Hounslow Biodiversity Action Plan 2011 - 2016

Prepared by the Hounslow Biodiversity Action Plan Partnership

Adopted: June 2011

MEMBERS OF THE HOUNSLOW BIODIVERSITY ACTION PLAN PARTNERSHIP:

CONTENTS PAGE

Amendments to document……3

Executive Summary……..……..……..……..……..……..4

Section One - A Biodiversity Action Plan for Hounslow 11

Section Two – Habitat Action Plans……..……...28

- Lowland Heath and Acid Grassland 29
- Neutral Grassland 35
- Wet Woodlands 40
- Reedbeds 45
- Gardens, Allotments and Orchards 51
- Built Environment 57
- Hedgerows 64
- Parkland and Veteran Trees 70
- Rivers and Streams 76
- The Tidal Thames 83

Section Three – Habitat Statements……..……..94

- Wastelands 95
- Woodlands 98
- Standing Water 101

Appendix

- UK BAP Priority species found in Hounslow 106
- Glossary 108

AMENDMENTS TO THE HOUNSLOW BAP

SECTION, PAGE	AMENDMENT	JUSTIFICATION	DATE
Section 1, page 15	Update of the SINC list. There are 47 Sites of Importance for Nature Conservation (SINC) in Hounslow. These are listed in the table on page 17. Following completion of the survey: ▪ one site has been deleted (Carville Hall South), ▪ one new site has been added (Mayfield Farm and Water Treatment Works – managed by Heathrow Airport Ltd); and ▪ four sites have been upgraded from Site of Borough Importance Grade II to I: Duke of Northumberland's River at Woodlands, Hanworth Park, the Longford River and De Brome Playing Fields, Longford River at Feltham and Hatton Meadows. These have been agreed and approved in consultation with the London Wildlife Sites Board (http://www.london.gov.uk/priorities/environment/greening-london/biodiversity/sites-importance-nature-conservation)	The SINCs were reviewed following a Phase One Ecology Survey of the boroughs existing SINCs, key parks and open spaces.	October 2013
Section 1, page 19 and 20	The above changes are reflected on the amended map of the borough.		October 2013
Section 1, page 21	Following the Census in 2011, population figures for the London Borough of Hounslow have been updated	Censure 2011 has replaced Census 2001.	October 2013
Section1, page 22	National Indicator 197 has been replaced by the Single Data List indicator 160-00 on nature conservation. The Council reports the progress made annually.	Change in central Government reporting requirements	October 2013
Section 1, page 23	Amendment of the planning guidance for biodiversity and nature conservation. The National Planning Policy Framework (NPPF) has replaced all the previous planning documents including Planning Policy Statement 9: Biodiversity and Geological Conservation. Therefore, the guidance and approach taken has been updated within the document.	Change in central Government policy.	October 2013

EXECUTIVE SUMMARY

Biodiversity in Hounslow

The term biodiversity entails studying the diversity and the variety of wildlife species, which exist within it. The Mayor of London states that biodiversity is a 'key measure of the state of London's environment and the quality of life of London's inhabitants'. Hounslow has some of the most diverse habitats in London, some of which are also of regional and national interest. Within Hounslow it is difficult to exactly gauge the extent of the wildlife resource in the borough. Within the Borough itself, there are 2354ha of open space of which approximately 954ha are managed either wholly or partly for nature conservation but many other areas will have incidental nature conservation.

Legislative Drivers

In 1992, the UK signed up to the Convention of Biological Diversity at the Earth Summit in Rio de Janeiro and as a result agreed to develop a national strategy for the conservation of biological diversity and sustainable use of biological resources. This strategy known as the UK Biodiversity Action Plan[1] was published in 1994 and was later followed up by the production of the England Biodiversity Strategy: 'Securing Biodiversity'[2] in 2008.

On a regional level, the London Biodiversity Partnership produced a Biodiversity Action Plan[3] for the capital which was followed by the Mayors Biodiversity Strategy[4] for London: 'Connecting with London's Nature'. The strategy encouraged and supported the production and implementation of boroughs Biodiversity Action Plans (BAP) as an integrated element of their Community Strategies.

Additionally, Section 40, biodiversity duty, of the NERC Act[5] states that: "E*very 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".* Local authorities can fulfil this Duty by incorporating the cross cutting biodiversity conservation agenda into the delivery of its services. This will enable biodiversity conservation to be a core component of sustainable development and not just be seen as just an environmental issue. Furthermore, it should be manifested in the BAP which should be part of the boroughs Sustainable Community Strategy.

The Hounslow Biodiversity Action Plan Partnership

The Hounslow Biodiversity Action Partnership formed in 1998 and is made up of conservation groups, businesses, NGOs and government bodies. The Partnership aims to:

- Oversee the production, implementation and monitoring of the Biodiversity Action Plan
- Promote the biodiversity resource in the borough
- Facilitate sharing of best practice, knowledge and skills
- Support and provide inspiration for conservation projects, events and activities
- Work with regional and national stakeholders to deliver the Hounslow BAP as well as UKBAP Priorities.

[1] HMSO (1994). Biodiversity: The UK Action Plan and Summary Report.
[2] Securing Biodiversity
[3] London Biodiversity Partnership (2000/2001/2002). The London BAP Volume 1: The Audit/ Volume 2: The Action.
[4] Greater London Authority (2002). Connecting with London's nature. The Mayor's Biodiversity Strategy.
[5] NERC Act 2006 http://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga_20060016_en.pdf

Hounslow Biodiversity Action Plan 2011 – 2016

In 2003, the Hounslow BAP Partnership produced and implemented the boroughs BAP. Following the successful implementation of the Plan, the Partnership has produced a second edition to continue the protection, conservation and enhancement of habitats and species across the borough. The second edition of the Hounslow BAP will:

- Continue to provide a **strategic overview** of biodiversity in Hounslow
- **Highlight** and **prioritise** the issues and actions for protecting, conserving and enhancing wildlife and habitats together with targets and actions to deliver them
- Help gauge and **monitor the quality** of our surroundings through the indicators provided by the health of habitats and species supported,
- **Promote biodiversity conservation** as a key indicator of well being and sustainable development and ensure that best practice information is shared;
- **Raise awareness and encourage community action** as a key part of the biodiversity process

Funding and Communicating the Strategy

Targets and actions outlined within the Plan will be delivered using existing and shared resources. However, there are a number of actions which can only be delivered using external funding additional to what is already available. The London Biodiversity Partnership has identified a number of grants which can be accessed by the Hounslow BAP Partnership. The Hounslow BAP Partnership will ensure that any funding accessed from external agencies will be used to deliver as many targets and actions as possible outlined within the plan and other community documents. Therefore a strategic approach will be required to deliver the wider environmental agenda. As a result, a funding strategy will be developed which will outline actions that require external funds as well as identify the different grants and resources that are available and how they can be accessed. In many cases this will require a collaborative community approach.

The Partnership will also develop a communications strategy which will aim to publicise and promote the BAP and the actions within it, but most importantly engage with as wide a range of people as possible in BAP activities. This could be through open days, guided walks, practical workdays, environmental education activities etc. These events are very popular with the public and will encourage the community to become more actively involved with nature on their doorstep.

Cross-cutting Themes

There are a number of cross cutting themes that have been integrated through out the document, these include:

- *Planning* – National Planning Policy Framework[6] (NPPF) issued in March 2012, replaced all the previous planning policy statements (i.e. PPS9). The NPPF states the 'planning system should contribute to and enhance the natural and local environment by:
-
    - Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the governments commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

  As a result, the local planning authority should: '*set out a strategic approach in their local plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure*'. Hounslow Council will ensure that any planning documents that will form part of the boroughs Local Development Frameworks will: indicate the location of designated sites of importance for biodiversity making clear distinctions between the hierarchy of the designated sites; and identifying any areas or sites for the restoration/creation of new priority habitats which contribute to regional targets, and support this restoration or creation through appropriate policies.

- *Parks and Open Spaces* - Parks in Hounslow are an important resource for wildlife and their value could be improved further with sympathetic management. However, parks vary widely in type and function. They are very heterogeneous and contain a considerable range of habitats. Parks therefore do not lend themselves to a HAP, which specifically addresses one habitat. Parks are best included in the BAP by ensuring that they are recognised in all the relevant HAPs.

- *Climate Change* - The Intergovernmental Panel on Climate Change 4th Assessment has highlighted that the changes in the world's climate is leading to a significant loss in biodiversity. Examples of this can be seen in the UK where climate change is impacting on the geographical range of species which has led to a change in the timing of seasonal events with detrimental effects on some species and their habitats. However, at the same time, conserving biodiversity can contribute to mitigating climate change and adapting to its results. Implementation of the BAP will ensure that the boroughs parks, open spaces and SINCs are managed so that they are able to adapt to the changing climate for example through changes in ground maintenance.

- *Sustainable Communities* - The Local Government Act 2000 requires local authorities to produce and deliver a Sustainable Community Strategy which sets out the areas long term vision that will enable it to deal with the local needs and priorities of the boroughs residents, businesses and voluntary sector. Furthermore, the DETR circular 04/2001 states that local Biodiversity Action Plans should be incorporated and implemented when delivering priorities outlined within the Strategy. Hounslow Together have adopted a long-term

[6] National Planning Policy Framework (NPPF) - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

outcome within their Hounslow Future Borough Strategy[7] 'to enjoy and maximise use of our built and natural environment'. This will be achieved by improving the boroughs open spaces, enhancing local biodiversity and protecting the environment.

In the past, biodiversity has largely been the preserve of land owners and naturalists; we all need to play our part in conserving and enhancing local biodiversity. This is not just about the protection of rare or threatened habitats and species but also ensuring those things currently common and perhaps taken for granted are similarly catered for so that they do not themselves become threatened.

[7] Hounslow Future Borough Strategy - http://www.hounslow.gov.uk/future_borough.pdf

Summary of the Habitat Action Plans

In this second edition of the BAP, the Partnership have developed the following HAPs and Habitat Statements based on its assessment of the priority habitats present within the Borough and taking in to account the results of the 1999/2000 Phase 1 Habitat Survey. These are:

Lowland Heath and Acid Grassland

Aims to:

- Enhance the quality and increase the area and diversity of lowland heath and acid grassland across the borough.
- Increase public awareness of the importance of lowland heath and dry acid grassland

This will be achieved by:

- Surveying and monitoring all lowland heath and dry acid grassland across the borough
- Ensuring that all existing lowland heath and dry acid grassland sites are maintained and enhanced using suitable management techniques
- Implementing habitat creation and restoration on a number of identified sites
- Promoting the heritage and cultural value of Boroughs heathland and acid grassland

Neutral Grassland

Aims to:

- Maintain and enhance the structure and diversity of neutral grassland habitat across the borough.
- Increase the knowledge of the species diversity and community structure of Hounslow's neutral grasslands.
- Increase public awareness of the importance of Neutral Grassland for biodiversity.

This will be achieved by:

- Assess the importance for biodiversity of neutral grasslands across the borough
- Ensure that already species rich neutral grassland is maintained and enhanced using appropriate management techniques.
- Monitoring and expand flagship species for neutral grassland
- Promote the heritage and cultural value of Hounslow Boroughs neutral grasslands

Wet Woodland

Aims to:

- Maintain and enhance the structure and diversity of wet woodland habitat across the borough
- Increase knowledge of the species diversity and community structure of Hounslow's wet woodland.
- Increase public awareness of the importance of wet woodland for biodiversity

This will be achieved by:

- Undertaking baseline surveys of all wet woodland sites within Hounslow
- Ensuring that all existing wet woodland is maintained and enhanced using appropriate management techniques.
- Monitoring and expanding the flagship species for wet woodlands.
- Promoting the heritage and cultural value of Hounslow Boroughs wet woodland

Orchards, Gardens and Allotments

Aims to:

- Promote, educate and encourage members of the public to manage their gardens and allotments in a sustainable and wildlife-friendly manner.
- Conserve and enhance allotment sites for horticultural uses and biodiversity value.
- Identify and protect remnants of old orchards.
- Maximise the extent and wildlife value of new orchards

This will be achieved by:

- Promoting, educating and encouraging members of the public to manage their gardens and allotments in a sustainable and wildlife friendly manner
- Conserving and enhancing allotment sites for horticultural use and biodiversity value.
- Identifying and protecting remnants of old orchards
- Maximising the extent and wildlife value of new orchards

Rivers and Streams

Aims to:

- Maintain and enhance the communities of riverine fauna and flora within the Borough.
- Achieve an improvement in water quality throughout the Boroughs rivers and streams.
- Increase awareness of the function and value of rivers and streams within the Borough.

This will be achieved by:

- Protecting and enhancing the quality of Rivers and Streams in the Borough.
- Achieving a continuing improvement in water quality
- Improving understanding of watercourses and associated habitats in Hounslow
- Increasing awareness of the function and value of watercourses in Borough

Tidal Thames

Aims to:

- Identify and quantify the wildlife habitats and species of the tidal Thames
- Ensure the improvement, regeneration and integration of tidal Thames habitats
- Contribute to strategic efforts to deliver biodiversity conservation targets for the tidal Thames as a whole.
- Promote public education, appreciation and research of the tidal (and non-tidal) Thames within the Borough
- Ensure green links with other riparian boroughs and water bodies are maximised

This will be achieved by:

- Promoting the value of the tidal Thames to the public and interested parties
- Providing increased nesting sites for breeding waterfowl
- Reducing the amount of rubbish entering the river in Hounslow
- Identifying sites for potential river-side habitat improvement and working with the appropriate bodies to bring these to fruition.
- Providing input to the development of the Boroughs LDF ensuring the tidal Thames is suitably protected
- Making available the biodiversity records for the tidal Thames corridor in Hounslow, with the aim of facilitating the protection of species through contractors, agencies and Council Planning being made aware of species locations and sensitivities; aiding research; and facilitating learning.

Parkland and Veteran Trees
Aims to:

- Establish the extent of the Veteran Tree population in Hounslow, whether in urban, parkland or garden situations.
- Increase understanding of the ecological and cultural importance of such sites, and to encourage sensitive and appropriate management.

This will be achieved by:

- Mapping and recording the extent and quality of Parkland Sites and veteran trees within the Borough
- To promote the understanding and good management of parkland sites and veteran trees

Built Environment
Aims to:

- Raise awareness and increase understanding of the importance of the built environment as a biodiversity resource within Hounslow,
- Protect and enhance the ecological value of the built environment that will benefit wildlife and promote community engagement with local flora and fauna
- Implement biodiversity within any new developments that are taking place in Hounslow
- Monitor and audit biodiversity in the built environment in Hounslow.

This will be achieved by:

- Raising awareness and increasing understanding of the importance of the Built Environment as a biodiversity resource across Hounslow.
- Protecting and enhancing the built environment as a biodiversity resource that will benefit wildlife and promote peoples engagement with local flora and fauna
- Auditing and monitoring biodiversity within the built environment
- Implement biodiversity initiatives within/across any new developments in Hounslow

Reedbeds
Aims to:

- Enhance the quality and increase the area of reedbeds across the borough
- Increase public awareness of the importance for biodiversity of reedbeds in Hounslow

This will be achieved by:

- Surveying and monitoring all areas of reedbed within the borough.
- Undertaking a program of maintenance on identified reedbed habitats over 0.1 hectares
- Creating and restoring reedbed habitat where this is identified as feasible by the audit.
- Promoting the heritage and cultural value of Hounslow Boroughs Reedbeds.

Hedgerows

Aims to:

- Protect and enhance the wildlife and landscape value of existing hedgerows in the Borough.
- Create and maintain new hedgerows, linking up with existing hedges both within the Hounslow and in adjacent Boroughs and promote public awareness of hedgerows

This will be achieved by:

- Surveying the size and distribution of where possible all hedgerows in Hounslow
- Protecting through sensitive management and, where appropriate, legislative action, all significant hedgerows in the Borough.
- Furthering legislative protection of hedgerows through the local planning process and
- Creating or maintaining hedgerows which link up with other hedges both within and adjacent to the borough, reinforcing a network of green corridors in Hounslow

NB. Following completion of the Phase One Ecology Survey completed in October 2012, the aims of the individual Habitat Action Plans remain unchanged.

SECTION ONE:

A BIODIVERSITY ACTION PLAN FOR HOUNSLOW

A BIODIVERSITY ACTION PLAN FOR HOUNSLOW

What is Biodiversity?

Biodiversity is defined as the total variety of living things together with their surroundings (or habitats) on earth. At an ecosystem level, biodiversity is important because it 'provides the conditions and drives the processes that sustain the global economy – and our very survival as a species'.

1.1 What is the Hounslow Biodiversity Action Plan?

The Hounslow Biodiversity Action Plan (HBAP) is a delivery mechanism for the conservation of biological diversity and the sustainable use of biological resources in the borough. Biodiversity, and the dynamic systems that support it, are extremely vulnerable to the effects of human urbanisation, making the existence of this plan essential for the protection of Hounslow's wildlife.

The BAP has been produced by the Hounslow Biodiversity Action Plan Partnership. The document is for the attention of those that are involved in habitat and species protection, conservation and enhancement in Hounslow.

1.2 Aims of the Hounslow BAP

The Hounslow BAP will:

- Provide a **strategic overview** of biodiversity in Hounslow
- **Highlight** and **prioritise** the issues and actions for protecting, conserving and enhancing wildlife and habitats together with targets and actions to deliver them,
- Help gauge and **monitor the quality** of our surroundings through the indicators provided by the health of habitats and species supported,
- **Promote biodiversity conservation** as a key indicator of well being and sustainable development and ensure that best practice information is shared;
- **Raise awareness and encourage community action** as a key part of the biodiversity process

1.3 The Hounslow Biodiversity Action Plan Partnership

The Hounslow Biodiversity Action Partnership formed in 1998 and is coordinated by the London Borough of Hounslow. The Partnership is made up of conservation groups, businesses, NGOs and government bodies. The Partnership aims to:

- Oversee the production, implementation and monitoring of the action plan
- Promote the biodiversity resource in the borough
- Facilitate sharing of best practice, knowledge and skills
- Support and provide inspiration for conservation projects, events and activities
- Work with regional and national stakeholders to deliver the Hounslow BAP as well as UKBAP Priorities.

1.4 Hounslow Biodiversity Action Plan 2003 – 2008

The First edition of the Hounslow BAP was published in 2003. Throughout its five year period, the implementation resulted in the following:

- Completion of approximately 32% of the actions,
- Approximately 46% of the actions remain on-going and
- The remaining actions remain incomplete and undeliverable due to unforeseeable circumstances and changes in the plan. Where feasible, these will be carried forward in the second edition of the document.

2.0 Background: The Context

2.1 National and Regional Plans and Policies

The natural world is a dynamic one which does not relate to political administrative boundaries. The HBAP will therefore not be operating in isolation as it will be delivered alongside international, national and regional policies.

International – The Earth Summit

In 1992, the UK signed up to the Convention of Biological Diversity at the Earth Summit in Rio de Janeiro and as a result agreed to develop a national strategy for the conservation of biological diversity and sustainable use of biological resources. The convention was drawn up in recognition of the significant decline in wildlife across the globe.

National – The UK's Biodiversity Programme

The UK government published the UK Biodiversity Action Plan[8] in 1994, followed by 45 UK Habitat and 391 UK Species Action Plans[9] in 1999. This was followed in England by the production of the England Biodiversity Strategy: 'Securing Biodiversity'[10] in 2008, which is being implemented by the England Biodiversity Group.

Regional - London BAP

The London Biodiversity Partnership produced a Biodiversity Action Plan[11] for the capital which was followed by the Mayors Biodiversity Strategy[12] for London: 'Connecting with London's Nature'. The strategy included within it specific references to the support of both the London-wide and local BAP partnerships and encourages the production and implementation of Borough BAPs as an integrated element of their Community Strategies. The London habitat targets have also been incorporated within the Mayors London Plan and several of the HAPs which have been incorporated within this document are being delivered so that we can meet the London targets.

Natural Environment and Rural Communities (NERC) Act 2006

Section 40, biodiversity duty, of the NERC Act[13] states that: "E*very 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".* Defra states that local authorities can fulfil this Duty by incorporating the cross cutting biodiversity conservation agenda into the delivery of its services. This will enable biodiversity conservation to be a core component of sustainable development and not just be seen as just an environmental issue. Furthermore, it should be manifested in the BAP which should be part of the boroughs Sustainable Community Strategy (see section 6.2).

[8] HMSO (1994). Biodiversity: The UK Action Plan and Summary Report.
[9] UK Biodiversity Steering Group, (1995-1999). Various Action Plans volumes, English Nature
[10] Securing Biodiversity
[11] London Biodiversity Partnership (2000/2001/2002). The London BAP Volume 1: The Audit/ Volume 2: The Action.
[12] Greater London Authority (2002). Connecting with London's nature. The Mayor's Biodiversity Strategy.
[13] NERC Act 2006 http://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga_20060016_en.pdf

Links to other plans

The Hounslow Biodiversity Action Plan will enable biodiversity conservation to be integrated within other local plans and policies such as the Hounslow Future Borough Strategy, the Hounslow Local Plan and the boroughs Climate Change Strategy (discussed in section 6.0). The BAP will also be implemented by incorporating it within plans and projects that are delivered by partners that make up the Hounslow BAP Partnership.

Sustainability and Biodiversity

The Governments national policy document: "A Better Quality of Life – A Strategy for Sustainable Development in the UK" and the progress report: "Achieving a Better Quality of Life" recognises that biodiversity is a key test of sustainability.

2.2 Biodiversity value in Hounslow

Due to the size and fragmented landscape of Hounslow it is difficult to exactly gauge the extent of the wildlife resource in the borough. However current estimates suggest that Hounslow has:

- Over 581ha of public open space.
- 1246ha of urban green space, roughly 30% of the boroughs surface land area.
- An estimated 954ha being managed either wholly or partly for nature conservation.

Two systematic wildlife surveys have been carried out in Hounslow identifying important habitat types. The first in 1984 (1,153 ha surveyed), published in the LEU Ecology Handbook No 15: Nature Conservation in Hounslow (1990)[14], and the second in 1999 (1,500 ha surveyed). The results of these surveys and the relative changes in habitat coverage are outlined in below. Table one also highlights the relative importance of the habitat type as either a UK BAP Priority or Broad habitat.

Table One: Results from Phase One Habitat survey for 1984 and 1999

Habitat	1984	1999	% Change	Status
Neutral Grassland	304.3	290.30	-4.6	Broad Habitat
Parkland and Improved Grassland	96.28	129.72	+34.7	Broad Habitat
Weed Communities	75.93	89.77	+18.2	
Native Deciduous Woodland	66.11	44.11	-33.3	Priority Habitat
Standing Water	65.54	77.53	+18.3	Broad Habitat
Arable and Bare Ground	39.97	65.43	+63.7	Broad Habitat
Non-native Deciduous Woodland	2.72	11.19	+311.0	Priority Habitat
Running Water (excluding the River Thames)	21.40	32.54	+52.0	Priority Habitat
Acid Grassland (excluding Hanworth Park)	19.71	22.46	+14.0	Broad Habitat
Heathland	24.55	17.46	-28.9	Priority Habitat
Other: ditches, hedges, orchards etc.	7.48	11.09	+48.3	Broad Habitat (hedgerow priority)

[14] Pape, D. (1990). Nature Conservation in Hounslow. Ecology Unit Handbook No. 15. London Ecology Unit

It is evident that there has been a drastic change in habitat type and quantity during the 15-year period. This is due to increase in urban development and change in habitat management. However, not all the change has been negative, the presence of reedbeds and increase of acid grassland is seen as an example of positive habitat management.

There has also been detailed survey and monitoring work carried out on various sites in the Borough, notably Hounslow Heath, Gunnersbury Triangle, Bedfont Lakes, Kempton Nature Reserve plus more irregular surveys on various other sites. Other survey work was carried out on ponds in 1992 by the Flora and Fauna Preservation Society and on hedgerows in the Borough by consultants in 1991 and 2005. London Borough of Hounslow has registered over 25000 records of habitats and species with Green Space Information for Greater London (GIGL)[15]. Hounslow is able to access habitat datasets which is provided along with thousands of species records from other GIGL Partners.

The habitats listed above support a number of different species many of which are considered to be UK BAP priority species. Appendix one highlights the location and status of some of these species in Hounslow. To ensure ongoing monitoring of the boroughs habitats, it is proposed that the Phase One habitat survey is repeated to enable the Partnership to identify the changes taking place in habitats in Hounslow i.e. increase or decrease in habitat type, condition assessments etc.

2.3 Wildlife Site designations in Hounslow

The London Borough of Hounslow has:

- One site (Kempton Nature Reserve) that has been designated as a Special Protection Area and is also a Ramsar site. These sites have been formally designated by the Secretary of State.
- Two Sites of Special Scientific Interest (SSSI): Syon Park Tide Meadow and parts of Kempton Nature Reserve. These sites have been designated by Natural England who assesses the condition of SSSIs.
- Ten Local Nature Reserves which are designated by Natural England. In the borough there is approximately 163 ha of LNR, the largest being Hounslow Heath;
- There are 47 Sites of Importance for Nature Conservation. Previously, the Mayor of London was responsible for designating SINCs across the capitol. This responsibility now lies with the regional Local Wildlife Sites Board[16]. There are four grades of importance:

    - *Sites of Metropolitan Importance (11 areas)*
    - *Sites of Borough Importance – Grade I (14 areas)*
    - *Sites of Borough Importance – Grade II (11 areas) and*
    - *Sites of Local Importance (11 areas)*

The above sites are listed in detail in table two below and illustrated on map one. Currently there are management plans and stewardship agreements in place for a number of SINCs across the borough. Management plans for specific sites help to

[15] Green Space Information for Greater London (GIGL)

[16] London Local Wildlife Sites Board is made up of the following members: the GLA, Green Space Information for Greater London, Natural England, DEFRA, and London Wildlife Trust. Green Space Information for Greater London (GIGL – London's Environmental Records Centre) is now responsible for providing information on borough SINCs.

bring rigor and clarity to managing a range of potentially conflicting or resource demanding requirements within a defined area. They will often, especially in more recent plans, have regard to local, national and international BAP's.

