Building Biodiversity into Herefordshire's Local Development Framework

December 2009






Herefordshire Council

NHS Herefordshire

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Acknowledgements

The author of this report is Bridgit Symons, with assistance from Joanne Hackman and Chris Mayes, all officers of Herefordshire Council's Landscape and Biodiversity Team. Rachel Price at the Herefordshire Biological Records Centre produced the maps.

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Bridgit Symons
Senior Ecologist

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PART III

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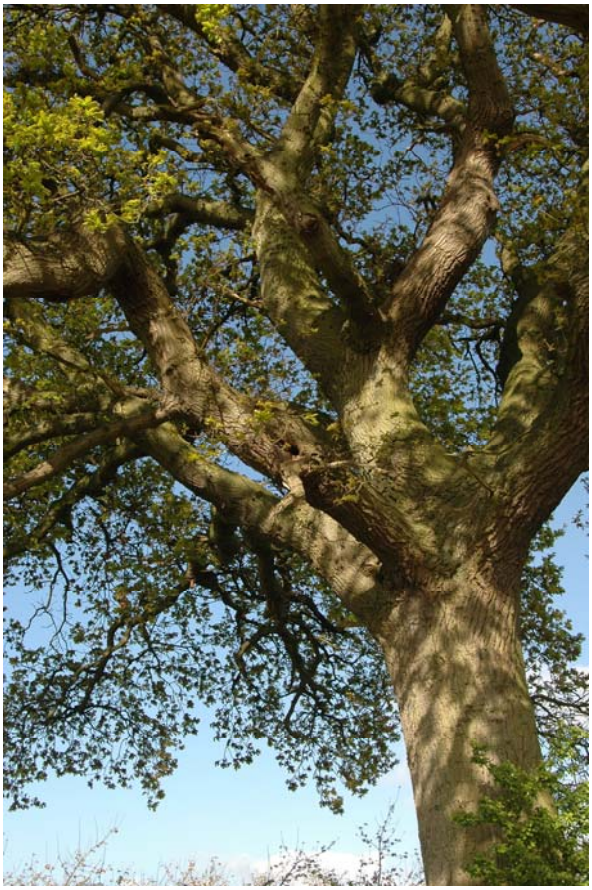
Key messages

- **Assess the existing biodiversity and geodiversity data**
- **Obtain up-to-date ecological survey information**
- **Protect important biodiversity and geodiversity features**
- **Seek opportunities to enhance habitats and habitat networks**
- **Include actions for priority habitats and species**
- **Refer to Green Infrastructure Strategy for further guidance**
- **Build in resilience to climate change**
- **Enable public enjoyment of and involvement in their natural environment**
- **Seek guidance from Herefordshire Council's Landscape and Biodiversity team**



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PART I

1 Introduction

1.1 Background

1.1.1 The biodiversity and geodiversity resource of Herefordshire is rich and varied. Within Herefordshire there are four internationally and 76 nationally designated sites as well as over 700 Local Wildlife Sites; together these cover 9% of the county. Included in the Local Sites are 117 Local Geological Sites (also known as Regionally Important Geological Sites), of which 21 are also designated as Sites of Special Scientific Interest. Further information can be found in Appendix 1.

1.1.2 There are numerous records of legally protected species across the county, often found outside the boundaries of designated sites. The Herefordshire Biological Records Centre is the main source of information on these records (see Appendix 2 for contact details).

1.1.3 The Herefordshire Biodiversity Action Plan (2005) identifies the priority habitats and species that are of importance locally and require focused conservation action; there are 25 priority habitats and over 150 priority species in the county BAP.

1.2 Legislation and Policy context

1.2.1 Planning Policy Statement 9 (PPS9), published in 2005, states that the government's objectives are:

- To promote sustainable development by ensuring that biological and geological diversity are conserved and enhanced as an integral part of development
- To conserve, enhance and restore the diversity of England's wildlife and geology…
- To contribute to rural renewal..… by ensuring that developments take account of the role and value of biodiversity

1.2.2 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System (ODPM 06/2005) provides guidance on the application of the law relating to planning and conservation, to accompany PPS9.

1.2.3 PPS9 should also be read in association with Planning for Biodiversity and Geological Conservation: A Guide to Good Practice (ODPM 2006).

1.2.4 The Natural Environment and Rural Communities Act 2006 (Section 40) states that:

> "Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity."

This is also known as the 'Biodiversity duty'.

1.2.5 The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) and the Wildlife and Countryside Act 1981 (as amended) are the pieces of legislation that afford protection to certain species and sites (SACs and SSSIs in Herefordshire). The Countryside and Rights of Way Act 2000 also identifies important habitats for the conservation of biodiversity. See Appendix 1 for further information.

1.2.6 The England Biodiversity Strategy (Defra, 2002) seeks to ensure biodiversity considerations become embedded in all main sectors of public policy and sets out a programme for the future to make the changes necessary to conserve, enhance and work with the grain of nature and ecosystems rather than against them. The England Biodiversity Group has published a new framework (2009) to drive the work on priority species and habitats in England. The framework aims to build on the strengths of the UK Biodiversity Action Plan. One of the purposes of the framework is to encourage the adoption of an ecosystem approach and embed climate change adaptation principles in conservation action.

1.2.7 Herefordshire Council has produced Biodiversity Supplementary Planning Guidance (2004), which covers how the planning system in Herefordshire takes account of biodiversity. It provides guidance for developers and their ecological consultants.

1.2.8 The Climate Change Act 2008 creates a new approach to managing and responding to climate change in the UK, including enhancing the ability to adapt to the impact of climate change. Protection and enhancement of a diversity of habitats and associated networks will contribute to resilience and adaptation to climate change.

1.2.9 It is essential that the Council assesses the existing biodiversity and geodiversity resources in Herefordshire and that those resources are fully considered, safeguarded and enhanced in any development proposals and documents. This study will therefore be used as part of the evidence base for the Local Development Framework and may contribute to Biodiversity Opportunity Mapping in Herefordshire. It will initially be used to inform the Strategic Housing Land Availability Assessment (SHLAA) and reflects the information currently available. The study represents a snapshot in time (August 2009); new information that comes to light can be added to the evidence base in future updates. It is intended that 'Building Biodiversity into Herefordshire' will become a dynamic work, updated as necessary to include newly acquired information and future additions to the county's biodiversity resource.

1.3 Aims

The aims of this study are:

1) To provide a biodiversity evidence base for Herefordshire's Local Development Framework and emerging Core Strategy.

2) To inform the Strategic Housing Land Availability Assessment (SHLAA) for Hereford, the market towns and villages, which itself aims to identify sites for and constraints to development.

3) To inform future proposals for employment land, an outer distributor road for Hereford and any other essential infrastructure to achieve Herefordshire Council's Core Strategy and growth plans.

4) To provide evidence for and inform the development of Herefordshire's Green Infrastructure Strategy.

1.4 Objectives

The following objectives have been identified within this study:

1) To identify the biodiversity and geodiversity constraints and sensitivities to new development in Herefordshire

2) To ensure that significant and sensitive habitats, species and earth science interests are safeguarded in the face of new development

3) To identify opportunities for biodiversity and geodiversity enhancement as a result of new development

4) To gather evidence about opportunities for biodiversity and geodiversity enhancement through mechanisms other than new development

5) To add to and improve the quality of evidence resulting from development, changing land use and knowledge gained from survey and monitoring

2 Methodology

2.1 Collation of existing relevant biodiversity and geodiversity data

The following list summarises the existing sources of data available for the biodiversity and geodiversity evidence base:

- Designated site boundaries (statutory and non-statutory)
    - Special Areas of Conservation (SAC)
    - Sites of Special Scientific Interest (SSSI)
    - National Nature Reserves (NNR)
    - Local Nature Reserves (LNR)
    - Special Wildlife Sites/ Sites of Importance for Nature Conservation (SWS/SINC)
    - Local Geological Sites (also known as Regionally Important Geological Sites (RIGS))
- Herefordshire Nature Trust Reserves
- Common land
- County Phase I habitat survey (also known as the Millennium Map)
- Ancient semi-natural woodland boundaries included in the Ancient Woodland Inventory (i.e. areas greater than 2 ha)
- Legally protected or priority species records held by the Herefordshire Biological Records Centre
- Herefordshire Biodiversity Action Plan
- Orchard Priority Habitat layer
- Wye Valley AONB and Malvern Hills AONB Priority Habitat layer
- Wye Valley AONB Veteran Tree Survey
- Herefordshire damson hedgerow survey
- Herefordshire black poplar survey
- Rivers and ponds (Ordnance Survey water layer)
- Aerial photographs

2.2 Identification of constraints and gaps in the existing database

2.2.1 Information in the above data sets has come from a variety of sources and not all have a countywide coverage. Some areas/habitats were not surveyed and mapped during the Phase I survey of the county, although it is hoped that this issue will be addressed in the near future and the information added to this study.

2.2.2 The Phase I Habitat Survey was undertaken between 1999 and 2004, thus some of the data is 10 years old. Numerous surveyors were used during this time, with varying ranges of experience. See Appendix 3 for caveats regarding the use of this data set.

2.2.3 The absence of protected or priority species records does not mean that the species are absent, but merely that their presence has not been reported and recorded. Some species are highly mobile and may quickly occupy new areas should circumstances become favourable to them. Some species, such as mammals and birds, will range widely across the landscape; species records can therefore only provide information for a fixed point in time.

2.2.4 Local Geological Sites are currently only available as point data, although it is hoped that the Herefordshire and Worcestershire Earth Heritage Trust and Natural England will digitise sites as polygons in the near future.

2.2.5 Habitats within urban areas were not consistently recorded during the Phase I habitat survey; where habitats have been identified they are shown in this study, apart from private householder gardens.

2.2.6 The Ancient Woodland Inventory includes only woodlands that are greater than 2 hectares in area. A countywide research project has identified smaller blocks of ancient woodland for 25% of the county, but awaits the resources to complete a full county assessment. When this information becomes available to the HBRC it can be incorporated into the study.

2.2.7 The data used to inform this study is the best available at the time but it should be noted that some habitats identified in the UK and Herefordshire Biodiversity Action Plans are extensive and are not completely mapped in the county, for example hedgerows and arable field margins

2.2.8 It should be recognised that the Phase I habitat data does not directly correlate with BAP priority habitat definitions.

2.3 Recent site visits

2.3.1 Supplementary biodiversity field survey work was undertaken during August 2009 where necessary or possible to:

- Confirm or amend existing data
- Add data for areas where no information existed

2.3.2 Due to time and financial limitations, this work was confined to the areas within 1km of the settlement boundaries of the market towns and within 2km of the boundary of Hereford.

2.4 Development of methodology for categorisation of habitats

2.4.1 This study assembles and analyses the above data to provide a picture of the biodiversity assets and sensitivities in the areas most likely to be subject to development pressures i.e. the peripheries of the city of Hereford and the market towns of Bromyard, Kington, Ledbury, Leominster and Ross-on-Wye.

2.4.2 The methodology was developed through liaison with staff at Natural England, West Midlands Regional Office. The same methodology will also be used across the county in due course to assess biodiversity and geodiversity issues in relation to development pressures in and around the county's smaller settlements.

2.5 Mapping methodology

2.5.1 <u>Mapping boundaries</u>
Maps have been produced for the peripheries of the urban areas (Hereford and the five market towns), to include the land that is most likely to be subject

to development pressures. A 1km "area of potential impact" which follows the shape of the urban areas will be placed around the market town UDP boundaries and of 2km around Hereford City. Habitat information outside these areas will also be displayed where available.

2.5.2 Map 1 – Habitat Categories

Given the limitations of the data, the land has been classified in the following broad categories, based upon the biodiversity and geodiversity constraints to development. The categories are colour-coded to accord with the maps in Part III.

1. Internationally and nationally designated sites:

- Special Areas of Conservation
- Sites of Special Scientific Interest
- National Nature Reserves

2. Locally designated sites:

- Special Wildlife Sites
- Sites of Importance for Nature Conservation (Hereford City)
- Regionally Important Geological Sites
- Ancient Semi-Natural Woodland (including plantations on ancient woodland sites)
- Local Nature Reserves
- Herefordshire Nature Trust Reserves
- Common land

3. Semi-natural habitats (including Biodiversity Action Plan Priority Habitats) and wildlife corridors:

- All woodlands apart from ancient semi-natural woodland sites (see 2 above) and plantations (see 4 below)
- Scrub
- Parkland
- Orchards
- All grasslands (apart from agriculturally improved and amenity grasslands)
- Stands of fern
- Heath
- Water and wetlands
- Rock exposure and waste tips (including quarries)
- Linear features such as species-rich hedgerows, ditches, green lanes and disused railways (where mapped by the Phase I survey)

4. Artificial habitats

- Plantations (other than on ancient woodland sites)
- Agriculturally-improved grassland
- Amenity grassland
- Ruderal vegetation

5. Arable

6. Developed, unmapped and/or inaccessible areas will be left unclassified and uncoloured

2.5.3 Map 2 – Protected and Priority Habitat buffer zones

The biological and geological interests of designated sites and semi-natural habitats can be compromised by adjacent development. Well-designed development can potentially assist conservation objectives; buffer zones are an essential 'trigger' for appraising implications for nature conservation arising from development. Buffer zones have been applied to the first three categories, which are considered to be the most potentially sensitive to development.

Following discussion amongst officers of the Herefordshire Council landscape and biodiversity team and with colleagues from Natural England (West Midlands Regional Office), the following buffer zones have been applied:

Table 1: Habitat categories and buffer zones

	Designations / habitats	**Buffer zone**
1	Internationally and nationally designated sites	200m
2	Locally designated sites	50m
3	Open water	50m
	Semi-natural habitats and wildlife corridors	30m
4	Artificial habitats	No buffer
5	Arable	No buffer
6	Unmapped/inaccessible areas	No buffer

The delineation of the buffer zones is to highlight proximity to nature conservation features. The potential for an impact on nature conservation interests within these zones will need to be assessed on a case-by-case basis. The potential for negative and positive impacts outside the buffer zones should be identified at the outline concept stage of proposals. The presence of certain habitats and their associated species may be an absolute or partial constraint to development; it may also be an opportunity that should influence choices of development locations and/or design options.

