

THE READING BIODIVERSITY ACTION PLAN

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CONTENTS

	Page
INTRODUCTION -----	2
BACKGROUND -----	2
BIODIVERSITY IN READING -----	3
SELECTION CRITERIA IDENTIFYING WHICH SPECIES AND HABITATS TO INCLUDE IN THE READING BAP -----	7
PRIORITY LIST OF HABITATS AND SPECIES AND OTHER LONG LIST SPECIES -----	8
HABITAT ACTION PLANS -----	8
SPECIES ACTION PLANS -----	10
ABBREVIATIONS -----	12
REFERENCES -----	13
APPENDIX I - TABLES -----	16
TABLE 1 - Priority List of Habitats -----	17
TABLE 2 - Priority List of Species -----	23
TABLE 3 - Other Long List Species -----	27
APPENDIX II - GENERIC ACTIONS COMMON TO MOST HABITAT AND SPECIES ACTION PLANS -----	32
APPENDIX III - HABITAT ACTION PLANS -----	36
Urban I -----	37
Urban II -----	40
Semi-Natural Grasslands -----	45
Parkland and Veteran Trees -----	48
Ancient and Species Rich Hedgerows -----	52
Broad Leaved Woodland -----	56
Ponds (Standing Open Water) and Reedbeds -----	60
Rivers -----	65
APPENDIX IV - SPECIES ACTION PLANS -----	69
Black Poplar -----	70
Loddon Lilly -----	72
Glow Worm -----	74
Stag Beetle -----	76
Bat Species -----	78
Water Vole -----	81
Black Redstart -----	85
House Sparrow -----	88
Sand Martin -----	90
Great Crested Newt -----	92
Slow Worm -----	94
APPENDIX V - SPECIES ACTION PLAN STATEMENTS -----	100

INTRODUCTION

The Reading Biodiversity Action Plan (BAP) sets out a methodology to protect, conserve and enhance Reading's diversity of wildlife.

To achieve this aim, the Reading BAP will

- Identify, conserve and/or enhance selected significant habitats and species within Reading Borough, or land controlled by the Council, and give appropriate protection to selected sites containing these species and habitats to ensure they are retained for the future.
- Monitor the effects of our actions and review them regularly. Reading will be seen to be leading by example by using 'best practice'.
- To inform and encourage involvement of all sections of the Reading community by raising awareness of the issues affecting biodiversity and developing partnerships for implementing the actions identified in the BAP.
- Develop a better understanding and knowledge of species and habitats within Reading and their distribution.

This first Reading BAP will contain actions which will run from 2005 - 2015, but it is envisaged that the BAP will be reviewed in 2011.

BACKGROUND

NATIONAL POLICY

In 1992, at the first Earth Summit in Rio de Janeiro, 150 countries, including the United Kingdom and the European Union, signed up to the Treaty to conserve global 'Biological Diversity'. All signatory governments were committed to producing action plans stating how they would conserve their most important vulnerable species and habitats, to contribute to the international conservation of diversity of life on Earth. In 1996 the British Government produced the initial national Biodiversity Action Plan (the UK-BAP). The actions in the UK-BAP are devolved down to local authorities, partner organisations and agencies. Each authority is expected to make its own Local BAP (L-BAP). The Government re-stated its continuing support for the Convention on Biological Diversity, at the Earth Summit on Sustainable Development in August 2002 in Johannesburg. In October 2002 the Government published "Working with the grain of nature - A biodiversity strategy for England" which aims to make biodiversity "mainstream" to everybody's activities.

The main objectives of the UK-BAP are:

- To conserve and enhance:
 - The overall populations and natural ranges of native species and the quality and range of wildlife habitats
 - Internationally important habitats and species
 - Habitats and species (natural and managed) that are characteristic of local areas
 - Natural and semi-natural areas that have declined in recent years
- To increase public awareness of, and involvement in, conserving biodiversity

- To contribute to the conservation of biodiversity on a European and global scale

REGIONAL ACTION: BIODIVERSITY ACTION PLANS IN BERKSHIRE

L-BAP's should consolidate current activities and provide goals for future action.

Reading, along with all the Unitary Authorities (UA's) in Berkshire and major environmental organisations are represented on the Berkshire Nature Conservation Forum (BNCF). The members of the BNCF have agreed to take forward action to conserve biodiversity by:

- Producing a framework for BAP production which has led to the production of 4 initial Habitat Action Plans (HAPs) (Heathland, Lowland Unimproved Grasslands, Standing Open Waters and Associated Habitats, and Rivers and Associated Floodplain Habitats). The possibility of producing a Woodland HAP covering Berkshire, Buckinghamshire and Oxfordshire is being considered.
- Sharing information on good practice to aid nature conservation.
- Sharing resources, where possible, to enable important BAP projects to take place
- Sharing ecological information and supporting countywide recording of ecological data with the UA's (in partnership with others) jointly contributing to the funding of the Thames Valley Environmental Records Centre.
- Regularly reporting progress on their BAP actions to the BNCF.
- Protecting and enhancing Wildlife Heritage Sites that have met the criteria approved by the BNCF for such sites.

READING L-BAP LINKS TO OTHER READING BOROUGH COUNCIL STRATEGIES

The L-BAP will contribute directly to delivering the Community Strategy: Reading 2020 - Making it Happen published in 2004. The Council's Cultural Strategy included a requirement to produce a BAP under its Environmental Sustainability theme. The specific actions within the BAP will provide a comprehensive context in which to implement the natural environment policies in the adopted Reading Borough Local Plan (due to be replaced by a new style Local Development Framework). Implementation of the Tree Strategy (in production), Open Spaces Strategy (in production), Thames Park Plan (in production), the Waterways Plan (1992 - to be revised) and the Lower Kennet Valley Management Plan (2003) will all contribute to achieving the aims of the L-BAP.

BIODIVERSITY IN READING

The underlying geology and soils, combined with the traditional land use management practices, and the prevailing climate, are all reflected in the current landscape and habitats. The patterning of landscape and habitats is repeated throughout the country and is used by English Nature (EN) to define 'Natural Areas'. Each Natural Area has a distinctive nature conservation character with associated issues and priorities. Focusing upon what is especially important about these Natural Areas is seen as a tool to advance Nature Conservation. Reading Borough falls into the two EN Natural Areas of the London Basin and the Chilterns.

London Basin Natural Area

Most of Reading lies on the north western edge of this large Natural Area. The London Basin Natural Area is characterised by being low lying land, created from old river terraces and glacial outwash of clays, gravels and sands. As with Reading, rivers cut through the Natural Area, bringing along different types of material and acting as corridors for wildlife. In the case of Reading, the London Basin features include the previously grazed flood meadows to the South and centre of the town, areas of mixed broadleaved woodland (now only remaining on the steeper ridges) and a few parkland trees and old hedgerows. The rivers include chalk streams rising from springs in the chalk to the West and are of themselves important riparian and wetland habitat.

Chiltern Natural Area

Caversham to the north of the River Thames and much of Tilehurst on the north western edge of the town lies within the Chilterns area. It is an area of chalk overlain with a glacial outwash of clays, gravels and sands. This acid - calcareous mix gives rise to the characteristically patchy distribution of chalk grassland and woodland habitats. Where farmed, the thin soils have been noted as especially suitable for various arable weeds, however many habitats are being degraded through changed agricultural practices. The geology of the area is also of significance to conserve. On the northern edges of Reading, grassland, agricultural and woodland features of the Chilterns are evident. The deeply cut river valley of the Thames to the west also retains significant wildlife sites. Potential exists to restore sites in the town within this Natural Area.

Reading, like so much of Berkshire and the South East of England in general, continues to experience considerable pressure for development of land within urban uses, in line with government policy to protect the wider countryside. Existing habitats, which have evolved on remnants of land that have not been developed, have become further fragmented and the population of many species has become more isolated. Despite this, there is a reasonable diversity of wildlife in Reading that continues to represent the characteristics of the Natural Areas, where it is found. Reflecting the relatively diverse landscape, quite a large variety of species can be found. However many are in very small populations and are in scattered locations across Reading.

READING'S BIODIVERSITY INHERITANCE

The very endangered and already rare species and habitats are given formal protection in law. However, it is important to recognise the significance of maintaining areas which may be less diverse and species which are currently more abundant elsewhere. 'Buffer zones' of land around, and suitable corridors linking, areas rich in diversity of species, are critical in conserving the potential for populations to expand and increase. As such, Reading Borough is important in holding a rich mosaic of land, rivers, water habitats and associated corridors for wildlife to use. Improving the quantity and location of these buffer zones and corridors will be reflected in increased diversity in the town as well as the surrounding areas. As Reading develops and changes in the future, incorporation of appropriately located buffer zones and corridors should create a more structured, linked and enhanced mosaic of habitats.

Many of the sites of the highest wildlife interest are owned by Reading Borough Council, although other significant sites are in private/institutional ownership. Many of these more diverse sites have already been designated as 'Wildlife Heritage Sites' (WHS) - the Berkshire equivalent of the national category of 'Site of Importance to Nature Conservation' (SINC). Two Local Nature Reserves (LNR) have been declared in recognition that these sites have a

valuable education role. A variety of other open spaces that are used by wildlife and are in public ownership in Reading include areas such as cemeteries, allotments and highway verges. There are opportunities to enhance some of these areas for wildlife.

A significant amount of land in Reading is privately owned in very small individual sites, such as houses and gardens. This highlights the contribution that individual landowners can make to improving wildlife habitat in their area. The Action Plans contain opportunities for community involvement, both as individuals and groups. Long-term sustainable achievement of the aims of L-BAP will depend largely on continued community participation.

Like most urban areas, large gardens and houses were a feature of some parts of Reading. Some of these gardens have become important as buffer zones and wildlife links as they are often relatively undisturbed and can contain large broadleaved and coniferous trees, old orchards, hedgerows and ponds, all of which represent good habitat for a wide variety of animals. Occasionally, these sites may contain older varieties and species of plants, some of which may be very characteristic of the local area (contributing to 'local distinctiveness') as well as being genetic stock that is being lost nationally. Genetic variety is one aspect of biodiversity. The conservation of local distinctiveness and biodiversity through retention of this genetic inheritance is an underlying element of the L-BAP.

VALUING THE URBAN/SUBURBAN HABITAT

Urban structures and materials form their own habitats that are exploited by specific plants and animals. Disturbed ground (following demolition) also supports a specific wildlife habitat. Relatively unused bits of ground can be havens for many species including some rare invertebrate species. Reading has a long history as an urban area, which has given an inheritance of a wide variety of building structure and material that can attract different species. Its large suburban periphery has become important to many species that are declining rapidly in city centres and rural areas. Even the more densely built up areas are able to support many species, particularly where terraces or rows of houses have gardens forming long linear habitats.

As Reading continues to undergo development, many habitats and species are being adversely affected both by the loss of land and older buildings, but also by the materials and form of land or building management afterwards. This is affecting both visiting and resident species. Whilst not seeking to halt redevelopment, the Action Plan sets out opportunities and proactive measures to protect and/or mitigate/re-provide the loss of important habitat.

MONITORING

While Reading Naturalists Trust hold records as do Reading Museum and the Thames Valley Record Centre, there is currently a significant lack of species distribution data upon which to base Action Plans. Data collection will therefore be an important task. Regular monitoring of species distribution and population size will allow a picture of the changes brought about by the action plans to be drawn. This will allow an analysis of what changes need to be made to the Action Plans in future reviews. It is anticipated that species information obtained will be held centrally at the new Thames Valley Environmental Records Centre. Encouraging collection and depositing of data is an important part of the awareness raising aspects of the L-BAP. It is hoped that all sections of the Reading community will be involved in collecting records and it is anticipated that certain activities will be designed to make this possible.

Where species are more difficult to identify, partnerships with specialist groups will need to be established.

The Reading L-BAP is a framework for action and it is important that it is constantly being reviewed and updated. To achieve this there will be: -

- Regular reporting of target achievements to the national Biodiversity Steering Group. (At present this national reporting is still in the pilot stage but should be fully up and running by the time of the next round of national reporting in 2005.)
- Regular reporting of progress on the L-BAP to The Berkshire Nature Conservation Forum and the Council's Environment Scrutiny Panel.
- A substantial review of the Reading L-BAP will take place every 5 years when it is anticipated that the species and habitats on the Long and Priority Lists will be amended together with the targets and actions proposed for them.

READING BOROUGH COUNCIL'S ROLE

Reading Borough Council recognises that it has an important role to play in terms of fostering biodiversity and is supportive of the actions needed to increase the presence of wildlife in the borough. However, although the Council has prepared the BAP, it should be recognised that the local authority is merely one of many organisations and individuals who have a role to play in maintaining and enhancing Reading's biodiversity and that the responsibility for delivering the BAP must be a shared one.

The following current and future actions by the Council will contribute to the achievement of the L-BAP:

- ◆ The Council is a partner in the new Thames Valley Environmental Records Centre. This Centre collates existing biological data and enables the co-ordinated acquisition of further data as needed for the protection and management of wildlife sites across the county.
- ◆ The Council carries out surveys of the Wildlife Heritage Sites in the Borough to validate their status at least every 10 years.
- ◆ A number of additional surveys will be required to provide baseline data and monitoring during the life of this Plan. As no existing funding is available, survey work will need to be undertaken in partnership with others, and be prioritised/phased.
- ◆ As survey information is collected, it will be possible to transfer and hold on the Council's Geographical Information System.
- ◆ As Local Planning Authority, the Council will continue to address biodiversity issues through the development control process.
- ◆ Policies to protect and enhance biodiversity will continue to be applied and will be included in the emerging local development framework, in line with national Planning Policy Guidance 9: Nature Conservation (PPG9). Relevant guidance to address the specific issues of biodiversity for land and property developers will be produced, where it is required.
- ◆ Biodiversity is one of several Quality of Life Indicators used to measure the delivery of the Community Strategy.
- ◆ The Council will strive to manage many of the sites of most significance for wildlife to the highest standards, as an example for private landowners. The Council intends to produce a series of management plans by 2012 for significant areas of open space. These will aim

to optimise the sites for their wildlife value whilst recognising their landscape, community and recreational use.

SELECTION CRITERIA IDENTIFYING WHICH SPECIES AND HABITATS TO INCLUDE IN THE READING BAP

A series of documents have been used to identify which species and habitats to include. The UK-BAP has a nationally relevant list of species and habitats. If a species or habitat is found locally and is in the UK-BAP it is important to consider whether it should be included in the L-BAP. The Local Wildlife Trust published a Berkshire Biodiversity Challenge in 1996 which put forward 100 target species for Berkshire Unitary Authorities and other land managers to consider. The Berkshire Nature Conservation Forum, of which Reading Borough Council is a member, has agreed several habitats and species that could be included in L-BAPs if they occur, or could occur, in the Unitary Authority area.

All of the species and habitats listed in the documents above have been assessed for inclusion in this L-BAP by applying the criteria listed in Box 1 and 2 below. This assessment has been used to produce a Long List of species and habitats. Further prioritised species have been selected out into a Priority List. (In some L-BAPs this may be termed a Short list).

Box 1: Criteria for Long List Species and Habitat Selection

For a species or habitat to be selected onto the Long List it should fulfil;

- At least one of criteria 1 or 2.
 - And also one or more of the criteria 3, 4 or 5.
1. The species or habitat is in the UK-BAP
And also one of:
 - (a) Locally present and population or habitat threatened
 - (b) Currently extinct locally but potential for species to spread to the Borough if habitats already present or restored
 - (c) Potential for habitats to be restored or extended
 - (d) Potential to conserve or increase populations by simple changes in habitat management
 2. The species or habitat is locally and regionally important
 3. Easy to identify and engage public interest for non-specialist monitoring
 4. Easy to obtain reliable monitoring data from specialists
 5. Good indicator species of habitat and ecosystem health

Box 2: Criteria for Long List Species and Habitat being included on the Priority List

Habitat and Species on the Long List can be included on the Priority List if;

- **there should be evidence of rapid, recent decline**
[For example, Water Voles have been found to have declined nationally by around 90% in the last 10 years.]
- **and / or if a species requires particular conservation actions, i.e. these species will not be adequately supported by actions to retain and enhance the identified habitats**
- **and/ or opportunities should occur to benefit from partnership working with neighbouring UA's BAP projects, or as part of national or regional organisations' BAP projects.**
[Examples of partnership working include; the Local Wildlife Trust (BBOWT) survey of Song Thrush distribution, the Peoples Trust for Endangered Species (PTES) national survey of Stag Beetles.]

REMOVAL FROM THE LONG LIST

Just as it is fundamental to have robust criteria for including a species or habitat, it is important to be clear about when they should be removed from the long list. It is suggested that this point occurs when;

1. **the Action Plan targets have been achieved or exceeded and the species population is considered to be out of danger of decline.**
[e.g. Water Voles would be removed from the list if healthy, sustaining populations of Water Voles were found along the length of the Kennet, Holy Brook and Berry Brook and land containing their required habitat was being appropriately managed and protected.]
2. **species or habitats no longer fitting the selection criteria**
[e.g. a species becomes extinct regionally and its required habitat no longer exists locally so there is no realistic potential for it to return to the local area]

PRIORITY LIST OF HABITATS AND SPECIES AND OTHER LONG LIST SPECIES

Using the criteria proposed above, priority lists of habitats and species has been drawn up. These are listed in Appendix I - Tables 1 and 2. Species on the long list not selected as a priority are listed in Appendix I - Table 3.

HABITAT ACTION PLANS (HAPs)

The Berkshire Nature Conservation Forum (BNCF) has produced countywide Habitat Action Plans. The Reading Habitat Action Plans will feed into these. Reading contains some very significant sites which contribute to the overall biodiversity of the county. The general actions to retain and enhance habitats that are outlined in the Berkshire Habitat Action Plans can be applied to sites in Reading and they will support the actions of neighbouring

Authorities to the benefit of all wildlife. The 'buffer zones' around sites have an important role in protecting these sites against damage. Restoring habitats to create more wildlife corridors or links opens up more land areas to populations of many species. It also enables more 'genetic mixing' (as individuals move and breed with neighbouring populations) which strengthens populations to tolerate changing environmental conditions. The potential of urban areas to support local wildlife should not be underestimated.

Table 1 provides the following information for each habitat on the Priority List;

- Occurrence in Reading as known at present
- Criteria fulfilled for selection
- Objectives proposed - short (0 - 3 years), medium (3 - 6 years) and long term aims(6 - 10 years)
- Species from the Long List that can be found in these habitats and hence may be affected by the Action Plans

All habitats on the long list have been selected as priority habitats as, in most cases, species identified in the Species Action Plan Long List will be affected by the Habitat Action Plan actions. Full Habitat Action Plans (Appendix III) have therefore been drawn up for the following habitats: -

- Urban
- Semi-natural Grassland
- Parkland and Veteran trees
- Broadleaved Woodland
- Ancient and/ or species rich Hedgerows
- Ponds(Standing Open Water)and Reedbeds
- Rivers and other waterways.

Each Action Plan includes the following information:

- Ecological Information
- Current Status at International, National, Regional and Local levels
- Factors causing loss or decline
- National and Local Plan objectives and targets
- Reading L-BAP objectives and targets
- Local Actions to be taken through this L-BAP

Because many of the actions proposed are common to each Action Plan these generic actions have been pulled together in Appendix II.

SPECIES ACTION PLANS (SAPs)

The species have been split into plants, invertebrates and vertebrates, with vertebrates being grouped into 'mammal', 'bird', and 'other'. Within this classification all are given in alphabetical order by English name. Using the criteria in Box 2, priority species have been identified from the long list.

