. Surveys in Bedfordshire suggest a total length of around 4500 km with a loss of 2% between 1976-1991. In Buckinghamshire it has been estimated that the county lost 27% of its hedgerows between 1947 and 1985. Those hedges in the north of the county mostly date from the time of the enclosures.

Hedgerows are the subject of a Buckinghamshire and Milton Keynes BAP and a Buckinghamshire and Luton BAP. In Bedfordshire the objectives are to maintain and where possible expand the network of hedges and to maintain and where possible to improve the condition and species-richness. The objectives in Buckinghamshire are similar, including to halt the loss of hedgerows, achieve favourable management of hedgerows and plant new hedgerows.

10.4 Status within the Drainage District

Hedges are a dominant feature within the IDB district, with many watercourses bounded, at least on one side, by hedgelines. Many are species-poor and are either unmanaged or heavily managed.

10.5 Buckingham and River Ouzel IDB Objectives and Targets

1. To maintain and enhance the hedges that are affected by the IDB's activities so as to ensure no net loss.

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Ensure no net loss of hedges as a result of the Buckingham IDB activities	1.1	Ensure that compensation planting takes place if any hedges are removed	Landowners	If required	Length	Annual
		1.2	Prevent damage to existing hedges	Landowners	Ongoing	Length remaining intact	Annual

* NB This does not include management to allow watercourse maintenance

10.6 Associated Species

The following species will also benefit from this habitat action plan:
Woodland and farmland birds including song thrush, turtle dove and bullfinch.

11 WATERCOURSES

11.1 Introduction

Natural rivers provide important habitats for a range of species depending on their gradient, geology, water quality and flow. Specific features such as riffles, pools or margins, hold different assemblages of plants and animals. Drainage ditches tend to be less diverse but, depending upon the substrate may still provide a range of features

The smaller channels may be dry for much of the year but larger ones are of significant value for the range of wildlife including plants such as arrowhead, flowering rush, invertebrates, especially dragonflies, birds such as reed bunting and sedge warbler, fish including eels, water vole and otter.

11.2 National Status

There are few natural rivers remaining in lowland Britain and they are used for conveyance, abstraction (for drinking, industry and irrigation) and recreation and also accept discharges. They also act as linear corridor and this is particularly important in intensively farmed areas.

Rivers are listed as a UK Biodiversity Action Plan habitat. There are no revised targets for this group.

11.3 Local Status

Rivers in the region are nutrient-rich, taking water from the catchments primarily to the west, but also to the south, of the Counties. Within Bedfordshire and Buckinghamshire, the principal watercourses are the River Great Ouse and its tributaries which flow eastwards into Cambridgeshire. Other important watercourses are the River Ouzel and its tributaries, flowing north. These lowland watercourses are dominated by higher plants, including locally important species such as fringed water lily, and coarse fish such as chub and dace.

Rivers and Streams are listed as a Buckinghamshire and Milton Keynes Biodiversity Action Plan habitat. Targets include improving identifying critical sections to notified as County Wildlife Sites, developing macrophyte and macro invertebrate monitoring programmes and developing and implementing river and stream habitat enhancement and restoration. No action plan is yet available for Bedfordshire or for Oxfordshire. Northamptonshire's River BAP has actions including the control of invasive species, creating fish passes, identification of sites suitable for conservation objectives and biodiversity enhancement of 2 km of river.

11.4 Status within the Drainage District

A total of 448 km of watercourses pass through the Board's district. Within the district there are a further 93.5 km of Main River under the management of the Environment Agency.

Sections of the River Great Ouse, River Ouzel, the Clipstone Brook and the Padbury Brook are County Wildlife Sites.

Buckinghamshire identifies the Claydon and Padbury Streams, Ouse Valley and Ouzel Valley as being BOPs where their objectives can best be carried out.

11.5 Buckingham and River Ouzel IDB Objectives and Targets

1. To manage watercourses according to best practice so as to maintain the biodiversity interest, including within the riparian zone, while retaining the important land drainage, flood risk and water level management functions.
2. To control invasive plant species.
3. To ensure that the Buckingham and River Ouzel IDB does not adversely affect designated sites.