Habitat protection and ecological mitigation is likely to be required as part of approving development on sites with, or within buffer zones. There may also be opportunities for biodiversity enhancement for ecologically sensitive sites and their surroundings in line with PPS9, the Countryside and Rights of Way Act (2000) and Section 40 of the NERC Act 2006.

2.5.4 Map 3 – Legally-protected and BAP Priority Species

The absence of a protected or a Biodiversity Action Plan priority species record does not mean that the species are absent, but merely that there is no accessible public record of their presence. However, maps showing known species records can still help developers to:

- identify potential constraints;
- initiate early searches to verify protected species' occurrence and conservation status on or adjacent to possible development sites; and
- highlight opportunities to enhance habitats for priority or protected species within development proposals

Species have been mapped in the following four categories:

1. European protected species, protected under the Conservation (Natural Habitats &c.) Regulations 1994 (as amended):

a. All known bat roosts and all records of rarer bat species:
    i. Greater horseshoe bat
    ii. Lesser horseshoe bat
    iii. Barbastelle
    iv. Bechstein's bat
    v. Leisler's bat
    vi. Serotine
b. Great crested newt
c. Otter (all records, including road traffic casualties)
d. Dormouse

2. Nationally protected species (and not mentioned above), protected under the Wildlife and Countryside Act 1981 (as amended):

a. Birds (Schedule 1)*
    i. Barn owl
    ii. Kingfisher
    iii. Peregrine
    iv. Little ringed plover
    v. Black redstart
b. Water vole (Schedule 5)
c. Amphibians (Schedule 5)
    i. Smooth newt
    ii. Palmate newt
d. Reptiles (Schedule 5)
    i. Adder
    ii. Grass snake
    iii. Common lizard
    iv. Slow worm
e. White-clawed crayfish (Schedule 5)

* This bird list is not exhaustive, but includes species for which there are records in and around Hereford and the market towns

3. Herefordshire Biodiversity Action Plan priority species with Species Action Plans (and not mentioned above):

a. Tree sparrow
b. Noble chafer (a beetle)
c. Lepidoptera (butterflies and moths):
    i. Argent & sable
    ii. Grizzled skipper
    iii. Wood white*
    iv. High brown fritillary*
    v. Pearl-bordered fritillary*
d. Black poplar

* Denotes butterfly species also protected under Schedule 5 of the Wildlife and Countryside Act 1981, but included in Category 3 for ease of interpretation.

4. Other Herefordshire Biodiversity Action Plan priority species that may be susceptible to development pressures for which data sets are available:

a. Wild daffodil
b. Brown hare
c. Water shrew
d. Skylark
e. Song thrush
f. Kestrel
g. Scarce blue-tailed damselfly

5. Ancient & veteran trees

Comprehensive data currently available to the Council for ancient and veteran trees is limited to the Wye Valley AONB. Therefore, this information will be incorporated for Ross-on-Wye only at this stage, but should further information become available, this can be included in any updates of this study. The Woodland Trust's Ancient Tree Hunt database holds a partial source of information regarding ancient and veteran trees at: http://www.ancient-tree-hunt.org.uk/

2.5.5 Badgers

Badgers are protected under the Protection of Badgers Act 1992 (as amended). Information regarding the location of setts is sensitive because of badger persecution, and therefore badger records held by the Council and the HBRC have not been included in this study. Nevertheless, surveys to establish the presence of badgers and/or setts will be required, as well as mitigation to avoid any negative impacts if badgers are found to be present.

2.5.6 Buffer zones

It should be noted that some species are highly mobile and may make different use of a site at different times of year. The following buffer zones will be applied, in order to identify areas where there may be particular sensitivities due to the nearby presence of protected species; however, these species may be present outside these zones, and **assessments for the presence of protected and priority species will need to be undertaken for all sites**.

Table 2: Species categories and buffer zones

		Buffer zone
1	**European protected species**	**250m**
2	**Nationally protected species**	**250m**
3	**Herefordshire Biodiversity Action Plan priority species with Species Action Plans**	**None**
4	**Other Herefordshire Biodiversity Action Plan priority species**	**None**
5	**Ancient & veteran trees**	**20m**

PART II

3 Analysis of sensitivity of habitat categories

3.1 Internationally and nationally designated sites

3.1.1 Special Areas of Conservation (SACs) are offered the highest level of protection under the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) are protected under the Wildlife and Countryside Act 1981 (as amended). Housing or other development on these sites would not normally be permitted unless there is no alternative solution and there are imperative reasons of over-riding public interest for the development. The reasons for the development would have to clearly outweigh the nature conservation value of the site and new housing or other development is unlikely to be acceptable or justifiable. Therefore, these sites will not be considered for development (including within the SHLAA).

3.1.2 In order to avoid any adverse impact upon these sites, development adjacent to them is also likely to be constrained. For this reason, a buffer zone of 200m has been applied in which developers must consider potential impacts upon the ecological sensitivities of the adjacent sites. It should be noted that this buffer distance might need to be increased for sites that contain habitats and/or species that could be affected from further afield. This is particularly relevant to water quality issues in relation to the River Wye SAC and also the ecological requirements of greater and lesser horseshoe bats in relation to the Wye Valley Woodlands SAC and Wye Valley and Forest of Dean Bat Sites SAC.

3.1.3 A Habitats Regulations Assessment (this includes the stage known as Appropriate Assessment) would need to be undertaken for any proposed development that could have a likely significant effect upon a Special Area of Conservation, even if the development site does not lie within the boundary (or buffer zone) of the designated site. The local planning authority undertakes this assessment, for which further information regarding the qualifying features of the designated sites may be required; Natural England will advise upon the scope of the assessment. In some instances, the assessment may not need to go beyond the screening stage.

3.2 Locally designated sites

3.2.1 Planning Policy Statement 9 (PPS9) provides guidance for local authorities on the protection of local wildlife sites, ancient woodland and other important natural habitats to encourage the conservation of biodiversity through the planning process. A number of local designations are covered in this category - Special Wildlife Sites, Sites of Importance for Nature Conservation, Regionally Important Geological Sites, Ancient Semi-Natural Woodland and Local Nature Reserves. Herefordshire Nature Trust Reserves have also been included in this category, although many are also designated as SSSIs or SWSs.

3.2.2 Development adjacent to these areas may also have implications for protecting the ecological integrity and wider nature conservation value of the

sites and therefore a buffer zone of 50 metres has been applied in which developers would need to consider these implications. As for category 1 sites above, this is indicative broad guidance as water and air-borne issues may have a wider-reaching effect in specific circumstances.

3.3 Semi-natural habitats and wildlife corridors/linear features

3.3.1 The following Phase I habitats have been included in this category:

- All woodlands apart from ancient semi-natural woodland sites (see 3.2 above) and plantations (see 3.4 below)
- Scrub
- Parkland
- Orchards
- All grasslands (apart from improved and amenity grasslands)
- Stands of fern
- Heath
- Water and wetlands
- Rock exposure and waste tips (including quarries)
- Linear features such as species-rich hedgerows, ditches, green lanes and disused railways (where mapped)

3.3.2 ODPM Circular 06/2005 states that "*The potential effects of a development, on habitats or species listed as priorities in the UK Biodiversity Action Plan (BAP), and by Local Biodiversity Partnerships, together with policies in the England Biodiversity Strategy, are capable of being a material consideration in the preparation of regional spatial strategies and local development documents and the making of planning decisions.*"

3.3.3 PPS9 provides guidance for local authorities on the protection of important natural habitats as well as networks of natural habitats because of their importance in linking sites of biodiversity importance. Therefore, development within these habitats will be constrained from a biodiversity point of view. Full ecological surveys of these sites will be required; they must be undertaken by a qualified and experienced ecologist and at an appropriate time of year. It may be expected that further, detailed surveys will reveal habitats and species that had not been previously identified/mapped.

3.3.4 Development adjacent to these areas may also have implications for protecting the ecological integrity of the habitats, such as through recreational pressures. For this reason, a buffer zone of 50 metres has been applied to water bodies and watercourses and a buffer of 30 metres applied to other important habitats in which developers should consider the implications of development to these habitats. Again, this is merely a broad guidance distance as water and air-borne issues may have a wider-reaching effect.

3.3.5 It is important to emphasise the value of habitat buffers around and habitat linkages between these sites of biodiversity interest, allowing for species migration and movement and increased genetic diversity through wildlife populations exchange. The habitats in Categories 4 and 5 (sections 3.4 and 3.5 below, reference Table 1, page 9) can also have an important role to play

in this. Such linkages and buffers are especially important to counter the adverse ecological effects of habitat fragmentation and environmental stresses from intensive land use and climate change; they can increase the likelihood of effective, long-term site and species safeguarding.

3.4 Artificial habitats

3.4.1 The following Phase I habitats have been included in this category:

- Plantations
- Improved grassland
- Amenity grassland
- Ruderal vegetation

3.4.2 These areas are considered to have limited ecological constraints, but given the caveats of the Phase I habitat survey data (including the lapse between the survey time and the present day), it will be important for developers to be aware that a timely survey (in May or June) should be undertaken, in particular to identify any grasslands of ecological value. It may be expected that further, detailed surveys will reveal habitats and species that had not been previously identified. The surveys must be fit for purpose to provide the relevant information within the context of development proposals.

3.4.3 Hedgerows, field margins and ditch or stream corridors are important ecological features that are likely to be present and should be retained. These habitats may provide important habitats for small mammals as well as foraging areas for species such as bats and barn owl. Other water features (ponds and lakes) may also be present, with potential for presence of protected species such as great crested newt. Therefore, appropriate ecological surveys and mitigation/enhancement strategies should form an integral part of any development proposals in these areas.

3.4.4 It should also be appreciated that man-made habitats or neglected brown-field sites within and near towns, can be used by reptiles such as slow worms and invertebrates. Outbuildings, older houses and cellars can support bat roosts and nesting birds that will need to be accommodated in any development proposals.

3.5 Arable

3.5.1 The arable habitat category includes all intensive agriculture such as cereal crops, potatoes and grass ley. The ecological constraints on land that is currently under arable use is limited, but surveys will be required for farmland birds, in particular those that are breeding on-site. Other species such as brown hare, small mammals and plants associated with arable field margins should also be identified.

3.5.2 As for the category in section 3.4 above, hedgerows, field margins and ditch or stream corridors are important ecological features that are likely to be present and should be retained. Ecological surveys and mitigation/

enhancement strategies should form an integral part of any development proposals in these areas.

3.6 Unmapped/inaccessible areas

Some areas were not assessed during the Phase I habitat survey (see section 2.2.5 and Appendix 2). A habitat survey will be required before an assessment can be made of their sensitivity to or suitability for development.

3.7 Overview

It is important to look at the overall picture of biodiversity for the towns and for Herefordshire as a whole. Awareness of the proximity and networks of habitats and their associated species is vital to maintaining and enhancing the biodiversity resource of Herefordshire. Where the buffer zones for the designations and/or habitats delineated in Map 2 overlap, the sensitivities to development are increased. However, there are also real opportunities in these areas for building in biodiversity enhancement features that will increase the ecological resilience of and strengthen the ecological links between these key biodiversity assets.

Map 2, with its buffer zones, gives a broad picture of the habitat networks for each of the towns. The Green Infrastructure Strategy will further develop ideas and ways for protecting and enhancing the biodiversity networks of the county. It will also identify zones for specific habitat creation and enhancement that complement the findings of this and the Urban Fringe Sensitivity studies.

4 Analysis of sensitivity of protected and priority species

4.1 Background

4.1.1 The presence of protected species is a material consideration in the planning process. Species that have been identified as qualifying features for the designation of SACs and SSSIs will need particular consideration where development proposals could affect them (in or adjacent to the designated site).

4.1.2 The protected and BAP priority species records that have been included in this study are to assist with identifying potential constraints on development sites as well as opportunities for habitat enhancement for species that are known to be nearby. It must be stressed that the absence of species records does not necessarily mean that the species are absent, but that they have not been recorded as being present. All habitats (or structures) that could support protected or priority species will need to be assessed for presence or absence. Further guidance is available in Herefordshire Council's Biodiversity SPG.

4.1.3 It should also be noted that many of the protected species in sections 4.2 and 4.3 below) are also Herefordshire Biodiversity Action Plan priority species (see section 4.4).

4.2 European protected species

These species are offered the highest level of protection under European legislation - the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). The European Protected Species (EPS) found in Herefordshire that are likely to be affected by development include otter, great crested newt, dormouse and all species of bat. Natural England provides guidance on protected species, including on the issues associated with development. See Appendix 1 regarding how to access this information.

If a European Protected Species will be affected by development, a license from Natural England may be required for the works to proceed; mitigation and compensation measures for the species will be required as part of this. Constraints, sensitivities and opportunities for each species are summarised below:

4.2.1 Otter

Otters are primarily a nocturnal species, active during the night and resting during daylight hours. They are generally associated with still or running water, but can travel quite considerable distances overland between water bodies. Otters are also known to spend around half their time in or alongside woods.

They are vulnerable to human disturbance such as through inappropriate management of habitats or recreational activities (including dog walking). Linear habitats such as streams, ditches and hedgerows are important features for this species.

It is important to retain streams and ditches as well as their vegetative and bank side cover. It should also be possible to enhance habitats for otters

through planting and provision of artificial holts or resting places in suitable locations.

4.2.2 Great crested newt

Great crested newts are associated with ponds of all types; they need water bodies with open water and aquatic vegetation for breeding. They also need extensive terrestrial habitat with plenty of invertebrate food for the period outside the breeding season. They may travel some distance overland during this time (up to and sometimes more than 500m) usually via connecting habitats such as hedgerows and field margins. Terrestrial habitat must provide areas for shelter, daytime refuges and foraging and dispersal opportunities. For hibernation newts seek out locations that afford protection from winter conditions such as stone walls and log piles.

All ponds up to 500m from a development site will need to be assessed for the potential presence of great crested newts. Development in areas where they have been identified as being present will need to maintain the inter-connectivity of nearby ponds and ensure the provision of suitable adjacent terrestrial habitats.