Species Action Plan Priority List

Plants:

Black Poplar
Loddon Lily

Birds:

Black Redstart
House Sparrow
Sand Martin

Invertebrates:

Glow Worm
Stag Beetle

Reptiles and Amphibians:

Great Crested Newt
Slow Worm

Mammals:

Bats (all species found in Reading)
Water Vole

Other species on long list:

Plants:

Ragged Robin
Snake's Head Fritillary
Bluebell
Cowslip
Moschatel
Wild Service Tree

Birds:

Kingfisher
Nightingale
Skylark
Barn Owl
Bittern
Bullfinch
Hobby
House Martins
Kestrel
Lapwing
Little Ringed Plover
Linnet
Reed Bunting
Song Thrush
Snipe
Swift

Invertebrates:

Striped Lychnis
Buttoned Snout (a moth)
Heart Moth
Marbled White

Mammals:

Otter

Reptiles and Amphibians:

Grass Snake

Table 2 and 3 in Appendix I provide the following information for each species on the Priority and Long Lists;

- Occurrence in Reading as known at present

- Criteria fulfilled for selection
- Objectives proposed - short (0 - 3 years), medium (3 - 6 years) and long term aims(6 - 10 years)
- Habitats from the Long List where these species can be found and hence may be affected by the Action Plans

Species groups not yet considered in detail are noted at the bottom of the tables.

Each Full Species Action Plan (Appendix IV) includes the following information:

- Ecological Information
- Current Status at International, National, Regional and Local levels
- Factors causing loss or decline
- National and Local Plan objectives and targets
- Reading L-BAP objectives and targets
- Local Actions to be taken through this L-BAP

Because many of the actions proposed are common to each Action Plan these generic actions have been pulled together in Appendix II. Short statements have been written for all other species on the Long List which are included in Appendix V. Full Action Plans for these other species will be created when the L-BAP is reviewed.

Considering Further Species for Inclusion

Some species have been considered as both fitting the criteria for inclusion and being of interest locally. However, they have not been included in the Long List since many of the actions required to improve their survival are already included in relation to other species/habitats.

Other species for consideration in a subsequent review include:

- **Plants:**
 - ◆ Primrose (*Primula vulgaris*, found in grasslands, hedges and woods.)
 - ◆ Tower Mustard (*Arabis glabra* found at Woodley in crushed limestone car park area),
 - ◆ Marsh Marigold (*Caltha palustris*, found in marshy areas - only known at two sites in Reading.)
- **Invertebrates:**
 - ◆ Silver Washed Fritillary(*Argynnis paphia* UK-BAP species of conservation concern, but spreading noticeably in recent decades)
- **Mammals:**
 - ◆ Harvest Mouse (*Micromys minutus* possibly in national decline found at one grassland and bramble site in Reading)
- **Fish:**
 - ◆ Minnow (*Phoxinus phoxinus*, present in clearwater streams)
 - ◆ Stickleback (*Gasterosteus sp.*, present in clearwater streams)
 - ◆ Brook Lamprey (*Lampetra planeri*, in clearwater streams)
- **Birds:**
 - Spotted Flycatcher (*Muscicapa striata* nesting in Reading gardens and parks)
 - Turtle Dove (*Streptopelia turtur* found occasionally in Reading)
- **Lower Plants:** To be determined.

ABBREVIATIONS

BAP	Biodiversity Action Plan
BBOWT	Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
BNCF	Berkshire Nature Conservation Forum
BOG	Berkshire Organic Gardeners
BRAG	Berkshire Reptile and Amphibian Group
BTO	British Trust for Ornithology
CroW ACT	Countryside and Rights of Way Act
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EC	European Community
EN	English Nature
HAPs	Habitat Action Plans
L-BAP	Local Biodiversity Action Plan
LGA	Local Government Association
LNR	Local Nature Reserve
PPG	Policy Planning Guidance
PTES	Peoples Trust for Endangered Species
RSPB	Royal Society for the Protection of Birds
SAC	Special Area for Conservation
SAPs	Species Action Plans
SINC	Site of Importance for Nature Conservation
ssp.	Sub Species
SSSI	Site of Special Scientific Interest
SUDS	Sustainable Urban Drainage System
TABG	Theale Area Bird Group
TPO	Tree Preservation Order
TV-ERC	Thames Valley Environmental Records Centre
TW	Thames Water
UA's	Unitary Authorities in Berkshire
UK - BAP	National Biodiversity Action Plan
WHS	Wildlife Heritage Site

APPENDIX I

TABLES

Table 1: Priority List of Habitats

Habitat	Occurrence	Reasons for inclusion on long list	Objectives	Species on the long list occurring in this habitat (but not necessarily found at all sites).
<p>URBAN I: MAN-MADE SITES and STRUCTURES</p>	<p>Railway lines/embankments Old brick walls made using soft bricks Pipes in waterway walls for Sand Martins Brick and stone structures and memorials in cemeteries Buildings of all types for nesting of bats and certain birds. Contaminated and disturbed ground /rubble areas.</p>	<p>In UK-BAP, locally present and habitat threatened. Easy to restore/replicate habitats and to engage public interest in monitoring.</p> <p>On Priority list as shows rapid decline and opportunities for partnership working exist.</p>	<p>Short term: Protect and/or replicate habitats found to be used by rarer species of plants and animals. Require nesting provision for birds and bats as part of development. Medium term: Manage selected sites for optimum wildlife habitat. Developments should contain materials and designs that provide opportunities for use by identified BAP species. Long term: Maintain a mosaic of suitable sites, including ground, green and brown roof and wall sites.</p>	<p>Birds:</p> <ul style="list-style-type: none"> ▪ Black Redstart ▪ House Sparrow ▪ Linnet ▪ Kestrel ▪ House Martin ▪ Sand Martin ▪ Swift <p>Mammals:</p> <ul style="list-style-type: none"> ▪ Bats (Brown Long Ear, Common Pipistrelle, Soprano Pipistrelle, Natterer's) <p>Invertebrates:</p> <ul style="list-style-type: none"> ▪ Buttoned Snout (a moth)

Habitat	Occurrence	Reasons for inclusion on long list	Objectives	Species on the long list occurring in this habitat (but not necessarily found at all sites).
<p>URBAN II: GARDENS, PARKS and SIMILAR SITES</p>	<p>Larger/established private gardens and landscaped areas around buildings and highway. Amenity and recreation areas.</p>	<p>Significant potential to enhance habitats and involve community. Significant areas of land forming large scale mosaic and links across the borough.</p> <p>On Priority list as shows rapid decline and opportunities for partnership working exist.</p>	<p>Short term: Increase habitat creation though community engagement. Medium term: Widespread monitoring of species by individuals Long term: Occurrence of notable populations of identified bird, amphibian and insect species across the borough.</p>	<p>Plants:</p> <ul style="list-style-type: none"> ▪ Cowslip <p>Birds:</p> <ul style="list-style-type: none"> ▪ Bullfinch ▪ House Martins ▪ Kestrel ▪ Linnet ▪ Song Thrush ▪ Swift <p>Mammals:</p> <ul style="list-style-type: none"> ▪ Bats (Brown Long Ear Common Pipistrelle, Soprano Pipistrelle, Daubenton's, Noctule) <p>Amphibians/reptiles:</p> <ul style="list-style-type: none"> ▪ Grass snake ▪ Slow worm <p>Invertebrates:</p> <ul style="list-style-type: none"> ▪ Glow worm ▪ Stag Beetle ▪ Buttoned Snout (a moth) ▪ Striped Lychnis ▪ Marbled White
Habitat	Occurrence	Reasons for inclusion on long	Objectives	Species on the long list

		list		occurring in this habitat (but not necessarily found at all sites).
SEMI-NATURAL GRASSLAND (including water meadows)	Cemeteries/churchyards Golf courses Amenity and recreation areas Meadows/Water Meadows Verges	Important and vulnerable locally. Variety of soil types present. Potential to improve habitat quality on existing sites. On priority list as in continuing rapid decline	Short term: Protect and manage existing provision Medium/Long term: Enhance existing and if possible create new species rich grassland areas	Plants: Cowslip <ul style="list-style-type: none"> ▪ Ragged Robin ▪ Snake’s Head Fritillary Birds: <ul style="list-style-type: none"> ▪ Barn Owl ▪ Hobby ▪ House Martins ▪ Kestrel ▪ Lapwing ▪ Little Ring Plover ▪ Linnet ▪ Skylark ▪ Snipe ▪ Swift Mammals: <ul style="list-style-type: none"> ▪ Bats (Daubenton, Pipistrelles) ▪ Water Vole Amphibians/ Reptiles: <ul style="list-style-type: none"> ▪ Grass Snake ▪ Great crested Newt ▪ Slow Worm Invertebrates: <ul style="list-style-type: none"> ▪ Glow worm ▪ Buttoned Snout (moth) ▪ Striped Lychnis ▪ Marbled White
Habitat	Occurrence	Reasons for inclusion on long	Objectives	Species on the long list

		list		occurring in this habitat (but not necessarily found at all sites).
PARKLAND AND VETERAN TREES	Parks such as Caversham Park, Prospect Park, Coley Park and Whiteknights Park	Land and trees suitable for restoration present locally. Nationally and regionally important. On priority list as in rapid decline and very specific conservation actions are required.	Short term: Protect existing veteran trees Conservation of existing genetic stock of trees Medium term: Enhancement of habitat on remaining parkland sites Long term: Management plans in place, covering both trees and surrounding grassland.	Invertebrates: <ul style="list-style-type: none"> ▪ Heart Moth ▪ Stag beetle Mammals: <ul style="list-style-type: none"> ▪ Bats (Noctule, Natterer's, Pipistrelles, Brown Long Eared) Birds: <ul style="list-style-type: none"> ▪ Barn Owl ▪ Hobby ▪ Song Thrush
ANCIENT AND/ OR SPECIES-RICH HEDGEROWS	Isolated lengths of hedgerows exist in various localities, and typically border established areas of open space.	Highly significant in urban areas as rich habitat sites providing wildlife corridors and reserves of genetic stock. They also represent historic landscape features. Easy community involvement in their identification and management. On priority list as still in rapid decline.	Short term: Protect existing hedge lines. Medium term: Management plans in place to maintain, enhance and extend hedges. Long term: Create new species-rich hedging as buffer zones and links	Plants: <ul style="list-style-type: none"> ▪ Bluebell Invertebrates: <ul style="list-style-type: none"> ▪ Glow Worm ▪ Stag beetle Mammals: <ul style="list-style-type: none"> ▪ Bats (all) Birds: <ul style="list-style-type: none"> ▪ Bullfinch ▪ Hobby ▪ Kestrel ▪ Linnet ▪ Song Thrush Reptiles: <ul style="list-style-type: none"> ▪ Grass snake ▪ Slow Worm
Habitat	Occurrence	Reasons for inclusion on long list	Objectives	Species on the long list occurring in this habitat

				(but not necessarily found at all sites).
BROAD-LEAVED WOODLAND (including Ancient Semi-natural Woodland)	Much of Reading's woodland is owned by the Council or by major institutions. The woodlands are variable, reflecting local geology/soil conditions and are typified by the West Reading and the East Reading Wooded Ridgelines.	UK BAP habitat. Contain many notable species. Used for recreation and easy to involve the community in their care and monitoring. On priority list as important for BAP species such as Stag Beetles.	Short term: protect existing woodland areas Medium term: Management plans for principal public woods. Conservation of existing genetic stock of trees Long term: Maintain range and diversity of species and tree age structure Develop links and buffer zones to principal areas of woodland. Improve/restore species diversity in selected degraded woods.	Plants: <ul style="list-style-type: none"> ▪ Bluebell ▪ Moschatel ▪ Wild Service Tree Invertebrates: <ul style="list-style-type: none"> ▪ Glow worm ▪ Stag Beetle Mammals: <ul style="list-style-type: none"> ▪ Bats (Noctule, Natterer's, Pipistrelles, Brown Long Eared, Daubenton's) Birds: <ul style="list-style-type: none"> ▪ Bullfinch ▪ Hobby ▪ Nightingale ▪ Song Thrush Reptiles: <ul style="list-style-type: none"> ▪ Grass snake ▪ Slow worm
Habitat	Occurrence	Reasons for inclusion on long list	Objectives	Species on the long list occurring in this habitat (but not necessarily found at all sites).
PONDS	Public ponds, including those at	UK BAP habitats.	Short term: Seek to	Plants:

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<p>(STANDING OPEN WATER) and REEDBEDS</p>	<p>Caversham Park Village, Prospect Park, and Emmer Green. Some larger wildlife ponds in private ownership across the borough.</p> <p>Reedbeds at sites such as: - Coley Meadows Kings Meadow River Thames off Scours lane</p>	<p>Potential for significant community involvement. Potential to create, restore and extend habitat.</p> <p>On priority list as loss of quality sites is rapidly increasing</p>	<p>protect and maintain existing principal pond habitats.</p> <p>Medium term: Encourage retention & replacement of wildlife ponds. Expand existing patches of reedbed.</p> <p>Long term: Increase diversity and extent of habitats.</p>	<ul style="list-style-type: none"> ▪ Ragged Robin Mammals: <ul style="list-style-type: none"> ▪ Bats (all, especially Daubenton's) ▪ Water vole ▪ Otter Birds: <ul style="list-style-type: none"> ▪ House Martin ▪ Bittern ▪ Kingfisher ▪ Reed Bunting ▪ Sand Martin Reptiles/Amphibians: <ul style="list-style-type: none"> ▪ Great Crested Newt ▪ Grass snake
<p>RIVERS</p>	<p>Such as: - River Thames River Kennet and linked Kennet and Avon Canal Holy Brook Foudry Brook</p>	<p>The Thames and Kennet Valleys are a significant part of town's open space. These rivers represent significant features of the London Basin natural area landscape as well as containing a good diversity of species.</p> <p>On priority list as pollution and extraction as well as other factors are causing decline in biodiversity value.</p>	<p>Short term: Protect rivers and existing appropriate bankside vegetation</p> <p>Medium term: Enhance, maintain and protect habitats of surrounding drainage area</p> <p>Long term: Maintain water quality in Kennet and Holy Brook Improve water quality in Foudry and Berry Brook</p>	<p>Plants:</p> <ul style="list-style-type: none"> ▪ Ragged Robin ▪ Snake's Head Fritillary ▪ Loddon Lilly <p>Mammals:</p> <ul style="list-style-type: none"> ▪ Bats (all, especially Daubenton's) ▪ Water vole ▪ Otter <p>Birds:</p> <ul style="list-style-type: none"> ▪ Kingfisher ▪ Sand Martin <p>Reptiles:</p> <ul style="list-style-type: none"> ▪ Grass snake

Table 2: Priority List of Species [®]

Species (English and Latin names)	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that will aid this species
BLACK POPLAR <i>Populus nigra</i>	Waterways Meadows Hedgerows	Locally and regionally important Easy to restore distribution On priority list as not covered by any HAP	Introduce to suitable open space waterway sites	HAP: Ancient and/ or Species Rich Hedgerows Semi-natural grassland
LODDON LILY <i>Leucojum aestivum</i>	Wet ground alongside rivers esp. silty confluences	Locally and regionally important On priority list as not covered by any HAP	Protect and Maintain population size	HAP: Rivers
GLOW WORM <i>Lampyris noctiluca</i>	Grassland adjacent to woodland	Good indicator sp. of old grassland Locally present and habitat threatened Easy to gain community involvement On priority list as rapid and recent decline	Maintain population distribution Survey to discover distribution	HAP: Urban II Semi-natural Grassland Broad Leaved Woodland
STAG BEETLE <i>Lucanus cervus</i>	Tree stumps and undisturbed damp deadwood	On UK-BAP Declining nationally Regionally important Easy community involvement On priority list as partnership projects exist nationally	Maintain population distribution Survey to establish distribution	HAP: Urban II Parkland and Veteran Trees Ancient and Species Rich Hedgerows Broadleaved Woodland
Species	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that

(English and Latin names)				will aid this species
<p>BATS:</p> <p>PIPISTRELLE (Common and Soprano), NOCTULE, DAUBENTON'S SEROTINE BROWN LONG EARED NATTERER'S</p>	<p>Widespread, as bats need continuous corridors of suitable vegetation between roosts sites and feeding sites. Habitat requirements vary according to species:</p> <p>PIPISTRELLE species: feeding along uncut hedges, ponds, waterway edges. Roosting in modern and old buildings: sporadic records across whole town</p> <p>NOCTULE: feeding over trees. Roosting in trees</p> <p>DAUBENTON's: feeding over open water. Roosting in trees</p> <p>SEROTINE: not known</p> <p>BROWN LONG EARED: feeding in woodland. Roosting in large open house roofs</p> <p>NATTERER'S: feeding in woodland.</p>	<p>Pipistrelles are in UK-BAP Declining nationally, easy to monitor, good indicators of habitat health and breaks in corridors</p> <p>On priority list as continued decline in many species. Many conservation needs are not covered by the habitat enhancements</p>	<p>Protect/re-provide roost sites. Increase foraging habitat. Undertake surveys, especially of more specialist species.</p>	<p>HAP: Urban I Urban II Semi-natural grassland Parkland and Veteran Trees Ancient and species rich hedgerows Broad leaved woodland Ponds and Reedbeds Rivers</p>
Species (English and	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that will aid this species

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Latin names)				
WATER VOLE <i>Arvicola terrestris</i>	Rivers, canals, Ditches with undisturbed soft banks. Needs suitable bankside vegetation for feeding year round	In UK-BAP Declining nationally, Locally important On priority list as severe recent declines and local partnership projects exist	Maintain/enhance network of suitable habitat along Reading's waterways	HAP: Semi-natural grassland Rivers Ponds and Reedbeds
BLACK REDSTART <i>Phoenicurus ochruros</i>	Old un-inhabited buildings/ structures e.g. dumped cars, pipes etc. for nesting. Mudflats and sparsely vegetated scree for feeding (flies).	Rare and locally present Easy to monitor with specialists On priority list as conservation needs very specific and habitats under immediate threat	Increase breeding population numbers across town.	HAP: Urban I
HOUSE SPARROW <i>Passer domesticus</i>	Parks, gardens and buildings in town.	Severe national decline for causes as yet unclear On priority list as rapid and recent decline	Increase population size	HAP: Urban I Urban II Parkland Hedgerows
SAND MARTIN <i>Riparia riparia</i>	Insect rich meadows and watercourses for feeding 2m high exposed (but safe) sandy riverbanks or riverside walls with old drainpipes for nesting	Locally important Easy community involvement Easy habitat (nesting) improvements On priority list as specific habitat needs outside those listed	Increased breeding pairs	HAP: Urban I Rivers Semi-natural grassland
GREAT CRESTED NEWT <i>Triturus cristatus</i>	Temporary ponds and wet grassland areas	On UK-BAP Nationally important Habitats threatened On priority list as conservation needs very specific and habitats under immediate threat	Ascertain population presence and maintain	HAP: Urban II Semi-natural grassland Ponds and Reedbeds
Species (English and	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that will aid this species

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Latin names)				
<p>SLOW WORM <i>Anguis fragilis</i></p>	<p>Borough-wide in older gardens, allotments and woodland</p>	<p>Locally important and adversely affected by development. Easy identification and potential for community involvement.</p>	<p>Ascertain population presence and identify suitable habitats.</p>	<p>HAP: Urban II Semi-natural grassland Broadleaved Woodlands</p>

Table 3: Other Long List Species[®]