Often particular habitats and species will be a major concern of a management plan. BAP's, through HAPs, look in a more holistic way at that particular resource within an (admittedly often highly artificial) area. The site management plans of SINCs will often be essential in helping with the delivery of the Hounslow BAP

Table Two: Sites of Importance for Nature conservation sites situated in Hounslow (information sourced from Single Date List 160-00 baseline):

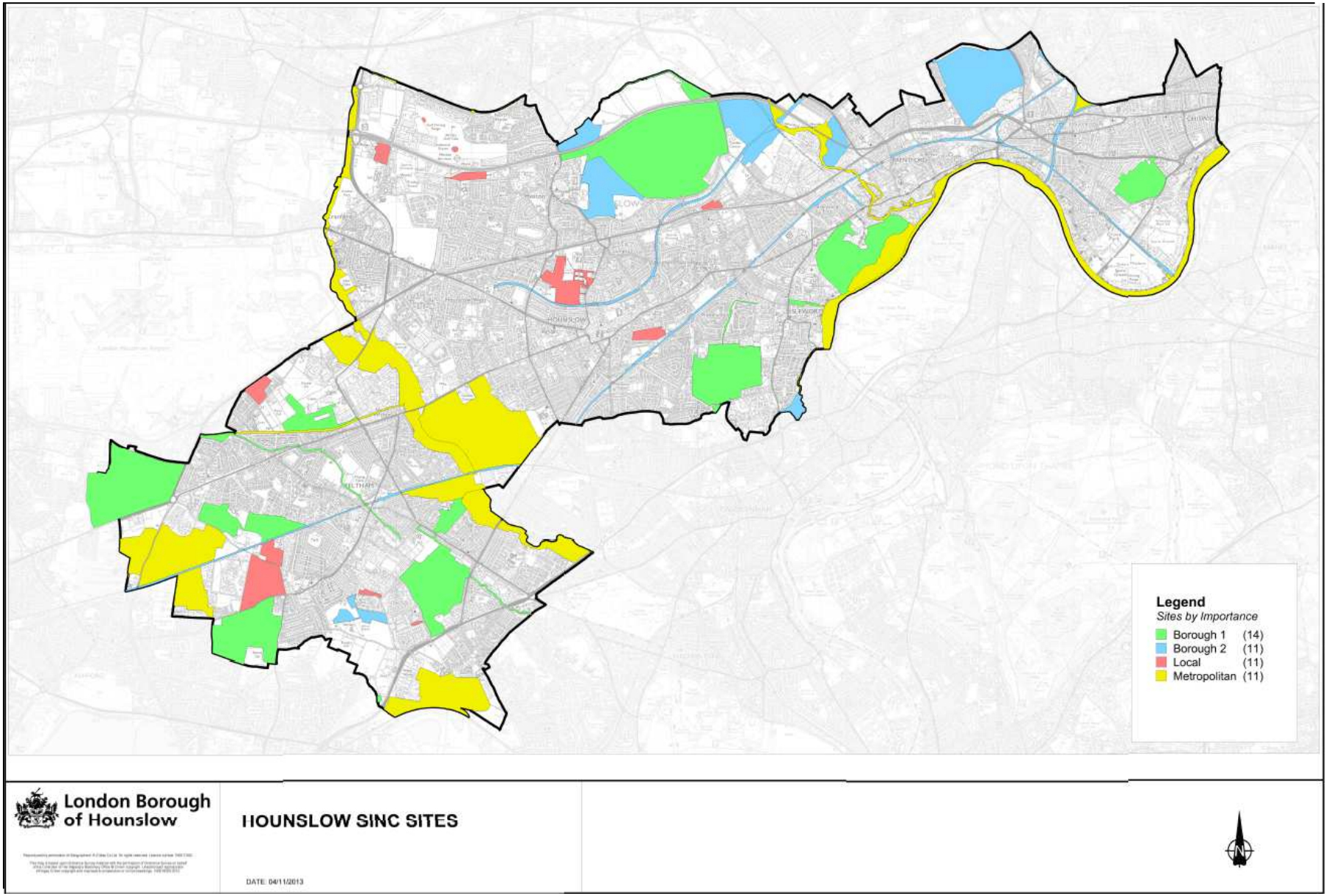
Sites of Importance for Nature Conservation (SINC)		
Sites of Metropolitan Importance		
1	M006	London's Canals (in part – the Grand Union Canal in Hounslow)
2	M007	Feltham Marshalling Yards
3	M031	The River Thames and tidal tributaries (in part): a) The Thames Islands, Lot's Ait and the intertidal mud of the Thames, Isleworth Ait Local Nature Reserve (LNR), Chiswick Eyot (LNR, 1993), Oliver's Island b) The Tidal Crane
4	M076	The Crane Corridor (in part) including: a) Dudset Lane to Great South West Road (Includes Crane-bank Water Meadows LNR, 2001). Extended to include the river section through Cranford Park in 2002 review b) Great South West Road to Baber Bridge c) Baber Bridge to Hanworth Road (includes Pevensey Road LNR, 1994) d) Crane Park and Crane Island (the latter a LNR, 1991)
5	M077	Bedfont Lakes (part now a LNR, 2000). Includes part of Princes Lake
6	M078	Kempton Waterworks (part now SPA, RAMSAR, SSSI and LNR, 2000) – Also a Site of International Importance
7	M080	Syon Park Tide Meadow (1950, re-notified 1984) Also a Site of Special Scientific Interest (SSSI)
8	M081	Hounslow Heath (in part – LNR, 1991)
9	M112	Dukes Hollow (LNR, 1993)
10	M115	Gunnersbury Triangle (in part – LNR, 1985)
11	M149	The Duke of Northumberland's and Longford Rivers at Bedfont (in part)
Sites of Borough Importance, Grade 1		
12	HoBI03	Chiswick House Grounds
13	HoBI04	East Bedfont Lake
14	HoBI05	Lower Feltham Rough
15	HoBI06	Mogden Sewage Works
16	HoBI07	Duke of Northumberland's River at Isleworth
17	HoBI08	Osterley Park
18	HoBI11	St Mary's Wood and Pastures
19	HoBI13	Syon Park
20	HoBI14	Kempton Park Chalk Grassland (part of South West London water bodies SPA and RAMSAR site, SSSI and LNR, all 2000)
21	HoBI15	Duke of Northumberlands River at Woodlands (Previously HoBII03)
22	HoBI16	Hanworth Park, the Longford River & De Brome Playing Fields (Previously HoBII04)
23	HoBI17	Longford River at Feltham (Previously HoBII06)
24	HoBI18	Hatton Meadows (Previously HoBII09)
25	HoBI19	Mayfield Farm and the Water Treatment Works (NEW SITE)
Sites of Borough Importance, Grade II		
26	HoBII01	Norwood Fields

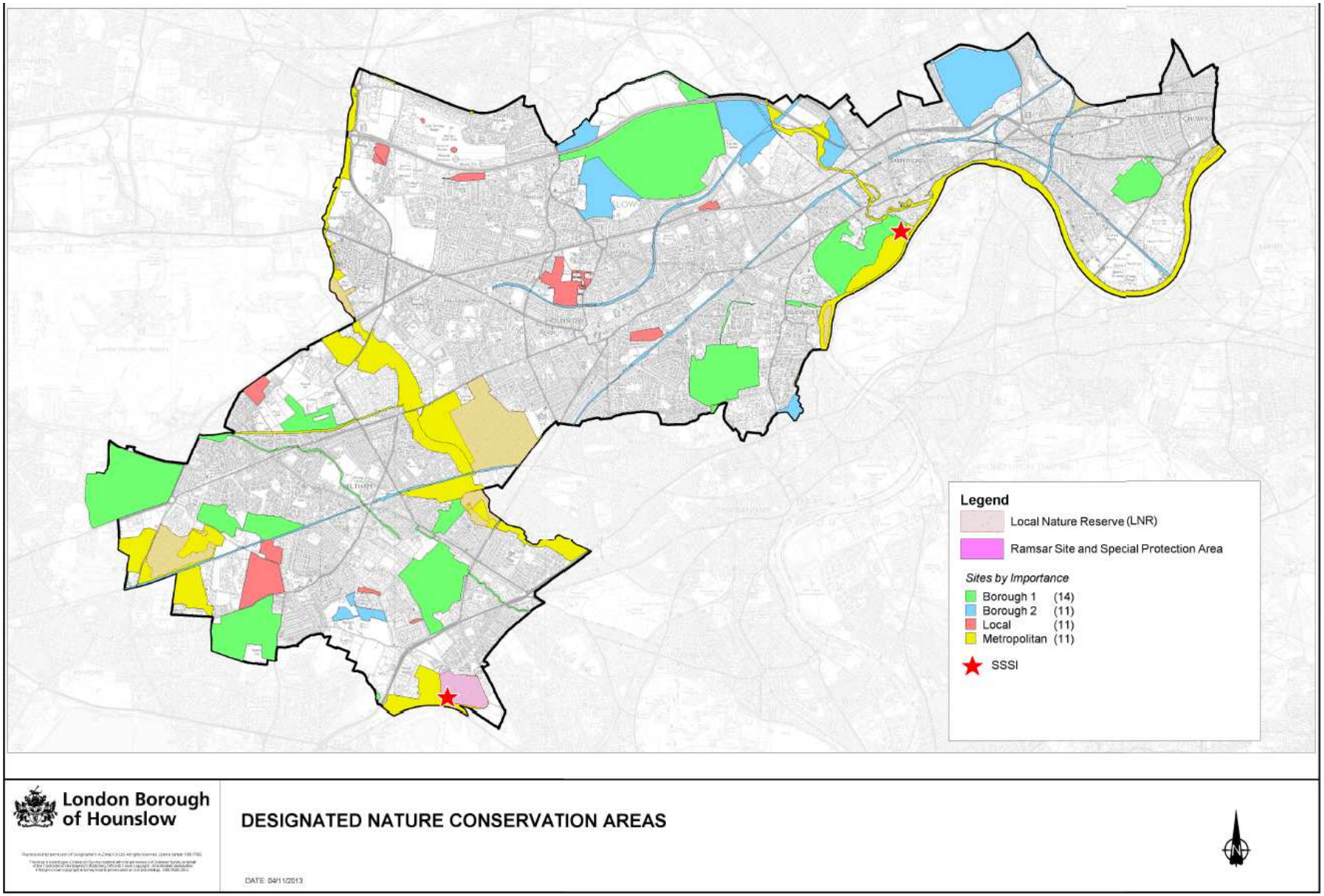
27	HoBII02	Osterley Fields
28	HoBII05	Felthamhill Carr and Croft Farm
29	HoBII07	River Crane at St. Margaret's
30	HoBII08	Wyke Green Golf Course
31	HoBII10	Boston Manor Park
32	HoBII11	Trumpers Triangle
33	HoBII12	Piccadilly Line Rail sides in Hounslow
34	HoBII13	Hounslow Loop Rail sides
35	HoBII14	Feltham Rail sides
36	HoBII15	Gunnersbury Park
Sites of Local Importance		
37	HoL01	Thorncliffe Rough
38	HoL03	Hartland's Wood & Lower Park Farm
39	HoL04	Jersey Gardens
40	HoL05	Cain's Lane
41	HoL06	Lower Feltham Brook
42	HoL07	Raleigh Park
43	HoL09	Airlinks Pond
44	HoL10	Castle Way Ponds
45	HoL11	Inwood Park
46	HoL12	Lampton Park
47	HoL13	London Diocesan Lands

See Map 1: Sites of Important Nature Conservation in Hounslow. Colour key represents the different grades of the site.

This is not a definitive list of land in the borough with wildlife value, but rather a list of sites where the wildlife value is of primary importance or is a very important facet of that land. Many other locations will have other primary functions but will have significant incidental wildlife interest, various wildlife sites and individual domestic gardens.

Map 2 illustrates the designated nature conservation areas such as SSSIS, Ramsar Sites and SPA sites.


Legend
Sites by Importance
Borough 1 (14)
Borough 2 (11)
Local (11)
Metropolitan (11)
London Borough of Hounslow
HOUNSLOW SINC SITES
DATE: 04/11/2013


Legend
Local Nature Reserve (LNR)
Ramsar Site and Special Protection Area
Sites by Importance
Borough 1 (14)
Borough 2 (11)
Local (11)
Metropolitan (11)
SSSI
London Borough of Hounslow
DESIGNATED NATURE CONSERVATION AREAS
DATE: 04/11/2013
N

3.0 Funding the Hounslow BAP

The Partnership invested approximately £1.2million in order to deliver the targets and actions outlined within the first edition of the BAP. Funding was sought from stewardship agreements, external grants, Section 106 agreements and use of existing resources. For detailed information on which targets were delivered and where resources were allocated contact the Environmental Strategy Unit at Hounslow Council.

Targets and actions outlined within this document will be delivered using existing and shared resources. However, there are a number of actions which can only be delivered using external funding additional to what is already available. The London Biodiversity Partnership has identified a number of grants which can be accessed by the Hounslow BAP Partnership. The Hounslow BAP Partnership will ensure that any funding accessed from external agencies will be used to deliver as many targets and actions as possible outlined within the plan and other community documents. Therefore a strategic approach will be required to deliver the wider environmental agenda. As a result, a funding strategy will be developed which will outline actions that require external funds as well as identify the different grants and resources that are available and how they can be accessed. In many cases this will require a collaborative community approach.

4.0 Communicating the Hounslow BAP

Hounslow is one of the most culturally diverse areas in the UK. More than 253,900 people live in the borough with over 120 languages spoken and 49% of the population are from minority ethnic groups (Census 2011). Effective communication with the community and its residents is essential to ensure successful implementation of the plan. The plan contains a number of targets and actions which aim to raise awareness about individual habitats and species, as it is crucial that the community and its residents understand the issues involved in managing, enhancing and conserving biodiversity in the borough.

The Partnership will develop a communications strategy which will aim to publicise and promote the BAP and the actions within it, but most importantly engage with as wide a range of people as possible in BAP activities. This could be through open days, guided walks, practical workdays, environmental education activities etc. These events are very popular with the public and will encourage the community to become more actively involved with nature on their doorstep.

5.0 Implementing the BAP

The actions outlined within the BAP will be implemented by the Hounslow Biodiversity Action Plan Partnership and will be coordinated by Hounslow Council. The Partnership will meet on a quarterly basis to:

- Monitor progress made on delivering the Hounslow BAP
- Report action taking place on the ground using the Biodiversity Action Reporting System (BARS). BARS[17] is a web based information system that supports the planning, monitoring and reporting requirements of national and local BAP's,
- Establish partnership projects and ensure targets are being achieved and
- Share best practice, knowledge and experience.

The following are some of the indicators which will be used to monitor and review the BAP:

- The condition of SSSI's – monitored annually by Natural England
- The biological quality of rivers – monitored annually by the Environment Agency
- Progress being made on completing actions and achieving targets outlined within the Habitat Action Plans – Monitored quarterly by the Hounslow BAP Partnership
- Number of sites in active positive conservation management – monitored annually by Hounslow Council and reported to DEFRA as part of the annual reporting requirements for the Single Data Set indicator 160-00[18].

The BAP will be an evolving and challenging document that provides a series of staging posts demonstrating environmental improvements that will contribute to a more sustainable future for Hounslow.

[17] Biodiversity Action Plan Reporting System: www.ukbap-reporting.org.uk/
[18] Single Data List 160-00 on improved local biodiversity - http://data.gov.uk/dataset/nature-conservation-local-sites/resource/444b2bc9-cf86-430e-a99b-25d77c951e14

6.0 Cross Cutting Themes

Through out the plan, there are a number of cross cutting themes that relating to the Habitat Action Plans. These have been discussed below:

6.1 Planning

In 2012, Central Government published the 'National Planning Policy Framework[19]' (NPPF). The NPPF replaced all the previous planning documents including Planning Policy Statement 9: Biodiversity and Geological Conservation'. The NPPF clearly states that the 'planning system should contribute to and enhance the natural and local environment by:

- *Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Governments commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*

To minimise impacts on biodiversity and geo-diversity, local authorities should develop planning policies that:

- *plan for biodiversity at a landscape-scale across local authority boundaries;*
- *identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation;*
- *promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan;*

The council is preparing its Local Plan and consulted on policy options ('Policy Options for the Local Plan') in June 2013. This consultation included policy directions supporting the Biodiversity Action Plan, and a range of policy options seeking to protect and enhance natural habitats in line with policy established in the NPPF and London Plan. The Local Plan will progress to the Proposed Submission stage, with consultation expected in March 2014 and submission to the Secretary of State by June 2014. The Biodiversity Action Plan will continue to inform the Local Plan as the final draft is prepared, and the HBAP partnership and other relevant stakeholders will also be involved in its preparation.

6.2 Sustainable Communities

The Local Government Act 2000 requires local authorities to produce and deliver a Sustainable Community Strategy. The Sustainable Community Strategy sets out the areas long term vision that will enable it to deal with the local needs and priorities of the boroughs residents, businesses and voluntary sector. Furthermore, the DETR circular 04/2001 states that local Biodiversity Action Plans should be incorporated and implemented when delivering priorities outlined within the Strategy.

The Hounslow Sustainable Community Strategy is produced and implemented by the Boroughs Local Strategic Partnership (LSP) and is currently under development. However, within the 2030 Vision for Hounslow, the LSP state that the boroughs green

[19] National Planning Policy Framework (NPPF) - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

spaces will be enhanced so that they well used and loved by local residents. One way of doing this will be to raise awareness of the BAP across the LSP in order to encourage partners and local community groups to assist in the delivery of the actions outlined within the plan.

6.3 Parks and Open Spaces

Parks and open spaces are fundamental to enhancing, conserving and promoting local biodiversity in an urban environment such as Hounslow's. Parks in Hounslow are an important resource for wildlife and their value could be improved further with sympathetic management. However, parks vary widely in type and function. They are very heterogeneous and contain a considerable range of habitats. Parks therefore do not lend themselves to a HAP, which specifically addresses one habitat. Parks are best included in the BAP by ensuring that they are recognised in all the relevant HAPs.

The Boroughs Parks Strategy is currently and under development, however once completed, actions and initiatives such as, establishing wildflower meadows, creating heathland and restoring river corridors combined with more sensitive development and maintenance operations and greater local engagement through volunteering and friends of parks groups will bring residents closer to nature increasing their overall enjoyment and wellbeing.

Along with friends of park groups, community groups, the council and its contractors have implemented a number of biodiversity restoration and conservation works across the boroughs parks and open spaces. For example, the creation of wildflower meadows at Boston Manor, Beaversfield Park, Hounslow Heath Nature Reserve to name a few has increased the diversity of flora and fauna (such as butterflies, bees, spiders and millipedes) within these parks. Continuation of this work through the implementation of the BAP and the Parks Strategy will ensure this will continue.

It is important that biodiversity is addressed in the management plans for parks and 'Friends of' parks groups are given the opportunity to appreciate and promote biodiversity in parks. This will enable Hounslow to continue to create and where possible restore habitats whilst undertaking nature conservation work.

6.4 Climate Change

The Intergovernmental Panel on Climate Change 4th Assessment has highlighted that the changes in the world's climate is leading to a significant loss in biodiversity. Examples of this can be seen in the UK where climate change is impacting on the geographical range of species which has led to a change in the timing of seasonal events with detrimental effects on some species and their habitats. However, at the same time, conserving biodiversity can contribute to mitigating climate change and adapting to its results. Other factors such as extreme weather events and changes in land use due to climate change are also likely to have an adverse effect upon biodiversity. The London Climate Change Partnerships report on 'Creating Natural Resilience by Adapting to Climate Change' outlines the following opportunities in adapting to climate change:

- Urban greening and development of ecological networks by incorporating biodiversity aims into planning, increasing the connectivity between habitats and creating a mix of habitat types
- Incorporating biodiversity aims into river restoration and flood storage schemes
- Maximise the ability of biodiversity to adapt to climate change by using appropriate management practices and monitoring species change.

A key component of the boroughs Climate Change Strategy (currently under development) will be to ensure:

- That the boroughs parks and open spaces are managed so that they are able to adapt to the changing climate for example through changes in ground maintenance.
- That the boroughs LDF documents incorporate policies that will ensure climate change adaptation is taken into consideration when development proposals are put forward whether this is through installation of SUDS or utilising open space strategies to manage the urban heat island effects by identifying opportunities for greening the urban environment.
- Ongoing promotion of the 'Save it, don't pave it' campaign encouraging residents to use permeable materials when paving over their front gardens or using appropriate landscaping techniques that take into consideration habitat and species management.

6.5 Habitat Suitability Maps

The London Biodiversity Partnership (LBP) produced the London BAP Habitat Suitability Maps[20] as part of the Regional Delivery Framework for the capitol. The objective of these maps were to identify areas which if used to create one or more of the BAP priority habitats would give the best benefit to biodiversity in London. The following habitats: Acid Grassland, Floodplain Grazing Marsh, Heathland, Lowland Meadow, Reedbed, Rivers and Streams, Standing Water and Woodland have been mapped. The maps are based on a data model produced and hosted by GIGL. These maps identify suitable areas across Hounslow where habitats could exist. As part of the implementation of the actions outlined within this document, the habitat suitability maps will be used to identify sites where further habitat creation could potentially take place across the borough. This will create habitat corridors and linkages between SINC sites and the boroughs parks and open spaces allowing a species to move from one site to the next. Simultaneously this will also increase the percentage of a particular habitat in the borough.

7.0 Going Forward

In the past, biodiversity has largely been the preserve of land owners and naturalists; we all need to play our part in conserving and enhancing local biodiversity. This is not just about the protection of rare or threatened habitats and species but also ensuring those things currently common and perhaps taken for granted are similarly catered for so that they do not themselves become threatened.

[20] London Biodiversity Action Plan Habitat Suitability Maps

Objectives, Targets and Actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
Produce and implement a funding strategy that outlines the resources and external funding grants available to deliver targets and actions outlined within the plan.	Produce a funding strategy for the BAP	Assess the cost of individual actions within the HAPs in order to identify where additional funding is required.	2011	LBH	HBAPP
		Identify and compile information of the various funding grants available which the partnership can access	2011	LBH	HBAPP
	Apply for grants from external organisation to deliver targets in the BAP.	Apply for two funding grants annually which can be used to deliver targets and actions outlined within the plan	2012 – 2016	HBAPP	HBAPP
Produce a communications strategy that outlines how the Partnership can engage and raise awareness of biodiversity and nature conservation within the borough.	Produce and implement a communications strategy	Produce a communications action plan	2011	LBH	HBAPP
		Produce an summary document on the BAP	2011	LBH	HBAPP
		Engage with Friends of parks groups through the Hounslow Friends Forum and on a one to one basis	2011	LBH	HBAPP
		Update the biodiversity and nature conservation pages on the boroughs website	2011	LBH	HBAPP
		Raise the profile of the BAP throughout the Hounslow Local Strategic Partnership (LSP)			
Use BARS to monitor and produce progress reports of all targets and actions to ensure that they are completed by the delivery date	Ensure 100% completion of targets and actions outlined within the plan	Input all targets and actions into the Biodiversity Action Reporting System	2011	LBH	HBAPP
		Update all records on BARS on a quarterly basis until action has been completed.	2011-2016	LBH	HBAPP
		Produce progress reports HBAP where required as well as for Partnership meetings	2011-2016	LBH	HBAPP
Update Hounslow habitat and species Database	Keep all habitat and species data up to date	Renew SLA with GIGL annually	2011 – 2016	LBH	HBAPP
		Repeat the 'Phase One' ecology survey across all SINCs in Hounslow	2015	LBH, JLIS	HBAPP
Ensure that the Hounslow BAP is taken into consideration when developing borough wide plans, policies and strategies by the Council and its Partners.	Ensure biodiversity is incorporated and delivered within the Boroughs Parks Strategy	All management plans for the boroughs key parks and open spaces incorporate biodiversity conservation, enhancement and protection.	2015	LBH, JLIS	HBAPP
		All the boroughs SINCs are in positive active management	2015	LBH	HBAPP
	Incorporate targets outlined in HBAP within all Partner plan and policies	Undertake audit of all partner plans and policies to ensure HBAP targets and actions are incorporated at the refresh period.	2012	HBAPP	HBAPP

SECTION TWO:

HABITAT ACTION PLANS (HAPs)

Lowland Heath and Acid Grassland
Neutral Grassland
Wet Woodlands
Reedbeds
Gardens, Allotments and Orchards
Built Environment
Hedgerows
Parkland and Veteran Trees
Rivers and Streams
The Tidal Thames

HABITAT ACTION PLANS (HAP)

In this second edition of the BAP, the Partnership have developed the following HAPs and Habitat Statements (table three below) based on its assessment of the priority habitats present within the Borough and taking in to account the results of the 1999/2000 Phase 1 Habitat Survey. These are not to be taken as an order of importance:

Table Three: HAPs and HS

Habitat Action Plan	Habitat Statements
▪ Orchards, Gardens and Allotments ▪ Rivers and Streams ▪ Tidal Thames ▪ Parkland and Veteran Trees ▪ Reedbeds ▪ Built Environment ▪ hedgerows ▪ Lowland Heath and Acid Grassland ▪ Neutral Grassland ▪ Wet Woodland	▪ Standing Water ▪ Wastelands ▪ Woodlands

Parks in Hounslow are an important resource for wildlife and their value could be improved further with sympathetic management. However, parks vary widely in type and function. They are very heterogeneous and contain a considerable range of habitats. Parks therefore do not lend themselves to a HAP, which specifically addresses one habitat. Parks are best included in the BAP by ensuring that they are recognised in all the relevant HAPs.

Biodiversity should also be addressed in the management plans for parks and there is a good opportunity for 'Friends of' parks groups to appreciate and promote biodiversity in parks.

Rather than produce a plethora of Species Action Plans in the document, the Partnership have agreed to highlight so-called 'Flagship Species' for each habitat. These are species whose presence is indicative of the well-being of the habitats as a whole. Where it was agreed that habitats needed a mention but didn't necessarily require targets and actions then a habitat statement has been produced. This is to flag up the importance of the habitat across the borough.

LOWLAND HEATH AND ACID GRASSLAND

1.0 Aims

- To enhance the quality and increase the area and diversity of lowland heath communities within the London Borough of Hounslow.
- To enhance the quality and increase the area and diversity of lowland dry acid grassland within the London Borough of Hounslow.
- To increase public awareness of the importance of lowland heath and dry acid grassland.

1.1 Introduction

Lowland heath and acid grassland develops on nutrient poor, acidic sands and gravels. In London it is confined to a few remnants of the once large commons and heaths that dominated the Thames Terrace gravels. They support a specific range of plant communities which prefer free draining nutrient poor, acidic soils characterized in heathland by heathers, gorse and broom and carpets of lichens and mosses and in dry acid grassland habitats by fine-leaved grasses such as fescues and bents. These habitats play host too many species, including birds and reptiles but most especially invertebrates that are particular to them due to the unique vegetation cover and the hot dry nature of the substrate.

1.2 Current Status

This action plan concerns all lowland heathland and dry acid grassland found within the London Borough of Hounslow. These two habitat types are often found together as mosaics and carry communities of species that are specific to them. Both the habitats and the species that depend on them are now rare and declining.

Lowland heath is confined to southern and eastern England, principally Devon, Dorset, Hampshire, Surrey, Sussex and East Anglia. Within the southeast region there are approximately 23,000 hectares of lowland heath. In Europe lowland heath is confined mainly to the western seaboard where it is very sporadic. The UK holds 20% of the world's lowland heath and has clear international responsibility for this particular habitat. Lowland heathland is an EC Habitats Directive Annex 1 habitat[21].