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Maintain and enhance the biodiversity interests of the watercourses	1.1	Maintain the current regimes which supports the biological interest of the watercourses	Landowners	Ongoing	Length managed	Annually
		1.2	Revise the management protocol for all works on watercourses based on the ADA Drainage Manual and other guidance (see 18)		2011	Completed document	As completed
2	Control stands of invasive non-native plant species	2.1	Identify and treat	Landowner	As required	Area treated	As completed
3.	Ensure that the Buckingham and River Ouzel IDB does not adversely affect designated sites	3.1	Discuss works in advance	NE, Wildlife Trusts	Ongoing	Consultation held	Annually

11.6 Associated Species

The following species will also benefit from this habitat action plan
Water vole; Otter; European Eel; Stone loach ; Amphibians; Grass snake ; Kingfisher;
Sedge warbler; Reed bunting

12. WETLAND HABITATS

12.1 Introduction

Wetland habitats including wet woodland, floodplain grazing marsh, fen and reed beds are associated with watercourses and inundated or periodically inundated land. Each is a specialised habitat with specific water level requirements and long-standing management regimes, particularly in the case of fens, grazing marshes and reedbeds. While some, for example, reedbeds and wet woodlands may be limited in their botanical composition, the invertebrate diversity associated with them is high. In contrast, fens and floodplain pastures have a much higher diversity of plant communities.

12.2 National Status

Estimates of the extent of grazing marsh range from 216 000– 3000 000 ha in the UK, of which some 5000 ha is considered to be semi-natural. Reedbeds are present across some 5000 ha with some 50 sites in excess of 20 ha. The extent of wet woodland is estimated at 50-70 000 ha while the extent of lowland fens, which habitually occur on peats, is estimated at around 18 000 ha. The extent of fens is however difficult to determine due to some overlap between the other habitats. All the wetland habitats are vulnerable and have seen significant reductions in extent due to drainage, over and under management, poor water control and changes in water quality.

Each of the habitats is the subject of an individual UK Biodiversity Action Plan.

12.3 Local Status

Within Bedfordshire the extent of the habitats is generally limited to the river valleys. Floodplain grazing marsh is predominantly found within the Great Ouse and in the Ouzel valley within Buckinghamshire.

Reedbeds are highly limited in extent, most areas being very small and in Buckinghamshire and Bedfordshire is largely limited to small linear strips around lakes and along watercourses.

Wet woodland is very limited although there are small areas at Tebworth Marsh and a new floodplain woodland is proposed at Wolverton.

Fenland within Buckinghamshire is limited to valley heads and is also present at Tebworth Marsh and Dropshort Marsh, just outside the district.

Bedfordshire, Northamptonshire and Oxfordshire have prepared action plans for floodplain grazing marsh, reedbeds and wet woodland; Buckinghamshire, Northamptonshire, and Oxfordshire have plans for fens; Northamptonshire,

Bedfordshire, Buckinghamshire and Oxfordshire have plans for reedbeds and Bedfordshire and Northamptonshire have plans for wet woodland.

12.4 Status within the Drainage District

The Great Ouse and Ouzel valleys support the greatest extent of these wetland habitats including a number of County Wildlife Sites.

12.5 Buckingham and River Ouzel IDB Objectives and Targets

1. To assist in the maintenance of water levels within Tebworth Marsh SSSI and other designated or priority sites.
2. To seek opportunities for the creation of these habitats whether through development control or creation during watercourse management.

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	To assist in the maintenance of water levels within Tebworth Marsh and other designated or priority sites	1.1	Undertake actions contained within the WLMP	Wildlife Trust, Beds CC	As in Plan	Actions completed	Annually
		1.2	Revise the management protocol for all works on water courses based on the ADA Drainage Manual and other guidance (see 18)		2011	Completed document	As completed
2	Seek opportunities for creation of habitats	2.1	Specific consideration via development control and works planning	Landowner, Wildlife Trust Planning Authorities	Ongoing	Annual liaison	Annually

12.6 Associated Species

The following species will also benefit from this habitat action plan

Water vole

Otter

European Eel

Amphibians

Grass snake

Sedge warbler
Reed bunting

13. WATER VOLE

13.1 Introduction

Water voles are the largest of the vole family in the U.K. and are found in both the uplands and lowlands of Britain. They are herbivorous, feeding on the aerial shoots and leaves of marginal and bankside plants on well- vegetated watercourses. A colonial animal, water voles are territorial in the breeding season which lasts from March to September. Each female may have between two and five litters annually each with five to eight young. Living in burrows in the bank, the voles do not hibernate but spend the winter underground. There is an over-winter mortality of around 70%.