Species (English and Latin names)	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that will aid this species
BLUEBELL <i>Hyacinthoides non-scriptus</i>	Ancient woodland Secondary woodland Old hedgerows	Nationally important and locally a stronghold Easy community involvement.	Increase distribution, including introduction to new woodland and hedgerow sites. Eliminate introduced species from ancient woodland sites.	HAP: Ancient and/ or Species Rich Hedgerows Broadleaved Woodland
COWSLIP <i>Primula veris</i>	Chalk grassland	Locally important Easy identification	Increase population size and distribution.	HAP: Urban II Semi-natural grassland
MOSCHATEL <i>Adoxa moschatellina</i>	Ancient woodland	Indicator of appropriate ancient woodland management. Very poor distribution	Protect and maintain population size and distribution.	HAP: Broadleaved woodland
RAGGED ROBIN <i>Lychnis flos-cuculi</i>	Wet ditches Meadows	Locally important and declining Easy to restore distribution with habitat management Easy identification	Increase population distribution and size.	HAP: Semi-natural grassland Ponds and Reedbeds Rivers
SNAKE'S HEAD FRITILLARY <i>Fritillaria meleagris</i>	Flood meadows	Nationally important Potential to improve distribution with habitat management changes	Increase population size and distribution.	HAP: Semi-natural grassland Ponds and Reedbeds Rivers
Species	Occurrence	Reasons for inclusion	Objectives	Habitat Action Plans that will aid

(English and Latin names)		on long list		this species
WILD SERVICE-TREE <i>Sorbus torminalis</i>	Ancient woodland and Ancient Woodland	Strongly associated with Ancient Woodland. Regeneration by seed is poor in Reading.	Establish propagation needs. Increase population size and distribution.	HAP: Broad Leaved Woodland
BUTTONED SNOUT <i>Hypena rostralis</i>	River valleys, hibernating in undisturbed outbuildings. Larvae feed on hops (<i>Humulus lupulus</i>).	In UK-BAP Nationally scarce Locally present	Maintain suitable habitat for full life cycle Protect sites	HAP: Urban I Urban II Ancient and species rich hedgerows
HEART MOTH <i>Dicyla oo</i>	Old Oak parkland trees	In UK-BAP Potential to provide suitable habitat for spread to area	Survey to discover distribution Maintain suitable habitat Protect sites	HAP: Parkland and Veteran Trees
MARbled WHITE <i>Melanargia galathea</i>	Dry grassland	Good habitat indicator species. Locally and regionally important Easily identified	Survey to discover distribution Increase population distribution	HAP: Semi-natural grassland
STRIPED LYCHNIS <i>Cucillia lychnitis</i>	Limestone grassland in sunny sites	On UK-BAP Nationally scarce. Easy habitat reversal	Increase population distribution Survey to establish distribution	HAP: Urban II Semi-natural Grassland
OTTER <i>Lutra lutra</i>	Unpolluted, undisturbed streams with overhung banks	In UK-BAP Vulnerable populations present in the region with potential to improve habitat and enable spread	Network of suitable habitat along Reading's waterways and resting sites in all other stretches	HAP: Semi-natural grassland Rivers

Species (English and Latin names)	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that will aid this species
BARN OWL <i>Tyto alba</i>	Meadowland Long grassland	Declining populations. In BBOWT challenge list. Occasional sightings. Good indicator species. Easy identification.	Increase area of suitable feeding habitat	HAP: Semi-natural grassland
BITTERN <i>Botarus stellaris</i>	Reed beds: above 20ha area to breed in	Populations using sites close by could extend into area if habitat provided. Good data from specialists	Annual sightings of Bitterns in borough	HAP: Ponds and Reedbeds
BULL FINCH <i>Pyrrhula pyrrhula</i>	Hedgerows Thorn scrub	Easy Identification and community involvement In UK- BAP National recent decline	Increased population	HAP: Urban II Ancient and species rich hedgerows Broad leaved woodlands
HOUSE MARTINS <i>Delichon urbica</i>	Nesting in over-hanging high roofs, feeding over open ground	Severe decline locally following nesting habitat loss	Increased number of available nesting sites	HAP: Urban I Urban II Semi-natural grassland
KESTREL <i>Falco tinnunculus</i>	Borough-wide along verges and over parks and meadows	Good food chain indicator. Easy identification and community involvement	Increased population	HAP: Semi-natural grassland

Species (English and Latin names)	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that will aid this species
KINGFISHER <i>Alcedo atthis</i>	Unpolluted rivers and banks with soft material exposed for nest holes.	In BBOWT challenge list Popular with public Indicators of good habitat management	Increase population size and distribution	HAP: Rivers
LAPWING <i>Vanellus vanellus</i>	Open meadows	Indicators of good habitat management Easy identification and community involvement	Increase population numbers and distribution	HAP: Semi-natural grassland
LINNET <i>Carduela cannabina</i>	Open longish grassland rough / disturbed ground	Locally present UK-BAP Plenty of potential for habitat improvements borough wide	Increase population size and distribution	HAP: Semi-natural grassland
LITTLE RING PLOVER <i>Charadrius dubius</i>	Sand and gravel workings Stony shallow water sites	Nationally important and declining In BBOWT challenge list	Increased population	HAP: Semi-natural grassland Ponds and Reedbeds
NIGHTINGALE <i>Luscinia megarhynchos</i>	Dense shrub and bramble thickets or woodlands with dense cover	Locally important and nationally declining Indicators of good habitat management Good community involvement possible	Increase population size and distribution	HAP: Broad leaved woodland

Species (English and Latin names)	Occurrence	Reasons for inclusion on long list	Objectives	Habitat Action Plans that will aid this species
REED BUNTING <i>Emberiza schoeniclus</i>	Farmland near water (wet ditches and hedges) Reedbeds Suburban gardens Wet grassland.	On UK-BAP Good foodchain indicator	Increased population	HAP: Urban II Semi-natural grassland Ancient and species rich hedgerows Ponds and Reedbeds
SKYLARK <i>Alluada arvensis</i>	Open, largely undisturbed fields.	On UK-BAP Declining populations nationally. Popular with public	Increase breeding population size and general distribution	HAP: Urban I (noted on green roofs) Semi-natural grassland
SNIPE <i>Gallinago gallinago</i>	Wet meadows and ditches Reedbeds	Regionally important On BBOWT challenge list Good data from specialists	Increased sightings	HAP: Semi-natural grassland Ponds and Reedbeds
SONG THRUSH <i>Turdus philomelos</i>	Borough-wide gardens and parks with tall trees, mixed vegetation and hedges	Declining populations Popular with public	Increase population size	HAP: Urban II Parkland and veteran trees Ancient and species rich hedgerows Broad leaved woodland
SWIFT <i>Apus apus</i>	Open buildings with internal ledges	Easy community involvement Locally important	Increased number of available nesting sites	HAP: Urban I Urban II Semi-natural grassland
GRASS SNAKE <i>Natrix natrix</i>	Undisturbed gardens with large composting areas Woodlands Old grasslands	Locally important Easy community involvement	Maintain population distribution	HAP: Urban II Semi-natural grassland Ponds and Reedbeds

⊗ NB no lower plants (mosses, liverworts, and ferns), fungi or lichens; fish or many other groups of other invertebrates (e.g. dragonflies) have been identified for inclusion as yet.

APPENDIX II

GENERIC ACTIONS COMMON TO MOST HABITAT AND SPECIES ACTION PLANS

GENERIC ACTIONS COMMON TO MOST HABITAT AND SPECIES ACTION PLANS

Action	Internal sections	External partners	Time Scale	Action to date
Undertake surveys and encourage collection of information by others to help establish and monitor distribution of BAP species across Reading	Sustainability Unit (SU) Parks Streetcare Planning	Conservation and Specialist groups Community groups TV-ERC Econet	2008 - 2011 On-going	Support TV-ERC. FOMPF actively recording all species at Mapledurham
Collate information from surveys and other sources, recording distribution, condition and makeup of target habitats	Parks Planning Streetcare	Conservation and Specialist groups Community groups TV-ERC Econet	2008 - 2011 On-going	Support TV-ERC. Development of landscape record / register system in Parks
Require ecological surveys to establish biodiversity of any BAP habitats where they may be affected by a proposed development.	Planning	Developers TV-ERC	On-going	Routinely required.
Where appropriate designate as (Wildlife Heritage Site, areas of habitat that fit within the appropriate criteria. Monitor and amend designations, as appropriate.	Planning Parks	TV-ERC Berkshire Nature Conservation Forum (BNCF)	On-going	Rolling review programme.
Develop management plans reflecting best practice, for significant areas of public open space and significant sites and encourage	Land managers	Conservation groups TV-ERC Community Groups BBOWT Bird Groups EA	2005 - 2008 On-going	

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production for those in private ownership.				
Provide management advice on wildlife heritage sites to raise awareness of the conservation value of these areas.	Planning Parks	TV-ERC	2008 - 2011	Warren Woodland residents given advice and help in raising funds to manage these woods. Management Plans produced for several habitat/woodland areas within private ownership.
Require the implications of the BAP to be considered in appropriate plans and strategies.	SU All services	Major land owners	2005 - 2008 On-going	
Erect bird and bat boxes in areas of existing potential nesting/roosting sites and where population is low.	Land Managers	Bird/Bat groups Residents associations Conservation groups Developers	On-going	Bird and bat boxes present in some sites
Seek habitat protection and/or enhancements and/or re-provision through development process.	Planning	Developers	2005 - 2008 On-going	Numerous schemes including planning conditions imposed relating to Black Redstarts and Sand Martins habitats.
Use local or lowland England provenance native stock where practical in new wildlife habitat planting schemes in public sites and as part of new developments	Land Managers	Developers	On-going	New habitats in parks have used local stock
In order to promote interest and good practice, produce	SU Parks Streetcare	Community groups Conservation	2005 - 2008 On-	Clayfield Copse interpretation board and leaflet

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<p>interpretation material about selected sites and habitats/species. Promote biodiversity through links with school curriculum.</p>	<p>Planning Education Schools</p>	<p>groups Developers</p>	<p>going</p>	
<p>Provide guidance and encouragement to householders, landowners and developers on:- *Minimising pesticide use, *Using peat free composts *Creating wildlife gardens and ponds, *Not buying or selling invasive non-native species *Encouraging the planting and management of native species *Protecting and creating habitats, nesting and resting areas for Bats and other protected species *Black Redstart habitat/nesting needs, along with the needs of other BAP species</p>	<p>SU Parks Planning Trading Standards Building Control Streetcare Housing</p>	<p>Community Groups Conservation groups BOG EA EN Businesses Developers</p>	<p>2005 - 2008 On- going</p>	

APPENDIX III

HABITAT ACTION PLANS

URBAN I HABITAT ACTION PLAN - man made sites and structures

ECOLOGICAL INFORMATION

In a way, almost all of the Borough could be viewed as a single 'Urban habitat'. In the UK-BAP, the Urban Habitat statement splits urban habitat into 4 categories:

1. Remnants of ancient natural systems such as woodlands and wetlands.
2. Remnants of managed systems such as arable fields.
3. Managed green-spaces such as parks, gardens, shrubberies etc.
4. Naturally seeded urban areas or industrial sites such as car parks, railway lines etc.

In the Reading BAP, categories 1 and 2 are dealt with under their respective habitats. 3 and 4 are felt to be particularly important in the Reading context so these two sections have been treated as separate habitats.

Features of, and examples of species using, these habitats include:

- 'Wasteland' - land covered in crushed concrete, bricks etc often following demolition of buildings, or land covered in natural minerals such as crushed limestone (e.g. disused railway lines). Usually these areas are un-disturbed between incidents when the site is completely stripped of vegetation hence restarting the succession of vegetation again. Various species of uncommon bees, wasps, flies, and sawflies are a feature of these habitats. Annual and biennial flowering plants and some lichens are also notable. All of these species attract seed and insect feeding Long List birds such as Linnets and Black Redstarts.
- Soft rock and old brick walls are used by mineral wasps and some bees and occasionally by plants (e.g. Caversham Court stable block and other walls in the gardens, Forbury walls and Reading Cemetery walls)
- In buildings, the eaves, areas under tiles or felt, cavity walls, ledges and crossbeams, cracks in wood structures or the open areas of lofts all offer nesting and roosting sites for birds or bats. Some notable examples are: House Sparrows in cavities of buildings, Swallows on beams, Natterer's Bats in wood beam crevices especially in old barns, Pipistrelle bats behind fascia boards or in soffits, Brown Long eared bats in open roof spaces especially in older houses.
- Porous rock surfaces, such as headstones and older stone buildings, support mosses, lichens and some flowering plants.
- Wet walls of open drains and ditches and pipes in the walls along canals (e.g. canal side walls along Queens and Orts roads and at Heron Island). The pipes are used by Sand Martins for nest sites. Ferns, mosses and liverworts etc also grow on the walls.

The mosaic of small areas of habitat mixed within sites, provides foraging, shelter and breeding areas for many rarer species of invertebrates and other animals. It is necessary for this matrix of habitats to exist as a mosaic throughout the urban area for populations of these species to continue to survive. Linking corridors between sites can be valuable in enabling some species to travel between habitats, though the complexity of the habitat is the most important feature for species diversity¹.

CURRENT STATUS

The 'very urban' habitat is generally not given any protection. In some areas unusual communities of organisms have developed on historic sites (such as heavy metal tolerant subspecies of grasses on old mineral workings) and this has led to protection being notified in a national context.

- **NATIONAL and INTERNATIONAL**

Very occasionally the presence of a notable species will have led to an area being notified as an SSSI.

- **REGIONAL and LOCAL**

At the local level the additional value of an area for recreation and education may encourage an authority to declare a site as a Local Nature Reserve (LNR). Wokingham District has given specific protection to a car park in Woodley as it is the only local site of the rare Tower Mustard (*Arabis glabra*). Some churchyards locally are noted, and given status, for their wildlife including lichens on the gravestones. In Reading, Caversham and Reading Cemeteries have been given Wildlife Heritage Site status on account of their local wildlife value.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Changed industrial practices resulting in the reduction in the amount of spoil produced and the amount of ground being regularly disturbed.
- ◆ Lack of information on the current ecological value of sites as they have not always been viewed positively by the conservation sector and they have a poor image with the general public as potentially sites where anti-social activity can take place.
- ◆ Brownfield development as supported by the government's current policy²
- ◆ Air pollution
- ◆ Intensified management ('regeneration' or tidying up) of existing sites often removing natural vegetation growth and replacing with imported topsoil and ornamental planting
- ◆ Intensified cleaning of hard surfaces, and the use of chemicals, killing both plants and animals in the habitat

NATIONAL PLAN OBJECTIVES AND TARGETS

In the UK-BAP Urban HAP Statement, the conservation direction is to maintain the existing diversity and extent of wildlife, expanding the range and distribution of both rare and common species. Educational use of the sites is also highlighted.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

London's Biodiversity Strategy includes Wasteland habitat where the primary objective is to undertake awareness raising on the tremendous value of wasteland to wildlife, and the maintenance of a continuous supply of suitable land for colonisation by wasteland species. They anticipate that some of this habitat will be supplied as Green/Brown Roofs. Windsor and Maidenhead Borough include this habitat in general terms within their L-BAP specifically noting where it is significant for rare hymenoptera. Wokingham District's Urban HAP does not take specific note of these 'very urban' habitats though it does target Churchyards and in the

Bats SAP, provision for roosts in new buildings is recommended. Conservation of suitable ground for Tower Mustard is also covered in the Action Plan for this plant.

READING OBJECTIVES and TARGETS

Reading can boast many complex urban habitats suited and used by many species, and it is appropriate that it should lead the way in championing this habitat provision as an integral part of its development to become a Green City of the future. Reading should therefore seek to maintain a mosaic of suitable habitats, supplemented with additional roof (green and brown roofs) and wall sites.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical Requirements	Time Scale	Action to date
Promote retention/re-provision/enhancement of habitats found to be used by rarer species of plants and animals.	Planning Land Managers	Developers	Variety of nesting structures and materials.	2008 - 2011	Sand Martin nesting pipes installed in bank of River Kennet near Blake's Lock.
Seek to secure additional provision of habitats. e.g. Green and Brown roofs.	Planning	Developers	As above.	2011 - 2015	Brown roof required for Black Redstarts in town centre

LINK Species Action Plans

Birds:

- Black Redstart
- Linnet
- Sand Martin

Invertebrates:

- Buttoned Snout (a moth)
- Striped Lychnis (a moth)

Mammals:

- Bats

URBAN II HABITAT ACTION PLAN - gardens, parks and similar sites

ECOLOGICAL INFORMATION

Private gardens and parks account for the largest single habitat in terms of land area in Reading. The habitat obviously varies quite considerably from garden to garden. Private gardens often link up to create larger areas of often very diverse habitats such as include mature deciduous and evergreen trees and shrubs, ponds, hedges, open grassland, compost heaps and orchards.

There is enormous potential to increase and enhance these private garden habitats through the actions of individual householders, with easily observed results in the numbers of birds, dragonflies, butterflies and other animals visiting these areas.

Similarly, planted areas around business premises, and other buildings can easily be enhanced. Staff can get involved in monitoring the wildlife, and the organisations can benefit from advice, awards and recognition from various organisations. Presence of wildlife around offices has been found to reduce stress and around hospitals to reduce recovery times from illnesses³.

Changes to the management of public parks, highway verges and communal areas in housing estates can also increase biodiversity, and can also involve the local community both in the management of the habitat and in the monitoring of the wildlife present. Currently, extensive areas of regularly mown, amenity grassland cover many of these sites. These areas are often used by badgers searching for earthworms and by some species of birds (including Linnets, Redwings, Song Thrush, Green Woodpeckers) for food including earthworms, other invertebrates and seeds etc. The grass itself is eaten by some water birds including swans and geese, and these may be present in large numbers in some riverside parks. Mowing some areas of grass only once a year would increase the physical diversity of these sites and lead to a corresponding increase in biodiversity.

Mature trees in parks and other sites provide nesting sites for birds (e.g. Song Thrushes) and dead branches may be used by woodpeckers for feeding while any holes may be used as roost sites by bats. Frequently these branches or whole trees have to be removed in the interests of public safety. Some tree species, but especially native species such as oak, willow, ash, and Field Maple, may support large numbers of invertebrates, which in turn are food to many birds. Ornamental, non-native species support fewer species though evergreens may be valuable as protective nesting and roosting sites. Where possible, deadwood should be left in piles to rot, thereby providing a home to many species of invertebrate and indirectly adding to the food supply for badgers, bats and birds.

Old orchards may contain rarer varieties of fruit and the grassland beneath is usually unimproved. Individual trees may be very old (over 100 years) and are effectively veteran, or may have been regularly re-grafted onto younger stock. Hence these sites can be important for their genetic and historic heritage⁴. These orchards are often no longer managed for harvesting fruit. The low disturbance and diverse mix of woody and herbaceous habitat suits a wide range of lichens, invertebrates, birds and mammals.

Cemeteries can provide relatively undisturbed open spaces, with a mix of grassland habitat and trees and shrubs. If the cemetery is quite old, the grassland over the graves may have been unimproved (with fertilisers or animal manures) for a century or more and may have

originally been open pasture so can contain a diverse mix of grasses and wildflowers. Rural graveyards are sometimes still grazed but urban ones are generally not. Opportunities exist for wildlife habitats to be incorporated into new cemetery areas as they will usually remain open spaces for many years. The many different rocks used as gravestones provide a variety of substrates for lichens and mosses (this habitat is covered in the Urban I Habitat Action Plan).

CURRENT STATUS

Some Historic Parks and Gardens have legal protection to preserve their heritage. Allotments are often protected under specific Allotment laws. However this is to conserve access to sites for the growing of food not for conserving wildlife.

- **NATIONAL and INTERNATIONAL**

Because their location is often at the edge of parishes, allotments may have historic boundary features such as Ancient Hedgerows, which are protected under the Hedgerow Regulations 1997⁴ and protected species (such as bats, snakes, and badgers) can often be associated with the site.

- **REGIONAL and LOCAL**

As the region is becoming more densely urbanised, these smaller urban green sites are becoming more significant for wildlife. Some cemeteries have been given formal protection, as Local Nature Reserves or similar status, as significant sites for both wildlife and history, e.g. Highgate Cemetery in London⁵.