Hounslow Heath contains the only area of lowland heathland habitat within the Borough and is protected by two designations currently: Local Nature Reserve and Site of Metropolitan Importance (GLA/LBH)

Lowland dry acid grassland is a declining habitat with less than 30,000 hectares now present in Britain. It occurs over acidic rocks such as sandstone and superficial deposits such as sand and gravels[22]. Within Hounslow, lowland dry acid grassland is found predominantly on three sites: Hounslow Heath, Hanworth Park and De Brome

[21] The UK Biodiversity Action Plan: Lowland Heath (Originally published in: Biodiversity: The UK Steering Group Report - Volume II: Action Plans (December 1995, Tranche 1, Vol 2, p248) Website: http://www.ukbap.org.uk/UKPlans.aspx?ID=15

[22] The UK Biodiversity Action Plan: Lowland dry acid grassland (Originally published in: UK Biodiversity Group Tranche 2 Action Plans - Volume II: Terrestrial and freshwater habitats (December 1998, Tranche 2, Vol II, p57). Website: http://www.ukbap.org.uk/UKPlans.aspx?ID=14

Playing Fields. Within Greater London, lowland heath is now extremely rare with only approximately 80 hectares remaining. Of the remaining heath, 88% is confined to only 8 sites, with over 50% found on Wimbledon Common alone which has 40 hectares[23]. Lowland dry acid grassland is limited to very poor areas on Richmond Park and fairways on golf courses, such as at Wimbledon Common[24]. Of the 24 named areas within the London Biodiversity Action Plan, Hounslow Heath supports the 8th largest area of heathland (5 hectares) and together with the 7 hectares of dry acid grassland is a good example of a Thames Basin heathland mosaic habitat. Reinstatement of further areas of heathland habitat, currently underway, will lead to Hounslow Heath becoming more important for these habitats in the future.

The area of lowland dry acid grassland within the Borough has been severely reduced by past development and industrial exploitation. Relict acid grassland survives at a handful of sites scattered across the Borough, including some sites previously extracted for their sands and gravels. Many of these are public open spaces and consequently subject to significant trampling and disturbance.

Table Four (below) highlights potential sites for lowland dry acid grassland regeneration within the Borough. These sites are limited to open space areas that overlie river terrace gravels and are of an adequate size to support viable plant and animal populations and could potentially form a series of linked heathland/ acid grassland areas across the Borough. This will encourage the migration of species between sites and decrease the problems associated with the "island effect" prevalent within urban locations.

Table Four: Potential sites for lowland dry acid grassland regeneration in Hounslow

Site	Size	Ownership	Possible Reclamation
Hounslow Heath	82 ha	LBH	5ha
Bedfont Lakes area	80 ha	Private/LBH	
De Brome Fields		LBH	
Urban Farm	19ha	LBH	1.5ha
Hanworth Park	52ha	LBH	10ha

[23] London Biodiversity Partnership (2000) London BAP: Heathland. Website: http://www.lbp.org.uk/londonhabspp.html
[24] London Biodiversity Partnership (2000) London Biodiversity Action Plan: Acid Grassland. Website: http://www.lbp.org.uk/londonhabspp.html

1.3 Specific Factors Affecting the Habitat

Within Hounslow, heathland and dry acid grassland are affected by a variety of factors, which are intensified due to the urban location of the sites concerned. Habitat loss and degradation result from a combination of public pressure, urbanization and neglect through lack of resources for habitat management.

Factors causing a decline in heathland and acid grassland within Hounslow Borough:

- Island status – The distance from other lowland heathland/ dry acid grassland sites, which denies colonization opportunities and immigration
- Size – The habitat areas are fragile due to their small size and the lack of potential for expansion. There may be a diminished viability of species populations because of the small numbers of individuals sites can support.
- Development on current or potential habitat areas.
- Human impacts such as fire, disturbance, domestic pets and vandalism.
- Noise disturbance.
- The demand for access and recreation.
- Nitrification from landfill, top soil dumping and animal faeces.
- Gravel extraction.
- Succession to scrub and woodland.
- Lack of continuity in biological monitoring.

Factors causing a decline in the quality of lowland heath within Hounslow:

- The lack of age variation within the heather sward.
- The lack of a good mixed heathland mosaic, blocks of gorse and broom.

Factors causing a decline in the quality of dry acid grassland within Hounslow:

- The expansion of lowland heathland in lowland dry acid grassland areas.
- Succession to more nutrient loving grasses such as Yorkshire Fog.

1.4 Current Action

Legal Status

The only site within Hounslow containing lowland heathland is Hounslow Heath. This is designated as a Local Nature Reserve and classified as a 'Site of Metropolitan Importance for Nature Conservation' within Hounslow's Unitary Development Plan. Of the other sites containing dry acid grassland Bedfont Lakes is a Site of Metropolitan Importance and Hanworth Park is a Borough Grade 1 site.

Management and Guidance

The habitat at Hounslow Heath, Bedfont Lakes Country Park and Hanworth Park are currently managed under a 10 year Environmental Stewardship Scheme funded by Natural England. This aims to increase the areas of lowland heath through substrate recreation and heather reseeding to improve the species diversity and structure of areas of acid grassland. Biological monitoring and surveying and habitat management is carries out at Hounslow Heath. Other significant areas of lowland dry acid grassland occur at Hanworth Park and De Brome Fields. Phase 1 Habitat Surveys[25] carried out across the Borough in 1984 and 1999/2000, have informed the process of identifying both existing areas of heathland and acid grassland and areas that might potentially support one or both of these habitats. Specific guidance[26] on the management of these two habitats has been developed as part of the London BAP process.

[25] Phase 1 Survey of the London Borough of Hounslow, (1999). Data held by Greenspace Information for Greater London

[26] Symes, N and Day, J (2003). A practical guide to the restoration and management of Lowland Heathland. RSPB.

1.5 Flagship Species

Species	Latin	Description
Ling/bell heather/ cross leaved heath/ Dwarf Gorse	*Calluna vulgaris/ Erica cinerea/ Erica tetralix/Ulex minor*	These species form the main components of heathland in Hounslow
Adder	*Viperus berus*	This specie is confined to Hounslow Heath following a re-introduction in the late 1990's one of only 4 London sites
Stonechat	*Saxicola torquata*	The stonechat regularly winters on Hounslow Heath utilising the differing scrub and grassland habitats

1.6 Relevant Action Plans

National	Regional	Local
▪ Heathland ▪ Acid Grassland	▪ Heathland ▪ Acid Grassland	

Objectives, targets and actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
Survey and monitor all lowland heath and dry acid grassland across the London Borough of Hounslow	Review the present monitoring regime and implement change based on best practice.	Review the surveying/ monitoring on heathland/ dry acid grassland sites	2011	JLIS	GIGL, GLA, NE, HBAPP
	Maintain and update Hounslow's biological database with heathland/ acid grassland species and habitat data	Undertake a second phase one survey of heathland and acid grassland sites to compare with original baseline estimates	2015	JLIS	GIGL, GLA
		Undertake acid grassland survey of all sites using the LBP/ Natural England acid grassland monitoring method	2011	JLIS	HBAPP, NE, LBH
		Update Recorder database with past 5 years heathland/ dry acid grassland biological records	2011	JLIS	GIGL, GLA, LNHS
	Maintain BARS recording system relating to heathland/ acid grassland HAP on a regular basis.	Update heathland/ acid grassland HAP on BARS on a quarterly basis	Quarterly updates	LBH	JLIS
Ensure that all existing lowland heath and dry acid grassland sites are maintained and enhanced using suitable management techniques	Update management practices on all existing managed lowland heath and dry acid grassland sites in line with best practice by 2012.	Create and update management plans for existing lowland heath and dry acid grassland sites in line with recommended best practice guidelines	2011	JLIS	LBH, NE, GLA,
		Expand the grazing scheme on Hounslow Heath acidic areas to 10 hectares	2013	JLIS	NE, LBH
		Reduce scrub content on acid grassland/heathland areas of Hounslow Heath to levels proscribed under HLS	2013	JLIS	LBH, NE, GLA,
Implement habitat creation and restoration on a number of identified sites	Continue with habitat creation/ restoration on Hounslow Heath and Hanworth Park.	Update Hounslow Higher Level Stewardship Scheme to enable a further 1.25 hectares of heathland restoration on Hounslow Heath	2011	JLIS	LBH, NE, GLA,
		Undertake 1.25 hectares of heathland restoration on Hounslow Heath in line with HLS agreement	2011	JLIS	GLA, LBH, NE
		Continue to maintain the existing 10ha of acid grassland meadow that currently exists at Hanworth Park in line with the conditions of existing Higher Level Stewardship agreement with Natural England	2011	JLIS	LBH, NE
	Explore further opportunities for creation/ restoration	Establish restoration possibilities at Feltham Marshalling Yards	2011	JLIS	CVP, LBH, FORCE
		Establish habitat creation possibilities at Bedfont Lakes	2012	JLIS	NE,

	at Bedfont Lakes and Feltham Marshalling Yards	following finish of gravel extraction works			Developers
Monitor and expand the flagship species for acid grasslands and heathlands.	Monitor the expansion of heathland scrub cover at Hounslow Heath.	Map expansion of dwarf shrub species at Hounslow Heath LNR	Annually	JLIS	LBH
	Monitor the number of adders on Hounslow Heath and record expansion/ contraction of range to encourage management around adder hot spots.	Monitor adder populations in spring following emergence	Annually	JLIS	LBH, LHEART
		Map adder populations on an annual basis	Annually	JLIS	LBH, LHEART
	Monitor numbers of wintering Stonechats and encourage breeding opportunities.	Monitor stonechat numbers throughout winter	Annually	JLIS	LBH
		Encourage appropriate gorse/heather complex for breeding Stonechat	2011	JLIS	LBH
Promote the heritage and cultural value of Hounslow Boroughs heathland and acid grassland	Encourage education into Hounslow's heathland and acid grassland habitats by schools and universities	Promote heathland and acid grassland to educational bodies to raise awareness of habitat	2011 – 2016	JLIS	LBH
		Encourage the study of the boroughs heathland and acid grassland for higher educational projects.	2011 – 2016	JLIS	LBH
	Produce site leaflets and promotional events.	Provide connectivity with the London heathland and acid grassland HAPs regards public events.	2011 - 2016	JLIS	LBP

NEUTRAL GRASSLAND

2.0 Aims

- To maintain and enhance the structure and diversity of neutral grassland habitat within the London Borough of Hounslow.
- To increase knowledge of the species diversity and community structure of Hounslow's neutral grasslands.
- To increase public awareness of the importance of Neutral Grassland for biodiversity.

2.1 Introduction

Neutral Grassland within Hounslow forms the greatest area of open habitat and includes a number of habitat types that require a variety of differing management approaches. These range from flood plain grasslands to hay meadows and pasture land and of course more formal parks and open spaces where recreation is the primary factor. Although the grassland habitats are varied a unified approach to management is viable because the key management elements are primarily the same, those of either cutting or grazing. If these are satisfactorily managed then species diversity and numbers should increase.

2.2 Current Status

Neutral Grasslands are classed as a UK BAP[27] broad habitat and have priority action plans in terms of Lowland Meadows, Coastal and Floodplain Grazing Marsh and Lowland wood-pasture and Parkland. In terms of the London Biodiversity Action Plan[28] neutral grassland would fall under the cover of the Parks, Squares and Amenity Grasslands HAP and that covering the Tidal Thames in terms of the grazing marsh at Syon Park.

2.3 Specific Factors Affecting Habitat

Neutral Grassland in Hounslow has many constraints on its biodiversity primarily deriving from its diverse use for recreation by the local populace that lead to several forms of management. The cutting of grasslands on, in some cases a weekly basis for recreational and aesthetic purposes and the leaving of cuttings on site lead to grasslands of very limited interest for wildlife, which through nitrification become even less so over time. The addition of fertilizers in some cases adds to the nitrification of grassland sites again affecting species richness encouraging rank, dominant species. Pollution from road and air traffic adds to increased nitrate loads, which increase rank species at the expense of species diversity.

[27] The UK Biodiversity Action Plan; Neutral Grassland. (Originally published in: UK Biodiversity Group Tranche 2 Action Plans - Volume II: Terrestrial and freshwater habitats (December 1998, Tranche 2, Vol II, p15). Website: http://www.ukbap.org.uk/UKPlans.aspx?id=51

[28] London Biodiversity Partnership (2000). London Biodiversity Action Plan. Website: http://www.lbp.org.uk/londonhabspp.html#heath

Recreational use of neutral grassland sites can be very heavy leading to disturbance and thus reduced use by birds, reptiles and mammals. Vandalism such as unwanted fires leads to reduced biodiversity and a call for un-mown areas to be cut. Invasion by species such as Japanese knotweed, Himalayan balsam and Michaelmas daisy on areas that have been recently disturbed has led to scrub encroachment on areas of non managed neutral grassland where succession is quick and expensive to manage.

2.4 Current Action

Legal Status

Majority of the Neutral Grassland sites within the Borough are well protected under the following designations[29]:

- Syon Flood Meadow – SSSI, SMI
- Bedfont Lakes, Hounslow Heath, Pevensey Road, Cranebank – SMI, LNR
- Causeway, Green Lane Water Meadows – SMI
- Bedfont Lake, Osterley Park, Chiswick House Grounds – Site of Borough Grade 1 importance

Management and Guidance

The management of neutral grassland for nature conservation in Hounslow is largely dependant on site usage and the availability of resources. The habitat also spans a variety of types from floodplain meadows to nutrient poor sites to heavy clay grasslands leading to a variety of approaches in the types of management adopted. Neutral Grassland forms the largest constituent habitat within Hounslow with large sites such as Bedfont Lakes Country Park, Osterley Park, Hounslow Heath, Syon Park and Gunnersbury Park supplemented by many medium sized and small parks and open spaces. Biological monitoring and surveying and habitat management is undertaken on the grassland at Bedfont Lakes Country Park, Hounslow Heath and along the River Crane Corridor. Wildflower meadow creation projects are also undertaken by various Friends of Park Groups on some of Hounslow's more formal parks such as Grosvenor Park and Boston Manor Park. Both Osterley and Syon Parks manage large areas of neutral grassland and implement old management methods of grazing and hay cutting.

Phase 1 Habitat Surveys carried out across the Borough in 1984 and 1999/2000[30], have informed the process of identifying areas of neutral grassland within the London Borough of Hounslow. Specific reference to wet woodland management can be found under the UKBAP.

[29] London Borough of Hounslow (2001): Unitary Development Plan – Proposed Alterations Revised Deposit. London Borough of Hounslow.

[30] Phase 1 Survey of the London Borough of Hounslow, (1999). Data held by Greenspace Information for Greater London (GIGL).

2.5 Flagship Species

Species	Latin	Description
Common spotted orchid	Dactylorhiza fuchsii	Variable in colour and height and can be found on sites in Hounslow
Pepper saxifrage	Silaum silaus	Rare native perennial
Skylark	Alauda arvensis	Visible at Hounslow Heath
Meadow pipit	Anthus pratensis	Breeds at Hanworth Park, Hounslow Heath

2.6 Relevant Action Plans

National	Regional	Local
▪ Open Mosaic habitats on formerly developed land ▪ Wood Pasture and Parkland ▪ Coastal and Floodplain Grazing Marsh ▪ Lowland Meadows	▪ Parks, Squares and Amenity Grassland ▪ Built up Areas and Grassland ▪ Churchyard and Cemeteries ▪ Tidal Thames ▪ Wastelands	▪ Parkland and Veteran Trees

Objectives, targets and actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
Assess the importance for biodiversity of neutral grasslands with the London Borough of Hounslow	To identify all important areas of neutral grassland in Hounslow	To undertake phase 2 surveys of important grasslands within Hounslow	December 2011	HBAPP	All major land managers
	To assess the possibility of habitat improvement and long term management on identified areas.	To identify site use on important grasslands and order in terms of possibilities for advantageous management	December 2011	HBAPP	All major land managers
		To identify risks to long term management	December 2011	HBAPP	All major land managers
		Identify appropriate management activity for important areas of neutral grassland e.g. mowing or grazing	2011	JLIS	All major land owners
	To put in to place management plans for agreed identified areas	To create management plans for identified sites with stable and long term possibilities for enhancement	December 2011	HBAPP	All major land managers
		To identify and seek funding sources for long term management	December 2011	LBH, LWT	All major land managers
Ensure that already species rich neutral grassland is maintained and enhanced using appropriate management techniques.	To encourage appropriate grazing regimes to maximize ecological value of neutral grasslands.	To retain adequate grazing provision within the borough to effect identified grazing need on neutral grasslands	December 2011	JLIS	GAP, LGF LBH, NE, Land managers
		To introduce grazing to all neutral grassland areas where this type of management for high biodiversity value is identified as possible	December 2012	JLIS	LGF, Land managers
	To identify specialist management needs on differing grassland sites and change management as appropriate.	To introduce hay cutting to all Grassland sites where this management practice is advantageous and feasible in light of the areas use/priorities	July 2011	JLIS	LBH, Land managers
		To undertake non-intervention management on grassland areas where this is identified as advantageous	March 2011	JLIS	Land managers
		To identify specialist management needs on neutral grassland sites for the improvement of sward diversity and structure	March 2011	HBAPP	LNHS, NE
		To enact specialist management needs on identified neutral grassland sites	December 2011	HBAPP	Land managers Friends of Groups
Monitor and expand flagship species for neutral grassland	Monitor the Common Spotted Orchid,	Develop a monitoring programme for flagship species	2011-2016	JLIS	HBAPP
		Submit flagship specie records on to the Greenspace	2011-2016	JLIS	HBAPP

	Pepper saxifrage, Skylark, Meadow Pipit	Information for Greater London			
Promote the heritage and cultural value of Hounslow Boroughs neutral grasslands	To create 3 wildflower meadows on parks and open spaces within Hounslow by 2012.	Identify first wildflower meadow creation site	December 2011	JLIS, LBH	Friends of Groups
		To identify funding source for first meadow creation	2011	JLIS, LBH	Friends of Groups
		To create first wildflower meadow	2011	Friends of Groups, JLIS	JLIS, LBH
	To create a wildflower meadow leaflet for Hounslow relating to our created wildflower meadows	To create a leaflet identifying all wildflower meadows throughout the borough	December 2011	JLIS	Friends of Groups, LBH
	To hold 5 annual wildflower meadow events	To hold 5 annual identification and information days on wildflower meadows	March 2012	JLIS	Friends of Groups, LBH

WET WOODLAND

3.0 Aims

- To maintain and enhance the structure and diversity of wet woodland habitat within the London Borough of Hounslow.

- To increase knowledge of the species diversity and community structure of Hounslow's wet woodland.

- To increase public awareness of the importance of wet woodland for biodiversity.

3.1 Introduction

Wet woodland occurs on poorly drained or seasonally wet soils and are usually dominated by alder, birch or willow species of tree. In London it is greatly reduced and confined to small areas adjacent to River corridors such as the Thames, Lee and Crane as well as old flooded gravel pit workings[31]. The habitat usually occurs alongside other important habitats such as reedbeds, fen or open water forming rich mosaics which are high in biodiversity. Many species use wet woodland as the soft timber is ideal for nesting or roosting and there are large numbers of insects due to the associated aquatic habitats. In Hounslow wet woodland houses some of the most important species in the borough such as Nathusius Pipistrelle, Goat Moth and Bittern.

3.2 Current Status

Wet Woodland is a UK BAP habitat[32]. The UK total for all wet woodland types is estimated at between 50 and 70,000 hectares. Within Hounslow the habitat is confined to two areas, along river floodplains on the Thames and the Crane and associated with former gravel diggings such as at Bedfont Lakes Country Park[33]. These areas fall under a number of designations, Syon Park flood Meadow which is an SSSI, Donkey Wood in the River Crane Site of Metropolitan Importance and Bedfont Lakes Country Park which is a Site of Metropolitan Importance and a Local Nature Reserve. Wet Woodland in Hounslow falls into three National Vegetation Classification[34] categories, these are:

- W2 *Salix cinerea –Betula pubescens-Phragmites australis*,
- W6 *Alnus glutinosa- Urtica dioica*,
- W7 *Alnus glutinosa – Fraxinus excelsior – Lysimachia nemorum*.

Alder woods within Hounslow are ancient and have a long history of coppice management that has determined their structure. This practice has maintained alder as the dominant species and impeded succession to drier woodland communities. Other wet woodland such as at Bedfont Lakes, has developed through natural succession on open wetland following cessation of active management.

[31] London Biodiversity Partnership (2000). London BAP. Website: http://www.lbp.org.uk/londonhabspp.html#woodland
[32] The UK Biodiversity Action Plan; Wet Woodland. (Originally published in: UK Biodiversity Group Tranche 2 Action Plans - Volume II: Terrestrial and freshwater habitats (December 1998, Tranche 2, Vol II, p69). UKBAP Website: http://www.ukbap.org.uk/UKPlans.aspx?id=4
[33] Hounslow Biodiversity Action Plan 2003 - 2008. Produced and published by the Hounslow BAP Partnership
[34] Hall. J.E., Kirby. K.J. and Whitbread, A.M. (2004) National Vegetation Classification: Field Guide to Woodland. Joint Nature Conservation Committee. Website: http://www.jncc.gov.uk/PDF/fieldguidetowoodland.pdf

3.3 Specific Factors Affecting the Habitat

Wet Woodland within Hounslow is affected by a large number of factors related to the urban nature of its surroundings. The sites are all relatively isolated thus reducing the level of immigration and emigration from them and the viability of species populations within. The riverine sites, Syon Flood Meadow on the Thames and Donkey Wood on the Crane do have an element of connectivity through the river corridor but the nearest wet woodland habitat along these corridors are many miles away.

The woodland at Donkey Woods has in recent years been badly damaged by illegal tipping of landfill into the floodplain and this will need to be guarded against in the future.

Encroachment of invasive species is a big problem on all aquatic habitats and Giant Hogweed and Himalayan Balsam are evident throughout the wet woodlands on the River Crane in Hounslow. Dealing with this problem will require a catchment wide approach in order to eradicate the seed sources from throughout the river.

Public use by wet woodland is restricted due to their wet nature; however damage does occur due to vandalism and inappropriate use of the sites which are out of the way and prone to litter and damage to trees.

Biological recording on wet woodland sites within Hounslow is fragmented with the sites at Syon Flood Meadow and Bedfont Lakes Country Park well documented whilst sites on the Crane Corridor have very little known information.

Eutrophication of water courses can lead to a change in the ground flora of riverine wet woodland. The extraction of water from rivers leading to a drop in water levels and a change to drier woodland types.

3.4 Current Action

Legal Status

Most of the wet woodland sites within the Borough are well protected under the following designations[35]:

- Kempton Nature Reserve – SPA,RAMSAR, SSSI,SMI
- Syon Flood Meadow – SSSI, SMI
- Donkey Wood, Causeway, Green Lane Water Meadows – SMI
- Bedfont Lakes, Pevensey Road, Cranebank – SMI, LNR
- Bedfont Lake – Site of Borough Grade 1 importance
- Dukes Hollow LNR
- Brazil Mill Wood
- Chiswick Ayot and Isleworth Eyot - LNR
- Hanworth Park - Borough Grade 1
- Eastern Balancing reservoir (EBR)- part of Crane Corridor SMI and SINC

[35] London Borough of Hounslow (2001): Unitary Development Plan – Proposed Alterations Revised Deposit. London Borough of Hounslow.

Management and Guidance

The management of wet woodland in Hounslow is sporadic. Sites such as Kempton Nature Reserve, Bedfont Lakes Country Park, EBR and Syon Park cover the management of their wet woodland habitat through their management plans. Other sites, such as some of those along the Crane corridor at Cranebank and Green Lane have management of woodland covered through a Higher Level Stewardship agreement undertaken with Natural England for a ten year period. Then there is a third tier of sites such as Donkey Wood and Bedfont Lake which at present have no management plans in place.

Biological monitoring and surveying and habitat management of wet woodland is undertaken at Bedfont Lakes Country Park and to a very limited extent within the wet woodland on the River Crane corridor. Syon Park carries out the maintenance and biological monitoring of the wet woodland component of Syon flood meadow SSSI. Thames Water under take wet woodland management and biodiversity monitoring at Kempton Nature Reserve SSSI.

Phase 1 Habitat Surveys[36] carried out across the Borough in 1984 and 1999/2000, have informed the process of identifying areas of wet woodland within the London Borough of Hounslow. Specific reference to wet woodland management can be found under the UKBAP.

3.5 Flagship Species

Species	Latin	Description
Common spotted orchid	Dactylorhiza fuchsii	Variable in colour and height and can be found on sites in Hounslow
Pepper saxifrage	Silaum silaus	Rare native perennial
Skylark	Alauda arvensis	Visible at Hounslow Heath
Meadow pipit	Anthus pratensis	Breeds at Hanworth Park, Hounslow Heath

3.6 Relevant Action Plan

National	Regional	Local
▪ Wet Woodland	▪ Woodland ▪ Reedbeds	▪ Rivers and Streams ▪ Standing Water

[36] Phase 1 Survey of the London Borough of Hounslow, (1999). Data held by Greenspace Information for Greater London

Objectives, targets and actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
To undertake baseline surveys of all wet woodland sites within Hounslow	To identify all wet woodlands within Hounslow Borough	To identify all wet woodland sites within the borough through reference to phase 1 survey	2011	JLIS	HBAPP
	To undertake a Phase Two vegetation survey on all wet woodland sites.	To undertake phase 2 surveys of all wet woodland sites and enter all data on to recorder	2011	JLIS	LBH, GIGL, HEATHROW, TW, Syon Park
	To identify important invertebrate communities utilizing wet woodland habitat	To undertake preliminary surveys of invertebrate communities to ascertain the need for more in depth surveying	2011	JLIS	
		To undertake in depth surveys of identified invertebrate groups following on from preliminary results	2013	JLIS	
Ensure that all existing wet woodland is maintained and enhanced using appropriate management techniques.	To retain and update management practices on all existing wet woodland sites in line with best practice on an annual basis.	To institute coppice management into the management plans for all ancient alder dominated wet woodland sites	2011	JLIS	EA, LBH
		To reassess the management of willow wet woodland and assess the possibilities for rotational coppice management	2011	JLIS	LWT, TW, HEATHROW, Syon Park
		To have all wet woodland areas stipulated in coppice management by end of 2013	2015	JLIS	
		To maintain flood levels on all riverine wet woodland sites by maintenance of floodplain	2011	EA	JLIS, LBH
	To assess and improve all wet woodland and habitat assessment scores in the borough	To develop wet woodland habitat assessment criteria	2011	JLIS	HBAPP
		Assess all wet woodland habitats	2011	JLIS	HBAPP
		Re-assess wet woodland habitats	2015	JLIS	HBAPP
To monitor and expand the flagship species for wet woodlands.	To inspect wet woodland areas for population of goat moth and map located colonies.	Inspection of wet woodland for signs of Goat Moth and mapping of locations	2011	JLIS	TW, HEATHROW, LBH, Syon Park, LNHS
	To inspect wet woodland habitat adjacent to Bedfont Lakes for Nathusius' Pipistrelle roost	Inspection of wet woodlands for Nathusius' Pipistrelle	2011	JLIS	BCT, HEATHROW, LBH

	To monitor for the presence of Nathusius' Pipistrelle by the erection and monitoring of bat boxes.	Erect bat boxes for monitoring in areas surrounding present Nathusius' Pipistrelle site	2011	JLIS, HEATHROW	LBH, BCT
		Start inspection of bat boxes for Nathusius' Pipistrelle on twice annual basis	2011	JLIS, HEATHROW	BCT, LBH
To promote the heritage and cultural value of Hounslow Boroughs wet woodland.	To encourage education into wet woodland habitats by schools and universities.	To undertake 5 school/group visits to wet woodlands	2012	JLIS	LBH, GLA, LBP, TW
	To produce site leaflets and promotional events relating to Hounslow's wet woodland resource.	To undertake 5 wet woodland related events within Hounslow on an annual basis	2015	JLIS	LWT, LBH,TW Syon Park, HBAPP
		To create a new wet woodland leaflet for Hounslow Borough	2012	LBH	JLIS, TW, LWT, LBP,
		To increase involvement with national and regional initiatives related to wet woodland	20011-2016	HBAPP	LWT, LBH, LBP

REEDBEDS

4.0 Aims

- To enhance the quality and increase the area of reedbeds within the London Borough of Hounslow.

