Supplementary Planning Document

Biodiversity, Trees and Landscape






Part B - Biodiversity

December 2010

Hertsmere Borough Council

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Roy & Marie Battell (http://www.moorhen.me.uk/).

1. Biodiversity

Introduction

1.1 The term biodiversity, a contraction of 'biological diversity', refers to the quantity and variety of life on earth. All life is interrelated in some way and change in the population of one species can have an impact on other species. Similarly, the loss of habitats can reduce the population numbers of species that depend on it for food and shelter.

1.2 High levels of genetic diversity often make specific habitats and species more robust and able to adapt to changes to their environment, whether natural changes or those caused by human activity, which support their long-term survival. A habitat that has already lost a number of species which it would typically support may be more vulnerable to further changes. Organisms that lack genetic diversity are more vulnerable to changes to their environment, whereas those that are more genetically varied are generally able to adapt more effectively.

1.3 The Council is aware of the role biodiversity plays in contributing to the economic, social and health aspects of an area. Economic benefits are created through the leisure industry, as wildlife sites rich in biodiversity are known to increase tourism. Areas that support high biodiversity can encourage healthier lifestyle choices for local communities and visitors by increasing physical interaction with the natural environment, through walking and cycling. By working to conserve biodiversity, the Council believes it will not only fulfil international and national obligations but will also improve the quality of life for Hertsmere residents.

2. Delivery of wildlife and biodiversity objectives through the planning system

2.1 In order to deliver biodiversity objectives, biodiversity must be considered at the earliest opportunity and at every stage of the planning process. Protected species are a material consideration when considering a development proposal that, if permitted, would more than likely result in harm to the species and or its habitat. Hertsmere Borough Council will seek to consult Natural England before granting planning permission for a development that could cause significant harm to protected species or it's habitat.

2.2 This SPD sets out the approach to be taken by developers, land owners and land managers to accommodate biodiversity within the development process. The approach includes:

- **Screening** the site before the submission of an application;
- **Surveying** the site and gathering ecological information;
- **Mitigating** against potentially damaging impacts which cannot be avoided;
- **Compensating** where damage is unavoidable and cannot be mitigated against;
- **Monitoring** and managing the site to assess the success of these measures.

Minor and householder Developments

2.3 These include applications for the erection of 1-9 dwellings, where the site is less that one hectare, or the floor space is less than 1,000 square metres. The principles detailed under subsequent paragraphs for major developments should be applied for minor applications where appropriate (on or adjacent to a wildlife site). It must be noted that householder schemes can still have an adverse impact on biodiversity. For example, loft conversions can destroy Bat habitats and some garden ponds can be home to Great Crested Newts.

Major Developments

2.4 Major developments include applications for 10 or more houses, or for other developments, including industrial, where the floor space is 1,000 square metres or more, or the site is 1 hectare or more.

2.5 All applications need to use the approaches set out in subsequent paragraphs and observe the following stages with regard to wildlife sites and biodiversity in a proposed development. The results of this assessment should be incorporated into the design work, together with proposals for habitat enhancement and management and these should be included in the planning application.

Screening

2.6 Each applicant should contact the Council to discuss the biodiversity on individual sites. These pre-application negotiations help to ensure that adequate and appropriate information is gathered on the wildlife sites and biodiversity relating to developments. To facilitate this process, Hertsmere Borough Council has produced the Wildlife and Biodiversity Checklist for proposed new developments (see appendix B), which should be completed and submitted with planning applications where there is a reasonable likelihood that proposals would impact biodiversity. The checklist allows any potential impacts on the biodiversity of the site and surrounding areas to be ascertained and determine whether a survey will be required.

2.7 Before designing developments and submitting planning applications, it is advised that developers consider whether the site is a County Wildlife Site, has been designated as a Site of Special Scientific Interest, contains any protected species or has any local biodiversity interest. If a site contains particular wildlife habitats such as trees, hedges, old buildings and ponds, a survey may be required. It is also important to find out whether the site forms part of a network of habitats as these provide wildlife corridors for migration, dispersal and the genetic exchange of species between areas. Such sites perform a crucial role in supporting and maintaining biodiversity and should be protected from development.

2.8 Developers should also check whether sites fall within other protected land designations such as green belt land or conservation areas, whether trees are protected by Tree Preservation Orders or hedgerows protected by Hedgerow Regulations. These can significantly influence potential developments and may need to be integrated into the site design.