13.2 Legal Protection Status

From April 2008, water voles and their resting places are fully protected in England by the Wildlife and Countryside Act 1981 and as amended. It is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places and to disturb them in their breeding or resting places. Licences issued by Natural England may be available to undertake actions that would normally be unlawful, but these are not available for development or land drainage purposes.

13.3 National Status

Once common and widespread, this species has suffered a significant decline in both numbers and distribution. A national survey in 1989-90 failed to find signs of voles in 67% of sites where they were previously recorded and it was estimated that this will rise to 94% by the turn of the century. A recent population estimate based on the number of latrines found suggested a total GB pre-breeding population of 1,200,000 animals.

Declines have occurred from a number of factors: habitat degradation and loss, fragmentation of population and predation (particularly from mink).

13.4 Local Status

Water voles are present within 8 10-km squares within Bedfordshire and are considered to be continuing to decline. Of nineteen sites recorded within 1989/90, twelve had disappeared by 1996/98. In Buckinghamshire the water vole is scarce and most records are from the south of the County. Northamptonshire holds water vole records in 2 10-km squares.

13.5 Status within the Drainage District

Following survey by the Bedfordshire Otter and Rivers Project, no key areas for water voles have been identified within the Buckingham and River Ouzel IDB district. A single record exists for the centre of Leighton Buzzard. In Buckinghamshire, water voles are scarce but have been recorded immediately upstream of the Board's district at Thornborough. None of Northamptonshire's target areas for water vole are within the Board's district and no records of this species were identified in Oxfordshire or Northamptonshire.

13.6 National UK BAP Targets

These include:

- Arrest the decline and maintain the current distribution and status of the water vole.
- Restore water voles to the pre-1970 distribution by 2010.
- Ensure the management of watercourses and wetlands in order to maintain the restored population.
- Maintain the current range (730 occupied 10 km squares of the water vole in the UK).
- Achieve an increase in range of 50 new occupied 10 km squares in the UK by 2010.

13.7 Local Biodiversity Action Plan Targets

Bedfordshire BAP targets are:

- Maintain the range of the Bedfordshire water vole population as defined in the 2005 and 2006 water vole survey reports (present in 30 1-km squares)
- Expand the range of water voles to 33 1-km squares by 2010

There are no targets for Buckinghamshire or for Oxfordshire and the Northamptonshire targets are only peripherally applicable to the Board.

13.8 Buckingham and River Ouzel IDB Objectives and Targets

1. Establish baseline information on distribution and numbers of the species.
2. Provide appropriate habitat conditions for water voles to breed successfully.

Buckingham and River Ouzel IDB Biodiversity Action Plan

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor water vole and mink populations	1.1	Maintain a data base of any sightings of water vole	Wildlife Trusts; Bedslife, Bucks and MK Biodiversity Partnership	On going	Data supplied to relevant BRC	Annual
2	Provide appropriate habitat conditions	2.1	During works in proximity to known populations, provide enhanced conditions to aid expansion	Wildlife Trusts, Bedslife, Bucks and MK Biodiversity Partnership	On-going		
		2.2	Include management for water vole within the management protocol (5.2)		2011	Completed document	As completed
		2.3	Assume water voles are present when undertaking works in potentially suitable habitats and manage according to protocol		Ongoing	Length of watercourse under sensitive management	Annual
3	Control mink	3.1	Carry out mink control	Wildlife Trusts; Bedslife, Bucks and MK Biodiversity Partnership	Ongoing as necessary	No of mink caught	Annual

14 OTTER

14.1 Introduction

Otters are large mammals, approximately 1.2 metres long. They are widely spread across Britain in marine as well as in inland waters and are capable of travelling long distances over land. Generally solitary, the size of the territory depends on the position in the hierarchy and cubs share the mother's territory for around a year. Breeding may occur at any time of the year and between 2-3 young are typically born in a holt lined with vegetation.

14.2 Legal Protection Status

Otters and their resting places are fully protected in England by the Wildlife and Countryside Act 1981 and as amended and under the Conservation (Natural Habitats, etc.) Regulations 1994. It is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places and to disturb them in their breeding or resting places. The otter is listed on Appendix 1 of CITES and Appendix II of the Bern Convention Schedule 2 of the (Regulation 38).