Pond and terrestrial habitat creation, for example hedgerows or log piles, will enhance opportunities for great crested newts.

4.2.3 Dormouse

The hazel dormouse is associated with deciduous woodland, but is also found in species-rich hedgerows and scrub particularly where they are connected to larger wooded areas. They spend much of their time high off the ground, building their nests and feeding among the branches of trees and shrubs. They rarely descend to the ground, except for hibernation; they hibernate for up to a third of the year under logs or moss and leaves, particularly at the base of coppiced shrubs.

Dormice are particularly vulnerable to loss of suitable woodland, hedgerow habitats and food sources, as well as habitat fragmentation, leaving isolated, non-viable populations. Dormice have been recorded across much of Herefordshire. All woodlands and hedgerows on or adjacent to a development site will need to be assessed for the potential presence of dormice. Development in areas where they have been identified as being present will need to maintain and sympathetically manage their habitats as well as the connectivity between habitats.

Planting of hedgerows and coppice woodland on or adjacent to development sites will provide further opportunities for dormice.

4.2.4 Bats

There are seventeen British bat species, fourteen of which have been recorded in Herefordshire including many of the rarer species such as lesser and greater horseshoe bats. Different species have different feeding and roosting requirements, but basically all require warm, summer breeding roosts and cool, secure hibernation sites in winter. Bats typically roost in caves, trees and buildings or other structures such as bridges; they may use a combination of these at different times of year. All British bats are insect eaters. The habitats around and between roosting sites are important for bat foraging, in particular trees, woodland and hedgerows.

Bats are vulnerable to loss of roosting sites and foraging habitats as well as habitat fragmentation and subsequent roost isolation. Light pollution from new development can also cause disturbance.

Inclusion of new roosting provision within developments can take the form of bat tubes, bat boxes or even bat lofts above garages. Careful consideration is required when finding locations for these features to avoid conflicts.

4.3 Nationally protected species

The Wildlife and Countryside Act 1981 (as amended) provides a basic level of protection to all plants and birds. It also lists those that receive special protection in England. Those that are most likely to be encountered on development sites in Herefordshire are listed below, including their sensitivities to development as well as opportunities for enhancement of their habitats.

4.3.1 Birds (Schedule 1)

4.3.1.1 Barn owl

The barn owl population has declined over the last fifty years due to loss of foraging habitat and nesting sites. They tend to use holes in trees, or undisturbed buildings such as barns and outbuildings for nesting; nest boxes are used in suitable circumstances.

Barn owls require rough grassland with good populations of small mammals for hunting. Field edges, the edges of watercourses and grass strips alongside woods provide ideal hunting habitat. It is therefore important to retain grassy headlands, unused field corners and grassy edges to fields, as well as suitable nesting sites; provision of fence posts as hunting perches is also helpful.

4.3.1.2 Kingfisher

Kingfishers are found by still or slow-flowing water such as lakes, canals and rivers, hunting fish from riverside perches. They excavate a nest burrow into stone-free sandy soil of stream banks usually about 0.5m from the top in a vertical bank clear of vegetation. Cold weather or flooding in the summer can make fishing difficult, resulting in starvation of the brood, while flooding can also claim many nests. The main predators are rats and the domestic cat; human disturbance of nesting birds is a serious problem, upsetting the feeding routine. They are also vulnerable to hard winters and habitat degradation through pollution or unsympathetic management of watercourses. Heavy machinery for bank grading and draining the land destroys many nests each year on lowland rivers. It is important to ensure that nesting sites and feeding perches are protected from human disturbance.

4.3.1.3 Peregrine

The peregrine feeds primarily on birds, which it catches in flight. It requires extensive open terrain for hunting. Its generalist diet allows the peregrine to exist wherever there are good mixed bird populations. Most records in Herefordshire are 'in-flight'. It is possible to provide nesting ledges to help peregrines re-colonise their former ranges, but this requires the presence of suitable structures.

4.3.1.4 Little ringed plover

This species is a summer visitor to the UK and is usually associated with gravel pits, reservoirs, sewage works and shingle riverbanks.

4.3.1.5 Black redstart

This species is a winter visitor to Herefordshire; breeding birds occur mainly in urban areas of Greater London, Birmingham and the Black Country.

4.3.1.6 Further information regarding the status and habitat requirements of these and other bird species is available from the RSPB website at: http://www.rspb.org.uk

4.3.2 Water vole (Schedule 5)

Water voles live in colonies along streams and around ponds, generally remaining within 2-3m of the water's edge. The stream banks must be vegetated, providing cover as well as a food source. There has been a drastic decline in their numbers over recent years primarily due to habitat disturbance and loss as well as predation by American mink. Water vole habitat is also protected under the Wildlife and Countryside Act 1981.

Development on land adjacent to watercourses or ponds with known populations will need to be carefully planned to ensure the protection of the water vole territories as well as appropriate management of stream corridors.

4.3.3 Amphibians (Schedule 5)

- Smooth newt
- Palmate newt

The Smooth or Common Newt has the widest distribution of the UK's native newts. Palmate Newts will breed in very shallow pools and larger bodies of water; they are often found in the same ponds as the Smooth Newt though they are more tolerant of acidic waters. Both species generally emerge from hibernation in March and breed in water bodies through to May. Generally the adult newts leave the water in July and spend the rest of the summer and winter very close to the breeding pond, hiding in leaf litter, long grass and under stones. They are vulnerable to loss or inappropriate management of terrestrial and aquatic habitats. It is important to ensure that these habitats are retained on development sites.

4.3.4 Reptiles (Schedule 5)

- Adder
- Grass snake
- Common lizard
- Slow worm

These species are protected from killing, sale and injury. Reptiles tend to inhabit grassland and heathland habitats less-improved or disturbed. They are vulnerable to reduction and/or fragmentation of suitable habitat. Where there are known reptile populations, accommodating reptile habitat within

development schemes is the most desirable outcome. Translocation schemes should be undertaken as a last resort.

4.3.5 White-clawed crayfish (Schedule 5)

This is the only species of freshwater crayfish native to the UK. It is widespread in clean, calcareous streams, rivers and lakes in England and Wales but many populations have been lost since the 1970s. The species is listed in Annexes II and V of the EC Habitats Directive and it is one of the designated features of the River Wye SAC. It is also protected under the Wildlife and Countryside Act (1981) against taking from the wild and sale. The main threats to white-clawed crayfish are crayfish plague, competition for food and habitat from non-native crayfish, habitat modification and pollution, in particular pesticides and sewage.

Development proposals on land adjacent to watercourses with known populations will need to be carefully planned to ensure the protection of the streambed and water quality as well as appropriate habitat management. Any development that could affect populations associated with the River Wye SAC would be subject to a Habitats Regulations Assessment.

4.3.6 Lepidoptera (butterflies and moths) (Schedule 5)

- Wood White
- High Brown Fritillary
- Pearl-bordered Fritillary

These butterfly species are protected under Schedule 5 of the Wildlife and Countryside Act 1981, but have been included in Category 3 as part of the mapping methodology. (See paragraph 2.5.6 above)

The High Brown Fritillary is only known to occur in the Malvern Hills and Croft areas and is therefore unlikely to be affected by major development proposals. All three species are usually associated with woodland glades; they are vulnerable to inappropriate or lack of woodland management.

4.4 UK and Herefordshire Biodiversity Action Plan priority species

4.4.1 In addition to some of the species covered in sections 4.2 and 4.3 above, the following Biodiversity Action Plan species have been identified as the most likely to be present on development sites.

- Tree sparrow
- Noble chafer (beetle)
- Grizzled skipper (butterfly)
- Black poplar
- Wild daffodil
- Brown hare
- Water shrew
- Skylark
- Song thrush
- Kestrel
- Scarce blue-tailed damselfly

4.4.2 A full list of the Herefordshire Biodiversity Action Plan species is available on the Herefordshire Biodiversity Partnership website at:
http://www.herefordshire.gov.uk/herefordbap
This includes the actions and targets for these species as well as any that are also protected species (see sections 4.2 and 4.3 above). Protection measures as well as enhancement opportunities for these species should be incorporated where possible.

4.4.3 Herefordshire's Biodiversity: Audit and Priorities (2000) also contains a list of species of Conservation Concern in Herefordshire, including species such as harvest mouse. It is important that opportunities to protect and enhance sites for these species are also incorporated where possible. A full list of these species is available at the web site in 4.4.2 above.

4.5 Ancient and veteran trees

4.5.1 A veteran tree has been defined as 'a tree that is of interest biologically, culturally or aesthetically because of its age, size or condition' (Veteran Trees: a guide to good management, Natural England, 2000). They are especially important for ecological reasons, providing conditions suitable for a wide range of other plants and animals. It is essential that veteran trees are protected on development sites; this should include provision for the long-term management of the trees and adjacent land as well as consideration of their setting. It is essential that the soil and ground around these trees remains undisturbed and that increased access does not result in compaction. Development should avoid sudden changes in conditions surrounding ancient and veteran trees for example resulting in increased exposure to high winds.

4.5.2 The data currently available is limited, but should further information become available, this can be included in any updates of Local Development Framework documents such as the SHLAA.

5 Creating new wildlife habitats and enhancing biodiversity on and adjacent to development sites

5.1 PPS9 has a number of key principles, including that local development frameworks should identify areas or sites for the restoration or creation of priority habitats. It also states "*Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design.*"

5.2 ODPM Circular 06/2005 emphasises the duty imposed on Local Authorities under Section 28G of the Wildlife and Countryside Act, to take reasonable steps to further the conservation and enhancement of SSSIs (consistent with the proper exercise of the authority's functions which are likely to affect them). It is therefore appropriate to include opportunities to enhance nearby SSSIs as part of development proposals.

5.2 It will be important for developers to consider opportunities for habitat creation on and adjacent to development sites and incorporate them where possible. Specific opportunities for species have been mentioned in section 4 above. These opportunities are inevitably linked to protection or creation of suitable habitat and networks of habitats. As well as the creation of Herefordshire Biodiversity Action Plan Habitats, targeting to ensure that appropriate habitat types are created is also important. The following Herefordshire BAP habitats particularly lend themselves to creation opportunities within or adjacent to development:

- Lowland oak and mixed woodland
- Wet woodland
- Lowland wood pasture and parklands
- Traditional orchards
- Lowland meadow and pasture
- Floodplain grazing marsh
- Fens
- Lowland heathland
- Hedgerows
- Managed greenspace
- Standing open water

5.3 Many of these habitats have deteriorated or been lost in recent decades. Reference to historical maps can help identify the location of some habitats such as former orchard sites and hedgerows. This information can therefore be used to guide appropriate habitat restoration or re-creation strategies, including long term maintenance arrangements (see below) as part of development schemes.

5.4 Habitat creation and enhancement schemes should seek to use native species and of local provenance where possible, whether seed, shrubs or trees. This includes local fruit tree varieties for planting in new orchards and applies equally to landscaping schemes within development sites.

5.5 It would be beneficial to include interpretation of the wildlife interest of the habitats and features where there is public access. It is also important to encourage new residents and businesses to adopt wildlife-friendly gardening. Management schemes for parks, open spaces and school grounds should be developed with wildlife in mind.

5.6 New development will need sustainable drainage systems (SUDS) to manage water run-off. Although sustainable drainage systems may not have permanent open water, there are opportunities to incorporate biodiversity features within them such as species-rich grassland that can accommodate temporary inundation.

5.7 Major developments should also incorporate community aspirations for biodiversity within design proposals and foster local community participation in nature conservation areas where possible. The health benefits of biodiversity to individuals and communities are also widely acknowledged. Measures and opportunities for creating new habitats, biodiversity assets and green spaces are explored in the Green Infrastructure Strategy.

5.8 There is a range of design guidance available regarding opportunities for incorporating nature conservation features within buildings. Such features include green roofs, bat and bird boxes, bat ‘tubes’ within walls and bat lofts over garages. Appendix 3 includes a number of useful references containing such guidance.

5.9 This study should be read in conjunction with the Green Infrastructure Strategy for Herefordshire (2010) to ensure that new development contributes to the county’s green infrastructure, particularly where a need has been identified. Part III of this report identifies specific opportunities for habitat enhancement and creation measures around Hereford and the market towns.

6 Securing long-term management of biodiversity features on development sites

6.1 In accordance with PPS9, it is important to secure the long-term protection of habitats and species as well as the success of any habitat creation and enhancement measures. Therefore, appropriate habitat management and monitoring schemes will be required as part of development proposals.

6.2 Section 106 agreements can be used to secure long-term habitat management to ensure that nature conservation interests are maintained. This may be particularly relevant where enhancement or mitigation measures are required outside the development site. Negotiations regarding these are best initiated at an early stage to ensure agreements are acceptable and can be delivered.

6.3 It is important that long-term habitat management schemes are secured to ensure the future health and well being of Herefordshire's residents and visitors. The schemes should include some flexibility to allow for adaption to climate change.

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PART III

Analysis of the sensitivity of habitats and species around Hereford and the market towns

Part III is divided into sections for each of Hereford and the market towns – Bromyard, Kington, Ledbury, Leominster and Ross-on-Wye.

Each of these is divided into the following sub-sections:

1. **Overview**
2. **Internationally and nationally designated sites**
3. **Locally designated sites**
4. **Semi-natural habitats and wildlife corridors/linear features**
5. **Artificial habitats and arable land**
6. **Legally protected and priority species**
7. **Opportunities for habitat enhancement and creation**

7 Analysis of sensitivity of habitats and species around Hereford

7.1 Overview

The Rivers Wye and Lugg and their floodplains dominate the landscape around Hereford. The River Wye flows from west to east through the city and the Lugg approaches from the north; their confluence lies to the south east of Hereford. The Phase I habitat map identifies mixed agricultural land use surrounding the city, with particularly intensive arable production to the north and southwest. Amongst this, there are a wide diversity of habitats (and species) present, including orchards, grasslands and woodland.

The Green Infrastructure Strategy provides further information on the landscape character of Hereford.