2.9 Before submitting a planning application, developers should check with the Council to establish whether an Environmental Impact Assessment (EIA) will be required. Under the Town and Country Planning regulations (1999) these can be necessary for development that has the potential to affect:

- A Site of Special Scientific Interest (SSSI), Local Nature Reserve or a County Wildlife Site;
- Ancient woodland;
- A site with a habitat action plan supported under Hertfordshire's BAP;
- Legally protected species;
- Special landscape character (in terms of flora and fauna).

2.10 Planning Officers will check through the planning application and request further information from the applicant if it is considered that there is reasonable likelihood that European Protected Species are present. The provision of insufficient information can significantly delay the planning application process and, in some cases, may result in the refusal of planning permission. If it is considered that there is a reasonable likelihood that European Protected Species are present, an ecological survey will be required.

2.11 If no wildlife sites and/or biodiversity features are identified on the site, developers are advised to consider how habitats may be restored or created on the site in line with the Hertfordshire Biodiversity Action Plan. Guidance can be obtained from local wildlife and conservation groups including Herts & Middlesex Wildlife Trust (HMWT). Natural England, the Wildlife Trusts and the Construction Industry Research and Information Association (CIRIA) have all produced useful guidance for dealing with protected species that are often encountered by developers.

Ecological survey

2.12 If an ecological survey is required, it must be carried out by a qualified professional e.g. an ecological consultant. These professionals should be members of The Institute of Ecology and Environmental Management (IEEM) or have equivalent qualifications. A list of ecological consultants can be obtained at www.ieem.org.uk

2.13 Different species are active at different times and in different seasons. Therefore, surveys must be carried out at an appropriate time and season, in suitable weather conditions and using accepted surveying techniques. It is also important for the applicant to collect the necessary information before submitting the planning application.

2.14 The survey must record the habitats and species of flora and fauna on the site as well as assess the linkages with other habitats. It should examine the likely impact of development on any locally or nationally important species and habitats, or IUCN red list species present or in the locality and identify appropriate mitigation, compensation or enhancement measures.

2.15 The applicant must submit the results of the survey with the planning application, indicating how they have been taken into account in the design of the development and any mitigation and compensation measures that are proposed. The Council does not consider the conditioning of ecological surveys upon grant of permission as adequate. Therefore, in order to reduce delay or the risk of refusal, it is of imperative importance that an ecological survey is carried out at the earliest possible stage. If the measures, as proposed by the qualified ecological consultant are insufficient then the Council will refuse the application.

Mitigation

2.16 Where harm to biodiversity is unavoidable, it may be possible to employ mitigation measures that minimise any adverse impacts either on the site, the adjacent land or other potentially affected areas. Once appropriate mitigation methods have been discussed and agreed with the Council, these will normally be incorporated into the planning conditions or obligations.

2.17 Examples of mitigation measures include:

- Timing development works to avoid breeding seasons;
- Creating buffer zones to protect sensitive areas;
- Designing sustainable drainage system that can have benefits such as the improvement of water quality, reducing the flood risk and improving habitats.

2.18 Applicants should note that although attempts may be made to mitigate against adverse impacts on biodiversity, it may still be necessary to refuse planning permission if these are considered to be insufficient and where planning permission has been granted, could be quashed at judicial review (see Woolley v Cheshire East Borough Council and Millennium Estates Ltd). The Council will liaise with ecologists at Hertfordshire County on mitigation measures put forward.

Compensation

2.19 Compensation measures are considered to be a last resort, used in very few cases where damage is unavoidable and cannot be reduced any further through mitigation. However, they will not be considered if the development is likely to result in the loss of irreplaceable habitats such as ancient woodland.

2.20 Compensatory measures, such as funding the management of local wildlife sites, should substantially outweigh any losses to biodiversity on the development site and other affected wildlife sites. In practice, developments may require a combination of both mitigation and compensation measures.

Monitoring

2.21 Where possible, a monitoring and management plan to determine the success of habitat enhancement, mitigation and compensation measures should be incorporated into the planning application. This ensures that all potential impacts are appropriately considered before development takes place.