- To increase public awareness of the importance for biodiversity of reedbeds within the London Borough of Hounslow.

4.1 Introduction

Reedbeds are wetland habitats dominated by one plant species, Common Reed *Phragmites australis,* where the water table is at or above ground level for most of the year. Within the UK there are only about 5,000 ha of reedbed of which only 50 sites are over 20 ha[37]. Reedbeds hold distinctive bird and invertebrate assemblages. They support breeding populations of seven nationally rare breeding birds, the bittern *Botaurus stellaris*, marsh harrier *Circus aeruginosus*, common crane *Grus grus*, Cetti's warbler *Cettia cetti*, Savi's warbler *Locustella luscinioides*, reed bunting *Emberiza schoeniclus*, and bearded reedling *Panurus biarmicus*. Five Red Data Book invertebrate species are known to be closely associated with reedbeds, however, many hundreds of species use the habitat and 40 species are known to be totally reliant on it[38].

4.2 Current Status

Reedbed habitat in London is estimated at 43.5 hectares covering only 0.03% of the Capital's area[39]. The largest continuous areas occur in eastern London in Roding Creek and along the Ingrebourne Valley. Five major sites can be found in Hounslow, these are:

- Mayfield Farm Water Treatment works (3.28ha),
- Bedfont Lakes and Princes Lake (3.5ha),
- Kempton Reserve (0.5ha)
- The Eastern Balancing Reservoirs (EBR) (0.5ha) and
- Hounslow Heath LNR (0.4ha)

Reedbeds can also be found along the Rivers Thames, Crane, Duke of Northumberland, Longford, and Brent. These total approximately a further 1ha. This amounts to a total of 9.65 hectares or 22% of London's Audit. To counter the national decline in this highly specialised habitat there is pressure for re-establishment of the habitat wherever this is appropriate. Good examples of this are readily found within the borough at Kempton, Mayfield, and Bedfont Lakes where extensive reedbeds have been established within the last 20 years. Further restoration schemes are now envisaged at Princes Lake and EBR as well as smaller projects along the River Crane.

[37] The UK Biodiversity Action Plan: Reedbeds. (Originally published in: Biodiversity: The UK Steering Group Report - Volume II: Action Plans (December 1995, Tranche 1, Vol 2, p230). Website: http://www.ukbap.org.uk/UKPlans.aspx?ID=19

[38] Phase 1 Survey of the London Borough of Hounslow, (1999). Data held by Greenspace Information for Greater London

[39] London Biodiversity Partnership (2000). London Biodiversity Action Partnership: Reedbeds. Website: http://www.lbp.org.uk/londonhabspp.html#reedbeds

4.3 Specific Factors Affecting the Habitat

Development

Development along the River corridors in Hounslow has severely restricted the availability of floodplain into which this habitat would naturally establish itself. The canalised nature of much of the Crane, Northumberland, Longford, and Brent has also led to a lack of opportunities for reedbeds to establish. The majority of Hounslow's reedbeds are now protected from development as part of London's SINCs, and with the drive to de-culvert stretches of river where at all possible the effect on reedbeds by development in Hounslow is relatively small.

Water quality

Pollution within Hounslow's reedbeds is at the present the most decisive factor relating to their biodiversity especially considering that some of them are connected to water treatment facilities. The reedbeds at Mayfield Farm for example were created for the purpose of water treatment, collecting runoff from Heathrow Airport filtering the water through the reedbeds to increase the oxygen level[40].

The reedbeds at the EBR have developed naturally on the margins of the Airports balancing reservoirs which are likely to be having a positive effect on the water quality. The water quality in these reedbeds is therefore likely to be more variable than others in the borough. The water from the EBR also feeds into the River Crane where occasionally it may affect the quality of the flow and thus small riverine reedbeds further downstream, however the discharge from the EBR is typically of better quality than the River Crane upstream of the discharge point[41]. Other reedbeds within the borough at Kempton and Bedfont Lakes enjoy very good water quality and correspondingly are used by greater numbers of fish, amphibians, and birds.

Water level variability

This is peculiar to closed systems such as that at Bedfont Lakes where the lakes are totally rainfall fed and thus the water levels fluctuate greatly from year to year.

Management

Many of the smaller reedbeds within Hounslow are at present poorly managed and are suffering from the build up of silt and debris leading to succession to wet woodland. There is a very urgent need to coppice and remove trees from reedbeds in order to prevent leaf fall and drying out resulting in reed dieback.

Invasive Species

There are a range of invasive species which are having effects on reedbeds within Hounslow. Chinese mitten crabs are affecting small reedbeds along the Thames such as that at Chiswick Eyot through the undermining of banks. In the west of the borough New Zealand pigmyweed *Crassula helmsii* is invading wet areas such as gravel pits and forming dense mats beneath the reeds resulting in a drastic loss of biodiversity.

Public perception

Small reedbeds are often viewed as an eyesore especially where they trap litter or tidal rubbish. As much of the wildlife that exists within them is often secretive and hidden from view people need to be educated as to the real worth of reedbeds as a habitat.

[40] Operation and maintenance Manual. Pollution Control, Mayfield farm and Eastern Reservoir, Heathrow Airport. Unpublished. AMEC Mechanical and Electrical Services Limited.

[41] HEATHROW. (2009). HEATHROW, Biological Monitoring Review 1998-2008 Eastern, Southern and Western Catchments. Unpublished. June 2009. Penny Anderson Associates Limited.

4.4 Current Action

Legal Status

All of the major reedbeds to be found within Hounslow fall within Sites of Importance for Nature Conservation with four of them housed within sites of Metropolitan Importance (SMI). Of the remaining small reedbeds the great majority exist along river courses and thus are part of SMIs[42].

The reedbeds at Kempton Nature Reserve fall within a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and RAMSAR site. Specially protected species associated with Hounslow's reedbeds include water vole, kingfisher, bittern, Cetti's warbler and grass snake.

Management and Guidance

In most of Hounslow's larger reedbeds there is a need for the monitoring of water quality and levels in order to establish the sustainability of the habitat and in most cases this is carried out regularly. The only rotational management of reed at the moment occurs at Bedfont Lakes and Hounslow Heath as these are the only sites in the borough which are old enough and large enough to warrant this management practice at present. Clearance of invading wet woodland is also limited to these two sites at present but there is a strong need for both management practices to be enacted at the EBR Lakes where the age and structure of the wet woodland and adjacent reedbed is similar to Bedfont Lakes.

The other form of reedbed management within the borough is based around the Sustainable urban Drainage (SuDs) system at Mayfield Farm operated by HEATHROW to filtrate run off from Heathrow. This is based around floating reed pontoons and stone gabions planted with reed. Within this system the majority of biodiversity is housed within the reedbed it as the water beneath can have a relative low oxygen level thus restricting aquatic life. However during spring and summer the water quality is much improved due to reduced de-icing of the runways. The creation of further large areas of reedbed is envisaged within the next 5 years these include:

- The planting of reedbeds at Princes Lake adjacent to the large reedbed at Bedfont Lakes
- The expansion of reedbeds at the Causeway Balancing Lakes
- The planting of small reedbeds along the southern stretches of the River Crane

These creation schemes are dependent on funding from a variety of different sources in order to achieve their aims. These include bids to Landfill Tax funds, The Mayor of London's Priority Parks fund and Heritage Lottery funding.

Several agencies have produced guidance documents to encourage the management and creation of reedbeds, including the RSPB/EN leaflet Reedbed Management for Bitterns and the handbook Reedbed Management for Commercial and Wildlife Interests (Hawke And Jose, 1996).

[42] London Borough of Hounslow (2001): Unitary Development Plan – Proposed Alterations Revised Deposit. London Borough of Hounslow.

4.5 Flagship Species

Specie	*Latin name*	Comments
Bittern	*Botaurus stellaris*	A secretive and rare medium sized brown heron that breeds in large reedbeds. The reedbeds at Bedfont Lakes provide important overwintering sites for bitterns from UK and northern Europe.
Reed Warbler	*Acrocephalus scirpaceus*	These summer visitors are well established on several reedbed sites in Hounslow where they breed in good numbers. They feed on insects found within the reedbed and the pairs at Hounslow Heath cater for Hounslow's only known breeding cuckoos.
Moth	*Schoenobius gigantella*	This rare pyralid moth is found in large reedbeds where it feeds in the stems of the reed. In London the only other sites are in the Thames gateway near Dartford and Tilbury.
Wainscot Moths		Hounslow's reedbeds hold the most important recorded community of Wainscot Moths in London with 13 species including Webbs, Brown-veined and Silky all of which are recorded from only one or two London sites.

4.6 Relevant Action Plans

National	Regional	Local
▪ Wet Woodland ▪ Eutrophic Standing Waters ▪ Oligotrophic and Dystrophic Lakes ▪ Reedbed ▪ Ponds ▪ Rivers and lowland Fens	▪ Standing water ▪ Rivers and Streams ▪ Tidal Thames ▪ Reedbed ▪ Canals	▪ Wet Woodland ▪ Rivers and Streams ▪ Standing Water

Objectives, targets and actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
To survey and monitor all areas of reedbed within the borough.	To identify and map the present state of Hounslow's reedbed habitat.	To map all reedbeds within the borough over 0.1 ha on GIS and identify expansion/ contraction over period of the plan	2011and 2016	LBH	HEATHROW
	To identify all possibilities with Hounslow to undertake expansion or creation of further reedbed habitat.	Identify possibilities for reedbed restoration and creation and develop implementation plan	2011	HEATHROW	EA, TW, CVP, GIGL
	To survey Hounslow's major reedbeds for important invertebrate and bird communities.	To survey all major Hounslow reedbeds for moths	2011 - 2013	JLIS	HEATHROW, LBH, GIGL, TW,
		To create a recording card for the recording of reedbed bird species within the borough	2011	JLIS	HBAPP
		Input all moth and bird records into Hounslow Biological Records Centre	On-going	JLIS	LBH
		Update BARS as to reedbed actions	On-going	JLIS	HBAPP
		To undertake a condition survey of identified reedbeds within Hounslow in accordance with criteria set out by the London Reedbed HAP working group.	2012	JLIS, HEATHROW	LBH, GIGL, EA
To undertake a program of maintenance on all present identified reedbed habitats with the borough over 0.1 hectares	To create and implement management regimes for all reedbeds within the borough over 0.1 hectares.	To undertake an audit of all management plans where 0.1 hectare reedbeds are part of the site to identify deficiencies in management planning	2011	Reedbed working group	HBAPP
		To undertake 0.1 hectares of clearance of encroaching scrub woodland from reedbeds throughout the period of the plan	2011 - 2016	LBH	Site Managers
		To implement rotational cutting regimes on reedbeds of appropriate larger reedbeds (over 0.2 hectares)	2011	LBH	Site managers
	To monitor management works on reedbeds during the period of the plan to identify best working practice and implement elsewhere.	To monitor and identify for best working practice	On-going	Reedbed working group?	Site Managers, HBAPP

To seek to create and restore reedbed habitat where this is identified as feasible by the audit.	To restore all areas of reedbed that is appropriate in relation to other important fresh water habitats.	To restore reedbeds to desirable condition in accordance with reedbed restoration and creation implementation plan	2011 - 2016	HEATHROW	EA, CVP, Site Managers
	To create where feasible and desirable new reedbeds.	To identify opportunities for reedbed creation and delivery schemes for their establishment	On-going	HEATHROW	LBH, EA, CVP, Site Managers
		To establish a further 2 hectares of new reedbed during the period of this plan	2016	HBAPP	Site Owners, Site Managers
To promote the heritage and cultural value of Hounslow Boroughs Reedbeds.	To encourage education into Hounslow's reedbed habitats by schools and universities.	To organise at least two educational visits to Mayfield Farm.	2016	HEATHROW	JLIS
	To produce site leaflets and promotional events relating to Hounslow's reedbed resource.	To create an information leaflet advertising the importance and diversity of Hounslow's reedbeds	2012	JLIS	HBAPP
		To install a reedbed information board at Bedfont Lakes Country Park and Hounslow Heath outlining management and important species	2012	JLIS	HBAPP

NB –For a full list of acronyms please see appendix three for glossary

GARDENS, ALLOTMENTS AND ORCHARDS

5.0 Aims

- To promote, educate and encourage members of the public to manage their gardens and allotments in a sustainable and wildlife-friendly manner.
- To conserve and enhance the Boroughs allotment sites for horticultural uses and biodiversity value.
- To identify and protect remnants of old orchards.
- To maximise the extent and wildlife value of new orchards

5.1 Introduction

Gardens, allotments and orchards have the obvious similarity that they are all used, or have been used, to grow plants for human consumption or aesthetics. Alongside the cultivated and non-native plant species many wild plants and animals use these habitats such that gardens, allotments and orchards form an important biodiversity resource particularly in built up areas like Hounslow. It is estimated that private gardens comprise 20% of the boroughs land area.

The nature conservation value of gardens and allotments varies according to their size and the way in which they are cultivated. High density housing with small garden plots, as in Feltham, offers little scope for biodiversity. However, large gardens in parts of Osterley could be described as nature reserves in their own right. Collectively, gardens and allotments form some of the best wildlife corridors and natural networks often linking up with parks, track sides and rivers. The contiguous nature of gardens and allotment plots is a key factor in their importance as habitats. Gardens and allotments in Hounslow may hold the key to survival of our most common species, some of which are in decline.

It is estimated that 40% of the borough was covered in orchards and market gardens before the land was swallowed up by buildings and hard surfacing. While they do not remain as working orchards, some pieces of land have survived as semi-natural habitat. Having not been used or heavily managed, these are likely to have an appreciable wildlife value in addition to their horticultural and heritage interest. In some places all that remains is the odd old fruit tree, indicating the existence of a former orchard, in a private garden or an open space such as Osterley Fields.

With increasing concern about ‘food miles’, climate change and sustainability, gardens, allotments and orchards can make useful contributions to reducing ecological footprints. They are an important means of educating everyone about these issues and about more basic matters in the case of children, such as where food actually comes from.

5.2 Current status

Gardens

Gardens can be broadly defined as "*Areas of land adjoining property (often residential, communal or commercial) with substantial areas of lawn and areas of bare ground (or can be partly/totally hard surfaced). They are usually planted with trees and flower beds, and may also have plant pots, a pond, vegetable growing areas, outdoor furniture and artificial breeding and feeding stations for birds.*" In this HAP, communal gardens are excluded as they are more akin to parks and other public open spaces and, as such, have a rather different set of issues to private gardens.

An analysis of aerial photographs of Greater London undertaken by the London Ecology Unit in 1992 suggested that the gardens of private dwellings comprised about 20% (31,600 ha) of the city's surface area, although how typical Hounslow is of London and how much has changed since 1992 is not known. The area may have reduced somewhat, due to the trend of building over back gardens. Gardens vary significantly in terms of size, structural complexity, soil type, hydrogeology, management and distribution. Our current understanding of their status in terms of their extent, distribution, composition and ecological value is poor. Private residents constitute the single largest landowners of gardens, followed by the Council and housing associations, with some newer estates being run by management agencies. The Department for Communities and Local Government stated that a quarter of new homes are now built on what used to be residential land (this includes back gardens)[43]. As a result, the government has made amendments to Planning Policy 3[44] where gardens in towns and cities are no longer being designated as 'brown field land' however they can still potentially be built on but the decision whether such development takes place is left with the local planning authority. The UDP includes a policy designed to resist the development of 'backland' sites (defined as 'land locked sites', but including back gardens). The London BAP[45] recognises the threat to biodiversity from development in back gardens and has actions in place to resist this (Targets 1.1 and 1.4).

Allotments

There are currently thirty allotment sites in the Borough, four having been removed since the last HAP for various reasons (Whitton Dene, Heston Fairground, Green Lane and Boston Manor Park). Sites range in size from 0.2ha up to 6 ha and comprise anything from 6 to 200 plots, with 1877 plots in total. Nineteen locations are 'statutory' allotment sites. Statutory allotments are land acquired by the local authority for use as allotments and cannot be sold or used for other purposes of without the consent of the Department for Communities and Local Government. Allotment surveys taken in 2002 and 2008 by consultants contracted by Hounslow Council showed an increase of occupancy from 52% to 80% of the boroughs allotments indicating a significant increase in take up. Hounslow's UDP[46] contains a policy designed to protect the loss or development of allotments. This policy will be superseded in due course by policies within the Local Development Framework. The Hounslow Allotment Strategy[47] states that: "*The environmental benefits and opportunity for increased biodiversity and sustainable open space should not be overlooked*." The strategy will address this by developing an environmental management policy for the boroughs allotments.

[43] Department for Communities and Local Government (2010). Garden grabbing concerns raised by new figures. Website: http://www.communities.gov.uk/newsstories/newsroom/1665758
[44] Planning Policy Statement 3 - Housing: http://www.communities.gov.uk/publications/planningandbuilding/pps3housing
[45] London BAP (BARS summary): http://www.ukbap-reporting.org.uk/plans/lbap.aspn referenced from http://www.lbp.org.uk/londonhabspp.html#gardens
[46] Hounslow UDP (2003): Policy ENV-N.1.13 Allotments: http://www.hounslow.gov.uk/udp_4_natural_environment.pdf and http://www.hounslow.gov.uk/index/environment_and_planning/planning/planning_policy/udp.htm
[47] LBH Allotments Strategy: http://www.hounslow.gov.uk/allotment_strategy.pdf

Orchards

Two new orchards now exist in Hounslow; these are located at Waye Avenue in Cranford and at Bedfont Lakes Country Park LNR (mix of existing mature trees and new plantings). Being newly planted and managed or influenced by the Council, the wildlife and habitat values are reasonably well understood and, it is assumed, protected.

As orchards became uneconomic they were removed and the sites were put to more lucrative use, mainly development. Lack of knowledge and understanding of orchards meant there was no policy in place to retain them. The number of times that the word "orchard" occurs in the names of buildings attests to their former prevalence.

No complete orchards, working or 'derelict' now remain in Hounslow. However, there are remnants of a number of old orchards, some known (or suspected as such) by land owners. Some are at the edge of other habitats such as Bedfont Lakes and old gravel diggings. Others occur as isolated trees in gardens and other open spaces. The best known example is Osterley Fields.

Garden fruit trees, added together, can form linear orchards across property boundaries, but treated as individual trees they are all too often undervalued and felled through ignorance or to make way for 'development'. It is very probable there are old orchards remnants that have not yet been identified. By identifying them, protection measures need to be put in place to ensure that they do not disappear. Fruit trees are not generally appreciated for their beauty or as habitats for wildlife. However, the older they get, the more accommodating they become, especially to saproxylic invertebrates such as the noble chafer beetle, dependent on decaying wood, epiphytic lichens and bryophytes.

The Town and Country Planning Regulations 1999 make it possible to place a Tree Preservation Order (TPO) on fruit trees where it is in the interest of amenity to do so. Orchards may also be designated according to the draft PPS9 Circular (paragraph 88) provided they can be proved to be of '*substantive benefits for biodiversity conservation'*. TPOs are mainly used in urban areas to retain trees within residential infill development. They may be placed on individual fruit trees of particular interest or on whole orchards.

In 2007, DEFRA designated old orchards as priority habitats in UK Biodiversity Action Plans. Their designation was a result of their scarcity, the orchard area in England having declined by 57% since 1950, and because of their importance for many kinds of wildlife. It should be noted that the orchards being considered were primarily the larger, more intact rural orchards rather than urban fragments.

5.3 Specific factors affecting the habitats

Gardens

- Built development within back gardens or 'infilling'.
- Introduction of hard surfacing or decking to create terraces, driveways and patios within front and back gardens
- Garden trees removed unnecessarily, mistakenly perceived to be a threat to buildings or just fear of legal action or compensation claims.
- Use of chemicals e.g. pesticides and fertilisers.
- Intensive manicuring of hedges, lawns and beds
- Trend towards "instant" gardening using a limited range of easy-to-manage plants, rather than considering the wildlife value of such plants.
- Limited availability of wildlife-friendly plants and other products and lack of relevant advice at retail outlets. Retailers do not stock them on the grounds that they perceive there is little demand.
- People unaware of the actual or potential wildlife value of their gardens.

Allotments

- Vacant or underused allotments may be sold off for development.
- Planting of inappropriate or invasive species
- Over-use of chemicals, especially sprays and slug pellets
- Soil enrichment, which can limit diversity of plants'
- People often unaware that it is not necessary to cultivate a whole allotment plot. Half plots are available; also the margins can be left as headlands for wildlife.

Orchards

- Old orchards or remnants thereof can be lost simply because the land owner or manager does not know that it was an orchard.
- The wildlife value of orchards is not well known, meaning that no priority is given to their protection.
- Development, removal, partial removal or fragmentation. This may be either for 'site improvement' in the case of an individual house-and-land or, more generally, for housing or other development, the latter especially as orchards frequently fall under the designation of 'Brownfield' sites. This has lead to speculative removal of orchards and trees in the past ahead of building permission being granted.
- Neglect of traditional management. Although pear trees are known to live for over 200 years and frequently longer, apple and Prunus species (plum etc) have much shorter lives, typically 50 to 100 years respectively. A regime of rolling replacement of trees over a period of decades is therefore required if the orchard's tree assemblage is not to deteriorate. As orchards have in general been created all-of-a-piece at one time, they typically also stand in danger of failing within a short time-period if not appropriately managed for sustainability

5.4 Current Action

The Hounslow Magazine carried no less than 4 articles, 3 near full-page, on wildlife and gardening since 2004. It reported on 3 surveys:

- A gardens survey carried out in 2004. Out of the 171 responses, 45% reported stag beetles, 65% frogs and 100% house sparrows in local resident's gardens. Results were sent to LWT to be included in a London-wide analysis. A new London survey is being carried out on a regional level.
- A pond survey which received 97 responses. Frogs were reported in most of the ponds, but toads and newts in rather less than half.
- An allotment survey was also carried out as a BAP project, concentrating on reptiles and amphibians. There were 303 responses covering 24 allotment sites. The animals found, in order of frequency, were: frog 58%, toad 33%, newt 11%, slow-worm 11%, lizard 5% and grass snake 2%.

The results of the surveys suggest that gardens and allotments are a good resource for reptiles and amphibians, but there is no information available on other groups. 'Your Front Garden: 'Save it, don't pave it' leaflet was published and the London Wildlife Trust's guide to 'Wildlife Gardening' were distributed through various channels. The veteran tree survey (see Parkland and veteran trees HAP) covered old fruit trees to some degree, but not comprehensively.

5.5 Flagship species

There are no wild/native spp. which are known to be dependent on gardens, allotments or orchards. However, these habitats are important for many species, common and not so common, providing food, space for breeding and limited disturbance. Suggested flagship species for gardens, allotments and orchards are:

Common name	Latin name	Comments
House Sparrow	Passer domesticus	A once familiar and seriously declined but may now have stabilised.
Bullfinch	Pyrrhula pyrrhula	A characteristic, but not common, species of orchards
Slow-worm	Anguis fragilis	This is actually a legless lizard. Quite common in warm dry places.
Common Frog	Rana temporaria	Favours gardens with sunny, open ponds where they may breed.
Hedgehog	Erinaceus europaeus	Hedgehogs are renowned for eating slugs in gardens but now in decline.
Mistletoe	Viscum album	A very characteristic and distinctive semi-parasite, living in the canopy of fruit trees.

The London Biodiversity Partnership[48] has identified a list of 'priority species and species of conservation concern' that typically occur in gardens. The ones which may or may not occur in Hounslow are listed in Appendix two.

5.6 Relevant Action Plans

National	Regional	Local
	▪ Woodland ▪ Private Gardens ▪ Churchyards and Cemeteries	▪ Hedgerows ▪ Built Environment

[48] London BAP priority species: http://www.lbp.org.uk/londonpriority.html (linking to 4 spreadsheets) to be amended

Objectives, targets and actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
To promote, educate and encourage members of the public to manage their gardens and allotments in a sustainable and wildlife friendly manner	Produce and launch a publicity campaign for gardens and allotments	Compile and collate guidance and distribute to gardeners and allotment holders to encourage wildlife friendly practices	2011-2013	FOE	LBH, JLIS
		Publish at least two wildlife gardening features in HM Magazine to promote gardens and allotments as a key biodiversity habitat	2011- 2016	LBH	FOE
		Estimate the area of private gardens in Hounslow	2014	FOE	LBH, JLIS
		Continue to promote the Councils Save it, Don't Pave it campaign	2011-2015	LBH	FOE
		Reinforce Council policy to prevent paving over front gardens	2011-2012	LBH	FOE
To conserve and enhance the Boroughs allotment sites for horticultural use and biodiversity value.	To protect allotments from inappropriate, non-horticultural developments	Monitor and respond to all planning applications that affect allotment sites	2011-2015	LBH	HBAPP
		Work with the council's allotment officer to implement actions outlined in the allotment strategy and enhance the strategy.	2011 - 2015	FOE	LBH, JLIS
To identify and protect remnants of old orchards	Investigate the ecological value of existing orchards in the borough by 2012	Establish ownership of known orchard remnants	2011	FOE	LBH, JLIS
		Issue Press release and other communications asking residents to locate old fruit trees in gardens	2011	LBH	FOE
		Develop a Rapid Assessment Sheet for orchards	2011	JLIS	FOE
		Undertake a Rapid Assessment Exercise to identify the ecological quality of old orchards	2012-2014	JLIS	FOE
To maximise the extent and wildlife value of new orchards	Develop one new orchard by 2014	Investigate options and implement at least one new community orchard	2015	JLIS	FOE
		Undertake a rapid assessment exercise to investigate the ecological quality of new orchards	2012-2013	JLIS	FOE
		Review or write management plans to manage orchards and enhance and conserve the ecological value	2014	JLIS	FOE

NB –For a full list of acronyms please see appendix three for glossary

BUILT ENVIRONMENT

6.0 Aims

- Raise awareness and increase understanding of the importance of the built environment as a biodiversity resource within Hounslow,
- Protect and enhance the ecological value of the built environment as a biodiversity resource that will benefit wildlife and promote community engagement with local flora and fauna
- Implement biodiversity within/across any new developments that are taking place within the borough
- Monitor and audit biodiversity in the built environment in Hounslow.