Several parks within Berkshire are identified as Local Nature Reserves and/or Wildlife Heritage Sites. Caversham Cemetery and Reading Cemetery have Wildlife Heritage Site status, principally in recognition of their diverse grassland species. (Reading Cemetery also has national Conservation status as an important 'Park or Garden of special Historic interest'). Many trees at Reading Crematorium support large growths of mistletoe (*Viscum album*), a plant in decline in most parts of Britain⁷.

A portion of Waterloo Meadows Allotments has been set aside as a temporary wildlife area to provide a habitat for Nightingales and Harvest Mice.

Trees that have significance for their historic or landscape value can be given some protection under Tree Preservation Orders (TPOs). However, many tree species (such as fruit trees) and over mature trees, which would provide significant habitat for invertebrates, lichens, mosses and other animals, cannot be covered by TPOs. The TPO only protects the tree, not the surrounding ground, so no protection is given to the wildlife using the integral ground based habitat.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Current fashions for installing low maintenance gardens which include exotic species of plants and large areas of hard landscaping.
- ◆ Machinery changes and economies of scale encouraging use of planting in parks and other areas that survives lower maintenance and use of larger machines, hence reducing habitat diversity in public sites. Horticultural suppliers producing plants with less genetic diversity and supplying less species of plants to the market.
- ◆ Use of pesticides and herbicides.
- ◆ Infill development that removing existing vegetation and other features and creation of much smaller gardens per household that are then under much more intensive use.
- ◆ Fear of claims for damage caused by trees and their roots, or hazards posed by water, stones, thorny or poisonous plants etc. leading to removal of vegetation and features such as ponds, thorn hedging, berry producing shrubs, standing deadwood, rockeries etc.

NATIONAL PLAN OBJECTIVES AND TARGETS

While gardens are mentioned in the UK-BAP Habitat Action Plan (see 'ecological description' of Urban I), they are not given much coverage in the Urban HAP Statement and no full action plan has been drawn up yet.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Most authorities recognise the importance of gardens to conservation of wildlife in urban areas. Wokingham District and Windsor and Maidenhead have noted private gardens, allotments, parks and cemeteries within their Urban Habitat Action Plan. Targets are generally to raise awareness amongst residents and encourage active habitat changes to gardens. Targets also include surveys of wildlife and reviews of management practices in public sites.

READING OBJECTIVES and TARGETS

The long term objective for Reading is to have monitoring records indicating that, stable or increasing populations of selected indicator species of birds, mammals and invertebrates, are consistently found right across the borough. The suggested indicator species are:

- Starling
- House Sparrow
- Song Thrush
- Common Pipistrelle bat
- Small Tortoiseshell butterfly
- Bumble Bee (nests of all species)

See Generic Actions (Appendix I) for monitoring required

LOCAL ACTIONS

Action	Internal sections	External partners	Typical Requirements	Time Scale	Action to date
Run a Gardener's Wildlife Challenge for individual householders to promote awareness of the wildlife value of gardens	Sustainability Unit	BBOWT	£1500	2011 - 2015	
Establish and enhance wildlife habitats (native hedges, areas of deadwood, wildflower grassland, bird/bat boxes, bumble bee 'banks', etc.) into closed and current cemeteries, allotments, parks, road verges and other public open spaces	Land Managers	Community groups Allotment holders Conservation groups	Materials. Changed grass cutting machinery over time	2005 - 2008 On-going	Reading, Caversham, and part of St Peters Cemeteries are cut and cleared late summer. Mixed native hedge planted at Reading Crematorium. Mixed wildflower grassland used at Crematorium. Mixed native hedges at several sites.
Encourage provision for wildlife by allotment holders	Parks	Allotment Holders Community Groups TV-ERC	Leaflet, Encourage reporting of what seen.	2005 - 2008	
Encourage organic practices and composting in allotments	Parks	BOG	Leaflet to new plot holders	2008 - 2011	
Minimise use of peat in relation to bedding plants, trees etc.	Land Managers	BOG	Initially small increased costs of plants. Posters	2005 - 2008	Raw peat no longer used in parks as soil conditioner
Encourage composting and use of green waste schemes.	Streetcare Land Managers	Community groups	Leaflet	2005 - 2008	Green Waste scheme set up and in use.

LINK Species Action Plans

Plants:

- Cowslip

Birds:

- Bullfinch
- House Martins
- Kestrel
- Linnet
- Song Thrush
- Swift

Mammals:

- Bats (Brown Long Ear, Common Pipistrelle, Daubenton's, Soprano Pipistrelle, Noctule,

Amphibians/ reptiles:

- Grass snake
- Slow worm

Invertebrates:

- Glow worm
- Stag Beetle
- Buttoned Snout (a moth)
- Striped Lychnis (a moth)
- Marbled White (a butterfly)

SEMI-NATURAL GRASSLANDS HABITAT ACTION PLAN

ECOLOGICAL INFORMATION

Semi-natural grasslands are botanically rich grasslands supporting a wide range of plants and animals. Lowland acid semi - natural grasslands are now rare and provide a reservoir of rare species.

Neutral semi-natural grasslands are managed mainly as traditional hay-meadows or pastures and are colourful because they contain a high proportion of broad leaved herbaceous species relative to grasses. Some characteristic species, such as green-winged orchid *Orchis morio*, snakes head fritillary *Fritillaria meleagris* and adders tongue fern *Ophioglossum vulgatum* are now scarce. Most neutral meadows survive in a landscape of hedges and small woods, or in the distinctive upland landscape of stone walls and moorland of northern England.

The calcareous semi natural grasslands are developed on shallow lime-rich soils most often derived from chalk and limestone rocks. They are widely distributed from the south Devon coast to Shetland. These grasslands contain an exceptional diversity of rare plants, but are particularly characterised by a series of widespread grassland plants, which are mainly restricted to lime rich soils. Scrub is prominent feature of many sites. In the absence of grazing scrub can spread to replace grasslands, with a negative effect upon the conservation value of the site.

CURRENT STATUS

- **NATIONAL and INTERNATIONAL**

The vast majority of the grassland found on farms in the UK is now species poor "improved" grassland which has been modified by extensive fertiliser use and reseeded. Unimproved (species rich) neutral grasslands that have escaped agricultural improvement or development now represent an important and scarce resource. Around 97% of unimproved grasslands were lost in England & Wales between 1930 and 1984. Those remaining have very high conservation value in terms of contribution to overall biodiversity but also have significant aesthetic, historic and recreational value

Dry semi-natural grasslands, which were once widespread in Europe, are now a scarce and threatened habitat. Chalk grasslands and lowland hay meadows are listed in Annex 1 of the Habitats Directive as natural habitat types of Community interest whose conservation requires the designation of Special Areas of Conservation.

- **REGIONAL and LOCAL**

Current estimates for Berkshire show that there is less than 500 hectares of semi-natural grassland remaining. Most of this area is retained in small fragmented sites. A survey of 29 chalk grassland sites in 1985 found that 79% were less than 10 hectares in size and no site was larger than 40 hectares. All neighbouring L-BAPs have included grasslands as action habitats. No SACs or SSSIs for grassland have been designated in Reading although it still retains significant areas that could be enhanced such as Kennet Meadows.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Agricultural improvement including reseeded, drainage, application of herbicides and fertilisers as well as conversion to arable have all been responsible for destroying unimproved grasslands. The change from hay cutting to silage has also had effects such as disturbing nesting birds.
- ◆ Inappropriate management such as over grazing has led to sward damage and poaching of the soil, which can lead to reduced plant diversity and can assist the invasion of unwanted plants such as Common Ragwort. Other sites have been lost due to neglect and encroachment of scrub. Intensive use of stock treatments such as ivermectin can be detrimental to invertebrate species associated with dung and their predators.
- ◆ Fragmentation of many sites into small isolated areas increases the risk of genetic isolation and local population extinction.
- ◆ Direct loss to development such as housing, industrial development, mineral extraction and roads has led to loss and habitat fragmentation.
- ◆ The changes in farming brought about by subsidies have also caused problems such as the lack of stock rearing skills needed for small sites.

NATIONAL PLAN OBJECTIVES AND TARGETS

The UK-BAP Lowland Meadows Habitat action plan objectives and targets cover habitat conservation, restoration and expansion. Specifically the action plan targets the continuing loss of unimproved lowland hay meadow. Within SSSIs it seeks wherever feasible, favourable status for all hay meadows by 2010 and for all other sites by 2015. The plan also targets the re-establishment of 500 hectares of lowland hay meadow by 2010. The Lowland Acid and Calcareous Grassland UK-BAPS have similar objectives, but the targets are re-establishing 500 hectares of acid grassland and 1000 hectares of calcareous grassland by 2010.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

The UK-BAP objectives have been incorporated into the Berkshire HAP and will be used as the aims for most Unitary Authorities. This plan has targeted the re-establishment of 10 hectares each of calcareous, neutral and acid grasslands. Bracknell Forest has taken this target and included an aim to create 2 hectares of new meadow by 2005, while Wokingham intend to manage its own grasslands better.

READING OBJECTIVES and TARGETS

The aim will be to increase plant diversity across all grassland open space sites (except intensive recreation sites such as sports pitches) and highway verges. This will create corridors of species rich habitat between extensive sites as well as patches and borders of diverse grassland on more intensively used sites. Grasslands will be restored either by improved management where a suitable seed bank exists, or will be created by clearing ground and re-seeding areas where only amenity grass species are currently present.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical Requirements	Time Scale	Action to date
Educate public about the benefits of conservation grass management especially as regimes are introduced.	Sustainability Team Parks Education		Leaflet Poster	2005 - 2008	
Where opportunities arise consider the stripping or digging in of topsoil and promote wildflowers to regenerate	Parks Housing Highways Streetcare		Seed Labour to create seedbed	On-going	

LINK Species Action Plans

Plants: Cowslip

- Ragged Robin
- Snake's Head Fritillary

Birds:

- Barn Owl
- Hobby
- House Martins
- Kestrel
- Lapwing
- Little Ring Plover
- Linnet
- Skylark
- Snipe
- Swift

Mammals:

- Bats (Daubenton, Pipistrelles)
- Water Vole

Amphibians/ Reptiles:

- Grass Snake
- Great crested Newt
- Slow Worm

Invertebrates:

- Glow worm
- Buttoned Snout (moth)
- Striped Lychnis
- Marbled White

PARKLAND AND VETERAN TREE HABITAT ACTION PLAN

ECOLOGICAL INFORMATION

Wood pastures and parklands were a feature of lowland agriculture systems between the 15th and 19th centuries and are hence also important for both their landscape history and archaeological features. They were part of a sustainable mixed pasture system with a crop of wood being removed regularly from the trees, which were generally pollarded hornbeam, oak or beech.

Where the habitat has survived, the trees are over mature and contain dead and decaying limbs. This habitat is important for saproxylic fungi and invertebrates. Bats and birds, often notable species themselves, use the hollows in the trunks e.g. Barn Owls and Bechstein's bats. Fallen dead wood and the underground root mass also form part of the habitat; many relatively invisible mycorrhizal fungi are associated with the trees and spread through the soil between them. Where there is unimproved grassland between the trees, this is another significant feature which can increase the value of this habitat.

Veteran trees are living trees that are in the last phase of life - over mature and senescing. This period is reached at different ages depending on species. However they can continue to live for a great many years (even centuries!) especially if they were pollarded regularly as younger trees. (Pollarding, and coppicing trees is a management technique that allows a regular crop of timber to be taken. The process also tends to rejuvenate trees so extending their normal lifetime.) Being very old makes their genetic inheritance alone of conservation value. They usually have very large trunks even if the branches are now relatively few or short in spread. Individual veteran trees may be found as part of other historic features such as hedges, banks, village greens and pond edges. They can also be found in the gardens of older houses where they may also be exotic species. With this historical significance and their distorted shapes, they are sometimes given names locally. They may have been planted as boundary markers for instance at the junction of two parishes and have hence been retained despite other habitat changes to each side.

CURRENT STATUS

Parkland and Wood Pasture is a habitat management style typical of old estates of Lowland England. Veteran trees have little formal protection and very specific conservation needs making them a priority for action.

- **NATIONAL and INTERNATIONAL**

Most very important wood pastures and parks have been identified as SSSIs. Under the EC Habitats directive some sites may be further designated as SACs (Special Areas for Conservation). The principal reasons for these designations are the complex of species in the ecosystem or the rarity of selected species.

- **REGIONAL and LOCAL**

Significant sites are found in Oxfordshire (such as Blenheim Park) and Berkshire (Windsor Great Park) where rare or almost endemic species have been identified, e.g. Violet Click Beetle, Hedgehog fungus. Both London Basin and Chilterns Natural Areas have important

areas of Parkland and Wood Pasture as part of their characteristics, especially as wooded commons and estates.

In Berkshire any site containing 5 or more veteran trees can be considered for Wildlife Heritage Site status. Important parks in Reading include Caversham Park, Prospect Park, Coley Park, Whiteknights Park and the grounds of Leighton Park School.

Tree Preservation Order (TPO) criteria specifically exclude trees which are or contain limbs that are 'dead, dying or dangerous' - the usual and important habitat features of veteran trees.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Development pressure for the land
- ◆ Damage to the trees by compaction or severing of the roots and limbs where retained near new roads and buildings
- ◆ Fertiliser use and other 'improvements' and intensification of agriculture such as reseeding and ploughing, to the ground between the trees.
- ◆ Direct felling and removal of trees and roots
- ◆ Removal of deadwood for reasons of public safety and tidying up of trees and grassland, on sites with public access.
- ◆ Lack of grazing either leading to woodland development or to be replaced by crop growing

NATIONAL PLAN OBJECTIVES AND TARGETS

A Statement has been produced in the UK-BAP where the main objectives are cited as maintaining the extent of functioning parks and wood pastures, taking particular account of their biological interest, restore sites where appropriate. The Woodland Trust and the Ancient Tree Forum support English Nature's Veteran Trees Initiative which aims to raise the profile of these important trees.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Oxfordshire's L-BAP includes a Habitat Action Plan for 'Wood Pasture, Parkland and Veteran Trees'. As with other L-BAPs locally, a main objective is to prevent further loss of the sites and bring all sites into active conservation management in the next few years. They have also set up an active veteran trees working group to aid achievement of their objectives.

READING OBJECTIVES and TARGETS

The overall aims will be to identify and restore old parkland trees and grassland, and to manage the conservation of existing individual veteran trees at any locations.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical Requirements	Time Scale	Action to date
Raise awareness of the needs of veteran trees	Planning Parks Land Managers SU	Community groups Tree Wardens		2008 - 2011	
Maintain the area under the canopy of veteran trees as unimproved grassland at appropriate locations.	Land Managers	Community groups Tree Wardens		2005 - 2008 On- going	
Minimise use of fertilisers and herbicides on parkland sites and on or within 3 m of drip line of veteran trees	Land Managers			2005 - 2008	
In appropriate locations retain fallen deadwood around veteran trees and retain as many dead limbs as possible on trees	Land Managers	Community groups Tree Wardens		2005 - 2008 On- going	
Promote propagation from veteran and other target tree species.	Land Managers SU	Community groups Tree Wardens Developers Landowners		2008 - 2011	A few saplings transplanted in Clayfield Copse and Prospect Park
Produce a Tree Strategy for Reading.	Planning Parks Streetcare SU		Staff time	2008 - 2011	draft in preparation

LINK Species Action Plans

Invertebrates:

- Heart Moth
- Stag beetle

Mammals:

- Bats (Noctule, Natterer's, Pipistrelles, Brown Long Eared)

Birds:

- Barn Owl
- Hobby
- Song Thrush

ANCIENT AND SPECIES RICH HEDGEROW HABITAT ACTION PLAN

ECOLOGICAL INFORMATION

The hedgerows which support the greatest diversity of species of plants and animals, and also retain a wide genetic heritage, are those defined as having been already in existence at the time of the Enclosure Acts (passed mostly between 1720 and 1840), otherwise known as Ancient hedgerows.

Species rich hedgerows are those which contain (in Southern Britain) 5 or more woody species on average per 30m length. There is scope to include hedges with lower numbers of woody species if the basal herbaceous plants are significant and representative of hedgerows ecologically. Recently planted species rich hedges are also included.

CURRENT STATUS

Hedges are not a feature of the landscape of most of Europe outside Britain and the Republic of Ireland. Before 1995 there was a large loss of hedgerows (approximately 25% in the 6 years leading to 1990 alone) in Britain due in the main to changes in agriculture. In 1995 it was estimated that there were still 450,000 km of hedgerow left. Of these about 154,000 km are considered to be ancient and/or species rich. In 1997 the Hedgerow Regulations were introduced which protects most agricultural hedges and since this date more hedges have been planted, than removed.

- **NATIONAL and INTERNATIONAL**

Article 10 of the EC Habitats directive requires member states to encourage the management of hedges and other linear features such as dry stone walls. This is particularly with a view to improving the coherence of the Natura 2000 network of European important sites. The Conservation (Natural habitats, etc.) Regulations, 1994, which brings the Habitats Directive into British law, recognises that such features are essential for the migration, dispersal and genetic exchange of wild species. PPG9 further encourages the development of policies for the management of hedgerows. The Countryside Stewardship scheme makes grants available to land managers who wish enhance the hedgerows on the land they manage

- **REGIONAL and LOCAL**

Hedges in Reading receive some protection in the existing Local Plan. In addition, some local hedgerows have been designated as Wildlife Heritage Sites, including those at Gravel Hill, Emmer Green.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Neglect leading to hedgerows changing into lines of trees
- ◆ Too frequent and badly timed cutting leading to poor habitat conditions, the development of gaps and probable species change.
- ◆ Loss of hedgerow trees through old age and felling, without encouraging replacements.
- ◆ Use of herbicides pesticides and fertilisers right up to the bases of hedgerows leading to nutrient enrichment and decline in species diversity
- ◆ Removal for development purposes.

NATIONAL PLAN OBJECTIVES AND TARGETS

The UK-BAP for Ancient and/or Species Rich Hedgerows has the objective of halting the net loss of species rich hedgerows through neglect and removal by the year 2000, and the loss of all ancient and species rich hedgerows by 2005. This has been achieved in the main. There are also targets for favourable management of 25% of species rich and ancient hedges by 2000 and 50% by 2005. The BAP also seeks to maintain the overall numbers of hedgerow trees within each county or district at least at current levels, through ensuring a balanced age structure.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Hedgerows are especially significant within farmland locally and support many threatened species, notably of farmland birds. The need to protect and enhance hedgerows will be highlighted in the Berkshire Farmland Habitat Action Plan. Neither Wokingham nor Bracknell districts have produced a Habitat Action Plan for hedgerows though both recognise their importance for priority species such as Song Thrush and both encourage new plantings.