Licences issued by Natural England may be available to undertake actions that would normally be unlawful.

14.3 National Status

Formerly widespread throughout the UK, the otter underwent a rapid decline from the 1950s to 1970s and was effectively lost from midland and south-eastern counties of England by the 1980s. Strong populations remain in Wales, south-west England and much of Scotland, where sea loch and coastal colonies comprise one of the largest populations in Europe. There is also a significant population of otters in Northern Ireland. The decline now appears to have halted and sightings are being reported in former habitats.

The decline has been attributed to loss of habitat, lack of food resources, effect of pollutants eg PCBs and heavy metals, and accidental mortality including road kills.

14.4 Local Status

Otters were considered to be extinct in Bedfordshire by 1979 but started to recolonise in 1986 when evidence was found on the River Ivel. Reintroductions took place in 1995 and 1998. The fourth County survey in 2003/2004 found otters at 26 of the 63 standard survey sites. Otters are considered to be widespread and increasing, although still sporadic in Buckinghamshire. In Northamptonshire, otters are known from 22 occupied 10km squares throughout the county.

14.5 Status within the Drainage District

Within the Buckingham and River Ouzel IDB district, otters have been recorded from the River Ouzel and the upstream end of the Clipstone Brook and downstream of Houghton Regis in Bedfordshire. Records for Buckinghamshire cover much of the Board's district, including the River Great Ouse and Padbury Brook near Thornborough, the River Ouzel, the Great Ouse north of Milton Keynes and the Ledburn Brook. There are no records for Northamptonshire or Oxfordshire.

14.6 National UK BAP Targets

These include:

- 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 (878 occupied 10-km squares).

14.7 Local Biodiversity Action Plan Targets

No targets are available for Buckinghamshire or Oxfordshire.

Bedfordshire targets are:

- Maintain the range of the European otter in Bedfordshire as defined by the 2004 Bedfordshire county survey (25 of the 75 sites surveyed positive for otters)
- Restore otters to the River Kym, Til and Ouzel, and Elstow Brook and its associated lakes, confirmed by the presence of spraint in three of five years, by 2015.

Northamptonshire targets are:

- Maintain the current distribution (22 occupied 10km squares) of the otter throughout Northamptonshire.
- Encourage the natural expansion of otter distribution to achieve 85% occupancy of 10 km squares by 2015

14.8 Buckingham and River Ouzel IDB Objectives and Targets

1. Establish baseline information on distribution and numbers of the species.
2. Provide appropriate habitat conditions for otters to breed successfully.

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor otter populations	1.1	Maintain a data base of any sightings of otter	Wildlife Trusts, Bedslife, Bucks and MK Biodiversity Partnership	On-going	Data supplied relevant BRC	Annual
2.2	Provide appropriate habitat conditions	2.1	Provide 1 artificial holt annually and negotiate fencing of 2 field corners annually *	Wildlife Trusts, Bedslife, Bucks and MK Biodiversity Partnership Landowners	On-going	Holt and field corners provided	Annual
		2.2	Include management for otter within the management protocol .		2011	Completed document	As completed
		2.3	Assume presence when undertaking works in potentially suitable areas and manage according to protocol		On-going	Length of watercourse under sensitive management	Annual

*Subject to landowner approval

15 KINGFISHER

15.1 Introduction

A characteristic bird on watercourses, kingfishers are a fish-eating species which nests in holes in earth banks

15.2 Legal Protection Status

Kingfishers are listed on Schedule 1 of the Wildlife and Countryside Act 1981 and as amended which provides not only for the protection of nests, eggs and young but also for the disturbance while on the nest.

Kingfishers do not have a UK Biodiversity Action Plan or a Local Action Plan. It is however considered to be a key species.

15.3 National Status

An amber listed species in the 'Birds of Conservation Concern' kingfishers declined along linear waterways (its principal habitat) until the mid 1980s, since when it seems to have recovered completely. The decline was associated with a contraction of range in England (BTO data). No long term trend in the population size has been noted.

15.4 Local Status

Kingfishers occur along all the main watercourses in Bedfordshire, Buckinghamshire, Northamptonshire and Oxfordshire.

15.5 Status within the Drainage District

Kingfisher has been recorded throughout the IDB district.