7.2 Internationally and nationally designated sites

The following Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs) are found in the Hereford area:

- River Wye SAC and SSSI
  A rare example of a near-natural, large, eutrophic river (and including the Lower River Lugg)
  An essential fish migration route and a key breeding area for many nationally and internationally important species

- Lugg Meadows SSSI
  Management since historic times as a hay meadow with aftermath grazing has produced a characteristic flora. One of the few examples of this type of meadow in this part of Britain

Further information regarding the descriptions and status of the SSSIs is available from Natural England at:
http://www.naturalengland.org.uk/

Further information regarding the description and status of the SAC is available from the Joint Nature Conservation Committee (JNCC) at:
http://www.jncc.gov.uk/

Any development proposals that could affect the conservation status of the SAC would be subject to a Habitats Regulations Assessment.

7.3 Locally designated sites

Herefordshire Council has designated the following Local Nature Reserves in the Hereford area:

- LNR 02 Belmont meadows
- LNR 03 Tupsley Quarry
- LNR 05 Broadlands

Around Hereford, there are two types of locally designated sites - Special Wildlife Sites and Sites of Importance for Nature Conservation. The following Special Wildlife Sites are found in the Hereford area:

- 43/12 Cage Brook Valley and Woodlands SWS
- 43/17 Breinton Wood
- 43/18 Hayleasow Wood, Newton Coppice & Spring Grove SWS
- 43/19 Belmont Wood and Hunderton Rough SWS
- 43/20 Knockerhill Wood and Adjoining Woodland SWS
- 44/23 Green Lane Wood SWS
- 53/08 Pool at Rotherwas SWS
- 53/09 Rotherwas Park Wood SWS
- 54/02 Old Canal at Burcot SWS
- 54/03 Lugg Meadows SWS

Most of the Sites of Importance for Nature Conservation lie within Hereford City. The following have been identified outside (even partially) the settlement edge:

- SINC 01 Railway Line near Green Farm
- SINC 02 Yazor Brook
- SINC 03 Pond at Huntington Court
- SINC 04 Orchard at Huntington
- SINC 17 Lugg Rhea
- SINC 24 Sewage Works
- SINC 35 4 Ponds near Breinton Road
- SINC 36 Pond at Lower Hill Farm
- SINC 37 Green Lane to west of Westfaling Street
- SINC 38 Land at end of Green Lane
- SINC 39 Meadow south of St Johns Cottage
- SINC 40 Belmont Pool & Environs
- SINC 41 Newton Brook
- SINC 43 Newton Farm Wet Woodland
- SINC 44 Newton Farm Open Space
- SINC 45 Pond north of Newton Farm Open Space
- SINC 46 Newton Farm Wet Woodland Stream
- SINC 47 Woodland to South of Newton Farm
- SINC 50 Grafton House Orchard
- SINC 54 Active railway South of Wye
- SINC 55 Withy Brook
- SINC 56 Land to north of Withy Brook

Further information regarding Special Wildlife Sites and a full list of the Sites of Importance for Nature Conservation within Hereford is available from the Herefordshire Biological Records Centre.

There are a number of Local Geological Sites (also known as Regionally Important Geological Sites) in the wider area around Hereford, although none in the immediate vicinity of the city boundary. The following are the closest at just over 2km from the city boundary:

- RIGS_003 Bartestree Quarry
- RIGS_096 Upper Lyde Pit

Further information is available from the Herefordshire and Worcestershire Earth Heritage Trust at: http://www.earthheritagetrust.org/

The following common land is identified in the Hereford area:

- CL34 Upper Lugg Meadow
- CL35 Lower Lugg Meadow
- CL98 Hampton Meadow
- CL100 Hampton Meadow (Big and Little Million)
- CL140 Shelwick Common
- CL147 The Lowes
- CL148 Midsummer Meadow
- CL183 Dinedor Common

There are patches of ancient woodland to the south and south west of Hereford (at Perryhill, Belmont, Haywood and Rotherwas), much of which is covered under the SWS designation above. In addition, Brockhall Coppice and Tidnor Wood are small, isolated blocks of ancient woodland.

7.4 Semi-natural habitats and wildlife corridors/linear features

The following Herefordshire Biodiversity Action Plan (BAP) Priority Habitats, semi-natural habitats and wildlife corridors have been identified as important features of the biodiversity resource in the Hereford area:

- Rivers and streams
  The rivers Wye and Lugg (and their associated habitats) are a key feature of the biodiversity resource of the Hereford area and, as mentioned above, are afforded international protection. There are a number of tributaries of these rivers, some which are also covered under local designations. These include the Withy, Norton and Red Brooks to the south of Hereford, the Yazor Brook to the west and the Lugg Rhea to the north. Mature willow and alder trees are common and occasional black poplar.

- Floodplain grazing marsh
  In association with the main rivers, there are extensive areas of this habitat, particularly along the River Lugg and much of which is designated as mentioned in 7.2 above. There are opportunities to bring more of this habitat into positive management for biodiversity, which can also contribute to adaptation to climate change.

- Grasslands
  Small-scale, unimproved and semi-improved grasslands (including those associated with orchards) are a particular feature of the areas to the north (Holmer) and west (Breinton) of Hereford. These grasslands should be retained and appropriate long-term management strategies secured.

- Orchards
  Orchards are a particular feature of the Breinton and Hampton Bishop areas, but small, isolated orchards are also found elsewhere such as north of Roman Road and at Tupsley. Rare invertebrate species have been recorded in some.

- Woodland
  Blocks of woodland (including ancient woodland as mentioned above) are a feature to the south and south west of Hereford and along the steep slopes of the Wye Valley to the west of Hereford. These woodlands would previously have been much more extensive.

- Parkland
  The parklands at Belmont and New Court, Lugwardine have a number of veteran trees.

- Linear features such as species-rich hedgerows, field margins, ditches, green lanes and disused railways
  Not all of these features have been mapped as part of this study, but they are nevertheless widespread around Hereford. Ditches along field boundaries are typical of the landscape to the east (associated with the flood plain of the River Lugg).
  Retention of linear features is vital to maintaining connectivity between habitats and populations and securing their long-term survival and viability.

- Ponds
  There are ponds scattered throughout the agricultural landscape around Hereford. There may be opportunities to restore or enhance ponds that are on or adjacent to development sites and to improve habitat linkages between them.

7.5 Artificial habitats and arable land

These habitats have been created or intensively managed and 'improved', such as for agricultural purposes, and form the predominant land use around Hereford.

7.6 Legally protected and priority species

The following protected and/or priority species have been recorded in the Hereford area:

- Otter
- Great crested newt
- Dormouse
- Bats (including lesser horseshoe bat, serotine, noctule, common and soprano pipistrelle bats, Natterer's bat, Daubenton's bat, Leisler's bat and barbastelle)

- Barn owl
- Kingfisher
- Peregrine
- Black redstart
- Water vole
- Smooth newt
- Palmate newt
- Grass snake
- Slow worm
- White-clawed crayfish

- Noble chafer
- Black poplar
- Wild daffodil
- Brown hare
- Water shrew
- Sky lark
- Song thrush
- Kestrel
- Scarce blue-tailed damselfly

These species should be prioritised when considering opportunities for habitat enhancement in section 7.7 below. It should be noted that other species might also be present.

7.7 Opportunities for habitat enhancement and creation

The following are suggested actions for the enhancement or creation of habitats that are appropriate to the area; this list is not exhaustive. Priority species recorded in the area (see 7.6 above) that will benefit from the

implementation of these actions are also included; other species not previously recorded in the area may also benefit.

The Green Infrastructure Strategy for Herefordshire identifies broad zones for habitat restoration and creation opportunities that will strengthen green infrastructure around Hereford.

It is also important to encourage residents and local businesses to adopt wildlife-friendly gardening. Management schemes for parks, open spaces and school grounds should be developed with wildlife in mind.

Habitat protection and/or enhancement

		Actions	**Species**
1.	Rivers & streams	Retention of 'buffer zones' along water courses to improve water quality by reducing siltation Sensitive bank and tree management e.g. pollarding or coppicing of waterside trees	Otter Water vole Kingfisher White-clawed crayfish
2.	Floodplain grazing marsh	Appropriate management of floodplain meadows for biodiversity (where not already under such schemes)	Barn owl Otter
3.	Grasslands Orchards	Retention and appropriate management of grassland and orchard habitats, for example grazing and hay cutting regimes	Bats Birds Reptiles Barn owl Wild daffodil
4.	Woodland	Retention of 'buffer zones' between woodland and development	Bats Birds Dormouse
5.	Parkland	Conservation and sympathetic management of mature trees and parkland landscape	Bats Birds Veteran trees
6.	Hedgerows Field margins Linear features	Retention and enhancement of field boundaries and other linear features Maintain and enhance connectivity between habitats Retention of 'buffer zones' along field boundaries	Bats Dormouse Barn owl Birds
7.	Ponds	Restoration and management of ponds	Great crested newt
8.	All habitats	Interpretation of the wildlife interest of the habitats and features where there is significant public access	All species

Habitat creation opportunities

		Actions	Species
1.	Floodplain grazing marsh	Creation of floodplain meadows on previously agricultural land	Otter Barn owl
2.	Grasslands & Orchards	Planting of traditional orchards and species-rich meadows within development schemes, especially on historic sites e.g. as community areas	Bats Birds Barn owl
3.	Woodland	Planting of mixed, native species woodland	Bats Dormouse Birds
4.	Wet woodland	Planting of woodland corridors in appropriate locations Creation of otter holts in undisturbed areas, away from dog walking	Black poplar Otter
5.	Wood pasture and parkland	Creation of wood pasture and parkland in appropriate locations (south west of Hereford)	Bats Birds
6.	Hedgerows Field margins	Planting of mixed, native species hedgerows with hedgerow trees	Bats Dormouse Birds
7.	Ponds	Pond creation especially where networks can be strengthened Creation of newt hibernacula and habitat corridors between ponds and other features	Great crested newt Water vole

7.8 Biodiversity maps

The following maps identify the key biodiversity features around Hereford. Please refer to Section 2.5 for a description of the mapping methodology and Sections 3 and 4 for how to interpret them.

Hereford
Map 1

Herefordshire Council

NORTH

Scale 1 : 15,000 when printed at A1
1 : 30,000 when printed at A3

- Category 1 (Internationally and Nationally designated sites)
- Category 2 (Locally designated sites)
- Category 3 (Semi-natural habitats)
- Open water
- Category 4 (Artificial habitats)
- Category 5 (Arable land)
- Settlement boundary

HEREFORD

Westfields

Blackmarstone

Hunderton

Redhill

Rotherwas Industrial Estate

HAMPTON

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Hereford
Map 2

Herefordshire Council

NORTH

Scale 1 : 15,000 when printed at A1
1 : 30,000 when printed at A3

- Category 1 (Internationally and Nationally designated sites)
- Category 1 buffer 200m
- Category 2 (Locally designated sites)
- Category 2 buffer 50m
- Category 3 (Semi-natural habitats)
- Category 3 buffer 30m
- Open water
- Open water buffer 50m
- Settlement boundary

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Hereford
Map 3

Herefordshire Council

NORTH

Scale 1 : 15,000 when printed at A1
1 : 30,000 when printed at A3

Internationally Protected Species
- Grest Crested Newt
- All Bat Species
- Otter
- Common Dormouse

Internationally Protected Species 250m buffer

Nationally Protected Species
- Amphibians
- WaterVole
- Reptiles
- White-clawed Crayfish
- Birds

Nationally Protected Species 250m buffer

Herefordshire BAP Species with Species Action Plans
- Lepidoptera
- Black Poplar
- Tree Sparrow
- Noble Chafer

Other Herefordshire BAP Species
- Brown Hare
- Skylark
- Song Thrush
- Kestrel
- Wild Daffodil
- Water Shrew
- Scarce blue-tailed damselfly

Settlement boundary

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8 Analysis of sensitivity of habitats and species around Bromyard

8.1 Overview

The River Frome flows around the north and east of the town and on to the south. The undulating topography has a mixed land use pattern, predominantly agricultural but dissected with steeply sloped and often wooded, stream corridors. To the east of the River Frome, the land rises to the open common land of the Bromyard Downs.

The Green Infrastructure Strategy provides further information on the landscape character of Bromyard.

8.2 Internationally and nationally designated sites

There are no internationally or nationally designated sites in the vicinity of Bromyard.

8.3 Locally designated sites

The following Special Wildlife Sites are found in the Bromyard area:

- SO65/06 The Stockings Meadow and Hardwick Bank SWS
- SO65/09 The Down House side meadow SWS
- SO65/10 River Frome SWS
- SO65/11 Bromyard Downs and adjoining woodland SWS

Further information regarding Special Wildlife Sites is available from the Herefordshire Biological Records Centre.

There are two Local Geological Sites (also known as Regionally Important Geological Sites) in the Bromyard area:

- RIGS_048 Linton Tile Works
- RIGS_080 Station Road Industrial Estate

Further information is available from the Herefordshire and Worcestershire Earth Heritage Trust at: http://www.earthheritagetrust.org/

One area of common land is identified in the area:

- Bromyard Downs

There are small areas of Ancient Woodland on the steeper slopes of the River Frome to the south of Bromyard, and also within the Brockhampton estate further to the east; all are at least 1km from Bromyard.

8.4 Semi-natural habitats and wildlife corridors/linear features

The following Herefordshire Biodiversity Action Plan (BAP) Priority Habitats, semi-natural habitats and wildlife corridors have been identified as important features of the biodiversity resource in the Bromyard area.

- Grasslands
  Small-scale, unimproved and semi-improved grasslands (including those associated with orchards) are a particular feature of the areas to the west of Bromyard, across the slopes of the Bromyard Downs and along the steeper slopes of the River Frome valley. These grasslands should be retained and appropriate long-term management strategies secured.

- Orchards
  Small, traditional orchards were more widespread in the Bromyard area. Much orchard habitat has been lost in recent years, and reference to historical maps shows the location of former orchard sites. This information can be used to guide appropriate habitat restoration or re-creation strategies as part of development schemes.