2.22 The Council may need to consider applying further conditions and/or obligations to ensure that these measures are implemented. For example, conditions may be applied to prevent developments taking place at a particular time of the year, such as during breeding seasons. Planning obligations are usually required where financial payments or continued management are required. Under the Town and Country Planning Act 1990 (as amended), the local planning authority has the power to ensure that these planning conditions and obligations are met and to take appropriate action against unauthorised developments.

3. Physical Characteristics of Hertsmere

3.1 The nature of the borough, its topography, landscape, ecology and subsequent land use are a reflection of the interaction between the natural influences such as geology, soils and water. An understanding of the underlying influence that support biodiversity resources provides the evidence base for their protection and management.

Geology

3.2 The underlying bedrock is chalk, which rises at the Chilterns to the north, and underlies London to the south. The chalk is important in influencing the general topography of the area but also in providing an underground aquifer which affects the calcareous nature of the water and the levels of rivers, streams, springs and flushes.

3.3 In Hertsmere, the chalk occurs at the surface around Aldenham, southwest and northeast of Radlett towards North Mimms Park and the edges of the Mimmshall Brook valleys. It is edged by the overlying Reading Beds, consisting of mottled clay, sands and pebbles that occur at the surface, in a band, from Radlett to South Mimms and Potters Bar. Most of the solid geology consists of London Clay, which dominates much of the borough, from Bushey and Borehamwood across to Potters Bar.

3.4 The remaining drift geology consists largely of superficial deposits of pebble gravel, often on higher ground such as at Bushey, Elstree and Shenley, Boulder Clay around Radlett and towards London Colney and Glacial Gravels towards Colney Heath. Valley Gravel and Alluvium is present along the existing river and stream corridors. Most of the drift deposits were laid down by the pro-Thames, which originally flowed through Hertfordshire in the Vale of St Albans until the last ice age.

3.5 This geology broadly gives rise to acid–neutral soils within Hertsmere, apart from localised areas where calcareous soils may exist directly influenced by the chalk. These are largely Argillic brown earths or brown earths, clayey or loamy and with impeded drainage.

Non statutory sites of geological value

- Shenley Chalk Mine
- Radlett Plantation
- Radlett Field

4. Sites of Ecological Importance

International importance

4.1 A number of habitats have been identified as internationally important under the EU Habitats Directive. These include characteristic oak-hornbeam woodlands, the natural stand type found within Hertsmere. However, there are no EU level designations in the borough such as Special Areas of Conservation.

SSSIs

4.2 Sites of Special Scientific Interest receive statutory protection for their national interest under the Wildlife and Countryside Act (1981) as amended. There are two in Hertsmere:

- *Redwell Wood*, a large ancient semi natural woodland which is notified primarily for its oak hornbeam stand type with heathy remnants;
- *Castle Lime Works*, a geological SSSI displaying the finest exposure of clay-filled pipes in the chalk karst of England.

Wildlife Sites

4.3 These are non-statutory sites identified largely following the Habitat Survey and existing data held at Hertfordshire Biological Records Centre. Reflecting the best habitats and species sites outside SSSIs, they all meet recognised minimum criteria and are considered to be of county or at least district importance. The system used to identify them follows the DEFRA guidance on Local Sites. 130 sites have been identified in Hertsmere in 2008, some 7% of the borough. Six sites are larger than 50 ha:

Sites larger than 50 ha	Sites larger than 10 ha
Hillfield Park Reservoir Little Organ Hall Farm pasture Porters Park (Radlett) Golf Course Dyhram Park Tyttenhanger Gravel Pit Redwell, Hawkshead & Mymmshall Wood	Berrygrove Wood Combe Wood Parkfields Open Space Aldenham Country Park Regents Shooting Ground, Rowley Green Aldenham Park Wood Haydon Hill Pastures and Pond Potwells Cobs Ash Saffron Green Pasture

Key Biodiversity Areas

4.4 The Hertfordshire Biodiversity Action Plan (BAP) has identified Key Biodiversity Areas in Hertfordshire, largely from habitat data available and personal knowledge of the 'naturalness' of the animal and plant communities that persist to a greater extent in some areas. In Hertsmere, two such areas are present:

- *Upper Colne Valley.* An area of wetlands and heath centred on the River Colne, Tyttenhanger Gravel Pit and Colney Heath in St Albans District.
- *Mymmshall Brook / Water End.* Woodland complex of Redwell Wood and the stream swallow holes and associated sites around the brook up to the major swallow hole complex just to the north.