15.6 Buckingham and River Ouzel IDB Objectives and Targets

1. Establish baseline information on distribution and numbers of the species.
2. Provide appropriate habitat conditions for kingfisher to breed successfully.

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor population	1.1	Maintain a data base of any sightings of kingfisher	Biological Records Centres	On-going	Data supplied to BRC	Annual
2	Maintain potential nest sites	8.1	Keep earth cliffs where present		On- going	No of cliffs present and retained	Annual

16 EUROPEAN EEL

16.1 Introduction

The European eel is a species that breeds in the Sargasso Sea and returns to Britain to mature. They may spend between 15 and 20 years in British rivers before returning to the sea and their spawning grounds to reproduce.

16.2 Legal Protection Status

This species is listed on Appendix II of the CITES Convention.

European eels do not have a UK Biodiversity Action Plan. It is the subject of Eel Management Plan and is considered to be a key species within the Buckingham and River Ouzel IDB district.

16.3 National Status

The eel was once a common species around Britain, being present in most rivers, streams and lakes that are accessible from the sea. Commercial eel fisheries were the most valuable inland fisheries in England and Wales and provided significant benefits to the rural economy. However, there is considerable concern about the status of eel stocks in the UK and Europe. Since the 1980s the numbers of young elvers returning to European rivers has declined to around 1% of historic levels. This is thought to be related in part to oceanographic changes between the spawning grounds near the Caribbean and the coast of Europe, and to other factors such as pollution, parasites, barriers to freshwater migration and over-fishing.

16.4 Local Status

The eel is the subject of a Management Plan for the Anglian Region of the Environment Agency.

16.5 Status within the Drainage District

Not known.

16.6 Buckingham and River Ouzel IDB Objectives and Targets

1. Seek to ensure access to the watercourses within the Buckingham and River Ouzel IDB district..

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Maintain access to watercourses for elvers	1.1	Identify any possible obstructions and discuss with EA to formulate a means of providing access	EA	2012	Action completed	Upon completion

17. WHITE- CLAWED CRAYFISH

17.1 Introduction

The white-clawed crayfish is the only native species of crayfish and was distributed throughout England and Wales. Crayfish can be found in a wide range of aquatic habitats, such as rivers, streams, canals and standing water. They prefer alkaline water with limited sediment, free of pollution and plenty of shelter in the form of rock, aquatic plants and tree roots, but do not exclusively occur in such habitat.

17.2 Legal Protection Status

White-clawed crayfish receive partial protection under the Wildlife and Countryside Act 1981 and as amended and it is illegal to take or sell the species.

17.3 National Status

Still widely distributed across Britain, numbers of this species have significantly declined over much of its range as a result of competition from introduced crayfish, crayfish plague, habitat loss and pollution.

17.4 Local Status

In eastern Britain populations are particularly scarce and those that are present tend to be small and isolated.

17.5 Status within the Drainage District

There has been a recent record in the Clipstone Brook in Bedfordshire but this remains to be verified. In Northampton shire there is an old record from the Griver Great Ouse and on in 1995 from a tributary to the River Tove. No recent records have been found for those areas of Oxfordshire or Buckinghamshire within the IDB's district

17.6 National UK BAP Targets

These include:

- Maintain current range of white-clawed crayfish in the UK.
- Achieve an increase in range of white-clawed crayfish in the UK by 59 10 km squares to 300 by 2030
- Maintain key populations of white-clawed crayfish in the UK.

17.7 Local Biodiversity Action Plan Targets

None available.

17.8 Buckingham and River Ouzel IDB Objectives and Targets

1. Monitor presence of all species of crayfish.
2. Maintain the potential suitability of locations of known recent populations

Target Ref.	Target	Action ref.	Buckingham and River Ouzel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor population	1.1	Maintain a data base of any sightings of any species of crayfish	Wildlife Trusts	On going	Data supplied to relevant BRC	Annual
2.	Maintain potential suitability	2.1	Provide a tailored scheme to works in previously known locations	Wildlife Trusts	As required	Scheme completed	Following completion

18 PROCEDURAL ACTION PLAN

18.1 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 but will also include protocols for protected species and other non BAP matters such as pollarding willows.