READING OBJECTIVES and TARGETS

The aim will be to ensure that all local authority ancient and species rich hedges have been identified by 2008. That those hedges owned by Reading Borough Council have an identified management regime (including the marking up of new hedgerow trees) and that this regime is being implemented by 2011. New mixed hedges will be planted on private and publicly owned land wherever possible, particularly where these help create links between existing habitats. The aim is to seek a year on year increase in the length of species rich hedgerows.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical Requirements	Time Scale	Action to date
Identify differing laying and flailing regimes within management plans to provide varied habitat and improvement of hedges.	Land Managers	Conservation Groups	Skilled Labour	2008 - 2011	
Protect and minimise further loss of existing ancient or species rich hedgerows	Land Managers Planning	Tree Wardens		On-going	
Plant up gaps in ancient and species rich hedgerows with plants grown from the same hedge stock and remove inappropriate species and material where present e.g. Gravel Hill	Land Managers	Conservation groups	Plants	2008 - 2011	

Encourage suitable native hedgerow herbaceous grow along hedgerows	Land Managers SU Planning	Developers		On-going	
Cease use of weedkillers and herbicides within 2m of existing hedgerows	Land Managers		Slight increase in grass cutting costs	2008 - 2011	
Enhance hedgerows, especially where adjacent to open spaces or linking to other hedges and woodlands to provide wildlife links.	Land Managers Planning	Developers		On-going	2003: 550m planted at Prospect Park. Some planted around new housing development
Promote planting of new mixed native hedgerows	Parks Planning SU	Developers Conservation Groups			
Promote emergence of appropriate native trees, especially Field Maple and English Oak, at key points along hedges and pollard where appropriate	Land Managers Planning SU	Conservation Groups		2011 - 2015	

LINK Species Action Plans

Plants:

- Bluebell

Invertebrates:

- Glow Worm
- Stag beetle

Mammals:

- Bats (all)

Birds:

- Bullfinch
- Kestrel
- Linnet
- Song Thrush

Reptiles:

- Grass snake
- Slow Worm

BROAD LEAVED WOODLAND HABITAT ACTION PLAN

ECOLOGICAL INFORMATION

Woodland habitat in Reading is generally secondary although there are some remnants of ancient semi-natural woodland, pockets of wet woodland and small plantation woods. All of the woodland is mixed or totally broadleaved. Of the UK-BAP selected woodland habitats, Reading has:

- Small areas of **Lowland Beech Wood** ('Beech Wood' and the adjacent 'Furze Platt'. Some parts of 'The Warren Woodlands' also probably fall into this category). This woodland is typical of the Chiltern escarpments. It is characterised by high forest beech and a relatively thin understorey. It is important for some national priority species chiefly of fungi. It is not known if these species of fungi occur in the Reading sites.
- **Wet Woodland**. These woods are found throughout the floodplains of the rivers and streams in the London Basin natural area, including the Kennet. This woodland develops on poor draining or seasonally wet soils and is hence usually dominated by alder, birch and willow. They are important for many species of plants and animals, being noted in Reading as refuges for many bird species. (Blundells Copse/The Moor, The Withies, parts of the Cowsey and Cow lane Depot probably fall into this category).
- **Lowland Mixed Broadleaved Woodland** makes up the largest proportion of Reading's woods. It includes all soil types and types of management such as coppice. These different woods therefore provide habitats for a wide range of understorey plants and animal species. Notable species (Wild Service Tree, Moschatel, bats) tend to be found in the remnants of Ancient woodland (eg. 'Lousehill Copse'). Our typical 'bluebell woods' come into this category.

CURRENT STATUS

- **NATIONAL and INTERNATIONAL**

Just over half of Britain's broadleaved woodland is described as ancient semi-natural with the remainder being replanted. The majority of the replanted woodland is non-native, coniferous plantation. Only around 11% of the land cover in England is woodland (compared to 29% in Europe). 38% of native, ancient woodland (regarded as the most diverse and important²⁰) has been lost since 1930²¹ - undoubtedly, some of this in the Reading area.

- **REGIONAL and LOCAL**

The Berkshire average land area described as woodland cover is 13.5%²⁰. All neighbouring Unitary Authorities include broadleaved woodland in their Biodiversity Action Plans, if only, as with West Berkshire and Slough, through intention to fulfil the Berkshire Habitat Action Plan targets²¹. General actions are targeted at retaining existing woodland cover and enhancing diversity by improved management and inclusion of features to suit specific species eg. standing dead wood for invertebrates, woodpeckers and bats. Bracknell Forest Borough Council also includes scrub and hedgerows within this Habitat Action Plan.

Woodland cover makes up only a small percentage (less than 5%) of Reading land use, however of the open space and parks it represents a much more significant proportion of around 30%. No woodland sites are larger than 8 hectares, most being around 2 hectares. The small size negatively affects the survival of diversity of species. At the same time, the value of the woods to wildlife and people is far higher than woods of similar size in more rural areas. The majority of this woodland is in public ownership, managed by voluntary groups and with open access for recreation use.

Woodland habitat is significant for a large number of identified important species included on the Species Action List. Within Reading, woody, scrub and hedgerow habitat also contributes to wildlife corridor links. The proximity of housing to many sites, and their relatively large boundary length to overall size, has led to substantial damage in the last 10 years through recreation use and dumping of rubbish.

Two Local Nature Reserves in Reading are woodland areas (Clayfield Copse and McIlroy's Park, Blundell's Copse and Lousehill Copse together). These sites and many of the other woods are also Wildlife Heritage Sites.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Land development for housing and commercial use.
- ◆ Lack of appropriate management from neglect to removal of too much dead and live wood.
- ◆ Recreational use causing disturbance and physical damage.
- ◆ Invasion by deliberately or accidentally introduced non-native species (e.g. dumping of garden waste).
- ◆ Damage through fly tipping, fires etc.
- ◆ Damage by pests such as muntjac deer and grey squirrel
- ◆ Theft of plants and fungi collecting

NATIONAL PLAN OBJECTIVES AND TARGETS

Broadleaved and Yew Woodland Habitat together are given a Statement for action in the UK-BAP. The primary conservation direction is to '*maintain the extent and habitat quality, especially of ancient and semi-natural broadleaved woodland, and expand broadleaved woods, particularly with new native woodland that is linked to ancient and semi-natural woods.*' The Reading actions will contribute to these overall aims.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

English Nature's aims and targets for woodland improvements in their natural areas by 2015 are:

- Lowland Beech and Yew Woodland (in Chilterns) - restoration of 400 hectares, expansion of 350 ha.
- Wet woodlands (in London Basin) - restoration of 50 ha and expansion by 50 ha²¹.

The Wokingham District's Broadleaved Woodland Action Plan includes the adoption of a set of management principles for all publicly owned woods. Similar principles are suggested for Reading. These principles aim to aid not only the conservation of this habitat but also to aid the survival of significant species using this habitat.

READING OBJECTIVES and TARGETS

Overall the long term aims will be to:

1. To develop a strategy to maintain and if possible increase the area of broadleaved woodland through expanding existing woodland sites where appropriate and through creating new woodlands
2. Have active management plans for all public woodlands
3. Improve the diversity of species and tree age structure in all woodlands
4. Encourage natural regeneration of woodlands selecting for native species

LOCAL ACTIONS

Action	Internal sections	External partners	Typical Requirements	Time Scale	Action to date
Where appropriate and opportunities arise allow woodlands to develop and expand through natural regeneration and create links between existing sites. Target of minimum of 5 hectares by 2015	Planning Parks	Developers Econet	Trees and planting	2011 - 2015	Some areas planted or extended in 'trees for our future' project
Seek to protect existing sites	Planning Land Managers	TC-ERC	Staff time	On-going	TPOs WHS
Use temporary interpretation signs during all woodland management activities	Land Managers	Conservation volunteers	Signs	On-going	Many volunteer groups erect signs explaining the work they are carrying out
Raise public awareness of nature conservation needs of broadleaved woodlands.	Parks SU	Community groups Specialist groups Tree Wardens	Cost of staff, events etc.	On-going	FOCC held a second Woodland Day in 2003
Retain as much deadwood as possible on public sites as standing (but made safe) or fallen habitat	Land Managers	Conservation groups	Saving in wood not being removed	2005 - 2008 On-going	Much wood left on site in woods
Support volunteers	Parks	Tree	Staff	2005	Several groups

to carry out active management and surveys of sites	SU	wardens TV-ERC	Training Equipment	- 2008 On- going	already exist - need ongoing support
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LINK Species Action Plans

Plants:

- Bluebell
- Moschatel
- Wild Service Tree

Invertebrates:

- Glow worm
- Stag Beetle

Mammals:

- Bats (Noctule, Natterer's, Pipistrelles, Brown Long Eared, Daubenton's)

Birds:

- Bullfinch
- Hobby
- Nightingale
- Song Thrush

Reptiles:

- Grass snake
- Slow worm

PONDS (STANDING OPEN WATER) AND REEDBEDS HABITAT ACTION PLAN

ECOLOGICAL INFORMATION

This habitat consists of open water of varying sizes with submerged or floating vegetation including ponds, lakes, canals and ditches. For this Action Plan, the associated habitat of emergent vegetation at the edge and bankside vegetation surrounding the water is included together with reedbeds.

Open water is generally classified according to the nutrient status of the water. These are: dystrophic (highly acidic) such as marl lakes, brackish water lakes and temporary bog pools; oligotrophic (nutrient poor) typically on heathland sites; eutrophic (nutrient rich) and mesotrophic (intermediate). The latter two are the most often found in this region. They are often cloudy with abundant plankton, rich in vegetation around the edges and over the surface, and support many species of invertebrates including snails and crustaceans. They can be very important to breeding and overwintering birds. Open water may result from fluctuating ground water level or increased winter runoff creating temporary seasonal ponds. These habitats are important to specifically adapted animals e.g. Great Crested Newts. With the changing pattern of flooding locally, these habitats are developing more frequently and opportunities may exist to manage these sites for rarer species such as those mentioned.

Ponds have value to wildlife as a source of water or food for species such as bats, birds and butterflies as well as a complete habitat for other species, so even very small garden ponds have conservation value. The larger the pond, the more significant the open water habitat and the greater the potential for increased diversity of species. Ponds tend to fill up with silt and vegetation over time. This succession from relatively large areas of open water with little vegetation, to damp ground supporting trees and shrubs, is used by different groups of plants and animals as the conditions change. It is necessary to manage ponds if retention of open water habitat is required in that location. The tendency for many species to be adapted to dispersal to new areas is probably related to the natural succession of ponds to woodland. It is also a feature that enables new ponds to be rapidly visited and colonised by some species.

Suitable linking habitat between standing open water is important for many species to enable them to disperse, breed and for their life cycle to be completed. For example Damselfly and Dragonflies, can live in water for up to 3 years as larvae, but on emergence also use woodland or grassland habitats for feeding and mating before seeking out pond areas to lay eggs. Similarly, amphibians such as newts may only spend a third of the year in and near water and most of their time in the surrounding habitats. The quality of this adjacent habitat is therefore important to the overall survival of species using the water.

Reedbeds are wetlands dominated by stands of the common reed *Phragmites australis*. Generally the water table is at or above ground level for most of the year. Often areas of open water and wet grassland (meadow) habitat exist adjacent to the reeds and can provide additional feeding habitat for species living in the reedbed. Under suitable conditions, the common reed can spread and create areas of reedbed fairly quickly. The reed used to be harvested for thatching. This annual or bi-annual reed cutting also helped to prevent scrub species taking hold. There is currently a growing market for thatching reed with UK grown reed being favoured, as this native genetic stock appears to be stronger than continental provenance material. Reeds are very effective in removing high concentrations of nutrients from water and in this role are frequently advocated for cleaning water polluted by urban

surface runoff or by agricultural or sewage effluents. Reeds can therefore be an important component of sustainable urban drainage systems (SUDS).

Reedbed habitat is extremely important for breeding and migratory birds in the UK, with larger areas able to support nationally rare species such as the Marsh Harrier (*Circus aeruginosus*) and the Bittern (*Botaurus stellaris*) which has occasionally been seen locally. Several Red data book invertebrates are also associated with reedbeds.

CURRENT STATUS

Standing open water may be protected as a habitat in its own right or in recognition of species using the site. Where open water sites are given conservation status, in some instances the land around has not been protected or appropriately managed and changes to this land have had significant impacts on these water bodies.

- **NATIONAL and INTERNATIONAL**

All statutory boards concerned with water use (water companies, Environment Agency, local authorities) have a duty, through the Land Drainage and the Water Resources Acts both of 1991, to further conservation and reduce pollution, as part of their function.

Standing Open water sites have been given designated as SSSIs and NNRs and because of their importance to birds, some areas have been included as Ramsar Sites or potential Special Protection Areas (pSPA). These sites are distributed throughout Britain with different regions being noted for different types (eutrophic, oligiotrophic and dystrophic) of lake habitats.

Many of the largest and most diverse reedbeds have international status including Wetlands of International Importance under the Ramsar Convention and are managed as National Nature Reserves for the UK. None of these sites are present in the local area.

- **REGIONAL and LOCAL**

Berkshire has some substantial areas of open water, often subsequent to mineral extractions, but also naturally developed in the flood plains. The Kennet Meadows contains several lakes, mostly old gravel pits, with a mix of interest to wildlife depending on their depths, levels of use and degree of vegetation. The Kennet and Avon Canal (where not part of the River Kennet) is effectively a length of standing open water. In places a diverse, wildlife rich habitat is seen in, and alongside, the canal.

Important standing open water wildlife habitat occurs around the borders of the borough, including the Lower Kennet lakes in the West, the Loddon Valley lakes such as Lavells lake LNR, White Swan lake and others at Dinton Pastures in the South East and Caversham lakes next to the Thames in the North East. A few of these areas and their surrounding meadows have recognised status as Wildlife Heritage Sites or Local Nature Reserves. This mosaic of local wetlands attracts many birds during migration and as overwintering and breeding sites. Notable species (including; Bittern, Gadwall, Little Ringed Plover and Reed Bunting) are regularly recorded making the lakes important at a national level²².

Most of the reedbeds of any size in the region are notified as SSSI's and Wildlife Heritage Sites (e.g. Thatcham Reedbeds and Hosehill Lake LNR both in West Berkshire, White Swan Lake, and Dinton Pastures in Wokingham District.)

FACTORS CAUSING LOSS OR DECLINE

- ◆ Filling in of small ponds in public areas to reduce risk of drowning or reduced maintenance
- ◆ Invasive, non-native species being introduced to sites, especially in garden ponds or inadvertently to public sites (eg. *Crassula helmsii*)
- ◆ Pollution (oils, salts and heavy metals) from runoff drainage, especially from urban roads
- ◆ Pollution (over eutrophication) by excess fertiliser use which then runs off into surrounding waters
- ◆ Drying out due to changes in the water table which may be caused by development, excessive water extraction or for the intensification of agricultural use of land.
- ◆ Direct loss (especially ponds in gardens) due to areas being redeveloped,
- ◆ Fragmentation of areas affecting key species dependant on this habitat

NATIONAL PLAN OBJECTIVES AND TARGETS

The UK-BAP Standing Open water habitat statement proposes maintaining and improving the conservation interest of existing sites through integrated management plans including the sensitive management of adjacent land. Wherever possible, encouragement is given to creating new ponds with maximum wildlife interest.

The Eutrophic Standing Waters Habitat Action Plan¹⁷ proposes the classification of all these waters into 3 tiers. Tier 1 (favourable condition) sites requiring protection and continuation with favourable conditions, tier 2 (damaged by human activity) needing action to restore to favourable conditions and tier 3 (poor condition) needing action to prevent any further deterioration.

Reedbed is on the UK-BAP Priority list and has had a full Habitat Action Plan since 1995. The UK-BAP aims to identify and restore 5000 ha of reedbed and maintain thereafter, and to create 1200 ha of new reedbed. It is anticipated that the majority of this will be on private land.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

The UK-BAP objectives have been adopted into the Berkshire plan and will be used as the aims for most Unitary Authorities. Much of this work will be in partnership with the Environment Agency who are the lead partners for national Eutrophic Waters HAP.

Recognising the considerable number of gravel pits present, Wokingham District aims to enhance the value of these extensive wetland sites to the region. They are targeting that 50% of gravel pits will be restored with 'nature conservation as a priority. Their BAP also requires that wherever possible, balancing ponds are designed as reedbeds.

Bracknell Forest aims to provide information and advice to enable the community to create 2 new ponds per parish, with linking habitat corridors, by 2005.

Much of the enhancements and other actions will be targeted towards conservation of the important species that use this habitat: White Clawed Crayfish, Water Voles, Kingfisher, Bats, Otter and Desmoulin's Whorl Snail.

Reedbed is included in the Berkshire Habitat Action Plan for 'Standing Open Water Habitat'. Aims are to actively manage 60 ha of reedbed in the county and to create a further 40 ha at 4 identified sites in West Berkshire. Priority in creation of sites is to be where the expansion will consolidate, buffer and link existing associated habitat (e.g. Standing open water)²⁴.

The Environment Agency (EA) Local Environment Agency Plan (LEAP) for the Reading area, includes encouraging SUDS techniques, where reedbed might be expected to be planted. The EA are lead or key partners for Reedbeds and some related species, including species such as Otters and Reed Bunting, in the UK-BAP.

READING OBJECTIVES and TARGETS

Open water and associated vegetation is one of the most diverse habitats. Reading has many ponds which have open access such as Caversham Park Village pond, Prospect Park pond and Emmer Green pond as well as a great number of ponds in private gardens and other private land. Maintaining and increasing the number of these sites and the linking vegetation will contribute substantially to wildlife present in Reading. Enhancing and protecting sites may benefit nationally important species.

The overall aims are to immediately protect and maintain existing areas of reedbed (River Thames off Scours lane and off Mapledurham Estate, Kennet Meadows, Kings Meadow, View Island etc.) and where opportunities arise, enlarge these through planting schemes and by 2015 to have created new sites to contribute to the regional patchwork.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
When opportunities arise seek to increase area of standing water.	Planning Land Managers	Conservation groups	Digger, liner, plants	On-going	
Encourage creation of temporary pools, ('swales' and similar) as part of Sustainable Urban Drainage Systems where appropriate. These areas to be planted appropriately for wildlife.	Planning	EA Developers		On-going	
Protect/Enhance the provision of significant wildlife ponds.	Land Managers Planning	Developers		On-going	Already being undertaken
Protect and maintain existing levels and distribution of reed bed, against affects of development or the	Parks Planning	EA		2005 - 2008 On-	Coley Meadows notified as WHS

result of actions on neighbouring land (i.e. through drainage or pollution)				going	
Increase extent of reedbed adjacent to current areas by planting or natural expansion Use local provenance reed stock (of <i>Phragmites australis</i>) for new sites	Parks Planning SU	Theale Area Bird Conservation Group (TABG) Conservation groups	Plants Staff time	2011 - 2015	Reedbed created at View Island

LINK Species Action Plans

Plants:

- Ragged Robin

Mammals:

- Bats (all, especially Daubentons)
- Water vole
- Otter

Birds:

- Bittern
- Kingfisher
- Reed Bunting
- Sand Martin
- Snipe

Reptiles/ amphibians:

- Great Crested Newt
- Grass snake

RIVERS HABITAT ACTION PLAN

ECOLOGICAL INFORMATION

Rivers have intrinsic conservation value. They also form corridors linking other wetland habitats. The condition of the river is essential in maintaining the conservation interest of adjacent sites, by influencing hydrology and water chemistry.

The River Thames rises in the Cotswolds and flows for 330 kilometres to its confluence with the North Sea. 236 km of this is the non tidal length above Teddington Lock. While rising in the limestone rich Cotswolds the base rich river soon becomes more neutral and by the time it reaches Reading is essentially neutral.

The River Kennet is one of approximately 35 chalk rivers and major tributaries ranging from 20 to 90 kilometres in length. They are all located in south and east England - from Frome in Dorset to the Hull in Humberside. Chalk rivers have a characteristic plant community, often dominated in mid-channel by river water crowfoot *Ranunculus penicillatus* var *pseudofluitans* and starworts *Callitriche obtusangula* and *C.platycarpa*, and along the edges by watercress *Rorippa nasturtium-aquaticum* and lesser water-parsnip *Berula erecta*. They have low banks that support a range of water loving plants.

All chalk rivers are fed from groundwater aquifers, producing clearwaters and generally stable flow and temperature regime. These are conditions which support a rich diversity of invertebrate life and important game fisheries, notably for brown trout *Salmo trutta*. Salmon *Salmo salar*, crayfish *Austropotamobius pallipes* and otter *Lutra lutra* are among the species listed on Annex II of the EC Habitats Directive, which chalk rivers support.

CURRENT STATUS

- **NATIONAL and INTERNATIONAL**

Throughout Europe there has been an extensive loss of riverine and floodplain habitat, primarily through drainage and channel straightening for agricultural intensification, urban developments and flood defence. Further degradation has occurred as a result of poor water quality and over abstraction.