Local Biodiversity Action Plan

4.5 Developers should consult Hertfordshire's Local Biodiversity Action Plan (BAP) in order to assess whether development proposals can fulfil a number of the listed actions.

The habitat action plans in Hertfordshire's BAP are:

- Woodland
- Wetland
- Heathland and acid grassland
- Neutral grassland
- Chalk grassland
- Farmland
- Urban

The species action plans in Hertfordshire's BAP are:

- Water Vole
- Common Dormouse
- Natterer's Bats
- Otter
- Bleck Necked Grebe
- River Water-dropwort
- Tree Sparrows
- Bittern
- Stone-curlew
- Great Crested Newt
- Chalkhill Blue
- Pasqueflower
- Grizzled Skipper
- Stag Beetle
- White-clawed Crayfish
- Great Pignut
- Cornflower

5. Habitat resources in Hertsmere

5.1 Habitats resources are key to supporting and underpinning biodiversity within Hertsmere and it is the policy of Hertsmere Borough Council to endeavour to protect these habitats through the planning system where possible. Much of the information on habitat extent and distribution is derived from the County Habitat Survey, which was undertaken between 1994 and 1997. It provides the best available data source on habitat resources, although individual sites and areas may have been resurveyed since.

Woodland

5.2 Clearance of woodland has left Hertsmere with little of this habitat – about 754 ha or 7% of the borough, although the county average itself is only just over 9%. In turn, only 18% of this (135 ha) is considered to be ancient woodland (AW). Another 87 ha (11%) are considered to be ancient but are too small (less than 2 ha) and do not occur on the AW inventory. However, what does survive is important, often occurring as quite large blocks. The most important of these is Redwell Wood near South Mimms. Other examples are Combe Wood at Shenley and Berrygrove near Aldenham although this has been substantially replanted with conifers. Most of the Ancient Semi-Natural Woodland is of the locally characteristic oak-hornbeam stand type with bluebell dominant in the ground flora. Approximately 85 ha – 0.8% of the borough – is parkland of varying ages, from medieval to modern.

Management

5.3 For ancient woodlands to flourish they must adopt three management approaches; there must be limited intervention in order to encourage natural processes, active conservation and sustainable commercial management either as high forest or coppice (BAP, 2006).

5.4 Natural woodlands can be achieved through combining natural processes such as natural disasters (windthrow) that allow the cycling of nutrients, and mixed grazing regimes at low intensities. Grazing however must be controlled to ensure that they do not cause damage by inhibiting the regeneration of woody and herbaceous species but add to the natural functioning of the woodland. The use of mixed grazing causes problems such as the cost of fencing of the animals as well as the implications of limited public access.

5.5 Combining woodland management with other habitat management will create an aesthetic natural change in habitats as well as corridors for wildlife.

Restoration

5.6 There is potential to restore semi-natural woodland sites back to natural woodlands as they potentially retain elements from former natural woodlands. There is also more scope for restoration of natural ancient woodlands where they are planted in close proximity to other ancient semi-natural woodlands. Keystone species from these semi-natural woodlands can help to colonise these new sites. Planting of trees should only utilise trees from locally derived seed stock (BAP, 2006). Economic incentives from the Forestry Commission may provide support for woodland restoration.

Creation

5.7 Due to lack of funding and incentives, there is limited financial support for new woodland planting in Hertsmere. The creation of new woodland will be supported if public access can be provided for or if there are economic prospects for landowners, through the production of good quality timber.

5.8 In Hertsmere the Watling Chase Community Forest is linked to a strategy designed to increase the area of woodland in Hertfordshire. The plan is to increase the area of woodland within the forest area from 8% to 30% by 2024.

5.9 New woodland should be created through expansion, linking and buffering existing woodland. Linking fragmented woodland will essentially create a larger wooded habitat. As with grassland the newly created woods will act as a buffer for existing woodland. Their main function will be to protect against agricultural chemicals.

5.10 The same principles as restoration should apply when creating new woodlands. This entails using naturally derived species of trees, which will also provide great benefits for the woodland biodiversity. Natural regeneration should also be coupled with planting schemes to diversify the woodland.

5.11 Certain tree species should not be planted as they are not well established in ancient woodlands. These species of tree should also be removed from these new woodlands.