- Riparian (river and stream) corridors
  The River Frome and its tributaries with their associated marginal and bank side habitats are important biodiversity features, providing strong habitat linkages around (and through) the town. Mature alder and willow trees are typical, providing cover and foraging ground for many species such as otter and bats. No records are identified of otter in the immediate vicinity of Bromyard, although they are known to be present along the River Frome and it is likely that they are present here as well.

- Linear features such as species-rich hedgerows, ditches, green lanes and disused railways
  Not all of these features have been mapped as part of this study, but they are nevertheless widespread around Bromyard.
  The disused railway corridor provides an important and almost continuous wildlife corridor around the north and away from the south east of the town.
  Damson hedgerows are typical of this area.
  Retention of linear features is vital to maintaining connectivity between habitats and populations and securing their long-term survival and viability.

8.5 Artificial habitats and arable land

These habitats have been created or intensively managed and ‘improved’, such as for agricultural purposes, and form the predominant land use around

Bromyard, between the network of hedgerows, wooded dingles and occasional pockets of semi-natural habitats.

8.6 Legally protected and priority species

The following protected and/or priority species have been recorded in the Bromyard area:

- Great crested newt
- Bats (including Brown long-eared bat, soprano and common pipistrelle bats, noctule and Daubenton's bat as well as lesser horseshoe bats further to the east at Brockhampton)
- Dormouse
- Otter

- Barn owl
- Water vole
- Grass snake
- Common lizard
- Slow worm
- Badger

- Black poplar
- Skylark
- Kestrel
- Song thrush

These species should be prioritised when considering opportunities for habitat enhancement in section 8.7 below. It should be noted that other species might also be present.

8.7 Opportunities for habitat enhancement and creation

The following are suggested actions for the enhancement or creation of habitats that are appropriate to the Bromyard area; this list is not exhaustive. Priority species recorded in the area (see 8.6 above) that will benefit from the implementation of these actions are also included; other species not previously recorded in the area may also benefit.

The Green Infrastructure Strategy for Herefordshire identifies broad zones for habitat restoration and creation opportunities that will strengthen green infrastructure around Bromyard.

It is also important to encourage residents and local businesses to adopt wildlife-friendly gardening. Management schemes for parks, open spaces and school grounds should be developed with wildlife in mind.

Habitat protection and/or enhancement

		Actions	Species
1.	Orchards Grassland	Retention and appropriate management of grassland and orchard habitats, for example through grazing and hay cutting regimes	Bats Birds Reptiles Barn owl
2.	Rivers and streams	Retention of 'buffer zones' along water courses to improve water quality by reducing siltation and creating habitat Sensitive tree management e.g. pollarding and coppicing of waterside trees	Water vole Black poplar
3.	Floodplain grazing marsh	Appropriate management of floodplain meadows for biodiversity	Barn owl
4.	Hedgerows Field margins	Retention and enhancement of field boundaries (including damson hedgerows) and other linear features Conservation and sympathetic management of mature trees Maintain and enhance connectivity between habitats Retention of 'buffer zones' along field boundaries	Bats Barn owl Reptiles Great crested newt
5.	All habitats	Interpretation of the wildlife interest of the habitats and features where there is significant public access	All species

Habitat creation opportunities

		Actions	Species
1.	Orchards	Planting of traditional orchards within development schemes, especially on historic sites e.g. as community areas	Bats Birds
2.	Grasslands	Creation of species-rich meadows e.g. as community areas	Barn owl Reptiles
3.	Rivers & streams	Creation of otter holts in undisturbed areas away from dog walking Planting of black poplar trees	Otter Black poplar
4.	Floodplain grazing marsh	Creation of floodplain meadows on previously agricultural land (within the floodplain)	Barn owl Otter

5.	Hedgerows Linear features	Planting of mixed, native species hedgerows, including damson trees	Birds Bats
6.	Ponds	Pond creation Creation of newt hibernacula and habitat corridors between ponds and other features	Great crested newt Water vole

8.8 Biodiversity maps

The following maps identify the key biodiversity features in the Bromyard area. Please refer to Section 2.5 for a description of the mapping methodology and Sections 3 and 4 for how to interpret them.

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Bromyard Map 1

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

- Category 1 (Internationally and Nationally designated sites)
- Category 2 (Locally designated sites)
- Category 3 (Semi-natural habitats)
- Open water
- Category 4 (Artificial habitats)
- Category 5 (Arable land)
- Settlement boundary

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Bromyard Map 2

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

- Category 1 (Internationally and Nationally designated sites)
- Category 1 buffer 200m
- Category 2 (Locally designated sites)
- Category 2 buffer 50m
- Category 3 (Semi-natural habitats)
- Category 3 buffer 30m
- Open water
- Open water buffer 50m
- Settlement boundary

BREDENBURY CP

BROMYARD AND WINSLOW CP

BROMYARD

NORTON CP

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Bromyard Map 3

Herefordshire Council

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

NORTH

Internationally Protected Species
- Grest Crested Newt
- All Bat Species
- Otter
- Common Dormouse

Internationally Protected Species 250m buffer

Nationally Protected Species
- Amphibians
- WaterVole
- Reptiles
- White-clawed Crayfish
- Birds

Nationally Protected Species 250m buffer

Herefordshire BAP Species with Species Action Plans
- Lepidoptera
- Black Poplar
- Tree Sparrow
- Noble Chafer

Other Herefordshire BAP Species
- Brown Hare
- Skylark
- Song Thrush
- Kestrel
- Wild Daffodil
- Water Shrew
- Scarce blue-tailed damselfly

Settlement boundary

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9 Analysis of sensitivity of habitats and species around Kington

9.1 Overview

Kington is bounded by the River Arrow to the south, Back Brook to the north and their confluence to the east. The steep slopes and high ground of Bradnor Hill and Hergest Ridge lie to the north west and west respectively. The undulating landscape to the south and east is sparsely wooded and has a primarily agricultural land-use.

The Green Infrastructure Strategy provides further information on the landscape character of Kington.

9.2 Internationally and nationally designated sites

There is one Site of Special Scientific Interest (SSSIs) to the north of Kington:

- Bradnor Hill Quarry SSSI
  A succession of rock exposures with fossil fish from the Silurian period

Further information regarding the descriptions and status of the SSSIs is available from Natural England at:
http://www.naturalengland.org.uk/

9.3 Locally designated sites

The following Special Wildlife Sites are found in the Kington area:

- SO25/03 Hergest Ridge SWS
- SO25/08 Park Wood SWS
- SO25/11 Bradnor Hill and Holywell Wood SWS
- SO25/32 Land at Millbank Wood (2) SWS
- SO25/33 Land at Floodgates SWS
- SO25/35 Land at Millbank Wood (1) SWS
- SO25/36 Land at Rhue Ville SWS
- SO35/04 Disused railway, Kington to Leominster SWS
- SO35/07 Rodds, Penrhos, Oxpasture and Greenwoods SWS
- SO35/08 Piers Grove Wood and adjoining field SWS
- SO35/13 Lyonshall Park Wood SWS

- SO35/25 River Arrow Leominster, Eardisland and Huntingdon
- SO35/32 Land at Rodds Farm (1) SWS
- SO35/33 Land at Rodds Farm (2) SWS
- SO35/34 Land at Sunset SWS
- SO35/36 Land at Mill Farm SWS

Further information regarding Special Wildlife Sites is available from the Herefordshire Biological Records Centre.

There are no Local Geological Sites (also known as Regionally Important Geological Sites) in the area.

The following common land is identified in the Kington area:

- Bradnor Hill
- Haywood Common
- Penrhos Common

There are extensive areas of ancient woodland on the steeper slopes around Kington, including Park Wood, Veld Wood, Lyonshall Park Wood and Piers Grove Wood. Much of this is covered under the Special Wildlife Site designation above.

9.4 Semi-natural habitats and wildlife corridors/linear features

The following Herefordshire Biodiversity Action Plan (BAP) Priority Habitats, semi-natural habitats and wildlife corridors have been identified as important features of the biodiversity resource in the Kington area.

- Grasslands
  Small-scale, unimproved and semi-improved grasslands (including those associated with orchards) are a particular feature in this area, particularly on the steeper slopes of Bradnor Hill and to the south east of Kington. Many are Special Wildlife Sites.
  Marshy grassland is found along the flood plains of the river valleys.
  These grasslands should be retained and appropriate long-term management strategies secured.

- Riparian (river and stream) corridors
  The River Arrow and Back Brook with their associated marginal and bank side habitats are important biodiversity features, providing strong habitat linkages around the town. Mature alder trees are typical, providing cover and foraging ground for many species such as otter and bats. There are also records of otter associated with these watercourses.

Woodland
The large areas of woodland on the slopes of Bradnor and Hergest are mostly covered under the above designations. Smaller blocks of woodland (including plantation on ancient woodland sites) are typical to the south and east of Kington.

Linear features such as species-rich hedgerows, ditches, green lanes and disused railways
Not all of these features have been mapped as part of this study, but they are nevertheless widespread around Kington.
Hedgerows (and hedgerow trees) are a feature of the rural landscape.
The disused railway corridor provides an important and almost continuous wildlife corridor from the east, around the north where it is occupied by the road bypass and away to the west of the town. There is a strong wildlife corridor along the bypass in combination with Back Brook and the grassland slopes to the north.
Retention of linear features is vital to maintaining connectivity between habitats and populations and securing their long-term survival and viability.

Orchards
Small, traditional orchards are a feature of the landscape to the north of Kington and scattered elsewhere. Some orchard habitat has been lost in recent years, and reference to historical maps shows the location of former orchard sites. This information can be used to guide appropriate habitat restoration or re-creation strategies as part of development schemes.

Ponds
There are numerous small ponds scattered through the landscape to the south and east of Kington.

9.5 Artificial habitats and arable land

These habitats have been created or intensively managed and 'improved', such as for agricultural purposes, and form the predominant land use to the north and south of Kington.

9.6 Legally protected and priority species

The following protected and/or priority species have been recorded in the area:

- Otter
- Bats (including common and soprano pipistrelle bats, Brown long-eared bat, noctule, serotine, Daubenton's bat and lesser horseshoe bat)
- Great crested newt

- Barn owl
- Adder
- Slow worm
- Newt species
- Badger

- Tree sparrow
- Song thrush
- Wild daffodil
- Lepidoptera

These species should be prioritised when considering opportunities for habitat enhancement in section 7 below. It should be noted that other species might also be present.

9.7 Opportunities for habitat enhancement and creation

The following are suggested actions for the enhancement or creation of habitats that are appropriate to the Kington area; this list is not exhaustive. Priority species recorded in the area (see 9.6 above) that will benefit from the implementation of these actions are also included; other species not previously recorded in the area may also benefit.

The Green Infrastructure Strategy for Herefordshire identifies broad zones for habitat restoration and creation opportunities that will strengthen green infrastructure around Kington.

It is also important to encourage residents and local businesses to adopt wildlife-friendly gardening. Management schemes for parks, open spaces and school grounds should be developed with wildlife in mind.

Habitat protection and/or enhancement

		Actions	Species
1.	Grasslands (Orchards)	Retention and appropriate management of grassland (and orchard habitats), for example grazing and hay cutting regimes	Barn owl Wild daffodil
2.	Rivers & streams Wet woodland Riparian corridors	Appropriate management of floodplain meadows Retention of 'buffer zones' along water courses to improve water quality Sensitive tree management e.g. pollarding and coppicing of waterside trees	Otter Bats
3.	Woodland Parkland	Retention of 'buffer zones' between woodland and development	Bats Birds

		Individual tree protection zones	
4.	Ponds	Retention, restoration and appropriate management of ponds	Great crested newt
5.	Linear features Hedgerows Field margins Disused railway corridors	Retention and enhancement of field boundaries and other linear features Conservation and sympathetic management of mature trees Maintain and enhance connectivity between habitats Retention of 'buffer zones' along field boundaries	Bats Birds Reptiles
6.	All habitats	Interpretation of the wildlife interest of the habitats and features where there is significant public access	All species

Habitat creation opportunities

		Actions	**Species**
1.	Grasslands	Creation of species-rich meadows e.g. as community areas	Barn owl Wild daffodil
2.	Rivers and streams Riparian corridors	Planting of wet woodland along river corridors Creation of otter holts in undisturbed areas away from dog walking	Black poplar* Otter
3.	Woodland	Planting of mixed, native species woodland or copse to south and east	Bats Birds
4.	Ponds	Pond creation especially to the east and south where the network can be strengthened Creation of newt hibernacula and habitat corridors between ponds and other features	Great crested newt
5.	Hedgerows Linear features	Planting of mixed, native species hedgerows with hedgerow trees	Bats Birds
6.	Orchards	Planting of traditional orchards within development schemes, especially on historic sites e.g. as community areas	Birds

* Indicates a species not recorded in the area, but is a Herefordshire-wide priority

9.8 Biodiversity maps

The following maps identify the key biodiversity features in the Kington area. Please refer to Section 2.5 for a description of the mapping methodology and Sections 3 and 4 for how to interpret them.

Kington
Map 1

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

- Category 1 (Internationally and Nationally designated sites)
- Category 2 (Locally designated sites)
- Category 3 (Semi-natural habitats)
- Open water
- Category 4 (Artificial habitats)
- Category 5 (Arable land)
- Settlement boundary

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Kington Map 2

Herefordshire Council

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

NORTH

- Category 1 (Internationally and Nationally designated sites)
- Category 1 buffer 200m
- Category 2 (Locally designated sites)
- Category 2 buffer 50m
- Category 3 (Semi-natural habitats)
- Category 3 buffer 30m
- Open water
- Open water buffer 50m
- Settlement boundary

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Kington Map 3

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

Internationally Protected Species
- Grest Crested Newt
- All Bat Species
- Otter
- Common Dormouse

Internationally Protected Species 250m buffer

Nationally Protected Species
- Amphibians
- WaterVole
- Reptiles
- White-clawed Crayfish
- Birds

Nationally Protected Species 250m buffer

Herefordshire BAP Species with Species Action Plans
- Lepidoptera
- Black Poplar
- Tree Sparrow
- Noble Chafer

Other Herefordshire BAP Species
- Brown Hare
- Skylark
- Song Thrush
- Kestrel
- Wild Daffodil
- Water Shrew
- Scarce blue-tailed damselfly

Settlement boundary

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10 Analysis of sensitivity of habitats and species around Ledbury

10.1 Overview

The River Leadon and its flood plain form the western boundary of Ledbury. Further to the west is agricultural land some of which is planted with orchards, and then rises to the wooded slopes of Wall Hills.