England has the principal source of chalk rivers in Europe and has a duty under the Habitats Directive to protect this habitat. 8 Rivers have been notified a SSSI including the Upper Kennet and the River Lambourn in West Berkshire. Some of these, including the River Lambourn, have been put forward a candidate Special Areas of Conservation

- **REGIONAL and LOCAL**

While the Upper Kennet is a chalk river, by the time it arrives in Reading it is tending to more a base rich/neutral impoverished river like the Thames.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Excessive abstraction mainly for public water supply from the chalk aquifer has contributed to low flows on a number of chalk rivers, although recent actions have reduced this impact on many rivers.
- ◆ Accumulation of silt due to low flows or dry summers combined with heavy rainfall leading to flash flooding washing soils into the rivers. In the Kennet there is an issue with this silt being re-suspended in the water column by boats where the canal and the river meet. This is thought to be reducing the macrophytic plants and thus the availability of food and cover for fish which may be one of the causes of a reduced fishery in the river.
- ◆ Pollution from sewage discharges leading to nutrient enrichment by nitrates and phosphates can be a problem, as can diffuse pollution from agricultural fertilisers. Direct pollution from accidents can be a problem as well as indirect pollution from road run off of oil, heavy metals etc.
- ◆ Loss of natural banks to hard banks when adjacent sites are developed. Flood defence structures can also have an impact.
- ◆ Intensive fisheries management can be a problem when over stocking and excessive weed cutting takes place.
- ◆ Invasive plants and animals such as Signal Crayfish, Mink, Himalayan balsam and Japanese Knotweed can damage the ecology of rivers.

NATIONAL PLAN OBJECTIVES AND TARGETS

The UK-BAP has the following objectives: -

- To maintain the characteristic plants and animals of chalk rivers, including their winterbourne stretches.
- To restore water quality, flows and habitat diversity where they have deteriorated on rivers designated as SSSIs.
- To review the need and potential for restoration on the remaining chalk rivers, in consultation with local communities, and plan for these where cost effective.
- To maintain and improve the quality, state and structure of all UK rivers and streams and their associated floodplains.
- To restore degraded rivers and streams taking account of water quality and quantity, structure and hydraulic connection with the floodplain.

There are no specific targets although it is anticipated that 7000km of chalk river will be appropriately maintained and improved by 2010.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Both Wokingham and Bracknell Forest have rivers and streams as action plans in their LBAPs. Their aims are to also improve water quality and to promote buffers zones adjacent to these habitats.

READING OBJECTIVES and TARGETS

The overall aim is to enhance the waterways of Reading, by ensuring that water quality is maintained and improved where possible. Road and related run off can deleteriously affect the water quality of the Kennet and other waterways, so efforts should be made to reduce this impact. Riverside redevelopment presents opportunities for bankside and corridor enhancements. To attenuate flooding it is important that every opportunity is taken to

enhance the floodplains of the Thames and Kennet. The existing Local Plan has policies that promote these aims.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Raise awareness and promote the protection and enhancement of the environment of watercourses	Planning SU	Developers EA		On-going	Currently undertaken - ongoing
Undertake willow pollarding along water courses	Parks	EA BWB Riparian Owners		2008 - 2011	Some already undertaken
Seek to ensure that all new or reconstructed road run off goes through an oil interceptor prior to discharge waterways. Ensure that new and existing interceptors are maintained	Planning Transport /Highways	Developers		On-going	
Promote control of Himalayan Balsam and other invasive plants	Land Managers	EA British Waterways Board Riparian Owners Volunteer Groups		2008 - 2011	Some already undertaken

LINK Species Action Plans

Plants:

- Loddon Lilly
- Ragged Robin
- Snake's Head Fritillary

Mammals:

- Bats (all, especially Daubentons)
- Water vole
- Otter

Birds:

- Kingfisher
- Sand Martin

Reptiles:

- Grass snake

APPENDIX IV

SPECIES ACTION PLANS

BLACK POPLAR (*Populus nigra ssp. betulifolia*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

This tree has been a feature of the lowland English landscape for about 400 years²⁹. The distribution of this sub-species is confined to Northern France and Southern Britain, with the main species being native to most of Southern and Central Europe²⁸. The best known variety of the main species is the Lombardy Poplar *Populus nigra* 'Italica'.

There has been considerable confusion over the identification of this tree as it hybridises readily and is itself quite variable in form. This has led to DNA testing of trees to establish the true extent and diversity of the sub-species by the Black Poplar Working Group²⁷. The tree is dioecious (occurring separately as male and female plants). The female was not often planted as it produces large amounts of very downy seed, which coated the land down wind of seeding trees.

It is a fast growing tree and takes readily from cuttings. It can grow to around 30m in height and over time develops a characteristic shape of leaning trunk with large burrs and dipping branches. As it tends to be grown in meadows and marshy habitat, its silhouette usually stands out on the flat landscape.

Its timber was used in quite a variety of items where shock absorption was important, e.g. wagons bases and brakes, arrows, early railway carriages. It was also relatively resistant to rot and fire so widely used in house building. In this case was likely to be as small wood taken from pollards. This wood was also used for stakes, firewood, basket making and thatch spars. The buds, bark and leaves contain salicin (related to aspirin) and hence it also has a history of use as a medicine²⁸.

CURRENT STATUS

This species is thought to be the most endangered timber tree in Britain²⁵. Surveys have estimated the total population at around 7000²⁶, of which only about 400 are female. However, as most were propagated from cuttings, the genetic diversity in this number is thought to be very small, making this species especially vulnerable. The main areas that the species continues to be found are: Suffolk, Shropshire, Cheshire (hence it is sometimes known as the Manchester Poplar) and the Vale of Aylesbury. A few specimens are known to exist in Reading.

- **NATIONAL and INTERNATIONAL**

No specific protection exists for this species in its own right.

- **REGIONAL and LOCAL**

Where trees occur, they are suitable for cover by Tree Preservation Orders if not 'dead, dying or dangerous'. Often they are within larger habitats of note and are likely to occur on some Wildlife Heritage Sites and wetland SSSIs.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Cross breeding with introduced Lombardy poplar creating many hybrids, which were also favoured for use over the native species.
- ◆ Drainage of habitat which was then used for more intensive farming or building land
- ◆ Poor regeneration from seed following isolation of individual trees, lack of female plants, lack of suitable germination conditions and little active replanting as cuttings
- ◆ Felling trees for safety, rather than careful branch pruning

NATIONAL PLAN OBJECTIVES AND TARGETS

The native Black Poplar is not included in the UK-BAP.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Black Poplar is not noted in any other of the region's BAPs, though its conservation is an important element within the work of the Pang and Kennet Valley Countryside Project (in West Berkshire). The Environment Agency also actively includes conservation of existing native Black Poplars where they are encountered but does not have an Action Plan for them.

READING OBJECTIVES and TARGETS

To introduce native Black Poplars to all suitable open space, waterway and hedgerow sites in the Borough. As suggested by Ennis²⁹, care will be taken to ensure these are appropriate in landscape terms and that replanting takes place so that a variety of ages of tree exist throughout the town.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time scale	Action to date
Seek to increase the population of local provenance Black Poplar and maintain record	Planning Land Managers	Conservation groups Tree Wardens TV-ERC	Staff time Stakes, matting etc	2011 - 2015 On-going	Some cuttings planted at Rose Kiln Meadow, Waterloo Meadows, Kings Meadow and Thames Promenade. 2 trees from Pang Valley used to date

LINK Habitat Action Plans

- Hedgerows

LODDON LILY (*Leucojum aestivum*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

A plant of wet meadows, swamps and willow woodlands adjacent to both fresh and tidal rivers.

CURRENT STATUS

Considered by Bowen in the Flora of Berkshire in 1968 to be local and decreasing. Stace in 1997 regards it as very local in the south of England and mainly in the Thames Valley. There is a sub species found in Europe that has been imported into Britain for the horticultural trade, which can make identification more difficult.

- **NATIONAL and INTERNATIONAL**

The plant is listed in the British Red data book (vascular plants). There is no specific protection given to this plant

- **REGIONAL and LOCAL**

The Loddon Lilly is a local important species and is one of the BBOWT Biodiversity Challenge 100. This seeks to put all known sites into management by 2005. The Loddon Valley area is reputedly where this plant was first found and categorised.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Inappropriate management of river banks and flood plains.
- ◆ Pollution
- ◆ Development of riverbanks.

NATIONAL PLAN OBJECTIVES AND TARGETS

There is no UK-BAP action plan for this species

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Wokingham LBAP has a species action plan for this species, which seeks to increase the distribution of this plant along the Loddon Valley.

READING OBJECTIVES and TARGETS

To protect existing sites (Poplar Eyot, Kennet Mouth, Chazey Court Farm Ditches) and maintain the population size

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Encourage management of vegetation at appropriate sites to encourage spread of plant	Planning Parks	Conservation Groups		2008 - 2011	Angling swims managed to avoid trampling

LINK Habitat Action Plans

- Rivers

GLOW WORM (*Lampyris nocturna*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

The Glow-worm is a carnivorous, ground living beetle that has a 3 year life cycle: Most of this is spent as a larva feeding on slugs and snails at night. It is dependent on undisturbed and largely, unimproved, damp grassland with hedges or scrub or woodland nearby which provides the foraging for the larvae. Adults only live for a short time (males 7-9 days, females 10-15 days) after emerging.

CURRENT STATUS

The Glow Worm is distributed widely but thinly in Britain although when specific searches are undertaken, more sites are usually discovered. This may indicate that the distribution of this species is under recorded. The degree of threat is difficult to judge when the distribution is not well recorded, however it is thought their numbers are declining.

- **NATIONAL and INTERNATIONAL**

Glow worms favour chalky or limestone areas and there are few counties in Britain where they are not found somewhere, though they are believed to be absent from the Isle of Man and Ireland.

- **REGIONAL and LOCAL**

This is a BBOWT 100 Biodiversity Challenge species, which has the target of maintaining the existing population following survey. Glow worms have been recorded at Mapledurham playing fields and are found in Goring and Streatley and Bucklebury Common in West Berkshire.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Direct loss of sites to development
- ◆ Changes in land management leading to a change in the balance of scrub and grassland required.
- ◆ Artificial lighting, drawing males away from breeding sites

NATIONAL PLAN OBJECTIVES AND TARGETS

The Glow Worm is not included in the UK-BAP.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

The Bracknell Forest BAP has an action plan for this species which seeks to identify local populations and encourage habitat management that will assist the spread of the species. Windsor and Maidenhead has it listed as a locally important species of grasslands.

READING OBJECTIVES and TARGETS

To establish the distribution of this species across Reading and to maintain and enhance sites identified. Where possible seek to create additional sites.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Promote sympathetic management of habitat at appropriate sites to encourage increase and spread of species.	Parks Planning	BRAG		2011 - 2015	
Seek to reduce effect of light pollution affecting existing or potential sites.	Planning SU	Developers		2011 - 2015	

LINK Habitat Action Plans

- Urban II
- Semi-Natural Grassland
- Ancient and/or Species Rich Hedgerows

STAG BEETLE (*Lucanus cervus*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

The stag beetle (*Lucanus cervus*) is Britain's largest terrestrial (ground-living) beetle, between 5 and 8cm in length, and is one of three British species of a family of beetles, the Lucanidae, that numbers some 1000 species found mainly in the tropics. They are characterised by possessing large mandibles (jaws) which are often antler shaped, giving them their common name. The male stag beetle has very large mandibles; the females are smaller but more powerful.

The stage beetle requires dead wood to complete its lifecycle. The eggs are laid underground by logs, or stumps of dead trees, and the larva (or grub) will spend up to seven years inside slowly growing in size. A wide range of woods are used, especially oak, but also ash, elm, sycamore, lime, hornbeam, apple, cherry and even some garden tree varieties. An exception, however, is coniferous species such as fir, pine and cypress, which they usually avoid. The larvae do not eat the wood of live trees and shrubs, and are thus not a pest. Instead they are an important decay agent, helping to return the minerals of dead plant material to the soil.

Adults emerge from the soil beneath logs or stumps from mid-May until late July. Males emerge earlier and appear to be more active as they search for females to mate, and can often be seen flying on sultry summer evenings an hour or two before dusk. As adults they are short-lived and generally die after mating, although occasionally some may over-winter in places such as compost heaps.

CURRENT STATUS

The UK stag beetle distribution is concentrated to the south-east of Britain - its absence in the north may be climate related. In the 1940s this extended to southern Wales, the Dee, Cumbria, and across to north Yorkshire and the Wash. Recent surveys suggest that this has significantly contracted, with the predominant distribution over a broad swathe from Dorset, Hampshire, West Sussex, Surrey, Berkshire, London, north-east Essex, eastern Suffolk and northern Kent. Outlying clusters are found in bordering counties to the west, but it appears to be absent from all its former northern sites, apart from the Dee. Over 70% of records are from gardens, which makes this a very important habitat.

- **NATIONAL AND INTERNATIONAL**

The stag beetle is listed on Appendix III of the Bern Convention, on Appendix 2 of the Habitat Directive, on Schedule 5 of Wildlife & Countryside Act 1981 (as amended). It is also receives protection in a number of European countries such as Germany, Hungary, and Switzerland.

- **REGIONAL AND LOCAL**

This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the aim of maintaining its present distribution. This species is believed to be present at many Reading sites and is likely to be in many private gardens in Caversham, Tilehurst, near Hospital/ University and off bath Road.

FACTORS CAUSING LOSS OR DECLINE

- ◆ The loss of habitat through the removal of tree stumps and other dead wood.
- ◆ Collection for sale may be a contributory factor.
- ◆ Drowning in uncovered water butts.

NATIONAL PLAN OBJECTIVES AND TARGETS

This is a Priority Species on the UK Biodiversity Action Plan (1995). This aims to raise awareness of the threats to, and the European importance of the species; to identify a series of key sites and monitor these to establish long term trends; to maintain strong populations at key sites and to carry out further research into its habitat requirements

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES AND TARGETS

All neighbouring Berkshire L-BAPs have this species mentioned. Broadly they seek to identify sites where the beetles are present and to maintain and protect the habitat. Bracknell also seeks to widen its distribution in the borough.

READING OBJECTIVES AND TARGETS

The Reading objects are the same as above.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Promote sympathetic management of habitat at appropriate sites to encourage increase and spread of species.e.g. the retention of tree stumps or trunks in/on the ground.	Parks Planning			2008 - 2011	
Raise awareness of the needs of this species across Reading	SU Parks		Leaflet	2008 - 2011	

LINK Habitat Action Plans

- Urban I
- Parkland and Veteran Trees
- Ancient and/or Species Rich Hedgerows
- Broad Leaved Woodland

BATS SPECIES ACTION PLAN:

The bat species listed are known or are likely to be present in Reading and although they use different habitats, similar conservation activities apply to them as a group so they have been covered as a group.

ECOLOGICAL INFORMATION

Pipistrelle sp. (*Pipistrellus* sp.)

This refers to the two recently separated species of Pipistrelles (*P. pipistrellus* and *P. pygmaeus*) that had not been split into two species throughout most of the period recorded in Reading. Widespread throughout Britain and Ireland except for the Shetlands and Western Isles of Scotland. In one area where detailed recording has been operating since 1980 (Northants) Pipistrelles have been found, on average, in 23% of the 100 1km squares in each 10km square, this number rising to 49% in suburban areas close to the recorder. Hibernation sites are rarely discovered as this species is only occasionally found underground where most such survey work is carried out. Several individuals have been found on the Shetlands and North Sea oil rigs, probably all migrating animals.

Daubenton's bat (*Myotis daubentoni*)

Widely distributed across Britain and Ireland. Most records are of bats at feeding areas by electronic detector. This must be the easiest bat to identify in flight. Relatively few roosts are known, probably an indication that many are in tree holes - always difficult sites to locate.

Noctule (*Nyctalus noctula*)

Restricted to England, Wales and south-west Scotland. Being principally a tree-roosting bat relatively few roosts have been discovered. It is a big and obvious bat in flight, easily detected on a bat detector so producing a wealth of occasional records away from roosts. This species does not use underground sites so is rarely encountered in winter months.

Brown long-eared bat (*Plecotus auritus*)

Widespread throughout Britain and Ireland except for the Scottish islands. In winter it is regularly found in underground sites in mainland Britain but rarely discovered in Ireland. In Northants, an area where detailed recording has taken place since 1980, this species has been recorded on average in 14% of the 100 1km squares in each 10km square, with up to 22% in some 10km squares. In Lincolnshire there was found to be good numbers in areas near to woodland and the Wolds, but few as expected, in the Fens (although some bats have turned up in very open areas). There are a few records from the oil rigs in the North Sea off Scotland and one from Sumburgh Airport (Shetlands) indicating some migratory tendencies.

Natterer's bat (*Myotis nattereri*)

Although not an easy species to locate, the two decades of the mapping period have produced a wealth of records. It is widely distributed across the British Isles. Some clusters of records are the result of special surveys (e.g. Hertfordshire barns survey, Natterer's bat roost survey for BCT in part of Wales) and these show that extra effort can produce records in each 10 km square studied.

Serotine (*Eptesicus serotinus*)

The range is restricted to the south and south-east of England. There has been a worrying trend of summer roosts declining and being abandoned in the east. Future mapping should prove interesting to see if this produces a change in distribution. There is a scattering of

occasional records in parts of the Channel Islands, Wales, S Lancashire and the Midlands. Hibernation records are few as this species is rarely found underground. A record from the Shetlands would be of a migratory animal.

CURRENT STATUS

The Pipistrelles (Common & Soprano), Daubenton's and Brown Long-eared bats are still common in Britain with a widespread distribution. However, it should be noted that even the Pipistrelle bat is estimated to have suffered a population decline of about 70% during the period 1978-1993. The Noctule and Natterers bats are still frequent in Britain with a widespread distribution. The Serotine bat while still frequent has a limited distribution as described above.

- **NATIONAL and INTERNATIONAL**

Bats receive protected status under the Bern Convention, The Wildlife and Countryside Act 1981 (as amended), The Bonn Convention, The EC Habitats Directive and the Conservation (Natural habitats, &c.) Regulations. All bat species are therefore fully protected and any essential destruction of breeding or resting places needs a licence from DEFRA.

- **REGIONAL and LOCAL**

All these species bar the Serotine bat have been recorded in Reading. All bat species are included in the BBOWT Biodiversity Challenge 100. This seeks to ensure that there is no further loss or damage to important bat roost sites.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Loss of summer roosts in buildings due to redevelopment and use of pesticides in roofs.
- ◆ Loss of summer and winter roosts due to felling of trees with holes.
- ◆ Disturbance to roosts.
- ◆ Loss of feeding habitat, including isolation through fragmentation.
- ◆ Decline in insect availability through the use of insecticides.
- ◆ Pesticide build up through the food chain.

NATIONAL PLAN OBJECTIVES AND TARGETS

The UK-BAP has a Species Action Plan for the Pipistrelle bat species. This seeks to maintain existing populations and the range of Pipistrelles and to restore populations to pre-1970 numbers.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Bracknell Forest has a Species Action Plan for the Noctule bat, which seeks to establish the distribution, abundance and breeding sites for this species as well as protecting feeding and roosting sites. Wokingham's Species Action Plan targets all 6 species of bat recorded in their area. The plan aims to reduce the loss or damage to bat roosts, to educate developers about the needs of bats, to make it a condition that any building demolition is preceded by a bat survey and to encourage the use of bat bricks and bat tiles in new buildings.