6.1 Introduction

The built environment refers to the manmade surroundings that provide the setting for human activity, ranging from the large-scale civic surroundings to personal places. It provides significant opportunity to promote and encourage biodiversity across the borough. Such that canals, roads and rail infrastructure, buildings whether old or new developments provide an important habitat for a varied group of species such as bats, lichen, birds etc.

6.2 Current Status

Approximately 60 percent of the land surface in Hounslow consists of the urban and built development (homes/businesses/shops/schools/community buildings etc) and the remainder consists of open space (parks/gardens/playing fields/nature reserves, waterways and water bodies). In the former there are various areas, which exist within the development/ disuse/ redevelopment cycle. As a result the number and size of these vary at any given time. There are also changes in land use amongst areas of open space although these are less frequent.

Even though gardens and allotments, parks and open spaces, rail side and/or school grounds make up a significant amount of the built environment in Hounslow, they will not be covered in this action plan. This is because these areas have been identified as being priority habitats that are either covered elsewhere in the document or have their own Habitat Action Plan.

As no previous monitoring has been undertaken before, it is difficult to gauge the exact ecological value of the built environment across the borough. The built environment acts as a corridor for species to exist between as they move from one habitat to the next. For example the Council has approximately 10,221 street trees for which it is responsible for as the Highway Authority. These are not evenly spread across the Borough but form an important part of Hounslow's character and identity; they tell the season and bring the residents into contact with nature. They also help clean polluted air, provide shade on hot days and are crucial to the movement of biodiversity in the Borough from the street scene to the boroughs parks and open spaces. Similarly, grass verges, hedges, shrubs and planting adjacent to the road network are also a very important part of the built environment as they help to soften the landscape to mitigate the encroachment of developments particularly for residents and contribute to the overall amenity within Hounslow.

Integrating biodiversity into the built environment

Table Five: Examples of how to integrate biodiversity into the built environment

Examples - Integrating biodiversity into the built environment	
Green Roofs	These are roofs with vegetated spaces that provide sustainable and environmental benefits e.g. they can sustain a range of flora which can provide habitats for a variety of invertebrates, improve the energy balance of a building, reduce CO2 emissions as well as the urban heat island effect, enhance amenity value, improve storm water attenuation etc[49]. The London Plan[50] states that boroughs should expect all major developments to incorporate living roofs and walls where feasible – this should be outlined within LDF policies. By doing this the above benefits and more should be deliverable.
Nest Boxes	Nest boxes[51] encourage birds and enhance species survival by providing artificial hollows for breeding and shelter. They provide a better understanding of biodiversity of the built environment. The RSPB have a range of guidance available on their website on how to build your own nest box and where to place them in order to obtain the best use of out of them.
Bat Bricks	Bat bricks[52] provide nest sites and shelters for bats. They encourage bats to feed and roost in the area as well as enabling the natural habitat to be maintained in the built environment.
Green Walls	Green walls are similar to green roofs except they are vegetated vertical surfaces. They provide opportunities for wildlife in locations where conventional landscaping is impractical or where a new building needs to merge into an existing green space as well as providing visual amenity for the public. Like green roofs, green walls can help with rainfall attenuation, dust filtration and reducing the urban heat island effect.
Planting & Landscaping	Plants can attract fauna into the area which will benefit both wildlife and people by improving the quality of life. If done properly, landscaping provides the provision of screening or noise insulation in addition to the ecological or aesthetic considerations. Seasonal planting and landscaping can dramatically transform the surrounding environment which is attractive to both wildlife and people. As well as improving the ecological and aesthetic value of the sites which may require redevelopment they also create attractive landscapes that can cope with the stressed urban conditions.

The examples listed above can also raise awareness, educate and inform the public of the importance of biodiversity in the built environment.

6.3 Specific Factors Affecting the Habitat

New developments

- Removal of old buildings and infrastructure which house bats and lichens to make way for new developments leading to the removal of existing habitat.

Planning pressure

- Growth in the boroughs population has led to an increase in development pressure with regards to housing, economic development and road infrastructure.
- Little concern to biodiversity and the ecological value of an area when processing planning applications due to the limited guidance available for developers and planners.

[49] http://www.london.gov.uk/mayor/strategies/sds/docs/living-roofs.pdf - London plan green roofs strategy document
[50] Living roofs supporting the London Plan policy - http://www.london.gov.uk/mayor/strategies/sds/docs/living-roofs.pdf
[51] http://www.sustainablebluemountains.net.au/localliving/more/files/Nestboxes-for-native-wildlife.pdf -nest boxes, bat bricks
[52] http://www.d4b.org.uk/keyConcepts/birdBricks/index.asp

Lack of awareness and information

- Little is known of this habitat compared to other priority habitats
- Unclear of the ecological requirements for this habitat therefore management is poor
- Poor public perception of the built environment particularly when it comes to wasteland sites or buildings which have been abandoned.
- Lack of awareness by developers

Pollution

- Increase in poor air quality influences the number of species particularly the house sparrow in certain areas
- Increase in light pollution in built up areas impacts roosting bats and their habitat

6.4 Current Action

Legal Status

Currently there is very little protection of this habitat even though some species are protected under the Wildlife and Countryside act 1981[53] such as the pipistrelle bat and the house sparrow to name a few. Also there is no statutory or non statutory designation for the protection of buildings within the built environment. The table below provides a brief summary of national, regional and local policy that considers the provision of biodiversity in new developments.

Table six: Summary of national, regional and local policy that considers the provision of biodiversity in new developments.

National Policy Guidance	
Planning Policy Statement 9: Biodiversity and Geological Conservation	PPS9[54] states that planning, construction, development and regeneration should have minimal impacts on biodiversity and should enhance it wherever possible. The key Government objective is to contribute to rural and urban renaissance by enhancing biodiversity on green spaces and amongst development so that they are used by wildlife and valued by people. As a result when considering proposals, local planning authorities should maximise such opportunities in and around the development.
Regional Policy Guidance	
The London Plan	The Mayor's London Plan[55], which forms a part of the Boroughs development plan, provides additional guidance on the provision of biodiversity in developments. Policy 3D.14 'Biodiversity and nature conservation' notes that: *'The Planning of new development and regeneration should have regard to nature conservation and biodiversity, and opportunities should be taken to achieve positive gains for conservation through the form and design of development.'* Further policies can be found within the Plan which promotes the greening of buildings. For example: • Policy 4A.3 'Sustainable Design and Construction' and • Policy 4A.11 'Living roofs and walls' These encourage major developments to incorporate living roofs and walls where feasible. The provision of living roofs and walls contribute to the

[53] Wildlife and Countryside Act 1981 - http://www.jncc.gov.uk/page-1377
[54] Planning Policy Statement 9: Biodiversity and Geological Conservation http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/historicenvironment/pps9/
[55] London Plan - http://www.london.gov.uk/mayor/strategies/sds/index.jsp

	Mayor's objective of enhancing biodiversity. The policy also indicates that boroughs should encourage the use of living roofs in smaller developments and extensions where opportunity arises.
The Mayor's Supplementary Planning Guidance 'Sustainable Design and Construction'	This sets out various standards that apply to all major developments in London. In relation to biodiversity the guidance outlines the following standards: • No net loss of biodiversity and access to nature on the development site • There should be a reduction in areas of deficiency in access to nature in London. • Net gain of biodiversity and access to nature on development sites Although the guidance is not prescriptive in how these standards should be met it does provide some practical advice as to how standards could be achieved. For example, the design of developments should first enhance, second avoid harm, third mitigate, and last, where there is no alternative, compensate for biodiversity losses. In terms of biodiversity and design, developments should aim to maximise the green built environment. This could include the provision of green walls, green roofs, terraces, permeable surfaces, window boxes, wildlife friendly landscaping, appropriate nesting and roosting structures etc. Such features not only enhance biodiversity but can also make a bold design statement[56].
Local Policy Guidance: Unitary Development Plan[57]	
Objective ENV-N.2	Aims to protect enhance and promote Sites of Special Scientific Interest, Local Nature Reserves and other areas of nature conservation interest with reference to the HBAP.
Policy ENV-B.1.1	New Development outlines the criteria that proposals for new developments will be assessed against. New development should seek appropriate landscape and nature conservation benefits and avoid damage to sites or features of existing biodiversity importance for nature conservation.
Other	UDP policy should be used and applied in conjunction with London Plan policies.

6.5 Flagship Species

Common name of species	Latin name of species	Comments
House Sparrow	Passer domesticus	A charismatic species whose numbers are declining in London.
Pipistrelle Bat	Pipistrellus pipistrellus	Exists across sites in Hounslow and are known to use urban roost sites however species are vulnerable to new developments.
Peregrine Falcon	Falco peregrinus	

6.6 Relevant Action Plan

National	Regional	Local
	▪ London Plan	▪ Wastelands Habitat Statement ▪ Unitary Development Plan

[56] Design for Biodiversity – A guidance document for development in London http://www.hounslow.gov.uk/design_for_biodiversity_doc-2.pdf http://www.d4b.org.uk/policiesAndGuidance/index.asp

[57] Unitary Development Plan - http://www.hounslow.gov.uk/index/environment_and_planning/planning/planning_policy.htm

Objectives, Targets and Actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
Raise awareness and increase understanding of the importance of the Built Environment as a biodiversity resource across Hounslow.	Run an awareness campaign promoting the importance of biodiversity in the built environment.	Produce an e-bulletin highlighting the importance of the built environment as a biodiversity resource across the borough for the community.	2011	LBH	JLIS
		Provide guidance for developers and planners on the importance of incorporating biodiversity within the built environment	2011	LBH	JLIS
		Organize a workshop/seminar for planners informing them of the importance of the built environment as a biodiversity resource and to inform them of the protected species which use this habitat.	2011	LBH	JLIS
		Investigate and promote good examples that have incorporated biodiversity into the built environment across Hounslow.	2011	LBH	HBAPP
		Provide Council Members with the opportunity to visit good examples (e.g. green roofs) of biodiversity incorporated in the built environment across the borough.	2011-2016	LBH	HBAPP
		Promote the built environment as a biodiversity resource in the borough magazine and local media.	2011-2016	LBH	HBAPP
		Ensure biodiversity is taken into consideration when developing and implementing the PFI initiative.	2011-2016	LBH	HBAPP
Protect and enhance the built environment as a biodiversity resource that will benefit wildlife and promote peoples engagement with local flora and fauna	Protect species that utilise the built environment as their habitat	Monitor flagship species across the built environment in Hounslow and investigate where key species nest/ roost.	2011	LBH	JLIS
	Enhance biodiversity in the built environment by promoting and incorporating green roofs on new and existing developments	Incorporate 2ha green roofs on new and existing buildings. This will help create stepping stones and corridors for species	2015	LBH	HBAPP
		Promote the use of hanging baskets, balcony gardens and green walls which will create foraging areas for invertebrates and birds	2011	LBH	HBAPP
		Plant wildlife attracting plants/trees in new and existing borders, verges and hedgerows within the built environment.	2011	LBH	JLIS
Implement biodiversity within/across any new developments that are taking	Liaise with Planning Policy to incorporate the built environment	Encourage developers to meet ecological requirements as outlined within the Code for Sustainable Homes and BREEAM guidance.	2011	LBH	JLIS

place within the borough	in the Core Strategy				
	Identify resources to enhance and maintain biodiversity within the built environment	Incorporate policies/objectives related to the built environment and conservation of species in the boroughs core strategy.	2011	LBH	HBAPP
		Identify and utilize S106 resources to increase biodiversity within the built environment in Hounslow	2011	LBH	HBAPP
		Produce a biodiversity Supplementary Planning Document (SPD)	2011	LBH	HBAPP
Audit and monitor biodiversity within the built environment	Identify and implement scope and methodology for monitoring biodiversity within the built environment in Hounslow	Identify scope and methodology for undertaking monitoring of the built environment in Hounslow.	2011	LBH	HBAPP
	Build a register of biodiversity initiatives implemented within the built environment across the borough	Undertake Audit of the existing built environment to identify its ecological value	2011	LBH	HBAPP

NB –For a full list of acronyms please see appendix three for glossary

HEDGEROWS

7.0 Aims

- Protect and enhance the wildlife and landscape value of existing hedgerows in the Borough.
- Create and maintain new hedgerows, linking up with existing hedges both within the Hounslow and in adjacent Boroughs.
- Promote public awareness of hedgerows.

7.1 Introduction

In 2008, the UKBAP[58] revised its definition of a hedgerow:

"A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide (Bickmore, 2002). Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country. Climbers such as honeysuckle and bramble are recognised as integral to many hedgerows, however they require other woody plants to be present to form a distinct woody boundary feature, as such they are not included in the definition of woody species. The definition is limited to boundary lines of trees or shrubs, and excludes banks or walls without woody shrubs on top of them".

The role of the hedgerow in the landscape has evolved over recent decades. In urban areas many hedges are of relatively recent origin, having been planted along the boundaries of gardens, parks or open space, around schools and other institutions. These hedgerows are frequently composed of non-native coniferous or evergreen species. Even so the value of these should not be underestimated as a habitat for birds, mammals, insects and various flowering plants.

7.2 Current Status

Nationally

Hedgerows are important habitats for a wide range of flora and fauna, arguably more than any other key habitat. They contribute to landscape structure and provide a network of wildlife corridors stretching from across the country through into metropolitan areas. In England and Wales, during 1946-1974, 120,000 miles of hedgerow where removed. In the same area between 1984 and 1993, the length of managed hedgerows decreased by a third, though by 1990 the planting of new hedges was starting to match the then reducing rate of hedgerow loss. However, old hedges continue to be lost[59].

[58] UK Biodiversity Action Plan (2008) Priority Habitat Descriptions. Accessed: 27/10/08. Website: http://www.ukbap.org.uk/library/UK_BAP_priority_habitat_descriptions_20080929.pdf

[59] Department of Environment Transport and Regions (2001). *The Environment in Your Pocket 2000.*

London-wide

The 1984/5 London Wildlife Trust survey only recorded native hedgerows in London which formed the boundaries of land parcels. These restrictions resulted in a certain underestimate of only 369ha of native hedgerows being mapped. A further survey conducted in 1995 produced a figure of 705 km, (Vickers, cited in London Biodiversity Partnership, 2000). The 1984/5 London-wide hedgerow survey gave a figure of 12.12 ha for Hounslow Borough, representing a 4.2% of London's native-species hedgerows (excluding those running across open land)[60].

Hounslow

A specific survey of hedgerows (native and non-native) was carried out in Hounslow in 1991[61]. This Included 301 "hedges and hedge-like features" totaling a length of 76.5 km. It excluded relict sections of hedge. Hawthorn was the predominant hedgerow tree, the dominant in 142 of the hedges; Elm was dominant in 59 hedges. 163 of the hedges held mature trees within them, 19 of these had old pollards, usually willow or oak. A few remnants of the once-dominant orchards in the Borough were noted. 174 of the hedges were identifiable on the enclosure award maps, though this in itself does not preclude any given hedge from being either older or younger.

The table below identifies hedgerows that are of greatest significance based on size, species composition, landscape amenity and priority for management:

Table seven: Top Ten Hedgerows in Hounslow following the 1991 survey

HOUNSLOW'S 'TOP TEN' HEDGEROWS IN 1991	
1. Jersey Road, Osterley	6. Ashford Road, Lower Feltham
2. Southall Road, Cranford	7. Riverside Walk, Isleworth
3. Heston Park, Heston	8. Wood Lane, Osterley
4. r/o Hepple Close, Isleworth	9. Staines Road, Hounslow
5. Green Lane, Hatton	10. Grand Union Canal, Osterley

The hedgerow congregation in Hounslow is far superior in the west and north of the borough which are generally more rural in character. However in the east this 'rural' element has been greatly eroded from the more urbanized areas. For example over 66% of the hedgerows are located in the western half of the borough and of the other 34%, some 9% were centered on Osterley Park.

Since the 1991 survey boundary changes have led to extensive localized loses of hedgerow systems within the borough particularly near the Cranebank/ Heathrow Airport perimeter. The older hedges across the borough are in a relatively poor condition with over 20% in a seriously neglected state. In 1999, a resurvey[62] of Hounslow's natural habitats was undertaken which included identification of both native and non-native hedgerows from 64 sampled sites. 4.56ha of native and 0.24ha of non-native hedgerow were identified, but again, both are likely to be an underestimate. Even so, the native hedge total of 4.56ha compares very unfavorably with the 1985 figure of 12.12 ha which, even with a likely significant degree of inaccuracy, still looks to represent a significant loss over the intervening 15 years.

In 2005, Hounslow Council commissioned another survey of the boroughs Hedgerows[63]. The aim of the survey was to record and map any of the hedgerow features identified in the 1991 survey that were still intact and if they had changed in

[60] London Biodiversity Partnership (2000). London Biodiversity Action Plan: Volume 1: The Audit.
[61] Bertrand, N. & J. Edwards (1994). *A Survey of Hounslow's Hedgerows.* London Borough of Hounslow.
[62] Community Initiative Partnerships, English Nature and Thames Landscape Strategy (1999). *Phase 1 Vegetation Survey of the Rivers Thames, Crane, Brent and the Duke of Northumberland within the London Borough of Hounslow*
[63] Community Initiatives Partnership (2005) A Survey of Hedgerows in the London Borough of Hounslow boroughs

any way. The survey also identified any new hedgerows that had been created within the borough since the 1991 survey was undertaken. The following outcomes were noted as a result of the survey:

- A total of 29 hedgerows have been lost since the 1991 survey, a combined length of 7090metres.
- A total of 40 hedgerows were recorded as defunct (seriously eroded), a combined length of 10255 meters
- A total of 31features were recorded as hedgerows in 1991 but regarded as not hedgerows under the new criteria identified within the survey, a combined length of 10210metres
- A total of 14 hedgerows have been lost to borough boundary changes which is total combined length of 3950 meters
- A total of 10 hedgerows have not been included as they were not plotted on the original 1991 survey maps
- A total of 31 new hedgerows have been recorded in comparison with the 1991 survey this has resulted in a combined length of 7067 meters.

In 1991 the recorded length of hedgerow for the same borough boundary as today would have been somewhere between 72.78 and 62.57 kilometres showing a loss of between only 0.04% and 14.16%. This figure can not be calculated accurately due to the change in recording criteria.

7.3 Specific Factors Affecting the Habitat

Loss of primary function

Many hedges no longer delimit boundaries for whatever reason and therefore succumb to and use changes such as aggregate extraction, clearance for urban development or transport infrastructure. In more rural areas, the post-WWII decades saw enormous grubbing out of farmland hedgerows primarily due to national government and European agricultural policies and funding. This had largely been arrested by the beginning of the 21st century.

Poor Management

Although 20% of the hedges within the borough were described as seriously eroded a very large number of other hedges have been allowed to become ‘gappy' and then grubbed out or allowed to regress to simply a line of trees. There has also been a progressive loss of skills in managing hedgerows with a tendency to tidy up hedges to thin boundary lines when in fact they need specific structures, for example, having an A-shape in profile. Routine management has often become poor and/or undertaken at the wrong time of year. The worst practice is that of crude mechanical flailing which is not only a poor means of management, but results in an ugly appearance that gives the impression of lack of respect for the hedge. Inconsiderate use of pesticides, herbicides and fertilizers near hedges has been detrimental to many species, as have insensitive drainage and ploughing regimes. There have also been specific events such as the Dutch Elm Disease of the 1970s, which have dramatically reduced hedgerows throughout the UK.

7.4 Current Action

Legal Status

There are no surviving ancient hedges in Hounslow applying the "5 or more native woody species in 30m" rule but, many within the Borough may be 100-200 years old, at least for part of their length. **The Environment Act 1995** enabled the introduction of the **Hedgerow Regulations 1997**[64].These Regulations made it illegal to destroy hedgerows that fell within the scope of the Regulations without first notifying the local authority of the intent to do so. Having received such notification, the local authority must assess the hedgerow against a number of historic, ecological and landscape criteria, and if one or more of the criteria are satisfied, then the local authority can serve a Hedgerow Retention Notice. Unfortunately, these Regulations do not have a sufficiently large scope and no hedgerow within the London Borough of Hounslow would meet any of the criteria.

Under certain conditions, providing the local authority is convinced of the landscape amenity benefit afforded by a hedgerow which includes some mature or semi-mature trees, then a hedgerow could be given a 'blanket' group **Tree Presentation Order** (TPO), but it is more usual just to make the trees subject of the TPO.

Article 10 of the European Community Habitats Directive[65] requires member states to encourage hedges in their land use planning and development policies. **The Conservation (Natural Habitats, etc) Regulations 1994**[66] recognizes the role of linear features for the migration, dispersal and genetic exchange of wild species.

The UK **Planning Policy Statement 9 (PPS9)**[67] on Biodiversity and Geological Conservation makes no reference to the protection of hedgerows. However, in the Proposed Alterations Revised Deposit of the Hounslow Unitary Development Plan[68] (January 2001), reference is made to the protection of hedgerows in policy ENV-N.2.6. on Landscape Features and to the retention of hedges of wildlife importance in Policy ENV-N.2.7: Trees and Community Woods. This policy also refers to new tree and shrub planting, but not hedgerow creation specifically. Policy ENV-N.2.5 on Habitat Reconstruction does however, encourage the application of habitat reconstruction techniques that could include establishment of new hedgerows.

Mechanisms Targeting the Habitat

DEFRA operate a "Countryside Stewardship Scheme" which offers grants for hedge restoration work and the management of the associated field margins to anyone with a land ownership or management responsibly. There are other relevant national agri-environmental schemes that support hedgerow conservation measures, but these are of restricted application in the Hounslow area. Other sources of funding available for the restoration of hedgerows can be sort from Defra and Natural England.

[64] DOE/MAFF (1997). The Hedgerow Regulations 1997
[65] Council of Ministries of the European Community (1992): *"Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of wild fauna and flora.* ("Habitats Directive"). European Communities
[66] Statutory Instrument 2716 (1994). The Conservation (Natural Habitats, & C.) Regulations. HMSO.
[67] Department of the Environment (1994). Planning Policy Guidance Notes on Nature Conservation. (PPG9). HMSO.
[68] London Borough of Hounslow (2001): *Unitary Development Plan - Proposed Alterations Revised Deposit.* London Borough of Hounslow

7.5 Flagship species

Common name of species	Latin name of species	Comments
Song Thrush	*Turdus philomelos*	Has been the subject of a significant population crash over the last 15 years especially in the rural countryside but holding on in London. Still present in Hounslow's parks, such as Lampton Park
Pipistrelle Bat	*Pipistrellus pipistrellus*	A widespread species benefiting from feeding on the insect populations of hedgerows and utilizing old trees within them
House Sparrow	*Passer domesticus*	Subject of a drastic population crash over the last decade in urban areas. The unofficial 'Bird of London' - 'the Cockney Sparra'.

7.6 Relevant Action Plans

National	Regional	Local
▪ Boundary and Linear Features ▪ Stag Beetle ▪ Linnet ▪ Bulfinch ▪ Urban ▪ Song Thrush ▪ Ancient and/or Species rich Hedgerow	▪ Private Gardens ▪ Stag beetle ▪ Woodland ▪ Bats ▪ House Sparrow	▪ Gardens and Allotments

Objectives, Actions and Targets

Objective	Target	Action	Delivery date	Lead partner	Other partners
To survey the size and distribution of where possible all hedgerows in Hounslow	Update 2005 hedgerow survey with new and existing data on hedgerows in Hounslow	Identify gaps in Hedgerow survey undertaken in 2005	2011	LBH	JLIS
		Compile and collate new and existing data on Hedgerows in Hounslow and update GIS map	2011	LBH, JLIS	HBAPP
To protect through sensitive management and, where appropriate, legislative action, all significant hedgerows in the Borough.	Ensure the owners of all significant hedgerows are aware of their existence and their value	Establish ownership and management of each hedgerow in Hounslow that is 20ft or more in size and distribution	2011	LBH	JLIS
	To advise hedgerow owners of the most suitable management methods and highlight relevant resources for their use	Produce an e-bulletin for residents/developers on the importance and value of hedgerows highlighting sympathetic management techniques and sources of funding	2012	LBH	HBAPP
		Produce and implement actions outlined within management plans to enhance hedgerows.	2011-2016	LBH	JLIS
To further legislative protection of hedgerows through the local planning process and other legislation	Introduce a policy on the protection, management and creation of hedgerows in the boroughs Core Strategy for the Hounslow LDF	Introduce a new specific policy on hedgerows in the Core Strategy	2011	LBH	HBAPP
To create or maintain hedgerows which link up with other hedges both within and adjacent to the borough, reinforcing a network of green corridors in Hounslow	Identify cross-borough hedgerow links and contribute to anew one at least once every two years	Continue to maintain existing hedgerows in Hounslow to enhance their ecological value and quality as a biological link	2011-2016	LBH	HBAPP, Land owners
		Contribute to a cross-borough boundary hedgerow missing link every two years	2011-2016	LBH	HBAPP, Other relevant LA

NB –For a full list of acronyms please see appendix three for glossary

PARKLAND AND VETERAN TREES

8.0 Aims

- To establish the extent of the Veteran Tree population in the London Borough of Hounslow, whether in urban, parkland or garden situations.

- To increase understanding of the ecological and cultural importance of such sites, and to encourage sensitive and appropriate management.

8.1 Introduction

Veteran Trees can be some of the oldest and most remarkable living organisms in the landscape. Their ecological significance lies both in the continuity of habitat, and in the presence of associated, often highly specialised, organisms. These may range from saproxylic invertebrates, through to fungi and hole-nesting birds. A significant element of the importance of Veteran Trees is the presence of deadwood, both in the crown and on the ground. Deadwood habitats are becoming increasingly rare, and play an important part in the lifecycles of many invertebrates, as well as animals and birds. Veteran Trees may survive in the most unlikely settings, but the greatest concentrations are often found in areas of ancient parkland. Parkland is essentially the product of a historic land management system, and represents a vegetation structure rather than being a particular plant community.