The land rises steeply to the east and is predominantly wooded. There are numerous disused quarries along this limestone ridge that have developed into valuable nature conservation sites.

North and south of Ledbury the land is predominantly arable including extensive areas of polytunnels; there are also some large areas of orchard to the north.

The Green Infrastructure Strategy provides further information on the landscape character of Ledbury.

10.2 Internationally and nationally designated sites

The Malvern Hills Area of Outstanding Natural Beauty lies immediately to the east of Ledbury (this is not shown on the accompanying maps).

Three Sites of Special Scientific Interest (SSSIs) are found to the east of Ledbury:

- Ledbury Cutting SSSI
  A geological site with rare fossils (at the entrance to the railway tunnel)
- Upper Hall Farm and Quarry SSSI
  A limestone grassland site with a rich assemblage of herbaceous plants
- Mayhill Wood, Eastnor SSSI
  Woodland with oak, ash, small-leaved lime and yew

Further information regarding the descriptions and status of the SSSIs is available from Natural England at:
http://www.naturalengland.org.uk/

10.3 Locally designated sites

The following Special Wildlife Sites are found in the Ledbury area:

- SO63/24 Woodlands on Wall Hills SWS
- SO73/02 Longworth Meadow SWS

- SO73/04 Frith Wood, Bradlow Knoll and Dog Hill SWS
- SO73/03 Ledbury Cutting SWS
- SO73/05 Upper Hall grounds and lake SWS
- SO73/06 Upper Hall Farm quarry and grassland SWS
- SO73/07 Coneygree and Mayhill Woods SWS
- SO73/08 Quarry near Dead Woman's Thorn SWS

Further information regarding Special Wildlife Sites is available from the Herefordshire Biological Records Centre.

There are three Local Geological Sites (also known as Regionally Important Geological Sites):

- RIGS_044 Knapp Lane Quarry
- RIGS_045 Ledbury Tunnel Quarry
- RIGS_016 Coneygree Wood Site 1

Further information is available from the Herefordshire and Worcestershire Earth Heritage Trust at: http://www.earthheritagetrust.org/

No common land is identified in the Ledbury area.

There are extensive areas of ancient woodland to the east of Ledbury, much of which is covered under the designations above. Highbridge Wood to the south of Ledbury is also on the ancient woodland inventory.

10.4 Semi-natural habitats and wildlife corridors/linear features

The following Herefordshire Biodiversity Action Plan (BAP) Priority Habitats, semi-natural habitats and wildlife corridors have been identified as important features of the biodiversity resource in the Ledbury area.

- Orchards
  There are many orchards in the wider surrounds of Ledbury, although relatively few in the immediate vicinity of the town. Modern bush orchards have been planted to the north and west. Much traditional orchard habitat has been lost in recent years, and reference to historical maps shows the location of numerous former orchard sites. This information can be used to guide appropriate habitat restoration or re-creation strategies as part of development schemes.

- Woodland
  There is extensive woodland to the east of Ledbury on Coneygree and Mayhill Woods and on Wall Hills to the west. Much of this is covered by nature conservation designations (see 10.2 and 10.3 above), but there are also smaller blocks of woodland and plantations to the south.

- Parkland
  Ledbury Park lies to the east between the edge of town and Coneygree Wood. Old Hall Park lies to the north of this; both retain a number of mature trees.

- Ponds
  There are ponds scattered throughout the agricultural landscape to the west and south of Ledbury. Most of these ponds have not been assessed ecologically. There may be opportunities to restore or enhance ponds that are on or adjacent to development sites and to improve habitat linkages between them.

- Riparian (river and stream) corridors
  The River Leadon and its associated marginal and bank side habitats is an important biodiversity feature, providing strong habitat linkages around the town. It provides cover and foraging ground for many species such as otter and bats. Otter are known to be present along the River Leadon, for example at the Riverside Park and such features are of great importance for them.

- Linear features such as species-rich hedgerows, ditches, roadside verges, green lanes and disused railways.
  Not all of these features have been mapped as part of this study, but they are nevertheless widespread around Ledbury. The disused railway corridor provides an important and almost continuous wildlife corridor through the middle of the town.
  Retention of linear features is vital to maintaining connectivity between habitats and populations and securing their long-term survival and viability. Sympathetic management of all of these features for wildlife is crucial. Buffer zones along linear features are also important to strengthen their value.

10.5 Artificial habitats and arable land

These habitats have been created or intensively managed and 'improved', such as for agricultural purposes, and form the predominant land use to the north, south and west of Ledbury.

10.6 Legally protected and priority species

The following protected and/or priority species have been recorded in the Ledbury area:

- Great crested newt
- Bats (including lesser horseshoe bat, Brown long-eared bat, soprano and common pipistrelle bats)
- Dormouse

- Barn owl
- Peregrine
- Slow worm
- Badger

- Wood white
- Wild daffodil
- Song thrush

These species should be prioritised when considering opportunities for habitat enhancement in section 10.7 below. It should be noted that other species might also be present.

10.7 Opportunities for habitat enhancement and creation around Ledbury

The following are suggested actions for the enhancement or creation of habitats that are appropriate to the Ledbury area; this list is not exhaustive. Priority species recorded in the area (see 10.6 above) that will benefit from the implementation of these actions are also included; other species not previously recorded in the area may also benefit.

The Green Infrastructure Strategy for Herefordshire identifies broad zones for habitat restoration and creation opportunities that will strengthen green infrastructure around Ledbury.

It is also important to encourage residents and local businesses to adopt wildlife-friendly gardening. Management schemes for parks, open spaces and school grounds should be developed with wildlife in mind.

Habitat protection and/or enhancement

		Actions	Species
1.	Orchards Grassland	Retention and appropriate management of grassland and orchard habitats, for example grazing and hay cutting regimes	Bats Birds Reptiles Barn owl
2.	Woodland	Retention of 'buffer zones' between woodland and development	Wood white Dormouse
3.	Ponds	Restoration of ponds	Great crested newt
4.	Rivers and streams Wet woodland	Retention of 'buffer zones' along water courses to improve water quality by reducing siltation and creating habitat Sensitive tree management e.g. pollarding and coppicing of waterside trees	Otter

5.	Hedgerows Field margins	Retention and enhancement of field boundaries and other linear features Conservation and sympathetic management of mature trees Maintain and enhance connectivity between habitats Retention of 'buffer zones' along field boundaries	Bats Dormouse Barn owl
6.	All habitats	Interpretation of the wildlife interest of the habitats and features where there is significant public access	All species

Habitat creation opportunities

		Actions	**Species**
1.	Orchards	Planting of traditional orchards within development schemes, especially on historic sites e.g. as community areas	Bats Birds Wild daffodil
2.	Lowland mixed woodland Wet woodland	Planting of mixed, native species woodland	Bats Dormouse Butterfly species
3.	Parkland	Planting of field trees and copse	Bats Barn owl
4.	Ponds	Pond creation especially to the west and south where the network can be strengthened Creation of newt hibernacula and habitat corridors between ponds and other features	Great crested newt
5.	Rivers and streams Wet woodland	Planting of woodland corridors Creation of otter holts in undisturbed areas away from dog walking	Black poplar* Otter
6.	Hedgerows	Planting of mixed, native species hedgerows with hedgerow trees	Bats Dormouse Birds

* Indicates a species not recorded in the area, but is a Herefordshire-wide priority

10.8 Biodiversity maps

The following maps identify the key biodiversity features in the Ledbury area. Please refer to Section 2.5 for a description of the mapping methodology and Sections 3 and 4 for how to interpret them.

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Ledbury Map 1

Herefordshire Council

Scale 1 : 10,000 when printed at A2
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NORTH

LEDBURY CP

LEDBURY

Category 1
(Internationally and Nationally designated sites)

Category 2
(Locally designated sites)

Category 3
(Semi-natural habitats)

Open water

Category 4
(Artificial habitats)

Category 5
(Arable land)

Settlement boundary

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Ledbury Map 2

Herefordshire Council

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

NORTH

WELLINGTON HEATH CP

LEDBURY CP

LEDBURY

Wellington Heath

Old Wharf

Ledbury Park

Category 1
(Internationally and Nationally designated sites)

Category 1 buffer 200m

Category 2
(Locally designated sites)

Category 2 buffer 50m

Category 3
(Semi-natural habitats)

Category 3 buffer 30m

Open water

Open water buffer 50m

Settlement boundary

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Ledbury Map 3

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

Internationally Protected Species
- Grest Crested Newt
- All Bat Species
- Otter
- Common Dormouse

Internationally Protected Species 250m buffer

Nationally Protected Species
- Amphibians
- WaterVole
- Reptiles
- White-clawed Crayfish
- Birds

Nationally Protected Species 250m buffer

Herefordshire BAP Species with Species Action Plans
- Lepidoptera
- Black Poplar
- Tree Sparrow
- Noble Chafer

Other Herefordshire BAP Species
- Brown Hare
- Skylark
- Song Thrush
- Kestrel
- Wild Daffodil
- Water Shrew
- Scarce blue-tailed damselfly

Settlement boundary

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11 Analysis of sensitivity of habitats and species around Leominster

11.1 Overview

The River Lugg forms the boundary of the town of Leominster to the north and east. Further to the east, the Bromyard Plateau rises steeply. The River Arrow flows west to east through a wide flood plain approximately 1km to the south of the town.

The Phase I habitat map has identified that much of the land around Leominster is managed intensively for agriculture. It is predominantly arable, but also with fields of improved pasture. There are however, pockets of less-improved habitats (pasture, orchards and small wooded areas), notably to the north of Ginhall Lane, to the south of Baron's Cross and along the river corridor to the east of Leominster. The steep slopes of the Bromyard plateau also have valuable unimproved grassland habitats to the east of the River Lugg.

The Green Infrastructure Strategy provides further information on the landscape character of Leominster.

11.2 Internationally and nationally designated sites

Only one Site of Special Scientific Interest (SSSI) is found in the immediate vicinity of Leominster:

- The River Lugg (including the Kenwater) SSSI
  A watercourse with species-rich, calcareous, lowland river communities

- Five kilometres to the south of the town, the River Lugg is designated as a Special Area of Conservation (SAC) as part of the River Wye SAC

Further information regarding the descriptions and status of SSSIs is available from Natural England at:
http://www.naturalengland.org.uk/

Further information regarding the description and status of the SAC is available from the Joint Nature Conservation Committee (JNCC) at:
http://www.jncc.gov.uk/

Any development proposals that could affect the conservation status of the SAC would be subject to a Habitats Regulations Assessment. In this instance, this is likely to concern any impact upon water quality and/or quantity.

11.3 Locally designated sites

The following Special Wildlife Sites are found in the Leominster area:

- SO35/25 River Arrow Leominster, Eardisland and Huntingdon SWS
- SO45/10 Pond near Bankfield house SWS
- SO46/16 Pinsley Brook SWS
- SO55/04 River Lugg SWS
- SO55/17 Land at Eaton Hill SWS
- SO55/20 Land at Eaton SWS

Further information regarding Special Wildlife Sites is available from the Herefordshire Biological Records Centre.

There are no known Local Geological Sites (also known as Regionally Important Geological Sites) in the area.

There are two areas of Common land in the Leominster area:

- Ivington Common
- Cromer Common

There are no areas of Ancient Woodland within 2km of Leominster.

11.4 Semi-natural habitats and wildlife corridors/linear features

The following Herefordshire Biodiversity Action Plan (BAP) Priority Habitats, semi-natural habitats and wildlife corridors have been identified as important features of the biodiversity resource in the Leominster area.

- Orchards
  There are many small, traditional orchards, particularly to the north west and south west of Leominster. Much orchard habitat has been lost in recent years, and reference to historical maps shows the location of former orchard sites. This information can be used to guide appropriate habitat restoration or re-creation strategies as part of development schemes.

- Grasslands
  Small-scale, unimproved and semi-improved grasslands (including those associated with orchards) are a particular feature of the areas to the north west of Leominster, across the slopes of the Bromyard plateau and along the floodplains of the Rivers Lugg and Arrow. These grasslands should be retained and appropriate long-term management strategies secured.

- Ponds
  There are numerous small ponds scattered throughout the agricultural land to the south and west of Leominster. Very few of these ponds have been subject to an ecological assessment. There may be opportunities to restore or enhance ponds that are on or adjacent to development sites and to improve habitat linkages between them.

- Riparian (river and stream) corridors
  The Rivers Lugg and Arrow and their associated marginal and bank side habitats are important biodiversity features, providing strong habitat linkages around (and through) the town. The Pinsley Brook also contributes to this. Mature alder and willow trees are typical, providing cover and foraging ground for many species such as otter and bats.

- Linear features such as species-rich hedgerows, ditches, green lanes and disused railways.
  Not all of these features have been mapped as part of this study, but they are nevertheless widespread around Leominster. Ditches along field boundaries are typical of the landscape to the north and east (associated with the flood plains of the River Lugg and Pinsley Brook). Stretches of damson hedgerow have also been identified.
  Retention of linear features is vital to maintaining connectivity between habitats and populations and securing their long-term survival and viability.

11.5 Artificial habitats and arable land

These habitats have been created or intensively managed and 'improved', such as for agricultural purposes, and form the predominant land use around Leominster.

11.6 Legally protected and priority species

The following protected and/or priority species have been recorded in the Leominster area:

- Otter
- Bats (including Bechstein's bat, Brown long-eared bat, common pipistrelle bat, noctule and Daubenton's bat)

- Barn owl
- Peregrine
- Kingfisher
- Water vole
- Grass snake
- Slow worm
- Badger

- Skylark
- Song thrush
- Brown hare
- Black poplar

These species should be prioritised when considering opportunities for habitat enhancement in section 11.7 below. It should be noted that other species might also be present.