READING OBJECTIVES and TARGETS

To seek to maintain the existing populations of bat species in Reading, by protecting roost sites and by enhancing/creating new feeding areas and roosting sites.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Ensure buildings due for demolition and trees to be lopped or felled are surveyed for bats prior to planning permission being issued or works being authorised, and ensure adequate mitigation measures are included if bat use is found	Planning	Developers		On-going	CroW act has led to some investigation of trees prior to works
Consider the effects on bat feeding areas of redevelopment. Seek to ensure that sufficient green space and trees are retained.	Planning	Developers		On-going	
Encourage the creation of new bat roosts in public and private structures	Planning Highways	Developers		On-going	Bat boxes have been built in to new bridges over the Kennet and Foudry Brook.
Establish a register and maintain information on the location of bat roosts in buildings and trees.	Planning	Bat Group English Nature DEFRA TV-ERC		2008 - 2011 On-going	

LINK Habitat Action Plans

- Urban I
- Urban II
- Semi-Natural Grassland
- Parkland and Veteran Trees
- Ancient and/or Species Rich Hedgerows
- Broad Leaved Woodland
- Ponds (Standing Open Waters) and Reedbeds
- Rivers

WATER VOLE (*Arvicola terrestris*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

Water voles are Britain's largest species of vole, reaching 20cm. They are well known as the character 'Ratty' in *Wind in the Willows*³⁸, although they are not rats. This book was coincidentally based around the River Thames between Mapledurham and Pangbourne; however Water Voles have only been recorded at one site on this stretch of the Thames post 1995⁴⁰. Water Voles have neat ears and a squarer face than the pointed face of the rat. Their tails are also slightly hairy rather than 'scaly' as in the rat. Their presence may be given away by the distinctive 'plop' sound made when they drop into the water on approaching. (Rats swim but do not dive under water.)

They are herbivores feeding primarily on leaves and stems of waterside plants such as reeds, rushes and sedges. The rhizomes of these plants are eaten in the winter months. They burrow into soft soils of the waterside, especially riverbanks. If the soil is not suitable, and there is little predation, such as in areas of Scotland and continental Europe, they may only form tunnels through the vegetation rather than into the soil. These burrows typically have many entrances with interconnecting tunnels and are used as 'bolt holes', resting areas and nest chambers. The nest chamber may be at various levels, usually at the steepest part of the bank. It will be lined with shredded grass. Breeding takes place between March and October and they may have 2-5 litters each year of 5-8 young meaning that they should be able to repopulate quickly if the habitat is suitable and safe.

CURRENT STATUS

Water Voles used to be extremely common along all ditches, streams, canals, lakes, ponds and rivers throughout Britain. A 75% decline in numbers was noticed in the results of a nationwide re-survey in 1989-90 of sites occupied before 1939. They have declined even more sharply in recent years and it is thought that the species could easily become extinct by 2010 in most areas of Britain³⁹.

• NATIONAL and INTERNATIONAL

Water Voles are found across Europe. There is no formal international legal protection. Nationally they have been given protection under Schedule 5 of the Wildlife and Countryside Act 1981 making it illegal to damage, destroy or obstruct access to any structure which Water Voles use for shelter or protection, or to disturb (or kill) a Water Vole while in such a place.

As part of the UK-BAP actions, 'Key Areas' are to be identified where:

- ◆ Major populations exist and appear sustaining in a large area of waterway
- ◆ Smaller remnant colonies, or clusters of colonies, that will be important for the recovery of the species, exist but that may not to be self sustaining

(More detailed criteria are used to establish these situations.)⁴⁰

The UK Water Vole Steering Group has agreed that Key Areas should be designated as county wildlife sites (in Berkshire these are Wildlife Heritage Sites) as a matter of priority⁴⁰.

- **REGIONAL and LOCAL**

The BBOWT Water Vole Project identified Key Areas in Berkshire, Buckinghamshire and Oxfordshire in 2000⁴⁰. In this region Water Voles appear to be holding on as fragmented colonies, especially in the upper reaches, of many of the rivers and streams, including the Kennet, Pang and Thames. Several areas are important within Reading. (Sites marked * are also Key Areas for Water Voles⁴⁰).

Water Vole currently present:

- Kennet Meadows*
- Coley Meadows*
- Rose Kiln Lane Meadow*
- Fobney Meadows*
- Lowfield Farm fields
- Berry Brook

Potential Water Vole habitat but no current records:

- Southcote meadows*
- Waterloo Meadows*
- Foudry Brook*
- Green Park*

Most of the above sites are already designated as Wildlife Heritage Sites.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Loss and fragmentation of habitat
- ◆ Isolation of populations regardless of habitat condition
- ◆ Disturbance of riparian habitat e.g. Cattle poaching of river banks, increased water traffic and dog walking along river banks
- ◆ Predation by mink
- ◆ Pollution of watercourses and poisoning by rodenticides

NATIONAL PLAN OBJECTIVES AND TARGETS

The UK-BAP main objectives are to maintain the current distribution and abundance and to ensure that Water Voles are present throughout their 1970's range by the year 2010. This range would include the Reading area. Translocation (of local provenance individuals) would be considered appropriate if habitat provision and other measures are effective. Appropriate mink control is proposed to protect large breeding populations where necessary.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Water Voles do not disperse readily while Mink do, so it is important to work with neighbouring land managers on whole river systems to have the maximum impact. West Berkshire will include management through the Wetland Habitat Action Plans. The Pang and Kennet Valleys Countryside Projects have focussed on Water Voles conservation in their work with local land owners, through aiding habitat enhancements, giving advice on mink control and encouraging monitoring of distribution⁴². In both Wokingham District and Bracknell Forest Borough the aims are to identify the distribution and increase it through appropriate habitat enhancements and mink control.

READING OBJECTIVES and TARGETS

Focussing on Key Areas⁴⁰, the aims will be to protect existing populations and enhance habitat in adjacent and other areas, where they should be present but no longer are, hence encouraging population expansion into the areas or allowing re-introduction. Mink control will be integral to establishing viable populations (at least until otters are a common occurrence in the area again)

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Protect sites where Water Voles are found	Planning Land Managers	EA British Waterways		On-going	
Provide information about Water Vole identification, habitat needs and differences to Brown Rats and appropriate use of rodenticides	SU Parks Environmental Health	Community Groups WATCH group	Environmental Education materials	2008 - 2011	
Improve habitat for colonisation / population increase.eg replacement of concrete banks with willow spiling,	Parks Planning Streetcare	EA BBOWT TW Developers	Plants Changed management		
Re/Introduce Water Voles to suitable habitat cleared of predators	Parks	BBOWT EA Thames Water		2011 - 2015	Some Water Voles were removed from Reading and are being used as a breeding population at London Wetland Centre and some will be returned to the new Sewage site on completion of works in 2003/4

LINK Habitat Action Plans

READING BIODIVERSITY ACTION PLAN - 2005-2015

- Ponds (Standing Open Water)and Reedbeds
- Rivers

BLACK REDSTART (*Phoenicurus ochruros*)

ECOLOGICAL INFORMATION

This is a Robin sized bird of the Thrush family. Indeed it is thought that some of its restrictions in distribution are due to competition with our native Robin (*Erithacus rubecula*)⁴⁷. Rather than a red breast, it has a characteristic red-brown tail and dark grey (male) or brown (female) body.

Key features of its habitat are⁴⁷;

- Tracts of largely undisturbed , sparsely vegetated and rocky terrain
- A good selection of complex structures (piles of scrap cars, cranes, tall buildings, mounds of rubble etc.)
- Herbaceous (not woody) vegetation which attracts insects and provides seeds
- Water, such as canals and rivers, that support a rich selection of flying insects such as Diptera flies and chironomid midges
- Poor or absent shrub layer

It is one of Britain's rarest birds with an estimated 27- 74 pairs breeding nationally although populations may fluctuate widely⁴⁴. There is a known concentration of Black Restarts in Thames side boroughs of London⁴⁵ though never in large numbers. The bird would appear to use river corridors to disperse so this may account for it reaching Reading. Breeding is usually from March to late July. The bird nests in open structures such as pipes and brickwork in buildings or storage yards, old cars in scrapyards etc.

CURRENT STATUS

Black Redstarts are annual migrants to the UK when they are recorded in woodland areas in small numbers. They are also found on coastal sites in SE England in small numbers. Breeding pairs were only noted after the Second World War when they were discovered using bombsites in London and Birmingham. It has also been recorded in Manchester and Nottingham⁴⁷. The numbers were always low and its presence not often recorded probably owing to a lack of surveying of its usual habitat. Its presence has recently been rediscovered following large scale and intensive redevelopment of industrial areas as part of the government push to restore the use of brownfield sites⁴⁷. Loss of habitat is hence very rapid at the present time.

• NATIONAL and INTERNATIONAL

The Black Redstart is a 'fully protected species': it is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). This protects the bird, its eggs and nestlings from killing and injury, and damage or destruction to its nest - including any disturbance in the vicinity during nest construction. It is listed in Appendix II of the Bern Convention of Migratory Species of Wild Species. This species is listed on the Amber list of Birds of Conservation Concern⁴⁶.

• REGIONAL and LOCAL

Black Redstarts are only found in a few areas in Southern England. The nearest known breeding pairs to those in Reading are in London along the Thames corridor. Local bird recorders have repeatedly noted Black Redstarts at Slough Sewage Farm and Reading Town Centre⁴⁸. Records in Reading date most recently from the Boar's Head and Merchant's Place

off Friar Street (May 2002). There are also actual and anecdotal records of birds in the Fobney Street area, Reading Station, Queen Victoria Street, Broad Street, Green Park and Battle Hospital site⁴⁸. It is likely that the population has been under-recorded in the town and suitable habitat, including sites listed above, should be surveyed for breeding and overwintering populations as all brown field areas are under immediate pressure of development. This would include County Lock area, Napier Road, Great Knolly Street/ Cattle Market and all railway lines and sidings.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Loss of suitable nesting habitat- old warehousing and similar structures for nesting. It is thought that the availability of nesting habitat is the prime limiting factor on population size and distribution.
- ◆ Loss of suitable feeding habitat - gravel and river mud areas for foraging for insects. In new developments the habitat is often changed ('tidied-up') to better suit other species of birds e.g. provision of thorny shrubs for Robins.

NATIONAL PLAN OBJECTIVES AND TARGETS

The Black Redstart is on the UK-BAP Long List - no action plan has been produced yet.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

The London Wildlife Trust produced an advice note in 1999⁴⁶ with information for Black Redstart habitat provision. This has been used extensively by London Boroughs in creating their Black Redstart BAPs. The London Biodiversity Action Plan, produced by the London Biodiversity Partnership⁴⁹, aims to; conserve and enhance the present London population of Black Redstarts, raise awareness of the species to the general population and planning authorities, architects, landscapers and developers and also to promote the Black Redstart as a cultural icon for London. No other UA's locally have included this species in their BAP.

READING OBJECTIVES and TARGETS

This species is given priority action as it has very specific conservation needs and its habitat is in current and rapid destruction. Actions can easily be taken which will both turn about the fortunes for the Black Redstart while also having other environmental benefits (namely creation of 'brown roofs' on new structures which have the effect of reducing runoff, improving heat insulation of buildings while cooling city centres and can give an improved visual impact).

The overall aims and targets are:

- Increase breeding population numbers across town.
- Halt any further net loss of habitat immediately
- To raise awareness of the Black Redstart to the Reading population generally but especially to architects, planners, landscape managers and developers who are involved in creating the changes to Reading.

LOCAL ACTIONS

Action	Internal	External	Typical	Time	Action to date
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	sections	partners	requirements	Scale	
Promote provision of suitable replacement and new habitat in new developments	Planning	Developers	Stronger roof	2005 - 2008 On-going	Planning condition on one town centre development

LINK Habitat Action Plans

- Urban I

HOUSE SPARROW (*Passer domesticus*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

Noisy and gregarious, these cheerful exploiters of man's rubbish and wastefulness, have even managed to colonise most of the world. In the summer they can be found in Towns, villages, parks, gardens and industrial areas. They usually nest on buildings, in holes and crevices, in creepers, trees and bushes and also in nestboxes. During the winter they can be found in large flocks in farmland fields. They gather in trees and hedgerows and often roost communally in ivy-covered walls.

CURRENT STATUS

The ultimate opportunist perhaps, but now struggling to survive in the UK along with many other once common birds. They are clearly declining in both gardens and the wider countryside and their recent declines have earned them a place on the Red List in "Birds of Conservation Concern 2002 - 2007" because of the rapid ($\geq 50\%$) decline in the UK breeding population over the last 25 years.

- **NATIONAL AND INTERNATIONAL**

House Sparrows receive no specific protection in national or international law. Like all other birds in the United Kingdom, their nests are protected while they are breeding.

- **REGIONAL AND LOCAL**

There is a strong population in Reading, which remains high in winter, while surrounding areas of Berkshire show lower numbers.

FACTORS CAUSING LOSS OR DECLINE

- ◆ The causes of the decline in this population are unclear at present, particularly for urban populations. However, lack of suitable nesting sites and winter food may be involved.

NATIONAL PLAN OBJECTIVES AND TARGETS

There is no UK-BAP action plan for this species.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES AND TARGETS

House Sparrows are not included in any neighbouring L-BAPs.

READING OBJECTIVES and TARGETS

To maintain and increase the population size

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Encourage the provision of House Sparrow nest boxes and the feeding of this species during the winter	Land Managers Planning SU	Developers	Leaflet	2005 - 2008 On- going	

LINK Habitat Action Plans

- Urban I
- Urban II
- Parkland
- Ancient and/or Species Rich Hedgerows

SAND MARTIN (*Riparia riparia*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

Sand martins are the smallest European hirundines (martins and swallows). Agile fliers, feeding mainly over water, they will perch on overhead wires or branches. They are gregarious in the breeding season and winter. Breeds in sandy river banks, earth banks and quarries.

CURRENT STATUS

Over the past 50 years the European population has crashed on two occasions as a result of drought in the birds' African wintering grounds. Sand Martins are amber listed in "Birds of Conservation Concern 2002 - 2007" because of their unfavourable conservation status in Europe.

- **NATIONAL AND INTERNATIONAL**

Sand martins receive no specific protection in national or international law. Like all other birds in the United Kingdom, their nests are protected while they are breeding.

- **REGIONAL AND LOCAL**

The Sand martin is locally important and its numbers have dropped as the number of sand and gravel quarries has decreased in the area. There are birds nesting in pipes in old walls adjacent to the River Kennet, but these are at risk from re-development of the adjacent sites.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Droughts in Africa.
- ◆ Loss of breeding sites.

NATIONAL PLAN OBJECTIVES AND TARGETS

There is no UK-BAP action plan for this species.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES AND TARGETS

Sand Martins are not included in any neighbouring L-BAPs. A Sand Martin cliff has been constructed at Hosehill Lake LNR in West Berkshire.

READING OBJECTIVES AND TARGETS

Maintain existing population.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Ensure that developments adjacent to river banks are checked for the presence of this species. Where present ensure that adequate re-provision of suitable habitat.	Planning	Developers	To the developer	On-going	Mitigation has been included in two developments

LINK Habitat Action Plans

- Urban I
- Rivers
- Semi natural grassland

GREAT CRESTED NEWT (*Triturus cristatus*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

Like all British amphibians, Great Crested Newts rely on water bodies for breeding but otherwise they spend much of their lives on land. Some adult newts commence their migration to their breeding ponds as early as the first frost free days in late January, but most move later, with the majority reaching the ponds by mid March. The peak courtship and egg laying period is normally from mid March to mid May. Adult newts generally leave the breeding ponds from late May onwards, this dispersal being gradual, and newts may return occasionally to feed. The juveniles (also called eft), emerge from the pond from early August to late September. For the next 2 to 4 years the immature newts are largely terrestrial, before returning to the pond to begin breeding.

The adult and immature newts spend the winter in places that afford protection from frost and flooding, often underground amongst tree roots, in mammal burrows, or above ground under suitable refuges like deadwood or rubble piles. Hibernation may last from October to February. When not hibernating newts require protection from extremes of weather in refuges such as dense vegetation, dead wood, rubble piles or underground sites.

Great Crested Newts have been found to move over considerable distances (up to 1.3 km from breeding sites) but the usual distance is less than 500metres.

CURRENT STATUS

Great Crested Newts are protected under the Bern Convention, EU Habitats Directive, The Conservation (Natural Habitats, etc.) Regulations and under schedule 5 of the Wildlife and Countryside Act 1981

- **NATIONAL and INTERNATIONAL**

The Great Crested Newt has suffered a decline in recent years, with studies showing a 2% loss of colonies over 5 years. The British population is amongst the largest in Europe, where it is threatened in many countries.

- **REGIONAL and LOCAL**

No known populations of Great Crested Newts are known in Reading although recent surveys in Wokingham have shown it to be much more frequent there than previously thought.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Loss of suitable breeding ponds caused by water table reduction.
- ◆ Infilling of ponds for development, farming & waste disposal.
- ◆ Loss of ponds due to neglect or stocking with fish.
- ◆ Degradation, loss and fragmentation of surrounding terrestrial where Great Crested Newts spend most of the year.

NATIONAL PLAN OBJECTIVES AND TARGETS

The UK-BAP for Great Crested Newts seeks to restore populations to 100 unoccupied sites each year for 5 years, creating ponds and managing habitat as necessary. The BAP also seeks to maintain the range, distribution and viability of existing population.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

Following the requirement for full surveys of all ponds affected by new developments being included in their L-BAP, Wokingham District has recently found these newts to be far more widespread than previously recorded. Both here and in Bracknell Forest comprehensive monitoring has been included as part of their objectives. Raising public awareness is also important along with designated protection and active management of all identified strongholds. Potential mitigation to allow colonisation of transfer sites is considered in the Wokingham L-BAP.

READING OBJECTIVES and TARGETS

As so many potential sites are under threat of development and increased recreation use, surveys and mitigation and raising public awareness will be important features. Overall the target will be to identify any and all population sites by 2008 and enhance areas to allow expansion of populations if at all suitable. Transfer from neighbouring districts may be considered where habitat is available and a licence for destruction of the existing site is given.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Survey potential habitat in sites under threat of development and mitigate subsequent impact	Planning	BRAG TV-ERC Developers		2005 - 2008 On-going	

LINK Habitat Action Plans

- Ponds (Standing Open Water) and Reedbeds
- Grasslands

SLOW WORM (*Anguis fragilis*) SPECIES ACTION PLAN

ECOLOGICAL INFORMATION

Slow worms, while being neither worm or slow when not torpid, are frequently mistaken as snakes, however they are actually true lizards with no legs. They can be quite variable in colouration ranging from light silvery brown (usually the males) to quite dark brown with a distinctive darker fine stripe lengthways down the body (females). The shiny polished appearance results from the scales being small and smooth. It is well camouflaged and, as it lives and travels underneath things, is not often seen.

In urban areas, they tend to frequent compost heaps and warm up by resting under loose rubbish on the soil surface such scrap metal, carpet, thin layers of leaves. (Putting out suitable items such as corrugated iron, rubber tiles or carpeting can be used to effectively check for their presence.) This habitat is generally found in allotments and large and mature gardens. In more rural areas they are found in grasslands and heathlands but they are also found in deciduous woodlands. During the winter they tend to hibernate in underground sites that are well protected against desiccation and freezing, e.g. rock walls, compost heaps, buried rubble.

They feed on slugs, earthworms and other soft-bodied invertebrates.

CURRENT STATUS

Slow worms were common and widespread throughout Britain, but have declined recently with the loss of habitat during intensification of both rural and urban land use. They are almost certainly under-recorded as they have been treated as ubiquitous until recently; good population records need to be obtained in most counties. Froglife are currently collating records of sightings and may be able to give a better idea of population distribution and strength soon⁵³.

- **NATIONAL and INTERNATIONAL**

Slow worms are protected under Schedule 5, section 9 of the Wildlife and Countryside Act (1981), against intentional injury or killing. Trade is also prohibited.

- **REGIONAL and LOCAL**

In Reading it is thought that the important sites for this species include mature gardens and allotments such as those at Bulmershe, Caversham Court, Balmore, Circuit lane, Coley Park, Mockbeggar, Oaktree, Victoria Rd, and Waterloo Meadows. Other allotments that may have populations are those at Cow Lane, Henley rd, Newcastle Rd, Scours lane.