18.2 Objectives and Targets

Target Ref	Target	Action Ref	IDB Actions	Partners	Date	Indicators	Reporting
1	Develop best practice	1.1	Revise the existing management protocol for all works on watercourses based on the ADA Drainage Manual and other guidance		2011	Completed document	As completed
		1.2	Provide protected species training		Ongoing	Number of staff trained	Annually
		1.3	Require developers to follow best practice via consents procedures	Planning Authorities	Ongoing	Applications reviewed	Annually
2.	Data management	2.1	Establish data base for important wildlife records	Biological Records Centres	Ongoing	Data base regularly maintained	Annually

19 IMPLEMENTATION

19.1 Implementation

With some exceptions, for example the erection of artificial barn owl boxes, the habitat and species action plans can be delivered through minor changes to routine activities and through recording of observations made during the undertaking of such works.

As part of this BAP, a revised management protocol for all works on the watercourses, using information provided within the ADA Drainage Manual and other guidance will be prepared.

20 MONITORING

20.1 Monitoring

Monitoring of the Buckingham and River Ouzel IDB 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. Monitoring will result in new information, such as the presence of species missed during earlier surveys. Any new information will be incorporated into the Buckingham and River Ouzel IDB BAP as appropriate

21 REVIEWING AND REPORTING PROGRESS

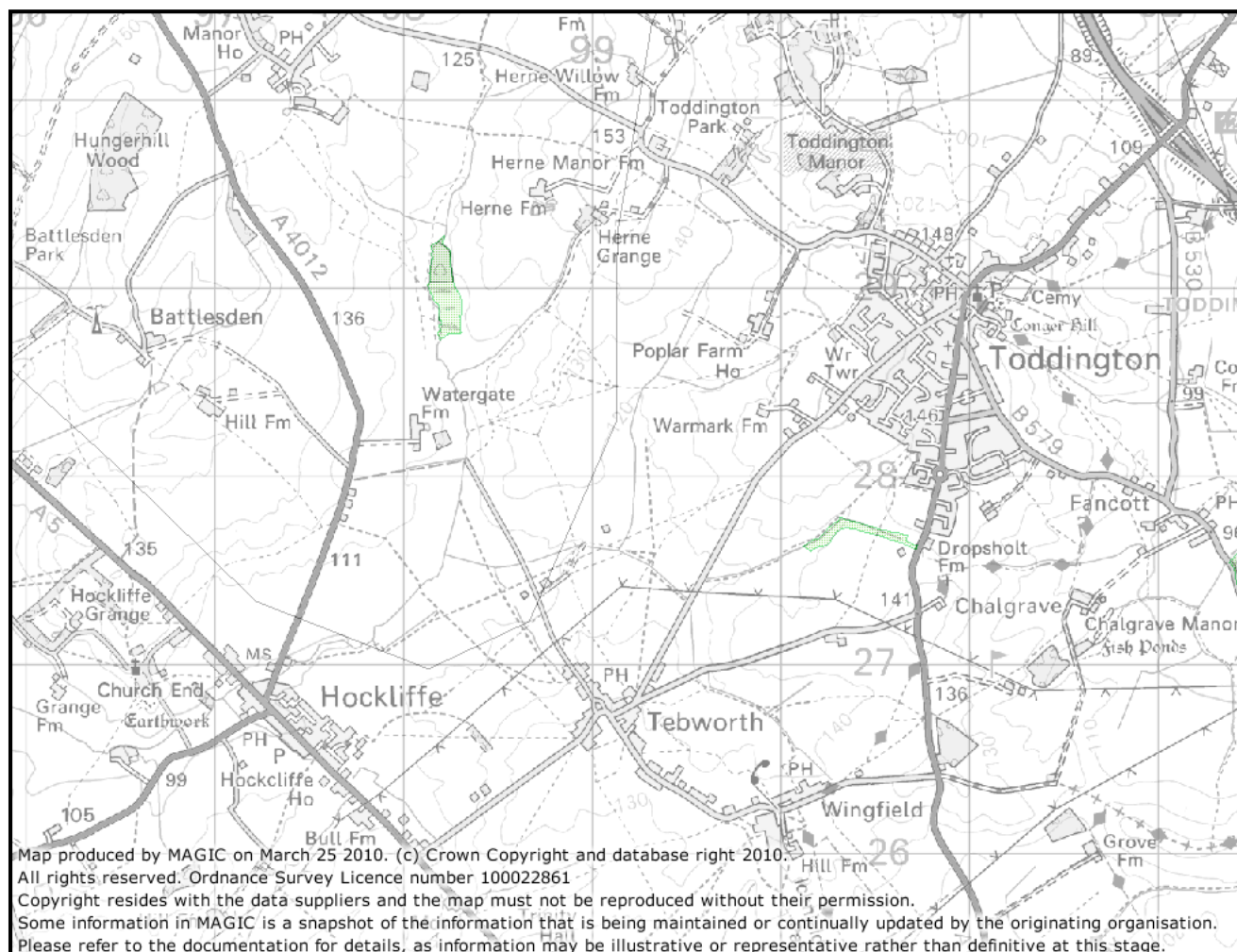
21.1 Reviewing and Reporting Progress


Progression of the BAP requires monitoring and reporting to the public, BAP Working Group and also to the UK BAP.

Progress towards each of the targets is likely to be assessed annually and it is anticipated that the Buckingham and River Ouzel IDB BAP will be fully reviewed after five years. However the production and long-term development of the BAP is a flexible process and may be reviewed earlier if appropriate.

Annual reporting will be undertaken through meetings of the Buckingham and River Ouzel IDB and through the national Biodiversity Action Plan Reporting System BARS. Targets and actions for individual action plans have been written so that they fit into the national BARS which is the approved system for reporting. Using BARS annual progress reports can be produced and made available.