11.7 Opportunities for habitat enhancement and creation

The following are suggested actions for the enhancement or creation of habitats that are appropriate to the Leominster area; this list is not exhaustive. Priority species recorded in the area (see 11.6 above) that will benefit from the implementation of these actions are also included; other species not previously recorded in the area may also benefit.

The Green Infrastructure Strategy for Herefordshire identifies broad zones for habitat restoration and creation opportunities that will strengthen green infrastructure around Leominster.

It is also important to encourage residents and local businesses to adopt wildlife-friendly gardening. Management schemes for parks, open spaces and school grounds should be developed with wildlife in mind.

Habitat protection and/or enhancement

		Actions	Species
1.	Orchards Grassland	Retention and appropriate management of grassland and orchard habitats for example grazing and hay cutting regimes	Bats Birds Reptiles Barn owl
2.	Floodplain grazing marsh	Appropriate management of floodplain meadows for biodiversity	Barn owl
3.	Ponds	Restoration of ponds	Great crested newt Water vole
4.	Rivers and streams	Retention of 'buffer zones' along water courses to improve water quality by reducing siltation Sensitive bank and tree management e.g. pollarding or coppicing of waterside trees	Otter Water vole
5.	Hedgerows Field margins	Retention and enhancement of field boundaries and other linear features Conservation and sympathetic management of mature trees Maintain and enhance connectivity between habitats	Bats Barn owl Great crested newt

		Retention of 'buffer zones' along field boundaries	
6.	All habitats	Interpretation of the wildlife interest of the habitats and features where there is significant public access	All species

Habitat creation opportunities

		Actions	**Species**
1.	Orchards	Planting of traditional orchards within development schemes, especially on historic sites e.g. as community areas	Bats Birds
2.	Floodplain grazing marsh	Creation of floodplain meadows on previously agricultural land (within the floodplain)	Barn owl Otter
3.	Ponds	Pond creation especially to the west and south where the network can be strengthened Creation of newt hibernacula and habitat corridors between ponds and other features	Great crested newt
4.	Rivers and streams Wet woodland	Planting of woodland corridors Creation of otter holts in undisturbed areas away from dog walking	Black poplar* Otter
5.	Hedgerows	Planting of mixed, native species hedgerows with hedgerow trees	Bats Birds

* Indicates a species not recorded in the area, but is a Herefordshire-wide priority

11.8 Biodiversity maps

The following maps identify the key biodiversity features in the Leominster area. Please refer to Section 2.5 for a description of the mapping methodology and Sections 3 and 4 for how to interpret them.

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Leominster
Map 1

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

- Category 1 (Internationally and Nationally designated sites)
- Category 2 (Locally designated sites)
- Category 3 (Semi-natural habitats)
- Open water
- Category 4 (Artificial habitats)
- Category 5 (Arable land)
- Settlement boundary

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Leominster Map 2

Herefordshire Council

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

NORTH

- Category 1 (Internationally and Nationally designated sites)
- Category 1 buffer 200m
- Category 2 (Locally designated sites)
- Category 2 buffer 50m
- Category 3 (Semi-natural habitats)
- Category 3 buffer 30m
- Open water
- Open water buffer 50m
- Settlement boundary

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Leominster Map 3

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

Internationally Protected Species
- Grest Crested Newt
- All Bat Species
- Otter
- Common Dormouse

Internationally Protected Species 250m buffer

Nationally Protected Species
- Amphibians
- WaterVole
- Reptiles
- White-clawed Crayfish
- Birds

Nationally Protected Species 250m buffer

Herefordshire BAP Species with Species Action Plans
- Lepidoptera
- Black Poplar
- Tree Sparrow
- Noble Chafer

Other Herefordshire BAP Species
- Brown Hare
- Skylark
- Song Thrush
- Kestrel
- Wild Daffodil
- Water Shrew
- Scarce blue-tailed damselfly

Settlement boundary

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12 Analysis of sensitivity of habitats and species around Ross-on-Wye

12.1 Overview

The River Wye flows towards Ross-on-Wye from the north; its floodplain forms the eastern boundary of the town. The wooded slopes of Penyard Hill dominate to the south. The Phase I habitat map has identified that much of the land to the north, east and southwest is predominantly agricultural (arable).

The Green Infrastructure Strategy provides further information on the landscape character of Ross-on-Wye.

12.2 Internationally and nationally designated sites

The Wye Valley AONB covers much of Ross-on-Wye town and the land to the north, west and south (this is not shown on the accompanying maps).

The following Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs) are found in the Ross-on-Wye area:

- River Wye SAC and SSSI
  A rare example of a near-natural, large, eutrophic river
  An essential fish migration route and a key breeding area for many nationally and internationally important species

- Wye Valley Woodlands SAC and Upper Wye Gorge SSSI
  Beech, oak and ash woodland with limestone caves and winter hibernation sites for greater and lesser horseshoe bats

- Wye Valley and Forest of Dean Bat Sites SAC and SSSIs
  A number of summer and winter roost sites for greater and lesser horseshoe bats

It should be noted that all SACs are also SSSIs. The Wye Valley Woodlands and the Wye Valley and Forest of Dean Bat Sites are some distance from Ross-on-Wye and not shown on the maps in Part III. However, due to the ecology and sensitivity of greater and lesser horseshoe bats, development within the Ross area will need to avoid adverse impacts upon these species and adopt a precautionary principle. Any development proposals that could affect the conservation status of a SAC would be subject to a Habitats Regulations Assessment.

Further information regarding the description and status of the SACs is available from the Joint Nature Conservation Committee (JNCC) at:
http://www.jncc.gov.uk/

Further information regarding the descriptions and status of the SSSIs is available from Natural England at:
http://www.naturalengland.org.uk/

12.3 Locally designated sites

The following Special Wildlife Sites are found in the Ross-on-Wye area:

- SO52/15 Wells Brook SWS
- SO52/16 Marsh near Bridstow SWS
- SO52/17 Disused railway line, Ross to Kerne Bridge SWS
- SO52/18 Marsh near Bridstow Church SWS
- SO52/19 Northern end of Coughton Marsh SWS
- SO52/22 Wilton Bluff SWS
- SO62/02 Chase and Merrivale Woods SWS

Further information regarding Special Wildlife Sites is available from the Herefordshire Biological Records Centre.

There are three Local Geological Sites (also known as Regionally Important Geological Sites):

- RIGS_055 M50 Section 1 & D, Upton Bishop
- RIGS_066 Overross Cliff
- RIGS_102 Wilton Bluff

Further information is available from the Herefordshire and Worcestershire Earth Heritage Trust at: http://www.earthheritagetrust.org/

Common land is identified at:

- Wilton Bridge
- Moor Meadow

There are extensive areas of ancient woodland to the south of Ross-on-Wye, notably on Penyard Hill, much of which is covered under the Special Wildlife Site designations above. These woodlands are likely to be important foraging areas for bats.

12.4 Semi-natural habitats and wildlife corridors/linear features

The following Herefordshire Biodiversity Action Plan (BAP) Priority Habitats, semi-natural habitats and wildlife corridors have been identified as important features of the biodiversity resource in the Ross-on-Wye area.

- Rivers and streams
  The River Wye and its associated marginal and bank side habitats are an important biodiversity feature. Its much smaller tributaries, such as the Rudhall Brook, are also important; together they provide a strong habitat linkage around (and through) the town. Mature willow and alder trees are typical, providing cover and foraging ground for many species such as otter and bats.

- Orchards
  Orchards are found to the north and south west of Ross, although they are somewhat localised. Much orchard habitat has been lost in recent years, and reference to historical maps shows the location of former orchard sites. This information can be used to guide appropriate habitat restoration or re-creation strategies as part of development schemes.

- Woodland
  The large areas of woodland on Penyard Hill are mostly covered under the designations in 12.3 above. They provide important foraging areas for bats.

- Linear features including disused railway lines and hedgerows
  There are a number of disused railway line corridors to the north, east and south of Ross, mostly now vegetated with semi-natural habitat.
  Hedgerows are a feature of the agricultural landscape around Ross, although many are in poor condition to the north and east.
  Retention and strengthening of linear features are vital to maintaining connectivity between habitats and populations and securing their long-term survival and viability.

12.5 Artificial habitats and arable land

These habitats have been created or intensively managed and 'improved', such as for agricultural purposes, and form the predominant land use to the east, north and south east of Ross-on-Wye.

12.6 Legally protected and priority species

The following protected and/or priority species have been recorded in the Ross-on-Wye area:

- Bats (including lesser horseshoe bat, Brown long-eared bat, common and soprano pipistrelle bats, noctule, whiskered bat and Daubenton's bat
- Otter
- Great crested newt
- Dormouse

- Barn owl
- Peregrine
- Kingfisher
- Water vole
- Grass snake
- Badger

- Brown hare
- Song thrush
- Kestrel
- Wild daffodil
- Water shrew

These species should be prioritised when considering opportunities for habitat enhancement in section 12.7 below. It should be noted that other species might also be present.

The presence of lesser horseshoe bats requires specific mention, as this species is one of the qualifying features of the Wye Valley Woodlands SAC and the Wye Valley and Forest of Dean Bat Sites SAC. A Habitats Regulations Assessment is likely to be required where this species is known to be present, particularly in relation to maternity roost sites.

12.7 Opportunities for habitat enhancement and creation

The following are suggested actions for the enhancement or creation of habitats that are appropriate to the area; this list is not exhaustive. Priority species recorded in the area (see 12.6 above) that will benefit from the implementation of these actions are also included; other species not previously recorded in the area may also benefit.

The Green Infrastructure Strategy for Herefordshire identifies broad zones for habitat restoration and creation opportunities that will strengthen green infrastructure around Ross-on-Wye.

It is also important to encourage residents and local businesses to adopt wildlife-friendly gardening. Management schemes for parks, open spaces and school grounds should be developed with wildlife in mind.

Habitat protection and/or enhancement

		Actions	Species
1.	Rivers and streams	Retention of 'buffer zones' along water courses to improve water quality by reducing siltation Sensitive bank and tree management e.g. pollarding or coppicing of waterside trees	Otter Water vole Kingfisher
2.	Floodplain grazing marsh	Appropriate management of grasslands and floodplain meadows for biodiversity	Barn owl Otter
3.	Orchards Grasslands	Retention and appropriate management of orchard (and their grassland) habitats for example grazing and hay cutting regimes	Bats Birds Barn owl

4.	Woodland	Retention of 'buffer zones' between woodland and development	Bats Dormouse
5.	Hedgerows Field margins	Retention and enhancement of field boundaries and other linear features Conservation and sympathetic management of mature trees Maintain and enhance connectivity between habitats Retention of 'buffer zones' along field boundaries	Barn owl Bats Dormouse
6.	Linear features	Appropriate management and enhancement of habitats along disused railway corridors	Bats Birds
7.	All habitats	Interpretation of the wildlife interest of the habitats and features where there is significant public access	All species

Habitat creation opportunities

		Actions	**Species**
1.	Floodplain grazing marsh	Creation of floodplain meadows on previously agricultural land (within the floodplains of the River Wye, Greytree Brook and Rudhall Brook)	Otter Water vole Barn owl Kingfisher
2.	Wet woodland	Woodland planting in appropriate locations along the floodplains of the Wye's tributaries	Black poplar* Kingfisher Otter
3.	Orchards	Planting of traditional orchards within development schemes, especially on historic sites e.g. as community areas	Bats Birds Wild daffodil
4.	Grasslands	Create species-rich grasslands, particularly on the lower slopes of Penyard Hill	Birds Barn owl
5.	Hedgerows	Planting of mixed, native species hedgerows with hedgerow trees	Bats Dormouse Birds
6.	Ponds	Pond creation (particularly to the east)	Great crested newt Water shrew Water vole

* Indicates a species not recorded in the area, but is a Herefordshire-wide priority

12.8 Biodiversity maps

The following maps identify the key biodiversity features in the area. Please refer to Section 2.5 for a description of the mapping methodology and Sections 3 and 4 for how to interpret them.

Ross-on-Wye
Map 1

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
1 : 15,000 when printed at A3

Category 1
(Internationally and Nationally designated sites)

Category 2
(Locally designated sites)

Category 3
(Semi-natural habitats)

Open water

Category 4
(Artificial habitats)

Category 5
(Arable land)