Parkland typically consists of large, open-grown trees, often pollards, in a matrix of grassland or woodland floras. Traditionally grazing has been an intrinsic element of this land use, and it is common for such sites to have escaped intensive modern agricultural use. British parklands contain many diverse biological elements and are of great ecological importance at a European level. Veteran Trees and Parkland sites can also be of significant historical and cultural importance in their own rights, a factor which is often underestimated by biologists, yet which can be used to increase appreciation of social and ecological value.

8.2 Current Status

Biological Status

Parklands are typically derived from historical agricultural systems and forests and from wooded commons, parks and pastures. Some sites have subsequently had a designed landscape superimposed in the 16th to 19th centuries. Native species usually, but not always, predominate. Outside such areas, Veteran Trees survive, often by chance, into the modern urban environment as relics of an earlier landscape. The locations of these can range from domestic gardens to streets and open spaces. As mentioned above, the ecological importance of Veteran Trees is principally in relation to the habitats they provide and the organisms that rely upon them. These habitats fall into the following categories:

- Physical features such as decay holes, nest sites, height from ground.
- The presence of dead wood in the crown and on the ground.
- The continuity of habitat provided, possibly over many centuries.
- Specific conditions suited to highly specialised organisms associated with Veteran Trees.
- Associated organisms in a parkland setting, often reliant on low-impact land management.

Legal Status

Individual trees and groups may be afforded protection under the Tree Preservation and Conservation Area regulations[69]. However, Veteran Trees may not be fully protected by these as work for safety reasons is exempt. A particular area for concern is excessive caution in regard to managing trees. It is worth noting that the chance of being killed by a tree in a public area is around 1:20,000,000[70].

Parkland sites may receive some protection though initiatives such as the Inheritance Tax Exemption scheme or the declaration of National Trust properties as inalienable land. Entry in the English Heritage Register of Historic Parks and Gardens may also effectively provide a degree of protection, at least at a planning level. In addition, while more neglected areas may be threatened by development there would be considerable resistance to any damage to the key sites in Hounslow.

A number of species associated with parkland and veteran trees are fully protected under the 1981 Wildlife and Countryside Act. All species of bat and most tree-hole nesting birds are protected and the Act also offers some protection to their place of shelter

Management, research and guidance

The Veteran Trees Initiative, launched in 1996, aims to promote the value and Importance of veteran trees and to conserve them wherever possible. This initiative is the result of a partnership between English Nature, English Heritage, the National Trust, Countryside Commission, Forest Authority, FRCA, Corporation of London and the Ancient Tree Forum. The initiative is developing a database for recording veteran trees, which is now well underway, and provides advice on management. It runs a national programme of training days, and produces publications. There have been a number of surveys at a national level of organisms associated with Veteran Trees. These include surveys of saproxylic invertebrates and the JNCC Lower Plants and Invertebrate Site Registers. The British Lichen Society also maintains a database for parkland.

Grant aid may be available for the management and restoration of parkland. Key sources include the Environmental Stewardship Scheme, which includes a scheme for Historic Landscapes. This scheme can assist in the production of management plans, tree and grassland management and restoration of arable land to parkland. Information is available regarding all aspects of the management of Veteran Trees and Parkland. This includes advice given through the statutory conservation agencies, the Arboricultural Advisory and Information Service, English Heritage's Parks & Gardens Team, and the Ancient Tree Forum[71]. Read (1999)[72] provides the most straightforward and thoroughly researched guide to recent thinking with regard to the management of Veteran Trees. The British Lichen Society has produced a habitat management guide for lichens, including parklands and wood-pastures.

---

[69] Department of the Environment Transport and the Regions 1998. Tree Preservation Orders Draft Regulations: a consultation paper. DETR, London.

[70] Fay, N. (2007) Towards Reasonable Tree Risk Decision-Making?, The Arboricultural Journal (In Press). Text can be found at http://www.treeworks.co.uk/publications.php

[71] Agencies providing advice to manage veteran trees and parklands:

- Ancient Tree Forum http://www.woodland-trust.org.uk/ancient-tree-forum/
- English Nature - Lowland Grassland Management Handbook
- Natural England www.english-nature.org.uk/pubs/handbooks/upland.asp?id=5
- English Nature - Veteran Trees Management Handbook
- Veteran Trees: A guide to risk and responsibility http://naturalengland.communisis.com/NaturalEnglandShop/product.aspx?ProductID=966ae5aa-8aba-4a06-8544-a3eba7c6573c
- Forestry Authority & Department of Agriculture for Northern Ireland 1998. The UK Forestry Standard: the Government's approach to sustainable forestry. Forestry Commission, Edinburgh.

[72] Read, H. 1999 Veteran Trees: A guide to good management. English Nature, Countryside Agency, English Heritage.

8.3 Specific Factors Affecting the Habitat

- Lack of younger generations of trees is producing an uneven age structure, leading to breaks in continuity of dead wood habitat and loss of specialised dependent species.
- Loss of veteran trees through disease (e.g. Dutch elm disease, oak dieback), physiological stress, such as drought and storm damage, and competition with surrounding younger trees.
- Removal of veteran trees and dead wood through perceptions of safety and tidiness where sites have high amenity use.
- Damage to trees and roots from soil compaction and erosion caused by excessive use of machinery, trampling by livestock and people, and car parking.
- Changes to ground-water levels resulting from abstraction, drainage, development and roads.
- Isolation and fragmentation of the remaining sites in the landscape. Many of the species dependent on old trees have poor powers of dispersal.
- Pasture improvement and agricultural practices such as cultivation leading to tree root damage, damage to soil structure.
- The use of inorganic fertilisers and chemical treatments, disrupting mycological communities and mycorrhizal associations on which older trees are especially dependent.
- Inappropriate grazing levels: under-grazing leading to loss of habitat structure through scrub invasion, and over-grazing leading to bark browsing, soil compaction, nitrogen enrichment and loss of nectar plants.
- Pollution derived either remotely from industry and traffic, causing damage to epiphyte communities and changes to soils.
- Perceptions of hazard from aerial dead wood and structural features such as cavities.

8.4 Current Action

Current action at this time is limited to the activities of specific land managers, and thus tends to be disjointed. The few Parkland sites in the borough are generally well managed, but it is reasonable to suggest that the principal management input of Veteran Trees is driven by safety concerns, and can often result in the impoverishment of the resource.

During the period of the last Hounslow LBAP in 2008 a survey was undertaken which located the great majority of the veteran trees within the borough. These locations are now known to the local authority for use in planning and reacting to any possible threats.

8.5 Flagship species

Common name of species	Latin name of species	Comments
Stag Beetle	*Lucanus cervus*	London is one of the main UK strongholds for this species which occurs across the Borough
Open grown pollards	*Quercus robur, Carpinus Betulus, Fagus sylvatica, Castenea sativa, Aesculus hippocastanum*	Ancient pollards found in Hounslow are typically oak, Hornbeam, Beech, Sweet Chestnut and Horse Chestnut. Good examples can be found at Syon Park and Osterley Park
Bats	*Nyctalus noctula, Pipistrellus pipistrellus and others*	Many species of UK bats roost in trees
Little Owl	*Athene noctua*	Roosts and breeds in tree-holes. Occurs at Osterley Park.

8.6 Relevant Action Plans

National	Regional	Local
▪ Acid Grassland ▪ Improved Grassland ▪ Lowland Wood Pastures and Parkland ▪ Pipistrelle Bat ▪ Stag Beetle	▪ Woodland ▪ Hedgerows ▪ Squares and Amenity Grasslands ▪ Black Poplar ▪ Mistletoe ▪ Private Gardens	▪ Lowland Heath and Acid Grassland ▪ Hedgerows ▪ Gardens, Allotments and Orchards

Objectives Actions and Targets

Objective	Target	Action	Delivery date	Lead partner	Other partners
To map the extent and quality of Parkland Sites within the Borough	Update GIS by December 2010	Compile and collate all data and information for Parkland Sites and map on to GIS	2011	JLIS, LBH	Syon Park, NT, GIGL
To map and record notable veteran trees within the borough	Update GIS by December 2010	Compile and collate all data and information for veteran trees and map on to GIS	2011	JLIS, LBH	Syon Park, NT, GIGL
To promote the understanding and good management of parkland sites	Work toward a linked working group relating good management practice, biological data and new ideas.	identify gaps in ecological data for parkland sites in order to carry out further work to manage sites, where possible apply for funding grants	2011	LBH	Syon Park, NT, JLIS, GIGL
		Incorporate landowners management plans into the London Grazing Project	2011	LBH	NT, Syon, EH, JLIS
To promote the understanding and good management of veteran trees	To hold training workshops for arbourists, parks and Grounds Maintenance Teams relating to veteran tree management.	Compile and collate best practice veteran tree management information to provide a better understanding of veteran trees in the boroughs parks	2011	JLIS	Syon Park, NT
	Initiate and continue veteran tree planting programmes using original genotypes	Identify and apply for to plant and maintain veteran trees across the boroughs	2015	LBH	Syon Park, NT, JLIS,

NB –For a full list of acronyms please see appendix three for glossary

RIVERS AND STREAMS

9.0 Aims

- To maintain and enhance the communities of riverine fauna and flora within the Borough.
- To achieve an improvement in water quality throughout the Boroughs rivers and streams.
- To increase awareness of the function and value of rivers and streams within the Borough.

9.1 Introduction

Rivers and the corridors of land through which they run are a major wildlife resource of critical importance in Hounslow. A network of rivers and canals extends throughout Hounslow supporting a diverse range of plants and animals and providing valuable links to fragmented habitats and open spaces in an intensive urban environment. They spill onto natural floodplains creating sustained wetland habitats such as wet grassland marsh, swamp, fen and wet woodland.

9.2 Current Status

In their natural state rivers are dynamic meandering systems, continually modifying their form. In many cases, the ability of rivers and streams to function naturally and sustain a rich variety of habitat types has been reduced or prevented by issues associated with urbanisation. Flood defence structures, impoundments, development on the flood plain and too close to rivers (sometimes on them) increased run-off rates and misconnected drainage pipes are all issues that have degraded the river environment. The River Crane, which flows through the centre of Hounslow, suffers from all of these issues. The River Brent is navigation for the length it flows through Hounslow.

The Longford and Duke of Northumberland rivers are artificial. They carry good quality water from the River Colne and support valuable aquatic habitat despite the uniformity of the artificial channels.

Water Framework Directive

Under the Water Framework Directive, European legislation that is acting as a driver to get all our rivers into “Good Ecological Status” by 2015, the Crane is currently classed as “poor”. (The rating scale is high, good, moderate, poor and bad). The target date for the Crane to reach good status is 2027. The target date of 2015 is considered technically infeasible. There are many component parts of a river classification under the Water Framework Directive and for a full breakdown, the relevant details can be found in the draft Thames River Basin Management Plan in Annex B, available on the Environment Agency website. In brief, the component parts of the ecological status classification that are considered poor are:

- Fish, Phytobenthos (Diatoms), Phosphate.
- Component parts of the classification considered moderate are:
- Invertebrates, Macrophytes.

Mitigation Measures that need to be addressed to reach Good status by 2027 are identified in the plan as:

- Educate landowners on sensitive management practices (urbanisation)
- Retain marginal aquatic and riparian habitats (channel alteration)
- Operational and structural changes to locks, sluices, weirs, beach control, etc
- Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and
- riparian zone
- Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works.
- Alteration of channel bed (within culvert)
- Re-opening existing culverts
- Increase in-channel morphological diversity
- Preserve and, where possible, restore historic aquatic habitats
- Removal of hard bank reinforcement / revetment, or replacement with soft engineering solution
- Remove obsolete structure

The Brent is a canal for the length it runs through Hounslow and as such has a current status of "good" considering its nature as navigation. The Longford and Duke of Northumberland's do not have a classification under the Water Framework Directive as they are artificial water bodies.

The Environment Agency is the lead on putting together a plan setting out current status of all relevant water bodies and how "good" status will be achieved. However, most actions involve many different parties and the plan provides a co-ordinated approach for all stakeholders. The EA does not have any extra funding to carry out any specific projects so work has to be undertaken through current routes, and plans such as this Rivers and Stream HAP will help co-ordinate much needed work that supports the aims of the Water Framework Directive.

9.3 River systems within Hounslow Borough

River Crane -refer to LEU Ecology Handbook 15 descriptions [Pages 23-33, 45-47, 68].
The River Crane emerges into the Borough from the London Borough of Hillingdon (where it is called the Yeading Brook) by the Grand Union Canal at The Parkway (A312) in Hayes and runs for approximately 8kms via Cranford, Hatton, Feltham and Hanworth, before existing the Borough through Crane Park by the Great Chertsey Road (A316). It re-enters the Borough by the Chertsey Road (A316) at Cole Park, near Twickenham, where it forms the administrative boundary between Hounslow and Richmond Boroughs, and flows for a further 1km or so before entering the River Thames just upstream of Isleworth Ait. The upper section retains a relatively natural landscape appearance for most of its length with a combination of wooded and wet meadow margins with flushes, seasonal ponds and water-filled ditches, topped-up by the river during periods of high rainfall. Sections of the riverbank have been canalised, for example, at Cranford Park and elsewhere, where timber revetments prevent natural erosion and deposition and thereby constrict the otherwise meandering river course.

River Brent - refer to LEU Ecology Handbook 15 descriptions [Pages 59-60]
Within Hounslow, this river comprises a relatively short stretch of approximately 3 km from the M4 Motorway, close to Osterley Lock, in the north, via Boston Manor, to the river's outflow to the Thames in Old Grand Union Canal.

Duke of Northumberland's River and Longford River - refer to LEU Ecology Handbook 15 descriptions [Pages 47-48, 54, 65, 67-68]

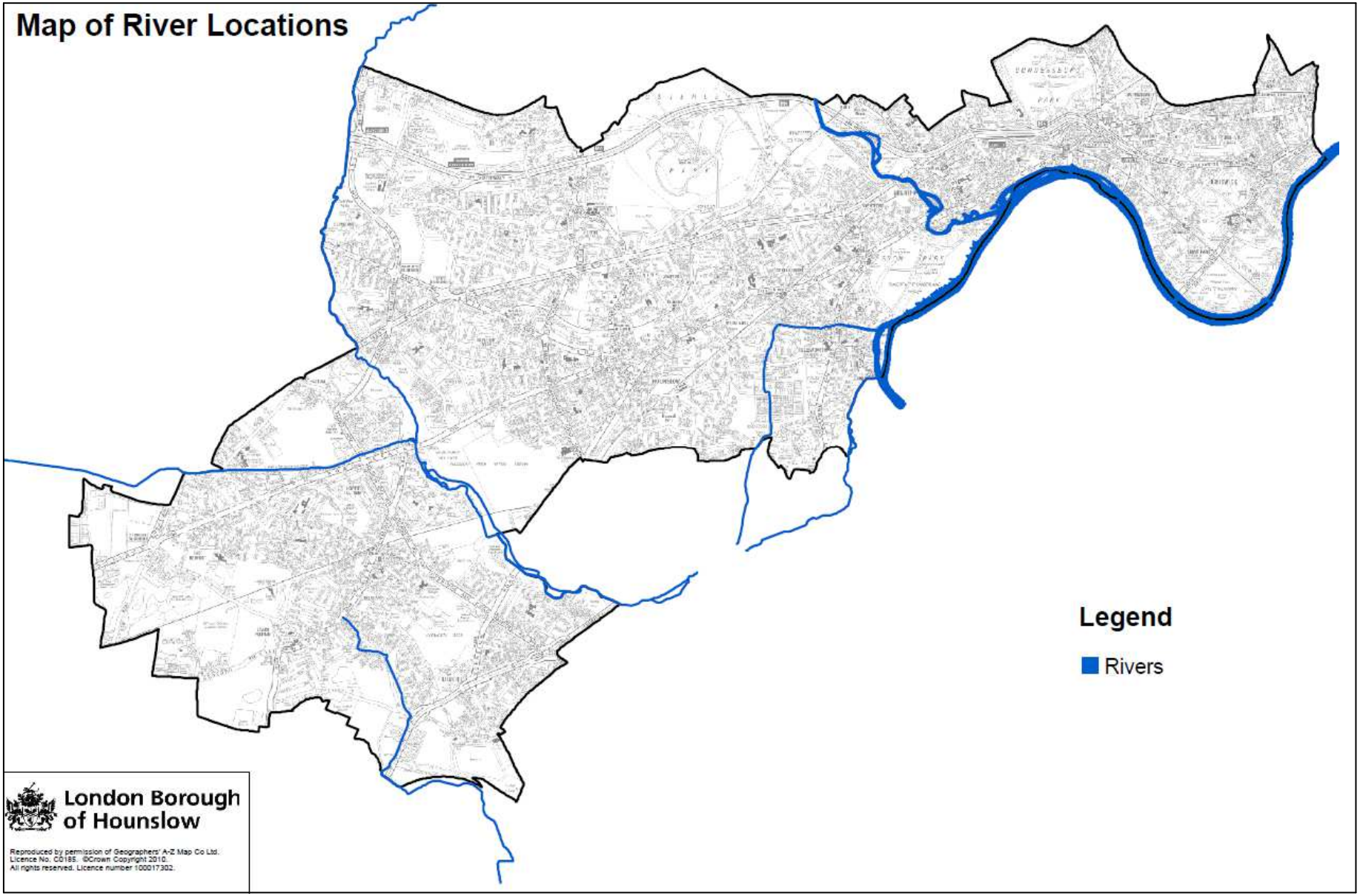
These two rivers are artificial features constructed in the late 1530's and 1630's respectively. The Duke of Northumberland's River was cut to provide water from the River Colne to a flourmill in Isleworth; other mills alongside it soon followed. The Longford River was constructed to provide water for the fountains at Bushy Park and the lake in Hampton Court Park.

River Thames

Refer to LEU Ecology Handbook 15 descriptions [Pages 17-23]. See also The Tidal Thames HAP in this document and the Thames River Basin Management Plan[73].

Map three illustrates the location of the above rivers across the Borough.

[73] Thames River Basin Management Plan, Web Address: http://wfdconsultation.environment-agency.gov.uk/wfdcms/en/thames/Intro.aspx


Map of River Locations
Legend
Rivers
London Borough of Hounslow
Reproduced by permission of Geographers' A-Z Map Co Ltd.
Licence No. C0185. ©Crown Copyright 2010.
All rights reserved. Licence number 100017302.

9.4 Specific Factors Affecting the Habitat

The primary threats to rivers and streams within the London Borough of Hounslow are:

- Large fluctuations in water levels created by canalisation and sluices or weirs.
- Pollution and water quality problems caused by industrial and household effluent.
- In-channel structures such as weirs which restrict the movement of plants and animals.
- Inappropriate bank management.
- The spread of invasive plant species such as Giant Hogweed and Himalayan Balsam.
- Inappropriate development affecting the river and its floodplain.
- Land drainage and flood defence works which, if not carried out sensitively, can reduce stream habitat and isolate rivers from their floodplains.

9.5 Current Action

Designation

Rivers are now a UK BAP Habitat. The River Thames, its tributaries and islands and the River Crane Corridor, the River Brent and Grand Union Canal, and the Duke of Northumberland's River (in part) are Sites of Metropolitan Importance for Nature Conservation. The Duke of Northumberland's River (in part) and the Longford River are 'Sites of Borough Importance for Nature Conservation'[74].

Management, Research and Guidance

- A River Corridor Survey for the River Crane and its tributaries was produced in 1999[75]. River Corridor Surveys exist for the River Brent and the Duke of Northumberland's River from 1994 and 1996 respectively.
- A River Habitat Survey for the Crane was undertaken in 2005[76]. This focuses more on in-channel features whereas the River Corridor Survey focuses more on the banks and supported vegetation.
- A Phase 1 Habitat Survey of the Borough, completed in 2000.
- John Laing Integrated Services has management responsibility for most of the riparian habitats along the upper section of the River Crane in the Borough. Environmental Stewardship Schemes currently operate on wet meadows at Cranebank and The Causeway.

[74] The London Ecology Unit (1990). Ecology Handbook No.15: Nature Conservation in Hounslow
[75] River Corridor Survey of the Crane, 1999, carried out by ESL Ecological Services Limited for the Environment Agency.
[76] River Habitat Survey of the Crane, 2005, carried out by Lee Donaldson Associates Environmental Consultancy for the Environment Agency.

9.6 Flagship Species

Common name of species	Latin name of species	Comments
Kingfisher	Alcedo atthis	This brilliantly coloured bird is found breeding on rivers such as the Crane and Brent
Banded Damselfly	Calopteryx splendens	This striking insect is a common sight along stretches of the Crane
Water Vole	Arvicola terrestris	This now rare species has declined rapidly in the past few years but still occurs along the Crane and Duke of Northumberland's Rivers
Barbel	Barbus barbus	An indicator of good river water quality. Present in the Crane
Alder	Alnus glutinosa	Alder Carr lines the banks of the Rivers Thames and Crane, remnants of past industrial use for gunpowder production

9.7 Relevant Action Plans

National	Regional	Local
▪ Rivers; ▪ Coastal and Floodplain Grazing Marsh ▪ Wet Woodland ▪ Reedbeds	▪ Rivers and Streams ▪ Tidal Thames ▪ Canals, ▪ Reedbeds ▪ Black Poplar ▪ Water Vole ▪ Grey Heron ▪ Stag Beetle	▪ Wet Woodland ▪ Standing Water (Habitat Statement). ▪ Tidal Thames ▪ Reedbeds

Objectives, Targets and actions

Objective	Target	Action	Delivery date	Lead partner	Other partners
To protect and enhance the quality of Rivers and Streams in the Borough.	To protect and enhance the ecological quality of rivers, stream and associated habitats and species through on-going protection and enhancements schemes.	To ensure the protection and potential for enhancement of rivers and streams is highlighted in planning policy, plans, and individual planning applications. The focus should include the securing of appropriate buffer zones between development and watercourses, opportunities for deculverting, and the naturalisation of modified sections of watercourse.	On-going	LBH	EA, HBAPP planning consultees
		To encourage the use of environmental grant schemes to support the management of all water courses and associated habitats.	On-going	LBH	EA, LBH, LWT Crane Valley Project Officer
		Target areas of invasive weeds of highest concern, as identified through survey work, and work with landowners to control them in the context of a catchment wide strategy.	When catchment plan written - 2011 onwards	GIGL, Crane Valley Project Officer	Landowners, EA, LBH
		Identify obsolete structures for removal along the Crane and add to the London Rivers Action Plan.	2011	EA	LBH, LWT Crane Valley Project Officer
		Identify and review potential enhancement projects listed in association with current survey data (River Corridor Surveys, River Habitat Survey). Add to the London Rivers Action Plan.	2011	EA	Crane Valley Project Officer, LWT, HBAPP planning consultees
		Apply to funding bodies for appropriate enhancement projects as identified above.	2011 onwards	LWT Crane Valley Project Officer	LBH, EA
		Green Lane Wet Grassland - Secure and maintain measures to control soft rush and the invasive plant Crassula helmsii	On-going	LBH	Landowner
		Cranford Park - Install in-channel deflectors to improve diversity of flow	2011	EA/LBH	LB of Hillingdon
		Donkey Wood – Extend and improve area of wet woodland on the right bank above Baber Bridge	2011	EA	LWT Crane Valley Project Officer, LBH
		Cranebank – Investigate and carry out where possible the reinstatement of old ox-bows to river	2012	EA	LWT Crane Valley Project

					Officer, LBH
		Hanworth Park - Deculverting of the Longworth River through the park	2014	LBH	Royal Parks, EA
To achieve a continuing improvement in water quality.	To implement a strategy that improves water quality in rivers and streams within the Borough	All partners through their relevant remit to contribute to the achievement of "good status" in terms of ecological and chemical parameters for surface water and ground water. This is as prescribed through the Thames River Basin Management Plans.	On-going with the predicted achievable date as 2027	EA	Thames Water LBH, HEATHROW BW
		Review the existing strategy for improving water quality currently carried out by EA and TW. Identify any further measures that can be taken.	2011	EA	TW LBH
		Promote implementation of sustainable urban drainage systems through the planning process.	On-going	LBH	EA, HBAPP planning consultees
To improve understanding of watercourses and associated habitats in Hounslow	To collate existing information and identify knowledge gaps.	Collate existing information on invasive species, and carry out surveys where required, of all watercourses within the Borough. Establish a management strategy (part of a catchment wide approach).	2011	LWT Crane Valley Project Officer	EA LBH Landowners
		Collate and analyse data and determine data gaps for wetland BAP habitats and species, in particular watervoles.	2011	GIGL, Crane Valley Project Officer	EA LBH HEATHROW
To increase awareness of the function and value of watercourses in Borough	To promote the value of rivers and streams through a programme of events and leaflets.	Promote importance of rivers and streams through organised local events.	On-going	LBH	LWT EA
		Promote wiser use of water via web based advice, leaflets and representation at local events.	On-going	EA TW	LBH LWT
		Seek to improve public awareness of existing access along watercourses via web based material and leaflets.	On-going	LBH	LWT EA

NB –For a full list of acronyms please see appendix three for glossary

TIDAL THAMES

10.0 Aims

- To identify and quantify the wildlife habitats and species of the tidal Thames
- To ensure the improvement, regeneration and integration of tidal Thames habitats
- To contribute to strategic efforts to deliver biodiversity conservation targets for the tidal Thames as a whole.
- To promote public education, appreciation and research of the tidal (and non-tidal) Thames within the Borough
- To ensure green links with other riparian boroughs and water bodies are maximised

10.1 Introduction

The River Thames is London's best known natural feature changing from a freshwater river at Molesey into a saline estuary in the east. Since Neolithic times this remarkable landscape has been shaped by human activity. Wildlife has been quick to adapt to these changes taking advantage of man's modifications whilst recreational activity has constantly evolved as new stretches of riverside are opened up. A Habitat Action Plan for the wider Tidal Thames has been prepared on behalf of GLA by the Thames Estuary Partnership and is a key reference for this plan.

10.2 Current Status

The river is a valuable amenity to Borough residents and visitors and provides a mode of transport for some commercial and much seasonal leisure traffic. It receives much of our treated effluent and urban run-off and provides a vital wildlife corridor for the migration of wildlife between urban parks and green space. Locally, these areas include; Syon Park SSSI, Duke's Meadow, allotments and private riverside gardens.