APPENDIX 1: LOCATION OF SITES OF SPECIAL SCIENTIFIC INTEREST WITHIN AND ADJACENT TO BUCKINGHAM AND RIVER OUZEL IDB DISTRICT



 Sites of Special Scientific Interest (England)

APPENDIX 2: LOCATION OF COUNTY WILDLIFE SITES WITHIN BUCKINGHAM AND RIVER OUZEL IDB DISTRICT

Bedfordshire

Site	Label	Grid Reference	Description
Church Meadows	49	SP 917 257	
Colworth Thicket	57	SP 918 241	
Edlesborough Hill	74	SP985 190	
Ouzel Valley	195	SP915 265	
River Ouzel	220	SP 917 265	
Stanbridge and Blackgrove Woods	251	SP 977 238	
Tebworth Marsh	267	SP 982 290	
Watergate Meadow	293	SP 981 281	
Clipstone Brook	393	SP 945260	

Buckinghamshire

Site	Label	Grid Reference	Description
River Ouse from Thornton Col to Beachampton		SP 756 368	Large River
Field boundaries, Beachampton		SP 760368	Intact Hedge
River Ouzel, Sparks Meadow to west of Eaton Mill		SP 883 .328	Small River
Abandoned railway, North Chetwode		SP 632 303	Scrub
Padbury Brook south of Oxlane Bridge		SP 709301	Small River
Bridleway at Kings Bridge		SP 703 288	Hedge with Trees
Padbury Brook, Three Bridge Mill		SP 675 268	Stream
Redland Bridge, Steeple Claydon		SP 695264	Small River
River Ouzel, A4146 road bridge		SP 945213	Small River
Whistlebrook		SP 942203	Small River
Eaton Bridge, Eaton Bray		SP 964 203	Large River
Grand Union Canal south of Horton Wharf		SP 932 190	Canal or Wet Ditch
Whistle Brook		SP 941 171	Small River
Hedgerow south of Horton		SP 929 182	Hedge with Trees
Grand Union Canal, Great Seabrook to Ivinghoe Locks		SP 932 170	Canal or Wet Ditch
Wet meadows by disused railway		SP 725 281	Neutral Grassland
Bridge east of Leamington Cottage		SP 814 442	Small River
Wetland near Cold Harbour		SP 849 360	Neutral Grassland
Three-fields, Great Horwood		SP 770 305	Acidic Grassland
Wet corner of meadow, Great Horwood		SP 768 317	Neutral Grassland
Spinney near Redhall Farm		SP 779 282	Broad-leaved Woodland
Scrub near Claydon Park		SP 711 256	Neutral Grassland
River Ouse at Wolverton		SP 812 422	Large River
Orchard Mill		SP 885 308	Large River
Horwood House		SP 797 295	Neutral Grassland
West of Threebridge Mill		SP 668 269	Marshy Grassland
Wet meadow behind Seven Stars Pub		SP 674 267	Marshy Grassland
Stream and Scrub, Swanbourne		SP 785 265	Scrub