Settlement boundary

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Ross-on-Wye Map 2

Herefordshire Council

Scale 1 : 10,000 when printed at A2
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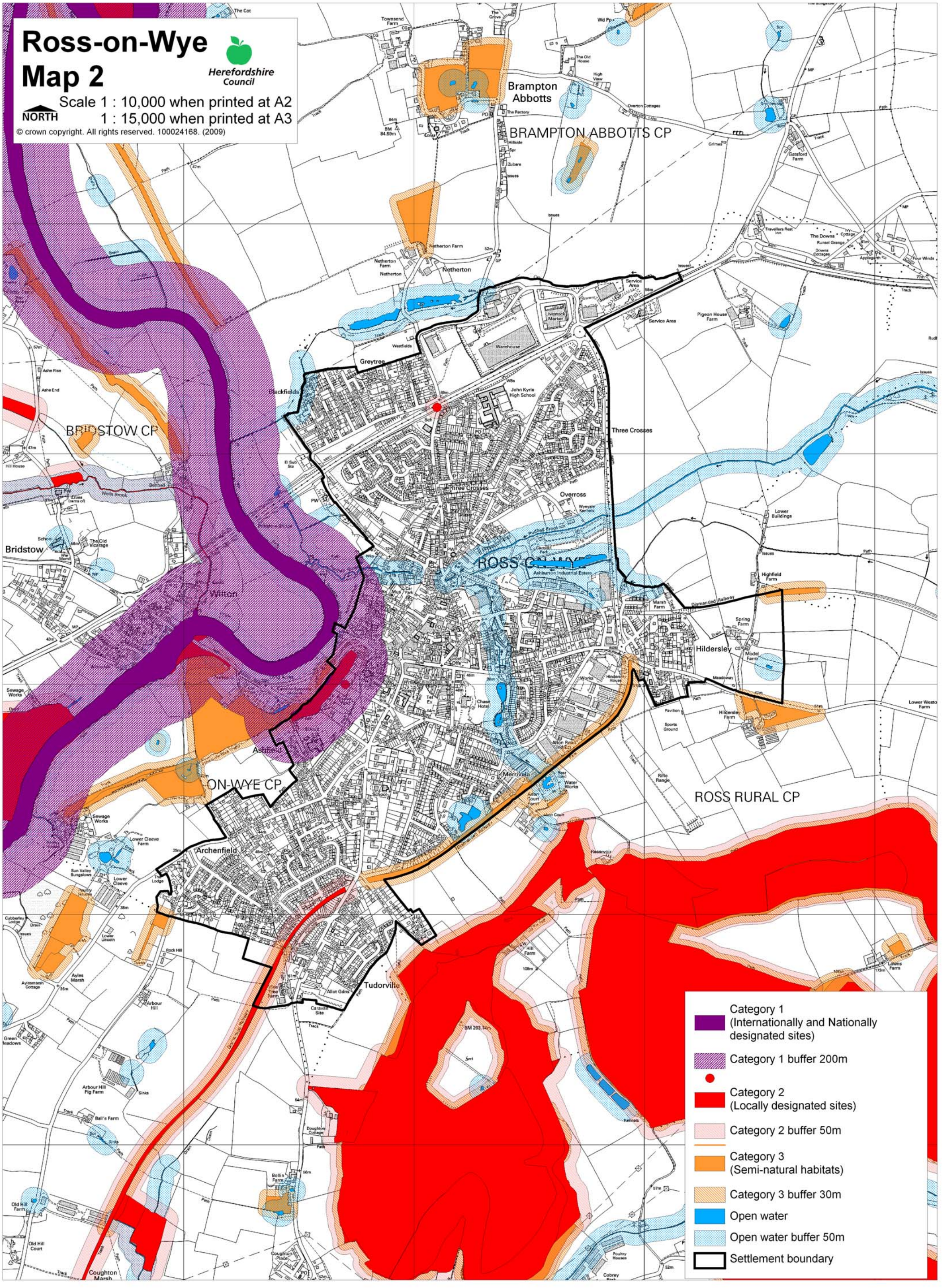
NORTH



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Ross-on-Wye
Map 3

Herefordshire Council

NORTH

Scale 1 : 10,000 when printed at A2
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Lesser Horseshoe Bat

Lesser Horseshoe Bat 250m buffer

Internationally Protected Species

- Grest Crested Newt
- All Bat Species
- Otter
- Common Dormouse

Internationally Protected Species 250m buffer

Nationally Protected Species

- Amphibians
- WaterVole
- Reptiles
- White-clawed Crayfish
- Birds

Nationally Protected Species 250m buffer

Herefordshire BAP Species with Species Action Plans

- Lepidoptera
- Black Poplar
- Tree Sparrow
- Noble Chafer

Other Herefordshire BAP Species

- Brown Hare
- Skylark
- Song Thrush
- Kestrel
- Wild Daffodil
- Water Shrew
- Scarce blue-tailed damselfly
- Veteran Trees

Veteran Trees 20m buffer

Settlement boundary

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Main references:

Herefordshire Biodiversity Action Plan (2005) Herefordshire Biodiversity Partnership

Planning Policy Statement 9: Biodiversity and Geological Conservation (2005) ODPM

Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System (ODPM 06/2005)

Planning for Biodiversity and Geological Conservation: A Guide to good practice (2006) ODPM

Biodiversity Supplementary Planning Guidance (2004) Herefordshire Council

Framework for Biodiversity – Integrating Biodiversity into Local Development Frameworks (2005) Association of Local Government Ecologists

PAS 2010:2006 Planning to halt the loss of biodiversity (2006) BSi

England Biodiversity Strategy - Climate Change Adaptation Principles – Conserving biodiversity in a changing climate (2008) Defra

Herefordshire Geodiversity Action Plan (2009) Herefordshire & Worcestershire Earth Heritage Trust

Further references and useful sources of information:

The dormouse conservation handbook 2nd edition (2006) P. Bright, P. Morris, T. Mitchell-Jones

Bat Mitigation Guidelines (2004) English Nature

Bat surveys good practice guidelines (2007) Bat Conservation Trust

The lesser horseshoe bat conservation handbook (2008) H. Schofield, VWT

Great crested newt mitigation guidelines (2001) English Nature

Water vole conservation handbook (2006) R. Strachan & T. Moorhouse

Veteran Trees: a guide to good management (2000) Natural England

BS 5837:2005 Trees in relation to construction – Recommendations (2005) BSi

Habitat creation and repair (1998) O. Gilbert & P. Anderson

Habitat creation handbook for the minerals industry (2003) G.J. White & J.C. Gilbert (eds), RSPB

Biodiversity by Design: a guide for sustainable communities (2004) TCPA

Working with Wildlife - A resource and training pack for the construction industry (2004) Ciria

APPENDICES

Appendix 1 - General guidance on the status of designated sites and protected species

Increasing environmental awareness over the past 50 years has resulted in a number of legal statutes offering protection to nature conservation interests; this is now reflected in a hierarchy of site designations and species' protection. Below is the relevant legislation and protection offered.

Internationally protected sites and species
The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) implement the EU Habitats Directive 1992, and afford protection to sites and species of international importance. In Herefordshire, this includes sites (under Annex I of the Directive) that are Special Areas of Conservation (SAC) and species (under Annex II) such as great crested newt, otter, dormouse and all species of bat.

Nationally protected sites and species
The Wildlife and Countryside Act 1981 (as amended) is the key legislation covering sites and species of national importance. Under this Act, Sites of Special Scientific Interest have been designated. Schedule 1 of the Act affords protection to certain species of bird including kingfisher and barn owl. Animal species such as water vole are covered under Schedule 5, and plants under Schedule 8. All the species and sites covered by the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) are also covered under this legislation. Section 74 of the Countryside and Rights of Way Act 2000 list the habitat types of principal importance for the conservation of biodiversity.

Further information can be found from:

- Joint Nature Conservancy Council (JNCC)
  http://www.jncc.gov.uk/
- Natural England (NE)
  http://www.naturalengland.org.uk/
- Herefordshire Council's Biodiversity Supplementary Planning Guidance (2005, updated 2009) or in ODPM Circular 06/2005
  http://www.herefordshire.gov.uk/docs/Biodiversity_spg_2009_V1.pdf

Appendix 2 - Useful local contact organisations

Conservation Section, Herefordshire Council
P.O. Box 4, Plough Lane, Hereford, HR4 0XH
Tel: 01432 383507

Herefordshire Biological Records Centre, Herefordshire Council
P.O. Box 230, Hereford, HR1 2ZB
Tel: 01432 261538

Natural England, Herefordshire Team
Government Buildings, Whittington Road, Worcester, WR5 2LQ
Tel: 01905 763355

Herefordshire Biodiversity Partnership,

P.O. Box 4, Plough Lane, Hereford, HR4 0XH
http://www.herefordshire.gov.uk/herefordbap/

Herefordshire Nature Trust
Lower House Farm, Ledbury Road, Tupsley, Hereford, HR1 1UT
Tel: 01432 356872
http://www.herefordshirewt.org/

Appendix 3 - Phase I survey data caveats

Due to the type of survey there are some caveats that the user needs to be aware of:

1. It is not to be regarded as a definitive representation of the conservation value, or interest of any piece of land.
2. The absence of any symbol such as a colour code or target symbol should not be taken as denoting a lack of nature conservation value.
3. It should be noted that due to habitat area measurement and observer error, habitat maps will not be 100% accurate.
4. Sites containing the same Phase 1 Habitats may not be of equal conservation value.
5. Habitats that appear widespread may still be threatened.
6. Many important animal and other species communities will not be indicated because the maps are based on vegetation.
7. Significant habitat changes may have occurred since these maps were produced.
8. Due to time constraints, sites were only visited once which depending on the time of year meant that some habitats might have been classified wrongly or missed due to season.
9. Habitats smaller than 0.1 hectares have not been mapped (unless where they are of interest in which case a Target Note was generated).
10. The target note information was not used as part of this study.

Appendix 4 - Glossary

Ancient woodland
Woodland known to have existed continuously in a location since at least 1600 - divided into:

- ancient semi-natural woodlands (which still consist of mainly native species, but which may have been subject to various types of management, such as coppicing); and
- plantations on ancient woodland sites

Biodiversity
The total variety of life on earth or within any given part of it

Biodiversity Action Plan (BAP)
A plan setting out the current status, issues and threats for a species or habitat, and a programme of specific and timed actions with identified responsible agencies to restore, maintain and enhance the biodiversity interest

Biodiversity Opportunity Mapping
A mapping methodology summarising the priorities for landscape scale conservation and thereby providing a framework for maintaining and enhancing biodiversity

Buffer zone
An area or zone that helps to protect a habitat from damage, disturbance or pollution

Compensation
Measures taken to offset any losses or adverse effects that cannot be entirely mitigated e.g. the creation of new habitats on or near the site

Corridor
A strip of a particular type that differs from the adjacent land on both sides

Ecology
The science of the inter-relationships between living organisms and their environment

Ecological appraisal
An assessment of the potential effects of development on sites, features or species of nature conservation value undertaken to the extent necessary to adequately inform the planning decision

Ecological survey
An inventory of the attributes of a site or area, usually in terms of habitat and associated species and normally following a standardised procedure

England Biodiversity Group
This group involves stakeholders from public, private and the voluntary sector, and advises the Government on the implementation of the UKBAP in England.

Environmental Impact Assessment (EIA)
A statutory procedure requiring the application of a full assessment of environmental impacts for certain major categories of development proposal

Fragmentation
Division of formerly large, continuous areas of habitat into small, unlinked areas by any of a number of means

Geodiversity
The variety of rocks, fossils, minerals and natural processes

Habitat
A place in which a particular plant or animal lives. Often used in a wider sense, referring to major assemblages of plants and animals found together, such as woodlands or grasslands

Habitat creation
Land management actions aimed at establishing a habitat on a site where it has not occurred before

Habitat enhancement
Land management actions aimed at improving the quality of habitat on a site which already supports that habitat

Habitat networks
A collection of features in the landscape that enable and encourage the migration, dispersal and genetic exchange of wild fauna and flora

Habitat restoration
Land management actions aimed at restoring a habitat on a site where it has previously existed, but subsequently been lost.

Habitats Regulations Assessment (also known as Appropriate Assessment)
A statutory procedure requiring the assessment of the implications of a proposal on the integrity of a European Site

Integrity
The coherence of a site's ecological/geological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was designated

Local Geodiversity Action Plan (LGAP)
A local delivery mechanism to integrate geological conservation measures together with objectives, targets and indicators defined in a local and national context

Local provenance
Seed or planting material of native origin that is destined for use in the same local area that it was collected

Local Nature Reserve (LNR)
Local Authorities may establish Local Nature Reserves in consultation with English Nature under section 21 of the National Parks and Access to the Countryside Act 1949

Local Geological Sites (LGS) (also known as Regionally Important Geological/ Geomorphological Site (RIGS))
Any geological or geomorphological site, of county importance that are considered worthy of protection for their educational, scientific, historical or aesthetic importance

Management
The manipulation of a site to maintain or enhance its habitats and population of a species, through recognised techniques, such as coppicing or grazing

Mitigation
Measures taken to reduce adverse impacts e.g. changing the way the development is carried out to minimise adverse effects through appropriate methods or timing

Native species
A species that occurs naturally in an area, not having been introduced by humans, either accidentally or intentionally

Natural regeneration
Re-colonisation of a site by species that were formerly present, or are present nearby, through germination of seeds in the seed bank and natural colonisation

National Nature Reserve (NNR)
A reserve declared under section 19 of the National Parks and Access to the Countryside Act 1949, or section 35 of the Wildlife & Countryside Act 1981 and managed in England by English Nature or a body approved by English Nature. All NNRs are also SSSIs

National Vegetation Classification
A system providing a detailed classification of Britain's vegetation according to the presence/abundance of characteristic plants. They are described in 5 volumes entitled British Plant Communities, published by Cambridge University Press (Rodwell 1991 et seq)

Phase 1 (habitat survey)
A field survey to establish land-uses and, in particular, the location of important wildlife habitats within a given area

Priority habitats
Those threatened habitats identified nationally and locally as being in greatest need of conservation action in order to ensure their future survival in the country or county

Priority species
Those threatened or declining species that have been identified nationally or locally as being of greatest need of conservation action in order to ensure their future survival, in the country or county

Protected species
Species protected by law e.g. the Wildlife and Countryside Act 1981 (and amendments), Countryside and Rights of Way Act 2000, Protection of Badgers Act 1992 and the Habitats Regulations 1994

Red Data Book (RDB)
Catalogues published by the International Union for the Conservation of Nature (IUCN) or by the national authority listing species which are rare or in danger of becoming extinct either nationally or globally. RDB listings categorise species on rarity grounds with the categorisations based on geographic range and population size (where known)

Section 39 Agreement
Section 39 of the Wildlife and Countryside Act empowers local authorities to enter management agreements with landowners to safeguard areas of high nature conservation interest

Semi-natural
Vegetation that has been modified by humans but is still of significant nature conservation interest because it is composed of native plant species, is similar in structure to natural types and it supports native animal communities

Site of Importance to Nature Conservation (SINC)
A site regarded to be of local importance for wildlife in the context of Hereford city

Site of Special Scientific Interest (SSSI)
SSSIs form a nationally important series that contribute to the conservation of our natural heritage of wildlife habitats, geological features and landforms. SSSIs are areas of land that have been notified as being of special interest under the Wildlife & Countryside Act 1981 or the National Parks and Access to the Countryside Act 1949

Special Area of Conservation (SAC)
SACs are sites designated under the Habitats Directive (Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora). All sites are SSSIs

Special Wildlife Site (SWS)
A non-statutorily protected site regarded to be of local importance for wildlife in a county context

Species diversity
A measure of species richness and the relative abundance of species

Sustainable development
Defined by the Brundtland Report (1989) as development that meets the needs of present generations without compromising its potential to meet the needs and aspirations of future generations

Sustainable Drainage Systems (SUDS)
Techniques designed to manage the quantity and improve the quality of water before discharge from development