Ecologically, the Thames today is a recovering ecosystem. Nearly 50 years ago it was considered almost biologically dead, whilst today its healthy fish stocks indicate its present status as a good quality urban water environment. It was recognised to be one of the cleanest rivers flowing through a European city in 2005. The main reason for this is the additional treatment of sewage effluent, before it is discharged to the tidal reaches. Over 124 species of fish are currently recorded Thames with reintroduced salmon running up-river beyond Teddington Lock in 1985 for the first time since the 1830s. The Thames is still far from being a natural eco-system, with its controlled river course, bank-side housing development and few natural flood meadows. Its main ecological constraint is the hard engineering to stabilise the riverbanks, consisting of sheet piles, cobbled or concrete revetments which reduce the variability of the habitat and severely curtail the surface and subterranean flood plain environment. Although background water quality has improved, there remains the periodic outflow of untreated effluent from combined sewer systems (Mogden Sewage Works) in response to high rainfall events, which result in reductions in water quality. Major incidents should be expected without remedial action, particularly given an anticipated increase in rainfall extremes as predicted by 'climate change'. October 2004 saw such an event when a combination of sewer over-flows and antecedent dry weather conditions resulted in a rapid lowering of dissolved oxygen in the river water and many thousands of fish were killed.

10.3 Specific Habitats

Table eight: habitats along the key tidal thames site in Hounslow

Habitat	Site example	Description
Flood walls	Strand-on-the-Green	Vertical walls of timber, brick and concrete can support a wide diversity of plants and invertebrates
Gravel foreshore	Isleworth	Intertidal substrate comprising gravel and sands
Islands	Isleworth Ait, Chiswick Eyot,	The mid channel islands range from about 10m to 600m in length. These are shored up by lateral sheet piling or wooden camp-shedding. The islands are inundated during high tides and flood events and provide roosting habitat for water fowl, and the common tern (Sterna hirundo). However due to the vertical piling at low tide, and the foxes, dogs and cats present on the larger Islands, ground nesting birds are often unsuccessful. The mature trees on the Islands, together with Ivy (Hedera helix) cladding, provide roosts and nesting sites for Great spotted woodpeckers (Dendrocopos major), Tawny owls (Strix aluco) and Treecreepers (Certhia familiaris). Bat species also depend on mature trees like broken crack willows with large trunks for roosting sites. Sycamore trees (Acer pseudoplatanus) dominate some islands; as they provide good roosts, nests and foraging material. Willow (Salix spp.) species dominate other islands.
Mudflats	Brentford Dock	Intertidal substrate comprising mud and sands. A priority habitat in the UK BAP.
Natural Riverbanks	Syon Park, Duke's Hollow	Hounslow has the only two remaining natural banks on the River Thames in London: Syon Park flood meadows and Duke's Hollow. These habitats form the transition between the river and land for a range of species including Reed warblers (Acrocephalus scirpaceus).
Sub-littorial sands, gravels	Chiswick Eyot	Sands and gravels found below the lowest tides continuously submerged loose sediment. Habitat for invertebrates and spawning substrate for fish such as Smelt. A priority habitat in the UK BAP.
Tidal creeks	Syon Park	Tidal areas at the mouths of tributary rivers acting as 'mini-estuaries' and providing off-line refuge for fish.
Tidal tributaries, flood channels and flood plains	Brentford and Isleworth	Valuable habitat for fish fry as well as specialised strandline invertebrates and flora. The tidal reaches of tributary rivers such as the Crane, Duke of Northumberland and Brent. They are important access points to the Thames for wildlife using these corridors to the north and south of the River. The increase in pH of the calcified river water provides a suitable habitat for rare molluscs (that prefer more alkaline environments for shell development), such as the Two lipped door snail (Lacinaria biplicata) and the German hairy snail (Perforatella rubiginosa), that are found in several regularly flooded sites within the Borough.
River bed		The considerable seasonal suspended silt load in the river provide important transition zone habitats for benthic fauna, including unionid mussel beds, the Painters mussel (Unio pictorum), the Ducks mussel (Anodonta anatina) and the Swollen river mussel (Unio tumidus). Also found here are invasive species such as the Chinese mitten crab (Eriocheir sinensis), the Zebra mussel (Dreissena polymorpha) and the Asiatic clam (Corbicula sp.). The non-biting midge larvae (Chironomus sp.), leeches (Hirudinea) and Freshwater shrimps (Gammarus pulex) are a widespread and an important food source for fish and ducks.
River channel		The water quality of the artificial river channel is dominated

		by the inflow of fresh water from upstream. Water levels vary according to fresh water inflows and the monthly tidal cycle impacting the water salinity levels. Some marine species such as Flounder (Platichthys flesus) use the stretch as a refuge for 3-4 yrs, after which they return to the sea and estuary where they spawn. The river is also used for migrating fish like European eels (Anguilla anguilla), and since the migratory Salmon (Salmo salar) and Sea trout (Salmo Trutta) are regularly recorded. It is important to note that the lack of large in-river waterweeds make the existence of marginal vegetation such as submerged tree roots like crack willow (Salix fragilis) and the tidally flooded bank side plants, very important refuges and attachment points for fish eggs during and after spawning. The fishery and its associated invertebrate fauna, is predated by marine and fresh water birds including Kingfisher (Alcedo atthis), Grey heron (Ardea cinerea), cormorant (Phalacrocorax carbo) and a large number of wildfowl including both Great crested grebe (Podiceps cristatus) and Little grebe (Tachybaptus ruficollis).
River banks		The steep channel embankments tend to be covered with protective hard rock blocks or sheet piles providing habitat with little marginal vegetation or opportunities for roosting. The towpath, revetments and associated riverside vegetation form an important corridor habitat that links the floodplain and wet woodland together. The riparian assemblages of plants in Hounslow are some of the best examples in the tidal Thames and are important along the rare engineered tributaries. However, being close to the towpath, they suffer from badly timed or heavy mowing that has considerably impoverished some habitats. Where they are well managed, a lush riverside border can be found, characterised by Great water dock (Rumex hydrolapathum), Water speedwell (Veronica anagallis-aquatica), Hemlock water dropwort (Oenanthe crocata), Marsh ragwort (Senecio aquaticus), Water figwort (Scrophularia auriculata), Purple loosestrife (Lythrum salicaria), Yellow loosestrife (Lysimachia vulgaris) and Amphibious bistort (Polygonium amphibium). Along the embankment the range of mature trees such as the weeping willow, poplar and beech provide good quality habitats for invertebrates, birds and bats.
Wildlife corridor		The Hounslow stretch of the Thames functions as a wildlife corridor linking the river to other sites such as; the Kempton Park Reservoirs, Barn Elms Wetland Centre, Richmond Park, Bushy Park and Hampton Court. The corridor links the brackish and marine habitats along the Estuary to the fresh water habitats, and the River Crane and Colne via the West London Green Chain. The link increases the richness of the habitat as it develops.

10.4 Specific Factors Affecting the Habitat

Sea level rise and climate change

Sea level rise is an anticipated effect of climate change. The resultant effect is a sea level rise of 2 - 4 mm per year leading to a loss of 10,000 hectares of foreshore and mudflat habitat in Britain over the next 20 years. This will also result in increased high tides and the consequent higher flood risk to the Borough. The Environment Agency aim to reduce the operation of the Thames Tidal Barrier as a protective measure for the upper parts of the Tidal Thames. This will increase the periods and levels of inundation within the back lands and associated flood plain habitat, and is one reason for the proposed implementation of the Restoration of the Lost Floodplains project.

The broader impact of climate change on the tidal Thames habitat is difficult to gauge. Increased flooding may be a benefit to some habitats. At the same time, the loss of floodplain and channelling of the river may combine with increased flooding, to produce very rapid and turbid flow, perhaps resulting in the loss of other riparian and riverbed habitats. This loss can perhaps be ameliorated by sensitive managed retreat and flood plain enhancement schemes such as Restoration of the Lost Floodplains.

Land Ownership and Management Responsibility

The division of ownership and responsibility for the management and maintenance of the public reaches of the tidal Thames bed, banks and backwaters is complex and divided between bodies such as the Local Authority, Port of London Authority and Environment Agency as well as public landowners such as The Royal Parks, RBG Kew, National Trust, English Heritage and others along specific reaches. This has resulted in relatively low land management efforts on these reaches, which may have been to the benefit of the associated habitats in the past, but also inhibits the delivery of potential habitat improvement measures and coherent overall habitat management.

Approximately 30% of the direct frontage to the tidal Thames is under private ownership and/or management, as are some of the islands. There is even less known about the habitat and species within much of this area, although a plan for the islands has been produced by the Thames Landscape Strategy with management proposals for many of them. It is hoped that further information and dialogue with private landowners will be encouraged through initiatives such as this HAP and other much larger local initiatives. Significant landowners in this respect include Royal Mid Surrey Golf Club and Thames Water although private householders also manage long reaches of the river frontage.

Development and Planning Controls

Any significant development proposed on either private or public land is controlled by the Local Planning Authority and will be subject to planning guidance under the council's "Unitary Development Plan" (soon to become the Local Development Framework) and the Greater London Authority's "London Plan".

The London Plan includes policy on the "Blue Ribbon Network" of land adjacent to the river. This policy supports biodiversity and requires that "the value of waterways for wildlife and wildlife habitat will be protected and enhanced". It is intended that this HAP and associated mapping and surveys will provide guidance to Borough planners when considering prospective developments within and adjacent to the tidal Thames area. From a habitat perspective it will be important for prospective developers to show that there will be clear net benefits to habitat and species strength and diversity from development. Given the impoverished nature of much of the riverside habitat there is the potential for beneficial net impacts as long as enhancement measures are sensitively designed and long-term management is incorporated.

Flood Control Structures

The main flood control structures in the Borough are the system of embankments, walls and sheet piling. These retain water within the main channel, associated sluices, pipes and back channels that release water into controlled back water areas on high tides, and let it back into the main channel on low tides. This system is primarily for the purposes of flood management, although it results in back waters and flood meadows. However there is scope for reviewing the operation of this system, and the management of the associated flood plain, to better manage the existing habitat and/or provide additional good quality habitat within the backland area. This issue will be addressed in the Restoration of the Lost Floodplains Project.

Flood Plain Management

The management of the flood plain is closely linked to the design and operation of the flood structures, which control the amount and timing of water released into the flood plain area. This is dependent upon the topography and the approach to managing the ground flora.

Barriers and Locks

The Thames Barrier lies downstream of central London and well outside the Borough, but it has a vital role to play in the protection of the Borough from flooding. The Restoration of the Lost Floodplains Project will see a number of projects to create new wetland habitats connected to the tidal Thames allowing space for water when needed at times of flooding – such as restoration of natural riverbanks and floodplain areas on the River Crane.

Water Quality

Whilst it is generally acknowledged there has been a major improvement in background water quality in the tidal Thames over the last forty years, a detailed analysis of the base data has not been undertaken. There is a constant high input of nutrients with resulting high biochemical oxygen demand (BOD) from the major treated effluent of Mogden Works - discharged to the Thames at Isleworth Ait; this deposits anoxic sediments to the local river reaches and has a detrimental impact on local river species. There is relatively constant BOD loading from Mogden and other licensed discharges; in addition there are peaks caused by the periodic discharge of dilute but untreated effluent and associated solid detritus from combined sewer overflows. The fishery is particularly vulnerable to the operation of combined sewer overflows following summer storms, when the conditions combine and major oxygen sags can result leading to high fish kills. It is likely however that the cumulative effect of the 50 to 60 combined sewer discharges on an average year has a larger underlying impact on ecology and habitat.

Litter

Much litter is carried downstream and is deposited on the land during high tides. A beneficial impact of this litter has been observed at Isleworth where some of this litter (mainly large plastic sheets such as road signs etc.) is being used as habitat by the rare German hairy snail (Perforatella rubiginosa). Plastic bags and plastic sheeting are common in the tidal Thames and often get lodged in trees where they look unsightly. Willow trees perform a useful ‘raking’ operation, preventing the passage of plastic to the sea and estuary. It is in the sea where research has shown they can be lethal to marine animals.

Water Quantity

Abstraction of fresh water for public water supply, combined with the effects of climate change, has resulted in extended periods, particularly in the summer, of low fresh water inflows to the tidal reaches of the river. This reduces the oxygen content in the river as well as promoting increased saline intrusion and potential changes to the habitat.

River Transport and Recreation

The commercial traffic along the river is minor but there is significant recreational traffic by motorised and un-powered craft. Large washes resulting from motorised boats can have a significant impact on the river habitat and shoreline erosion. The combination of bank erosion by mitten crabs and large rolling washes can be observed as accelerating the erosion. This is exemplified by the shoreline zone of the SSSI of Syon House, where the condition of the habitat is described as 'unfavourable' as a result.

The river is vulnerable to dredging activities due to the high quality shellfish habitat and its sensitivity to dredging and associated sediment movements. Any organisation proposing to dredge within or local to the Borough should first seek clarification as to the likely impact upon these and other habitats. There has also been concern expressed regarding the potential impact of dredging down-stream, particularly if tidal conditions result in an influx of sediment rich water into this part of the river. The river is well used by walkers and cyclists along the banks and whilst these uses are largely benign, there is a problem with refuse in the river and its impact upon larger animals, such as seals, turtles and dolphins, within the downstream reaches. There is some recreational fishing within the reach but no commercial fishery.

Problem Species

The Chinese mitten crab Eriocheir Sinensis recognised as a problem species in the tidal Thames, largely as a result of its habit of burrowing into marginal banks. This is of particular concern in the area of natural river bank in Syon Park. Japanese knotweed (Polygonum cuspidatum) is a major problem species in the marginal habitat adjacent to the river. Himalayan Balsam (Impatiens glandulifera) is also found extensively on river embankments and flood plain of the Borough and can result in mono-cultural habitat with little floral species diversity.

Lack of Knowledge

A key issue in the tidal Thames is the fragmentation of responsibilities for the river and no central repository for knowledge regarding the habitats and species present. There is potential for improvements in river and river-side management for the benefit of habitat and species diversity. This fragmentation of responsibility and the lack of knowledge is a hindrance to the development of improved management for the system.

10.5 Current Action

Legal Status

The tidal Thames within London is not covered by any statutory nature conservation designation. It is however recognised by the GLA as a "Site of Metropolitan Importance for Nature Conservation". This non-statutory designation nonetheless is a valuable protection at GLA and local level in planning terms. There are a number of other sites adjacent to the river with Metropolitan status including Syon Park (SSSI), Duke's Meadow (SSSI), several of the islands (local nature reserves).

Mechanisms Targeting the Habitat

Because, there is no overall authority for the tidal Thames, there are many initiatives at a local and regional level which either directly or indirectly impact upon the habitat.

Thames Landscape Strategy Hampton to Kew

The "Thames Landscape Strategy" was established in 1994 for the Thames corridor between Hampton and Kew and the Borough is one of the partners. The Strategy works with local groups and communities to develop management and regeneration schemes for the Thames landscape and supports funding activities for these plans. TLS has submitted a funding bid to Access to Nature to fund an officer for 3 years to engage new volunteers in conservation and recreational activities along the River Thames. The London Borough of Hounslow will be included in this remit.

Thames Strategy Kew to Chelsea

The "Thames Strategy Kew to Chelsea" was launched in June 2002 and sets out a vision for the management of the river and its corridor downstream of Kew Bridge to Chelsea. A full time project manager is in place to realise the objectives of this strategy.

Environment Agency Thames Estuary 20100

The Thames Estuary 2100 project (TE2100) was established in 2002 with the aim of developing a long-term tidal flood risk management plan for London and the Thames estuary. The project covers the Tidal Thames from Teddington in West London, through to Sheerness and Shoeburyness in Kent and Essex. The project will develop an adaptable long term plan in the context of a changing estuary in relation to its climate, people and property in the floodplain and an underlying essential but ageing flood defense system.

Thames Tideway Strategic Study

The Thames Tideway Strategic Study is a collaborative study investigating options for improving the current problem of discharges from combined sewer overflows. The final report, published in February 2005, identified a long-term solution by the construction of a major interceptor sewer beneath the river between Hammersmith and Crossness Sewage Works downstream. This scheme is not scheduled for completion until 2020 and does not directly address the local problems resulting from Mogden and other local CSOs, which are all upstream of the proposed tunnel. Thames Water has proposed interim measures to reduce problems and also intends to implement local solutions for Mogden. The details of these schemes have not been viewed to date.

Planning Controls

Planning developments are controlled by the Borough UDP, to be superseded by the Local Development Framework, and the London Plan. The London Plan incorporates specific provision for protection and enhancement of the biodiversity within the "Blue Ribbon Network" of land adjacent to the river.

Volunteer Groups

There is an opportunity to involve local community groups (Brentford Community Council, Isleworth Society and Brentford Dock) in conservation projects along the River Thames in Hounslow. If the Access to Nature Bid is successful it will be the role of the Officer to engage these groups in projects to conserve, enhance and protect the tidal Thames. Another group to involve would be the Extended Schools programme to engage young people in valuable conservation projects.

10.6 Flagship Species

Common name of species	Latin name of species	Comments
Common Tern	Sterna hirundo	breeds on derelict structures and islands
Grey Heron	Ardea cinerea	Associated with the islands and back waters
Great crested Grebe	Podiceps cristatus	A crested diving bird feeding on fish. Once almost extinct in UK, several pairs are breeding in the Borough, dependent on man made rafts.
Sand martin	Riparia riparia	Found along rivers and other water bodies throughout the UK. Also found around man-made gravel pits. Adjacent boroughs have recorded nesting sand martins.
Two Lipped Door Snail	Lacinaria biplicata	A spire shelled mollusc. Its habitat is soil surface (usually with ivy cover) of occasionally flooded riparian land in the shade of closed canopy woodland.
German Hairy Snail	Perforatella rubiginosa	A small mollusc with small bristles. Confined to the tidal Thames in the UK, it inhabits strandline detritus in the shade of closed canopy woodland and riparian vegetation.
Depressed River Mussel	Pseudanodonta complanata	A jade green bivalve freshwater riverbed mussel found in the upper reaches of the tidal Thames. A UK BAP Priority species.
Flounder	Platichthys flesus	A sea fish which spends its juvenile months in the tidal Thames, which provides a refuge area for fry spawned in the North Sea.
Salmon	Salmo salar	Salmon were re-introduced in the 1980's and up to 500 fish now pass through on their way from the sea to upstream spawning areas.
Daubenton Bat	Myotis daubentonii	Often called the 'water bat' as it feeds on insects over smooth water.
Purple Loosestrife	Lythrum salicaria	A wetland plant characteristic of river banks particularly important for bumblebees.
Common Reed	Phragmites australis	Characteristic of river banks provides habitat for insects, birds and small mammals.

10.7 Relevant Action Plans

National	Regional	Local
▪ Mudflats ▪ Twaite Shad ▪ Sub-Littoral Sands and Gravel ▪ Salmon ▪ Depressed River Mussel	▪ Tidal Thames ▪ Reedbeds ▪ Bats ▪ Grey Heron ▪ Sand Martin ▪ Water Vole	▪ Rivers and Streams ▪ Intertidal Snails ▪ Thames Terrace Invertebrates

Objectives, Actions and Targets

Objective	Target	Action	Delivery date	Lead partner	Other partners
Establish a Working Group to move forward with the Plan Objectives over the period 2010-2015.	Working Group established by end of 2010	Send copies of the Plan to all interested parties and request feedback	2011	TLS	LBH LWT, Friends of Dukes Meadow
		Publish Action Plan	2011	TLS	
Produce a database and associated plan of habitats and species within the tidal Thames in Hounslow	Initial database and plan completed by 2011	Review the approach to the Survey and identify opportunities for collaborative working	2011	TLS	ZSL, GIGL, LBH, Friends of Dukes Meadow
		Collate existing data from regulators and other interested parties and develop an initial database	2011	TLS	
Make available the biodiversity records for the tidal Thames corridor in Hounslow, with the aim of facilitating the protection of species through contractors, agencies and Council Planning being made aware of species locations and sensitivities; aiding research; and facilitating learning.	To put a database in place by 2012	To provide, for council use only online locations of vulnerable habitat and species	2011	TLS	ZSL, LBH, GIGL, Friends of Duke's Meadow
Review existing activities in the tidal Thames and provide advice to support the incorporation and development of aspects that promote biodiversity	Review existing activities by 2010; ongoing development and implementation	Review works to date and proposals with the Thames Landscape Strategy and Thames Strategy: Kew to Chelsea and identify opportunities for habitat enhancement works and management schemes	2011	TLS	LBH LWT, Friends of Dukes Meadow
		Review proposals under the Thames Tideway Study and make representations for means to reduce the impact of CSOs on the tidal Thames in the short to medium term.			LBH, LWT, Friends of Dukes Meadow, ZSL
		Provide input to the Water Framework Directive as it develops on management opportunities to promote biodiversity.	2011 & ongoing	EA, TLS	EA
Review the coverage and level of existing Site Designations ensuring all sites are protected	Identify Sites that may justify increased protection and submit proposals by 2011	Compare the evolving database and associated plan of tidal Thames Habitats and Species to the existing coverage and level of Designated Sites and identify where Designations may be reasonably added or revised	2011	TLS	ZSL, LBH, GIGL, Friends of Duke's Meadow
Provide input to the development of the Boroughs	Appropriate protections included	Submission of proposals as part of the development and drafting process	2011-2016	TLS	LWT, LBH, Friends of

LDF to ensure the tidal Thames is suitably protected	in the LDF on publication				Dukes Meadow, ZSL
Identify sites for potential river-side habitat improvement and work with the appropriate bodies to bring these to fruition.	Completion of improved habitat sites by 2012	Identify riverside areas for habitat improvement, in line with the biodiversity objectives of relevant projects e.g. The Restoration of the Lost Flood Plains, TLS's Access to Nature bid - Bringing London to its countryside.	2012	TLS	LWT, LBH, Friends of Dukes Meadow, ZSL, GIGL
		Develop habitats next to sheet piling and impoverished banks, including the creation of semi-aquatic and riparian vegetation swathes.	2012	TLS	
Reduce the amount of rubbish entering the river in Hounslow	Bins with lids installed and regular litter picks by 2010	Identify litter sources and sites. Protect or supply bins with lids, to prevent raiding by foxes and crows	2011	TLS	
		Work with contractors to pick up river-borne litter	2011	TLS	
Provide increased nesting sites for breeding waterfowl	Put in place several nesting rafts for water fowl and terns. Create a sand martin bank	Identify potential sites and designs for nesting rafts	2011	TLS	LWT, LBH, Friends of Dukes Meadow, ZSL
		Put in place, suitable natural looking rafts on permanent protected moorings.	2012	TLS	
		Construct a sand martin bank in a suitable location in the borough.	2011	TLS	
Broadcast the value of the tidal Thames and the objectives of the tidal Thames HAP to the public and other interested parties	Incorporate elements of the tidal Thames HAP into existing and emerging life long learning programmes in partnership with TLS and stakeholder.	Develop life long learning initiatives on the tidal Thames HAP for inclusion in the project work of the TLS	2011-2016	TLS	LWT, LBH, Friends of Dukes Meadow, ZSL
		To incorporate appropriate aspects of the tidal Thames HAP into the Access for Nature project - Bringing London to its countryside	2011	TLS	

NB –For a full list of acronyms please see appendix three for glossary

SECTION THREE:

HABITAT STATEMENTS

Wastelands
Woodlands
Standing Water

WASTELANDS

1.0 The Wastelands Habitat Statement aims to raise awareness of the importance of 'Wasteland' sites as a biodiversity resource in Hounslow and to act as a stimulus that will protect and utilise the flora and fauna found within these habitats.

1.1 Definition

Wastelands are areas of disused land, essentially left to nature, sometimes with a temporary land use or scheduled for reuse. Where there is no change in land use, Wasteland sites will often develop through succession into other habitat types: grassland, scrub and woodland. Wasteland sites could also include corridor habitats such as the cuttings and embankments associated with railways, both active and disused, and some urban roadsides. Such sites can be highly variable in terms of biodiversity depending on substrate for example some will be high in biomass, though low in variety, especially in the early years after initial colonisation; other sites can be highly diverse, but low in biomass. Hence the term 'Wasteland' can be misleading and open to derisory usage and other, more positive, terms have been suggested, notably 'Urban Commons' (Gilbert, 1992). As a result, Wasteland sites are difficult to define for example the ex-Feltham Marshalling Yards land has long been established, exhibits semi-mature habitats and quite an advanced succession. However, this site is neither 'inner urban', nor under the 10ha thresholds often used for the classification of wasteland sites.

1.2 Biodiversity of Wasteland Sites

Due to their diversity, Wastelands can be of significance nature conservation importance as they can act as wildlife 'stepping stones' between other wildlife areas and as temporary 'biological reservoirs'. The sites can also help people understand the dynamics of the natural world (e.g. colonisation, succession, adaptation, etc).

The substrate of wasteland sites can vary and support a range of micro-conditions with respect to light and shade, drainage, shelter and topography. The types of plants and animals that might initially colonise them, or arrive later after the initial colonists have altered those initial micro-conditions, can vary enormously. Hounslow's Wasteland sites are home to a number of important species for example the Feltham Marshalling Yards is home to the Linnet (Carduelis cannabina), Vipers Bugloss (Echium vulgare), Sulpher Cinquefoil (Potentilla reptans), Haresfoot Clover (Trifolium arvense) and Common Broomrape (Orobanche minor) amongst other types of flora and fauna. These species can also be found on other sites across the borough such as Hounslow Heath. Furthermore, the London Biodiversity Action Plan lists twenty well-known exotic plants almost all of which are found in Hounslow.

1.3 Wasteland Sites in the Borough

It is difficult to quantify the exact number of Wasteland sites within the borough due to the difficulty in classifying and defining the sites. The 1999/2000 Phase 1 habitat survey of the Borough, showed a significant decline in the larger areas of Wasteland since 1984. The Feltham Marshalling Yards is an important Wasteland site in the borough and its biodiversity value has long been recognised in the metropolitan context (LEU, 1990). This is because the site is host to some of the best surviving Wasteland

flora in London owing to the variety of imported soil types present, that support a mosaic of lime-loving and lime-hating plants.

Existing Wasteland sites in Hounslow can be protected, promoted and enhanced for a number of reasons. For example short term redevelopment sites can be promoted for recreational and educational use particularly in areas where there is a lack of public open space and wildlife. However sometimes this may not be possible as public access is restricted particularly near railway land and the grounds of large facilities, for example, Mogden Sewage Works.

Even though the Mayor's London Plan identifies a target to conserve and/or create 185 hectares of Wastelands in London it does not seek to protect the whole of the existing habitat resource. This strategic target of 185 hectares should be used to inform the redevelopment of Brownfield land so that important elements of Wasteland habitat are incorporated in development proposals as well as recreating the characteristics of the habitat within the design of new developments and public spaces, for example green roofs (see London Plan policy on living roofs and walls). In terms of finding other sites, Wastelands could potentially be identified in the open space audit that will be carried out for the Local Development Framework. However, there is no policy requirement to identify additional Wastelands within Hounslow.