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Swanbourne Lane west		SP 810 267	Neutral Grassland
Grassland west of Lathbury Park		SP 871 449	Basic Grassland
Grassland/fen near New Bradwell		SP 828 406	
Blue Bridge Pond		SP 829 408	
Parish Boundary Hedges, Wolverton		SP 777 385	Intact Hedge
River Ouse, Buckingham		SP 718 343	Large River
Holloway Hedge		SP 707 345	Hedge with Trees
Norbury		SP 712 299	Broad-leaved Woodland
Field boundary north of Richmond Lodge		SP 828 284	Hedge with Trees
Hedgerow northwest of Merrymead Farm		SP 828 283	Hedge with Trees
Hedgerow south of Slapton		SP 929 201	Hedge with Trees
South Lake, Addington		SP 746 277	Small Lake
North Bridge, Newport Pagnell		SP 877 441	Large River
Bridge south of Newport Pagnell		SP 878 438	Large River
Haversham River Bank		SP 839 435	GEOL
Moulsoe Old Wood		SP 922 424	Coniferous Woodland
Moulsoe Old Wood, Pond and Scrub		SP 919 421	Scrub
Pond in Ouzel Valley Park		SP SP 882 379	Small Pond
River Ouzel, Simpson Bridge		SP 885 361	Large River
Grand Union Canal, Fenny Stratford to Water Eaton		SP 883335	Canal or Wet Ditch
Oakhill Wood		SP 812 357	Coniferous Woodland
Teardrop Lakes		SP 846 371	Neutral Grassland
Wet meadow near Hill Farm		SP 787 305	Marshy Grassland
Railway near Botolph Claydon		SP 745 242	Neutral Grassland
Grassland near Addington		SP 741 273	Neutral Grassland
Willen Lake		8 SP 79 4027	
Loughton Lake		SP 831 383	Small Lake
Stony Stratford Water Meadows		SP 786 410	Reservoir
Galleon Aqueduct, Wolverton		SP 803 415	Canal or Wet Ditch
Buckingham Canal		SP 727 352	Canal or Wet Ditch
Bridge east of Thornborough Mill		SP 738 354	Large River
Cattleford Bridge, Thornton		SP 742 363	Large River
Footbridge at Mill farm		SP 774 381	Large River
King's Farm pond		SP 879 285	Large Pond
Stoke Hammond Fen		SP 875 283	Fen
Swanbourne Park		SP 798 269	Parkland
Grand Union Canal, Great Linford		SP 859 420	Canal or Wet Ditch
Broughton Fields pond 1		SP 910 403	Large Pond
Bradwell Abbey		SP 827 395	Neutral Grassland
Buckingham Railway		SP 709 310	Scrub
Holy Cross Churchyard, Slapton		SP 937 206	Basic Grassland
Scrub near Whistle Brook		SP 940 193	Scrub
Railway Cutting north of Twyford		SP 659 271	Scrub
Simpson Churchyard		SP 883 361	Neutral Grassland
Three Locks meadows		SP 896 286	Neutral Grassland
Manor Farm		SP 808 418	Neutral Grassland
Great Linford Gravel Pits		SP 846 431	Large Lake
River Ouse, Haversham		SP 835 430	Small River
Tongwell Lake		SP 868 423	Large Lake
Caldecote Lake		SP 889 352	Large Lake
New Ouzel Channel		SP 886 354	Large River
Broughton Fields pond 2		SP 909 404	Large Pond

Buckingham and River Ouzel IDB Biodiversity Action Plan

Pond at Abbey Hill Golf Course		SP 12 392	
Great Woolstone Churchyard		SP 875 386	
Pond in Ouzel Valley Park		SP 878 381	
Waterhall Park		SP 882 320	
Scrub by west side of M1		SP 848 447	
Wet area south side of Lathbury Park		SP 875 445	

Northamptonshire

Site	Label	Grid Reference	Description
Deanshanger Gravel Pits		SP772 389	Gravel Pit
Dogsmill Brook Meadow		SP 783 417	Wet meadow
Cosgrave Old Canal		SP793 421	Disused canal

Oxfordshire

Site	Label	Grid Reference	Description
Pool Spinney		SP611 292	Wet woodland
Hopyard Spinney		SP 613 290	Broad-leaved woodland, wetland and scrub
Meadow east of Fringford		SP 612 292	Wet meadow