Balls Wood, Hertfordshire.
Source: Clare Gray, Herts and Middlesex Wildlife Trust. (www.wildlifetrust.org.uk)

Further information:

- Watling Chase Community Forest - www.enquire.hertscc.gov.uk/
- Forestry Commission - www.forestry.gov.uk/

Grassland

5.12 This habitat makes up 3,279 ha (32%) of the borough, which is considerably higher than average for the rest of the county. However, at least two thirds of this has been improved for agriculture or amenity use. Most of the remaining grassland is considered to have at least some botanical interest, but only 77ha (2% of the borough, half the county average) was considered to be unimproved and of high ecological value. Most of this (60 ha) is neutral grassland, 11 ha acidic and 4 ha marshy.

5.13 Unimproved neutral grassland characteristically supports common bent, black knapweed, bird's-foot trefoil, sweet vernal grass, meadow vetchling, meadow buttercup, lesser stitchwort and common sorrel, whilst damper areas include hairy sedge, meadowsweet, marsh thistle, cuckooflower, greater bird's-foot trefoil and ragged robin. Good examples of acid grassland support sneezewort, betony, tormentil and devil's-bit scabious.

Management

5.14 There is a need to create wildlife-rich neutral grasslands. To enable this to be achieved, grasslands should be protected from the influences of agricultural intensifications as well as a strict management regime. These strict management regimes need to be available to landowners, managers and small holders with horses in particular.

5.15 Managing existing and creating new unimproved neutral grassland can be achieved through a few already established schemes, the Environmentally Sensitive Area (ESA) and Environmental Stewardship schemes.

5.16 Examples of good management practise can be drawn from Danesbury near Welwyn and Boxmoor, Hemel Hempstead. Here grazing techniques have been used to manage grassland and benefit wildlife. In Boxmoor cattle and ponies have been used whereas Longhorn cattle has been used in Danesbury as an alternative means.

Restoration

5.17 Unlike heathland the prospects for restoring neutral grasslands on existing sites has become limited as a consequence of 'agricultural improvement' rather than natural succession. Restoration can be fulfilled through grazing and cutting regimes.

5.18 Hertfordshire exhibits large areas of grassland that are semi-improved. This type of grassland can be used to restore unimproved grassland as they posses species that are also associated with unimproved grassland but are depleted of the more specialised rarer species, depending on the proximity of surrounding seed banks and nutrient levels.

Creation

5.19 The creation of grassland habitats can be achieved on areas occupied by improved grassland and or arable production. These new sites would provide benefits from being created in close proximity to existing unimproved grassland. They would ensure greater chances of survival by acting as a buffer zone to pesticide drift and fertilisers.

5.20 Creation of large-scale grassland will depend on seed sources outside of Hertsmere due to a lack of suitable sources within Hertsmere. Although seeds could be collected from elsewhere in the UK it is preferable that they are collected within close proximity of Hertfordshire as this means that they would already be adapted to local conditions to deal with local environmental stresses.

5.21 Although creation of grassland would ideally be located around areas of existing unimproved grassland, future management of these grasslands would be the overriding factor as to their location. The BAP has identified the whole of Hertsmere and south Hertfordshire as one of four key areas in Hertfordshire that require targeting for neutral grassland creation.

5.22 Farmers and landowners with horses should be advised to promote the conservation of grassland. Considering that the numbers of landowners with grazing horses are projected to increase, there needs to be specific advice given to these landowners as to their vital future contribution of grassland quality. Most of this advice can be obtained from Natural England.

5.23 The success of grassland creation will be increased where there is a coupling between increased payments given by schemes alongside improved management advice given.

Neutral Grassland, Hertfordshire.
Source: Chris James, Landscape & Ecology officer, Welwyn and Hatfield Borough Council.

Heathland

5.24 Less than 1 ha of land in the Borough consists of heathland and acid grassland, although this is nearly 4% of the county's total of this very scarce habitat. Remnants are found on the acid ground within Redwell Wood and fragments within Radlett Golf Course, with heather and acid grassland supporting harebell, and wavy hair-grass. There are appropriate substrates to restore and re-create this where opportunities arise.

Management

5.25 Managing heathland can be achieved through using traditional management techniques such as grazing, which also holds the key for creating and maintaining an extensive variety of heathland communities. The greatest threat to heathland is the encroachment/intrusion of scrub, therefore, low intensity grazing management must be introduced to all major heathland sites for long term sustainability.