1.4 Factors affecting the Habitat

There are a number of factors which affect these sites leading to their decline such as their limited lifespan. For example current national policy promotes the rapid reuse of 'brownfield' sites but with little regard to the nature conservation value of these areas. Often Wasteland sites are most diverse in wildlife in the first few years of their existence as several stages in succession are achieved. Long established sites can lose their diversity but still develop an alternative but equally important wildlife value. An example of this is the development of birch woodland at the ex-Marshalling Yards which is reducing the ground flora interest over much of the site but replacing it with the largest area of birch woodland in the Borough.

Certain sites despite possessing significant wildlife interest will have major problems inherited from their previous use that will restrict access. This is especially true of contaminated land areas such as ex-gas works and the former Williams' Dye Works site in Hounslow. However, if remediation/ clearance works takes place, perhaps through planning obligation monies or other grant sources then these sites can be made accessible. Hounslow Heath is a publically accessible open space of high nature conservation value despite being almost entirely situated on landfill. The supervised use of the ex-Marshalling Yards at Feltham will only take place after a vigorous health and safety audit has been carried out.

Certain sites may be 'used' by the public on a non-permissive basis but formal access may be denied by land owners/managers due to redevelopment considerations or indeed because of health and safety concerns. As a result they tend to suffer from poor public regard both as a result of dereliction after their previous use and from anti-social behaviour during its derelict phase e.g. vandalism, personal attack, drug misuse, loose dogs, and off-road motor vehicle use amongst others. It is therefore a major challenge to raise awareness of the value of Wasteland among decision-makers, land managers and the general public and to promote their management both for biodiversity and for safe, enjoyable access. This habitat is one where the occurrence of invasive species is not a problem as they provide nature conservation interest and reflect contemporary trade and cultural history. The exceptions to this are some highly invasive species that

reduce biodiversity such as Japanese Knotweed or potentially harmful species such as and Giant Hogweed.

1.5 Current Action

The legal status of many Wasteland sites varies across the borough for example the ex -Marshalling Yards land at Feltham is a designated SMI in the boroughs UDP as it is situated on Green Belt Land and Thorncliffe Waste site has been designated a SINC by the GLA and within the UDP. Any sites in Green Belt or in Metropolitan Open Land are also with Green Chains in Hounslow's UDP. Much of the rail and London Underground land in Hounslow lies within Green Corridors in the UDP.

The London Brownfield's Forum has been established to discuss issues concerning Wasteland. It is intended that the work of the Forum should be developed to promote the social and ecological value of these habitats. The Wastelands habitat statement feeds into many other plans for example on a national level (built up areas and gardens, urban HAP), regional level (Wastelands and London's exotic flora HAP) and locally. A Habitat Action Plan has been prepared for the Built Environment.

1.6 Guidelines for managing wasteland sites in Hounslow

- Wasteland sites are 'not normally subject to management' due to the lack of information available on the type of flora and fauna present in the area as a result it is difficult at this stage to provide information on how best to manage them.
- If a wasteland site is being considered for redevelopment then survey and monitoring needs to be undertaken to demonstrate the ecological value of the site which will ensure that areas rich in biodiversity are taken into consideration when redevelopment proposals are submitted. This will also provide a fuller picture of what management techniques are required.
- In many cases any advice given will be bespoke to the site taking into consideration the species present and how best to manage them.
- Some boroughs have managed to link wasteland site management to the strategic planning context however this has only been after extensive survey work.
- If a wasteland site is being redeveloped then mitigation techniques need to be considered to ensure any species that exist on site after development continue to be conserved. Examples of mitigation techniques include: brown roofs, living walls etc.

1.7 Useful Websites:

- http://www.buglife.org.uk/conservation/habitats/allaboutbrownfields.htm Importance of Brownfield sites conservation for invertebrates
- Wildlife Management and Habitat Creation on landfill sites - Published by Eco-scope Applied Ecologists (2000)
- Habitat Creation handbook for the minerals industry - Published by RSPB (2003)

WOODLANDS

2.0 The Woodland Habitat Statement aims to raise awareness of the importance of 'Woodland sites in the conservation of Hounslow's biodiversity resource and to act as a stimulus that will protect and utilise the flora and fauna found within these habitats.

2.1 Definition

The London Biodiversity Plan defines Woodland as plant communities dominated by trees and/or shrubs: it includes Woodland regardless of origin or species, but excludes street trees and hedgerows. No limit is set on how large a woodland has to be, indeed in urban areas a few trees may be thought of as a wood. Mature scrub is included, but not developing scrub found, for example, on land where management has recently ceased.

2.2 Biodiversity of Woodland Sites

The biodiversity of woodland sites within Hounslow varies greatly but two or three broad categorisations can be brought to bear of the Boroughs woodland stock. The lower two thirds of Hounslow lies on Taplow Terrace Gravels and this has led to a variety of woods dominated by slow growing oaks and hawthorn which would once have populated the large expanse of Hounslow Heath. Interspersed with these are remnants of old fruit trees and apple orchards which were grown on the free draining soils and along the river valleys another woodland type dominated by willows and alder.

In the north of the borough the soils switch predominantly to those dominated by heavier London Clays. The predominant species here used to be English Elm but following Dutch elm disease the area is characterised by woods of oak and ash with hazel. The area houses older, more established, woods related to estate grounds which have a large element of non-native trees many of great age. Riverine woods in this area are similar to those in the south of the borough again dominated by willow species.

The final woodland types to be found within the borough are new woods which have been planted in the last 20 years. These derive from a variety of planting schemes. Several small woods were planted during the early 1990's on formal parks such as those at Lampton Park, Boston Manor Park and Inwood Park. Then in the mid 1990s large scale planting took place at Bedfont Lakes Country Park and in 2007 a plan to plant over 20,000 trees was undertaken at Hanworth Park. These schemes have all been planted with typical native local species such as oak, ash, willows, field maple etc.

The ground flora of dry woods in the south of the borough is relatively poor dominated by species such as ivy and lesser celandine. This is primarily due to there lack of age as most of them exist land that would have been part of the open expanse of Hounslow Heath. The clay woodlands in the north however do have remnants of bluebells, red campion and foxgloves indicative of old coppiced woodlands.

The woodland fungi found within Hounslow is rich and diverse and surveying has occurred at Bedfont Lakes, Syon Park, Hounslow Heath and Cranford Park. Many unusual species have been described throwing up the need for further research.

Woodlands within Hounslow house a wide variety of rare invertebrate species. Data is still limited but older woodlands such as those at Cranford Park and on Hounslow Heath have shown a wide range of Red Data Book and National Biodiversity Action Plan species especially relating to Moths and Hoverflies.

With the wide range of woodland types to be found in Hounslow the woodland avifauna is equally rich. All three species of woodpecker are present as are nuthatch and treecreeper, the latter two primarily in the northern half of the borough. Woodland and scrub species such as warblers are present in good numbers throughout the borough with chiffchaff, blackcap and willow warbler numbering a few hundred pairs each. The riverine woodlands used to pay host to important flocks of redpoll, siskin and even tree sparrow but these have now sadly declined are being replaced by species such as goldfinch and greenfinch, while bullfinches are still to be found in woodland areas that have historic relationships with orchards. The woodlands also play host to species using other habitats such as hobby, little and tawny owls and woodcock.

2.3 Woodland Sites in the Borough

Woodland within Hounslow is largely a protected resource as most of the larger areas are to be found within parks, nature reserves and other designated open spaces.

Table nine: Examples of main woodland sites within Hounslow

Site	Size	Type
Hounslow Heath LNR	11.35	native deciduous
Crane Valley SMI	15-20	native deciduous, Wet Carr
Bedfont Lakes Country Park	14	native deciduous, Wet Carr
Syon Park	7.4	Native deciduous, Wet Carr, Non-native deciduous
Chiswick House Grounds	5.7	Mixed
Osterley Park	3.1	Native deciduous, Wet CarrNon native deciduous
Boston Manor Park	5.7	deciduous
Hanworth Park	3-4	native deciduous
Kempton Nature Reserve	6-8	Wet Carr, Native deciduous
Gunnersbury Triangle	1.8	Native deciduous
Isleworth Ait, Long Wood	3.3	Native deciduous

2.4 Factors affecting woodlands

Woodlands are by their very nature robust habitats in that they are climax vegetation communities and thus do not suffer through natural succession. The main problems concerning woodlands in the borough are derived from pressures brought about through the urban nature of the surrounding area. These include the following:

- Vandalism
- Destruction through urban development
- Pressures on woodlands through recreational use
- Litter
- Atmospheric pollution resulting in tree stress
- Fires
- Drought

- Neglect through lack of management
- Connectivity
- The need to retain other more open habitat types

Allied to these factors there are several pest species which have transferred from the continent and are having or have had effects on our woodland flora. Recent incidents which have had drastic effect on the boroughs woodlands have included:

- Dutch Elm disease, which wiped out one of the dominant species in the north of the borough
- Himalayan Balsam, which is having a large effect on wet woodlands throughout the Crane valley
- Horse Chestnut leaf–miner, a moth which defoliates the tree and bleeding canker a fungal disease which in combination can cause tree deaths
- Oak Processionary Moth which has erupted in several colonies around the west London area in the last 3 years and can cause large scale defoliation on oaks.

2.5 Current Action

Much of Hounslow's woodland is currently under protection, however less than half of this is at present being managed adequately for nature conservation. This is primarily due to a lack of resources and a lack of knowledge as to what woodland communities are actually present. Although woodland types within the borough are well known in terms of their plant communities other important communities such as fungi, invertebrates, birds and bats are far less well recorded.

As new woodland areas develop within the borough due to present policies, such as the Trees for Cities initiative, resources will have to be found in order to develop these new woodlands into bio diverse and sustainable habitat. These should not be at the detriment of management efforts on older established woods that hold far rarer and more diverse woodland communities.

Efforts should be made to retain the connectivity of important older woodland communities throughout the borough through correct management planning and the establishment of links with planting schemes through development and grant based initiatives. Woodland types benefiting from this type of action include riverine wet woodlands along the River Crane and on gravel workings in the west of the borough. The estate woodlands along the M4 corridor in the north of the borough on the London Clay such as at Cranford, Osterley, and Boston Manor and old oak woodlands on the gravels surrounding Hounslow Heath.

2.6 Guidelines for woodland Management in Hounslow

Any new planting should be indicative of the native woodland composition of that area. Management should pay due attention to historic management regimes and follow best practice where possible.

Surveys of important woodland communities should be carried out where possible and especially prior to any woodland management works. Connectivity of important woodland community types should be seen as a priority in terms of strategic borough wide planning but only in relation to other important habitat types.

STANDING WATER

3.0 The Standing Water Habitat Statement aims to increase awareness in the importance of standing water habitats for local wildlife, provide useful advice on protection and management of standing water and highlight the potential risks to standing water.

3.1 Definition

For the purpose of this habitat statement standing water is defined as 'any essentially non-flowing body of fresh water', even those that may dry up during summers with low rainfall". Examples include: Lakes (natural or man-made) and reservoirs, gravel pits, balancing ponds, ox-bow lakes, ponds (including private gardens and village greens), ditches, standing flood waters and wetland margins (including bog, marsh and carr).

3.2 Importance of standing water

Standing water provides a variety of important habitats for wildlife from deeper open water to shallow pools and marginal vegetation. Water is an essential resource for all life with water-based habitats supporting a large abundance of flora and fauna. Standing water habitats often exhibit a strikingly different range of plants and animals compared to those of running water. Larger water bodies, such as at Bedfont Lakes Country Park, provide significant breeding, foraging and winter roost sites for a range of bird species. Open water habitats such as Kempton Reservoir also provide important staging posts for migratory species.

Photo: Example of marginal vegetation that can be found around large standing water bodies creating a diversity of different habitats for wildlife. This photo was taken at the Causeway nature Reserve which is part of Heathrow's Eastern Balancing Reservoir.

Standing water habitats also provide opportunities for a range of recreational activities that can bring people closer to wildlife in an urbanised environment.

3.3 Current status of open water in Hounslow

The variety of standing water habitats make it a difficult habitat to quantify. The larger standing water bodies such as reservoirs and lakes are relatively easily identified from maps or aerial photos. It is much more difficult to assess the quantity and status of smaller standing water bodies such as garden ponds, water features or ditches. Hounslow contains a number of standing water habitats that form part of larger wildlife conservation sites in the borough. Many of these sites are recognised as being important to wildlife at the local, regional, and metropolitan level; below for general information on these sites and their location please visit London Wildweb. Information about smaller water bodies on private land is almost non-existent though they are likely to have a significant impact on biodiversity in the borough.

3.4 Factors affecting standing waters

Standing water and wetland habitats are extremely fragile and sensitive to external and internal factors. The main factors affecting standing waters are;

- Natural processes of succession and water levels
- Pollution and water quality
- Non-native invasive species
- Protection during development and construction

3.5 Advice for management and protection of standing water bodies

Protection during Construction and development

Development and construction projects have the potential to adversely affect open water habitats. Smaller bodies of open water such as garden ponds and ditches are particularly at risk from developments of Brownfield and green field sites. To protect these aquatic habitats during development the following should be considered:

- Appropriate ecological surveys to determine the value of any water bodies.
- Where possible retain open water features and incorporate in to the development.
- Where it is not suitable to retain open water features, appropriate mitigation should be implemented. This should include:
  - Creation of water bodies to the same or higher ecological value of those that will be lost.
  - Enhancement of water bodies outside of the development area.
  - Ensure water bodies are not affected during the construction process. Processes should be in place to: avoid polluting water bodies with contaminated run-off and to ensure disturbance of wetland wildlife is kept to a minimum- e.g. nesting or roosting birds.

Control of non-native invasive species

Non-native species when introduced to an ecosystem can have severe negative impacts. Water bodies are particularly susceptible to certain floral and animal species. Perhaps the most ecological damaging species are; Australian Stonecrop (*Crassula helmsii*), Himalayan Balsam (*Impatiens glandulifera*), Giant Hogweed (*Heracleum mantegazzianum*) and Japanese Knotweed (Fallopia japonica). Invasive animals include the North American Mink (*Lutreola vison*), Canada Goose (*Branta canadensis*) and Ruddy Duck (*Oxyura jamaicensis*). Japanese knotweed is a highly damaging species that colonises the banks of water ways. Due to its invasive nature any cuttings or soil that contains rhizomes are classed as controlled waste and should be disposed of by an appropriate licensed waste disposal route. It is important that:

- Standing water bodies should be surveyed for any invasive species
- Appropriate measures should be in place to limit the dispersal of invasive plants for example disinfecting clothing and tools used in maintenance of water bodies.
- Identified invasive plants should be appropriately controlled/ treated.

Pollution control and water quality

Standing water bodies are dependent upon incoming ground and surface water for their existence. Pollutants of any kind can be seriously damaging to the delicate ecosystem of standing water bodies. The urbanised environment creates the opportunity for increased surface run-off in to standing water. This run off has the potential to pollute water bodies and cause environmental damage. Procedures should be in place to ensure:

- That surface run-off from roads, run ways and other large areas of hard surface is controlled and discharged in to appropriate drains, sewers or treatment facilities.
- That when run-off is discharged into standing water bodies as part of water treatment, controls are in place to ensure it can be contained and does not pollute other water bodies or aquatic systems.
- That when using chemicals or other pollutants in proximity to water bodies the appropriate procedures and guide lines should be followed.

Aerodrome safe guarding

For reasons of aviation safety, the development of new water bodies should be assessed in terms of the potential to attract bird species that pose a known risk to aircraft safety. Canada Geese pose a particular high threat to aircraft safety due to a combination of their size and flocking behaviour. Canada Geese, as an invasive species also pose a threat to native wildlife. However this species can be persuaded from utilising water bodies in the borough through ongoing humane management.

3.6 Enhancement and wildlife management

Standing water bodies will always be susceptible to change through the processes of natural succession. Succession is the process by which water bodies naturally fill with sediment and vegetation leading to a more terrestrial form of habitat. To provide a habitat that has the greatest benefit to wildlife it is best to maintain a range of succession stages. Below are some brief notes on how to enhance certain water bodies for wildlife. For more detailed information please see useful websites.

Ponds and ditches

- Maintain a diversity of habitats, stages of succession, profiles and water levels.
- Periodically clear out sections of vegetation crating open spaces and increasing the amount of microhabitats.
- Only cut a proportion of vegetation at any one time, manual clearance is better providing a greater structural range.
- For ditches only clear one side at a time or for narrow ditches clear both sides in a section.
- Create new ponds in areas that are lacking areas of standing water

Large bodies of open water

- Encourage aquatic vegetation, especially on the fringes of larger water bodies' e.g. Wet woodland and Reedbeds.
- Creating shallow areas on the fringes of larger reservoirs will create areas for the planting or colonisation of aquatic plants.

Management of marginal Vegetation

Marginal vegetation provides a variety of habitats for wildlife but will need some management to gain the greatest value for biodiversity. Marginal habitats such Reedbeds are an important wetland habitat providing a home for a number of rare insects, plants mammals and birds. It is important:

- Where possible, a variety of vegetation types is well maintained
- Moderate grazing is extremely beneficial and can help provide suitable habitat for Water Voles along ditches.
- Introduction of Water Buffalo has been shown to help create a more heterogeneous structure in a Reedbed (http://www.conservationevidence.com/Attachments/PDF715.pdf)
- For wet woodland see the Habitat Action Plan.
- Conduct ecological surveys to assess quality and monitor management.
- Reedbed management should concentrate on controlling the natural process of succession of Reedbeds into scrub or carr, though it is important to try and maintain a variety of succession habitats (for more information see Reedbed HAP).

3.7 Useful websites and key references

Protection during construction and development

- General guidance see the London Biodiversity Partnership www.lbp.org.uk/guidance.html
- For information on pond protection and creation see the Pond Conservation Trust www.pondconservation.org.uk/advice

Control of non-native invasive species

- www.pondconservation.org.uk
- http://www.environment-agency.gov.uk/subjects/conservation/840870/?version=1&lang=_e

Pollution control and water quality

- For some good general advice and information see the Environment Agency http://www.environment-agency.gov.uk/subjects/waterquality/?lang=_e
- Aerodrome safe guarding
- For general information visit www.caa.co.uk or http://www.csl.gov.uk/servicesOverview/birdManagement/index.cfm
- For information on managing Canada Geese go to Natural England http://naturalengland.communisis.com/NaturalEnglandShop/product.aspx?ProductID=3b1f8399-24cc-4327-951b-4e398608887b

Wildlife management enhancement

- For general advice around pond management visit the Pond Conservation Trust http://www.pondconservation.org.uk/advice/
- Also see the Million Ponds project: http://www.pondconservation.org.uk/millionponds/
- The London Biodiversity Partnership has useful information on standing water management in London http://www.lbp.org.uk/londonhabspp.html#standingwater

Reedbeds

- http://www.cambridgeshire.gov.uk/NR/rdonlyres/2300D7D3-1E90-44B1-B1E6-3F239BE7B9CA/0/reedbeds.pdf

Useful texts

- Habitat Management for Conservation. A handbook of Techniques. Malcolm Ausden. Oxford University Press. 2007.

APPENDICES

1. UK BAP priority species found in Hounslow
2. Abbreviations

APPENDIX ONE: UK BAP Priority Species found in Hounslow

Species	Scientific Name	Habitat Action Plans/ Habitat Statements												
		Tidal Thames	Lowland Heath and Acid Grassland	Neutral Grassland	Wet Woodlands	Reedbeds	Gardens, Allotments and Orchards	Built Environment	Hedgerows	Parkland and Veteran Trees	Rivers and Streams	Wastelands	Woodlands	Standing Water
BIRDS														
bullfinch	*Pyrrhula pyrrhula*						●					●	●	
cuckoo	*Cuculus canorus*					●							●	
grasshopper warbler	*Locustella naevia*					●						●		
great bittern	*Botaurus stellaris*				●	●								
hedge accentor	*Prunella modularis*		●	●	●		●	●	●	●		●	●	
herring gull	*Larus argentatus ssp. argenteus*	●						●						●
house sparrow	*Passer domesticus*						●	●	●			●		
linnet	*Carduelis cannabina*		●						●			●		
lesser redpoll	*Carduelis cabaret*				●								●	
lesser spotted woodpecker	*Dendrocopos minor*				●					●			●	
northern lapwing	*Vanellus vanellus*			●										●
reed bunting	*Emberiza schoeniclus*				●	●			●			●		
skylark	*Alauda arvensis*		●	●								●		
song thrush	*Turdus philomelos*				●		●		●	●		●	●	
spotted flycatcher	*Muscicapa striata*									●				
starling	*Sturnus vulgaris*		●	●	●	●	●	●	●	●		●	●	
yellow wagtail	*Motacilla flava flavissima*		●	●										
FISH														
Atlantic salmon	*Salmo salar*	●												
European eel	*Anguilla anguilla*	●									●			
smelt	*Osmerus eperlanus*	●												
HERPTILES														
adder	*Vipera berus*		●	●								●		
common lizard	*Zootoca vivipara*		●	●								●		
common toad	*Bufo bufo*				●	●	●							●
grass snake	*Natrix natrix*			●		●	●					●		
slow-worm	*Anguis fragilis*			●			●					●		
INSECTS														
August thorn	*Ennomos quercinaria*						●			●		●	●	
autumnal rustic	*Eugnorisma glareosa*		●	●	●		●		●	●		●	●	
blood-vein	*Timandra comae*		●	●	●		●		●	●		●	●	
brindled beauty	*Lycia hirtaria*				●		●			●			●	
brown-banded carder bee	*Bombus humilis*		●	●								●		
buff ermine	*Spilosoma luteum*		●	●	●		●		●	●		●	●	
centre-barred sallow	*Atethmia centrago*								●				●	
cinnabar moth	*Tyria jacobaeae*		●	●								●		
dot moth	*Melanchra persicariae*		●	●			●		●	●		●		
dusky lemon sallow	*Xanthia gilvago*								●	●			●	

dusky thorn	*Ennomos fuscantaria*								●			●	
ear moth	*Amphopoea oculea*			●			●		●				
Fenn's wainscot	*Chortodes brevilinea*					●							
garden tiger	*Arctia caja*			●			●		●		●		
goat moth	*Cossus cossus*				●								
grizzled skipper	*Pyrgus malvae*		●	●									
green-brindled crescent	*Allophyes oxyacanthae*											●	
grey dagger moth	*Acronicta psi*						●		●			●	
horehound longhorn	*Nemophora fasciella*			●							●		
knot grass	*Acronicta rumicis*		●										
large wainscot	*Rhizedra lutosa*					●							
mouse moth	*Amphipyra tragopoginis*		●	●	●		●		●	●		●	●
neglected rustic	*Xestia castanea*		●										
oak hook-tip	*Watsonalla binaria*								●			●	
powdered quaker	*Orthosia gracilis*				●							●	
rosy minor	*Mesoligia literosa*		●	●					●				
rosy rustic	*Hydraecia micacea*		●	●	●		●		●		●	●	
rustic	*Hoplodrina blanda*		●	●			●		●		●	●	
sallow	*Xanthia icteritia*				●							●	
shaded broad-bar	*Scotopteryx chenopodiata*		●	●			●				●		
shoulder-striped wainscot	*Mythimna comma*		●	●									
September thorn	*Ennomos erosaria*		●						●			●	
shoulder-striped wainscot	*Mythimna comma*					●							
small heath	*Coenonympha pamphilus*		●										
small square-spot	*Diarsia rubi*			●			●		●	●		●	●
stag beetle	*Lucanus cervus*						●		●	●	●		
the lackey									●	●		●	●
the spinach	*Eulithis mellinata*			●	●		●		●	●		●	●
the streak	*Chesias legatella*		●										
white ermine	*Spilosoma lubricipeda*			●	●		●		●	●		●	●
white-letter hairstreak	*Satyrium w-album*												●
white-line dart	*Euxoa tritici*		●										
ARACHNIDS													
thin weblet	*Meioneta mollis*			●									
MAMMALS													
brown Long-eared Bat	*Plecotus auritus*				●	●	●	●	●	●	●		
soprano pipistrelle	*Pipistrellus pygmaeus*				●			●		●			●	
water vole	*Arvicola terrestris*	●				●					●			●
western European hedgehog	*Erinaceus europaeus*											●	
noctule	*Nyctalus noctula*									●			●	
PLANTS													
cornflower	*Centaurea cyanus*			●									
green hound's-tongue	*Cynoglossum germanicum*											●	
tower mustard	*Arabis glabra*	●											
wild asparagus	*Asparagus prostratus*			●									
SHELLFISH													
depressed river mussel	*Pseudanodonta complanata*	●											

APPENDIX TWO: Glossary

BAP	Biodiversity Action Plan	LBAP	Local Biodiversity Action Plan
BARS	Biodiversity Action Reporting System	NERC	Natural Environment and Rural Communities
Heathrow	Heathrow Airport Ltd	NE	Natural England
BCT	Bat Conservation Trust	NALG	National Aquatic Litter Group
BW	British Waterways	PLA	Port of London Authority
BOD	Biochemical Oxygen Demand	PFI	Private Finance Initiative
CO2	Carbon Dioxide	PPS	Planning Policy Statement
CSO	Combined Sewer Overflow	RBG	Richmond Biodiversity Group
CVS	Council for Voluntary Services	RBG Kew	Royal Botanic Gardens Kew
CIP	Formerly Community Initiative Partnership	REN	Richmond Environment Network
DETR	Department of Environment, Transport and the Regions	RSPB	Royal Society for the Preservation of Birds
DEFRA	Department for Environment, Food and Rural Affairs	SAP	Species Action Plan
ETRuT	Environment Trust for Richmond Upon Thames	SSSI	Sites of Special Scientific Interest
EBR	Eastern Balancing Reservoirs	SMI	Sites of Metropolitan Importance
EC	European Community	SMART	Specific, Measureable, Achievable, Realistic and Time based
EA	Environment Agency	SINC	Sites of Important Nature Conservation
EN	English Nature	SUD	Sustainable Urban Drainage
GOL	Government Office for London	SPA	Special Protection Area
GLA	Greater London Authority	TRP	The Royal Parks
GIGL	Green Space Information for Greater London	LGF	London Grazing Forum
GIS	Geographical Information Systems	TEP	Thames Estuary Partnership
GLC	Greater London Council	TLS	Thames Landscape Strategy
HBAP	Hounslow Biodiversity Action Plan	TW	Thames Water Utilities
HBAPP	Hounslow Biodiversity Action Plan Partnership	TSK2C	Thames Strategy Kew to Chelsea
HAP	Habitat Action Plan	TPO	Tree Preservation Order
LA21	Local Agenda 21	TTHAP WG	Tidal Thames Working Action Plan Working Group
LWT	London Wildlife Trust	UKBAP	United Kingdom Biodiversity Action Plan
LNR	Local Nature Reserve	UKHAP	United Kingdom Habitat Action Plan
LA	Local Authority	UNDP	United Nations Development Programme
LDF	London Development Framework	UK	United Kingdom
LBP	London Biodiversity Partnership	UDP	Unitary Development Plan
LAA	Local Area Agreement		