FACTORS CAUSING LOSS OR DECLINE

- ◆ Loss of habitat through increased urban development in gardens and rural areas.
- ◆ Loss of habitat through intensification of management ('tidying up').

NATIONAL PLAN OBJECTIVES AND TARGETS

Slow Worm is not included in the UK-BAP.

NEIGHBOURING OR OTHER RELEVANT ORGANISATIONS' OBJECTIVES and TARGETS

This species is not specifically covered by any other neighbouring authority, except as a beneficiary of some general garden BAPs.

READING OBJECTIVES and TARGETS

The aim will be to ascertain the distribution across Reading and to ensure that the high levels of development seen do not adversely affect the population.

LOCAL ACTIONS

Action	Internal sections	External partners	Typical requirements	Time Scale	Action to date
Where Slow Worms are affected by development, ensure that appropriate mitigation measures are taken.	Planning	Developers		2005 - 2008 On-going	

LINK Habitat Action Plans

- Grassland
- Urban II

APPENDIX V

SPECIES ACTION PLAN STATEMENTS

SPECIES ACTION PLAN STATEMENTS

<u>PLANTS</u>
<p>Ragged Robin</p> <p>Ecological Information</p> <p>This is a herb of damp habitats, found in wet grassland, rush pasture, fen meadow, ditches, tall herb-fen and damp woodland margins. Many floras records record local declines due mainly to drainage and agricultural improvement of wet grass land.</p> <p>Current Status</p> <p>This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the aim of restoring the 1960s distribution.</p>
<p>Snake's Head Fritillary</p> <p>Ecological Information</p> <p>A bulbous perennial herb of damp , sometimes winter-flooded, neutral grasslands, usually managed for hay with the the aftermath grazed.</p> <p>Current Status</p> <p>While most people consider this plant to be native, a few question this. In the UK it occurs as far north as Staffordshire. It is now much less common than formally due to the ploughing of riverside meadows. Its strong holds are now Suffolk and the Thames Valley. There is an SSSI on the River Loddon at Stanford End Mill which contains this species and there is a small population in the Kennet Meadows</p>
<p>Bluebell</p> <p>Ecological Information</p> <p>A native plant of deciduous woods (often with Bracken), hedgerows, shady banks and grasslands.</p> <p>Current Status</p>

<p>This plant is frequent to abundant throughout the British Isles. Widespread in Berkshire, including Reading. Some concerns about illegal collection for the horticultural trade and hybridisation with the closely related Spanish Bluebell.</p>
<p>Cowslip</p> <p>Ecological Information</p> <p>A native plant that is locally common in grassy places usually on light lime-rich soils (such as found over chalk).</p> <p>Current Status</p> <p>Once a common flower of grassland throughout Britain, this species has declined significantly since the 1950s through the effects of agricultural intensification. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with a target of restoring the 1960s distribution by 2005.</p>
<p>Moschatel</p> <p>Ecological Information</p> <p>A plant that is found in woods, hedges, shady rocky places on mountains and usually on damp, humus rich soils. This plant is an indicator of ancient woodlands. Also known as the 'townhall clock' because of its flower head.</p> <p>Current Status</p> <p>Found throughout the British Isles including Berkshire. Present at Lousehill Copse. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the target of maintaining the present distribution.</p>
<p>Wild Service Tree</p> <p>Ecological Information</p> <p>Wild Service-tree is a rare, deciduous, conical-shaped tree up to 25 m tall with ascending branches and a dark grey bark with shallow fissures. It is found scattered in oak-ash woods on clay and limestone. In addition it may be found in hedgerows or as a single tree or coppice stool on woodbanks locally. Reproduction by seed appears poor, there are some local populations on heavy clay soil where suckering</p>

is vigorous. It is regarded as a strong indicator of Ancient Woodland.

It is also called the Chequer Tree, because the bark peels off in rectangular pieces leaving a chequered effect.

Current Status

This species appears to have been overlooked, due no doubt to its singular occurrence in many woods. Two sites are known to in Reading Borough where it appears to be native. It occurs in a further 9 sites within the immediate area of Sulham Woodley/Earley.

The Flora of Berkshire (1968) records 16 sites in central Berkshire.

<u>INVERTEBRATES</u>
<p>Striped Lychnis</p> <p>Ecological Information</p> <p>The adults are on the wing during June and July, but are not often encountered except at light. The distinctive caterpillar feeds on the flowers of dark mullein (<i>Verbascum nigrum</i>) and white mullein (<i>V. lychnitis</i>).</p> <p>Current Status</p> <p>A very local species, occurring only in a few scattered localities in the south of England (Berkshire, Buckinghamshire, Oxfordshire, North Hampshire and West Sussex) mainly in chalk or limestone districts. It has declined greatly in the last 25 years with its range contracting by 50%. It is a UK BAP species.</p>
<p>Buttoned Snout</p> <p>Ecological Information</p> <p>Buttoned snout larvae feed on hop <i>Humulus lupulus</i>, particularly plants sprawling across the ground. The adults hibernate in man-made shelters, outbuildings, etc and in caves. Redevelopment of derelict urban sites is believed to be the cause of its current decline.</p> <p>Current Status</p> <p>This moth was formerly widespread throughout southern Britain north to Lincolnshire and South Wales. It has declined significantly and now occurs mainly in river valleys in south-east England, particularly the Thames basin, and on estuaries and other scattered sites around the coast of England. The species has been reported from every country in Europe except Ireland. The range extends to the Lebanon, southern Russia and Iran.</p> <p>In Great Britain this species is classified as <i>Nationally Scarce</i> and it is a UK BAP species</p>

Heart Moth

Ecological Information

The heart moth is to be found in parkland and open woodland, where the larvae feed on the foliage of pedunculate oak *Quercus robur* and seem to prefer over-mature trees. Current factors causing loss or decline include the felling of over-mature oak trees.

Current Status

The moth is now seen in numbers only in parts of Surrey, but it also survives at low density in north-west Kent, Berkshire and Northamptonshire. It has been lost from Buckinghamshire, Essex, Middlesex, Hertfordshire and Hampshire in recent decades. The moth has been reported from most countries in Europe but it is extinct, very rare or localised in many parts of its range, which extends to the Middle East and the Urals.

In Great Britain this species is classified as *Rare*. And is a UK BAP species.

Marbled White

Ecological Information

The Marbled White is a distinctive and attractive black and white butterfly, unlikely to be mistaken for any other species. In July it flies in areas of unimproved grassland and can occur in large numbers on southern downland. It shows a marked preference for purple flowers such as Wild Marjoram, Field Scabious, thistles, and knapweeds. Adults may be found roosting halfway down tall grass stems.

Current Status

This species is widespread in southern Britain and has expanded northwards and eastwards over the last twenty years, despite some losses within its range.

<u>MAMMALS</u>
<p>Otter</p> <p>Ecological Information</p> <p>A secretive semi-aquatic species which was once widespread in Britain. Otters live along rivers, lakes and sea coasts, and, at times, in marshy areas some distance from open water. Otters are generally nocturnal. Fish are the otter's most important food. Coarse fish, eels and salmonids are eaten, depending on what is present. Otters may also take water birds such as coots, moorhens and ducks. In the spring, frogs are an important food item.</p> <p>Otters can travel over large areas. Some are known to use 20 kilometres or more of river habitat. Otters deposit faeces (known as spraints, with a characteristic sweet musky odour) in prominent places around their ranges. These probably serve to mark an otter's range and help neighbouring animals keep in social contact with one another.</p> <p>Current Status</p> <p>In the Environment Agencies Thames Region, otters can now be found on riverbanks and wetlands in Hertfordshire, Oxfordshire, Gloucestershire and Wiltshire, including the Cotswold Water Park. Since the fourth National Otter Survey was carried out in 2000-02, there has been evidence of otters on the River Loddon in Berkshire. This is the first time otters have been recorded in Berkshire for 20 years. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the target of establishing a breeding population by 2005. It is a UK BAP species.</p>

<u>BIRDS</u>
<p>Kingfisher</p> <p>Ecological Information</p> <p>Kingfishers are small unmistakable bright blue and orange birds of slow moving or still water. They fly rapidly, low over water, and hunt fish from riverside perches, occasionally hovering above the water's surface. They are a vulnerable to hard winters and habitat degradation through pollution or unsympathetic management of watercourses.</p> <p>Current Status</p> <p>Kingfishers are amber listed in "Birds of Conservation Concern 2002 - 2007" because of their unfavourable conservation status in Europe. As a fairly rare, easily disturbed bird, the kingfisher is afforded the highest degree of legal protection under the Schedule 1 of the Wildlife and Countryside Act 1981. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with aim of maintaining current numbers and distribution.</p>
<p>Nightingale</p> <p>Ecological Information</p> <p>Nightingales are slightly larger than robins, with a robust, broad-tailed, rather plain brown appearance. They are skulking and extremely local in their distribution in the UK while in much of southern Europe, they are common and more easily seen. The famous song is indeed of high quality, with a fast succession of high, low and rich notes that few other species can match. Nightingales like dense thickets and scrub with thick foliage. The edges of clearings or rides, or clumps of bushes surrounded by heath or open space, are ideal. They feed deep in secluded thickets or overgrown ditches and similar places. In southern England, they breed in clumps of blackthorn and other dense bushes. Many are found in oakwoods with a dense undergrowth.</p> <p>Current Status</p> <p>Nightingales are amber listed in "Birds of Conservation Concern 2002 - 2007" because of a contraction in their breeding range of between 25 - 49% in the last 25 years. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the aim of retaining it as a breeding species within each 2 km tetrad where it breed in 1995.</p>

Skylark

Ecological Information

The skylark is renowned for its display flight, vertically up in the air. The skylark is found mainly in lowland farming areas, preferring those with a covering of grass or low green herbage, but it may also be found in suitable upland grassy areas. It is generally found in open habitats and avoids isolated trees and tall hedges. They feed on insects and seeds.

Current Status

The skylark populations are declining in almost all countries of northern and western Europe. In the UK, the population halved during the 1990s, and is still declining. In the preferred habitat of farmland, skylarks declined by 75% between 1972 and 1996
Skylarks are red listed in "Birds of Conservation Concern 2002 - 2007" because of their rapid ($\geq 50\%$) decline in the UK breeding population over the last 25 years. It is a UK BAP species. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the aim of reversing the decline in numbers and range.

Barn Owl

Ecological Information

With heart shaped face, buff back and wings and pure white under parts the barn owl is a distinctive and much loved countryside bird. Widely distributed across the UK, the bird has suffered declines over the past fifty years as a result of the degradation of once prey-rich habitats in the face of intensive agricultural practices. This decline, fortunately, has halted in many areas and the population may now be increasing. Barn Owls like open country, especially farmland with barns, and coastal marshland. They hunt for mice, voles and shrews along field edges, riverbanks and roadside verges.

Current Status

The barn owl is on Schedule 1 of both the Wildlife and Countryside Act, 1981 and The Wildlife (Northern Ireland) Order, 1985; therefore the birds, their nests, eggs and young are fully protected at all times throughout the UK. Barn Owls are amber listed in "Birds of Conservation Concern 2002 - 2007" because of a contraction in their breeding range of between 25 - 49% in the last 25 years and their unfavourable conservation status in Europe. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the target of increasing the 1995 population by 50% by 2015.

Bittern

Ecological Information

A thickset heron with all-over bright, pale, buffy-brown plumage covered with dark streaks and bars. It flies on broad, rounded, bowed wings. A secretive bird, very difficult to see, as it moves silently through reeds at water's edge, looking for fish, amphibians and insects. The males make a remarkable far-carrying, booming sound in spring.

Current Status

The Bitterns dependence on large reedbeds and very small population make it a Red List species in "Birds of Conservation Concern 2002 - 2007". This is one of the most threatened species in the UK. It is a UK BAP species. The bittern is listed on Schedule 1 of the Wildlife and Countryside Act 1981, which affords special protection at all times.

Bullfinch

Ecological Information

The male is unmistakable with his bright pinkish-red breast and cheeks, grey back, black cap and tail, and bright white rump. The flash of the rump in flight and the sad call note are usually the first signs of bullfinches being present. They feed voraciously of the buds of various trees in spring and were once a 'pest' of fruit crops. The adults also feed on seeds and feed their young insects

Current Status

Recent declines ($\geq 50\%$) in the UK breeding population over the last 25 years place it on the Red List in "Birds of Conservation Concern 2002 - 2007. It is also a UK BAP species. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the aim of achieving a breeding population in all 2 km tetrads.

Hobby

Ecological Information

About the size of a kestrel with long pointed wings, reminiscent of a giant swift. It has a dashing flight and will chase large insects and small birds like swallows and martins. Prey is often caught in its talons and transferred to its beak in flight. They can accelerate rapidly in flight and are capable of high-speed aerial manoeuvres. Hobbies like mature trees in farmland, woodland edges and heathland, with areas of open countryside and water nearby to feed over.

Current Status

Now breeds across central, southern and eastern England, into S Wales and just about reaching northern England and S Scotland. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the target of increasing breeding success by 5% by 2010.

Kestrel

Ecological Information

A familiar sight with its pointed wings and long tail, hovering beside a roadside verge. They have adapted readily to man-made environments and can survive right in the centre of cities. It is one of the commonest countryside birds of prey, found from coast to hilltop, nesting almost everywhere there is a suitable nest site with areas of open, rough ground to feed over. In towns and cities they will feed over parks and gardens. Kestrels nest either in holes or on ledges. These may be in natural places such as on cliffs or in trees where birds use either tree holes or the nests of other birds such as crows. They frequently also use man-made sites such as church spires and other tall buildings and even more unusual locations including pylons, cranes and even a window box!

Current Status

Kestrels have been recently declining as a result of habitat degradation due to continuing intensive management of farmland. Kestrels are therefore amber listed in "Birds of Conservation Concern 2002 - 2007" because of a contraction in their breeding population of between 25 - 49% in the last 25 years and their unfavourable conservation status in Europe

Lapwing

Ecological Information

Also known as the peewit in imitation of its display calls, its proper name describes its wavering flight. Its black and white appearance and round-winged shape in flight make it distinctive, even without its splendid crest. Mainly breeds on farmland, preferring spring sown cereals, root crops which are adjacent to grass and bare land; permanent unimproved pasture; meadows and fallow fields. They can also be found on wetlands with short vegetation. In winter they flock on pasture and ploughed fields. Lapwings feed on worms and insects.

Current Status

This familiar farmland bird has suffered significant declines in the last 25 years and is an Amber List' species in "Birds of Conservation Concern 2002 - 2007" because of the importance of its UK wintering population.

Little Ringed Plover

Ecological Information

A small plover with a distinctive black and white head pattern, similar to ringed plover. It first bred in the UK in 1938 and since then has successfully colonised a large part of England and Wales thanks to man-made habitats such as gravel pits which have shingle banks. They also like sand quarries, sewage farms and reservoirs if they have the right shorelines. They will also use natural shingle banks along rivers and lakes.

Current Status

This is a BBOWT Berkshire 100 Biodiversity Challenge Species.

Linnet

Ecological Information

A small, slim finch, widely distributed. Males are attractively marked with crimson foreheads and breasts, females much browner. It can be flighty and has an undulating flight, usually twittering as it flies. The linnet is a lowland farmland bird, preferring areas of scrub such as gorse or blackthorn, suitable hedges, especially hawthorn, or low trees. It may also be found in orchards, heathland, uncultivated land and saltmarshes, and is becoming more common in parks, gardens and other suburban habitats.

<p>Current Status</p> <p>Recent declines ($\geq 50\%$) in the UK breeding population over the last 25 years place Linnets on the Red List in "Birds of Conservation Concern 2002 - 2007". This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the aim of reversing the decline in numbers and range. It is also a UK BAP species.</p>
<p>Reed Bunting</p> <p>Ecological Information</p> <p>Sparrow-sized but slim and with a long, deeply notched tail, the male has a black head, white collar and a drooping moustache. Females and winter males have a streaked head. In flight the tail looks black with broad, white edges. It favours stands of dense, herbaceous vegetation on waterlogged soils, usually at the water's edge but is now often found in young forestry plantations or overgrown ditches on farmland and even in crops such as oilseed rape and weedy turnip fields.</p> <p>Current Status</p> <p>This farmland and wetland bird has suffered a serious population decline ($\geq 50\%$) over the last 25 years making Skylarks red listed in "Birds of Conservation Concern 2002 - 2007". It is also a UK BAP species. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with the aim of establishing breeding population in all 10km squares through which major rivers pass.</p>
<p>Song Thrush</p> <p>Ecological Information</p> <p>Smaller and browner than a mistle thrush with smaller spotting. Its habit of repeating song phrases distinguish it from singing blackbirds. It likes to eat snails, which it breaks into by smashing them against a stone with a flick of the head. Song Thrushes breed in deciduous and coniferous woodland, hedgerows and bushes. They readily breed in gardens with suitable cover and feed on worms, snails and fruit.</p> <p>Current Status</p> <p>This popular garden songbird has suffered a serious population decline ($\geq 50\%$) over the last 25 years making Song Thrushes red listed in "Birds of Conservation Concern 2002 - 2007". It is a UK BAP species. This is a BBOWT Berkshire 100 Biodiversity Challenge Species with aim of retaining or re-establishing it as a breeding species in all parishes.</p>
<p>Snipe</p>

Ecological Information

Snipe are medium sized, skulking wading birds with short legs and long straight bills. They are widespread as a breeding species in the UK, with particularly high densities on northern uplands but lower numbers in southern lowlands (especially south west England). In winter, birds from northern Europe join resident birds. Snipe nest on the ground in thick vegetation on wet moors or pasture where there is easy access to soft ground and small shallow pools.

Current Status

The UK population of snipe has undergone moderate declines overall in the past twenty-five years, with particularly steep declines in lowland wet grassland, making it an Amber List species in "Birds of Conservation Concern 2002 - 2007". This is a BBOWT Berkshire 100 Biodiversity Challenge Species.

Swift

Ecological Information

The swift is a medium-sized aerial bird, which is a superb flier. It even sleeps on the wing! It is plain sooty brown, but in flight against the sky it appears black. It has long, scythe-like wings and a short, forked tail. It is a summer visitor, breeding across the UK, but most numerous in the south and east. It winters in Africa. Swifts breed in buildings, especially older ones where there is suitable access into the roof space.

Current Status

While still common, some recent concern about local declines thought to be brought about by the better maintenance of houses denying access to lofts and the renovation of old properties.

<u>REPTILES AND AMPHIBIANS</u>

Grass Snake

Ecological Information

The adaptable grass snake ranges over a wide variety of habitats. It occurs in ponds, marshes, ditches and rivers, in meadows and fields, in hedgerows and open woodland, and on sunny hillsides, sandy heaths and open moorland. The grass snake must warm up before it can become active. When it emerges in the morning, it basks in the sun and soaks up energy to raise its temperature to 20°C or so. If the snake is much colder than this, its body chemistry runs too slowly, its muscles do not work properly and it cannot digest food. Winter is generally too cold for activity, and most of the snake's favourite prey cannot be found. In October, therefore, the grass snake curls up in an old rabbit burrow or a crevice, often with several others, and slips into hibernation. It sometimes emerges to bask on warm winter days, but it usually stays hidden until late March or April. It is a wary animal, always alert for enemies such as buzzards, herons, badgers and hedgehogs. If cornered, it can defend itself by releasing a foul-smelling fluid, but if this fails it may feign death - a tactic that discourages all but the most determined and hungry predators. Like all snakes, the grass snake is a predator that hunts live animals. On land, the snake takes mice, voles, small birds, nestlings and eggs, but it often hunts in or near the water for frogs and newts, which are among its favourite prey.

Current Status

The Grass Snake is found throughout England and Wales but gets extremely scarce in the north and there are no confirmed records from Scotland. This is a BBOWT Berkshire 100 Biodiversity Challenge Species.

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