5.26 Although grazing is viable on most sites, a few problems arise through this type of management. Grazing can be time consuming and requires the introduction of fencing which also needs the approval from DEFRA / Natural England. Opposition can arise from fencing off sites identified as registered common land and due processes must be followed in respect of common land or village town greens. Lastly there is usually a drawn out legal and consultation process to ensure that local commoners, open spaces groups and local people are satisfied.

5.27 Sensitive cutting and mowing management will be the preferred Interim solution to maintain the biodiversity of heathland in Hertsmere.

Restoration

5.28 The next step to heathland is the restoration of existing sites that once flourished with heather flora and fauna. Most of the heathland that previously existed was found on unclosed common land. This has been replaced due to the lack of management that has resulted in succession, which has since seen heathland replaced by scrub and secondary woodland.

5.29 There is certainly a possibility for heathland to once again thrive due to existing seedbanks. Careful management could see heathland appearing again over large areas of open land. Restoration of heathlands need to be undertaken with haste to ensure that the remaining seedbanks are not entirely lost and suitable soils (Podzolised soils) for heathland development have not changed too much. It has been projected that this must be undertaken by 2016.

5.30 Once areas of secondary woodland, accumulated layers of fallen organic matter and scrub have been removed, surrounding areas of heathland can exist through natural colonisation. Thus it is essential to preserve the remaining wet and dry heath sites.

5.31 Restoration is a sensitive process that has to weigh up the benefits of restoring heathland with the costs of removing woodlands that have already established their significant wildlife value.

Creation

5.32 The BAP seeks to create 'heathland-type' communities on new sites with suitable geology and soil conditions'. However, modern agriculture has changed the soil profiles and chemistry in Hertsmere so much so that the creation of new heathland is uncertain.

5.33 The BAP shows that there are four core areas in Hertfordshire that will be crucial to the creation of heathland sites. These four core areas are essential due to their underlying geology. Hertsmere falls into two of these core zones. East Hertsmere will be a key area for creating new heathland to the extent already established (Broxbourne, Northaw, Hatfied). The north and north east of Hertsmere will also extend the Mardley Heath to the Bricket Wood corridor.

5.34 Increasing these four core block areas could be achieved through concentrating on fewer larger sites rather than on many small sites.

5.35 Due to the complexity and mix of heath vegetation they are not easily replicated. Therefore natural colonisation and grazing should be encouraged as in the long term these naturally developed heaths will be of greater value to wildlife.

Heathland, Hertfordshire.
Source: Clare Gray, Herts and Middlesex Wildlife Trust. (www.wildlifetrust.org.uk)

Wetland

5.36 Wetland habitats including fen, swamp and mires comprise 6 ha of the borough, which is less than the county average. Open waters greater than 0.3 ha cover 96 ha, just under 1% of the borough and twice the county average. The two large water bodies of Hillfield Park Reservoir and Aldenham Reservoir account for the majority of this. Hillfield Reservoir is fed by boreholes and with high water quality and little disturbance is of national significance for its wintering and breeding wetland bird populations, notable species being the Black-necked Grebe, Pochard and Gadwall. There were 231 smaller ponds recorded in the borough. Rivers and streams had a recorded length of 45.6 km, although they are subject to low flows. The River Colne is the principal river system.

Management

5.37 The future of wetland management relies on management and retention of all existing high quality wetlands. Managing all wetlands is also important; however, these higher quality wetlands provide greater benefits to wildlife. All wetlands need to be resurveyed and assessed to identify which sites will take priority.

5.38 Grazing will play a key role in managing wetlands as with many other habitats. Managed grazing can prevent scrub and trees from establishing, thereby preventing dehydration of the wetlands.

Restoration

5.39 Where wetlands need to be restored this can be done, in some cases by restoring water levels along river corridors. It is important that built development is discouraged within the functional floodplain in line with the principles of Hertsmere's Strategic Flood Risk Assessment. Rivers should be encouraged to take their natural course as they will form structural diversity in the form of pools, riffles and meanders.

5.40 The Environment Agency and other regulators ensure that wetland water quality is maintained to reduce pollution that is detrimental to wildlife. Pollution of wetlands comes in the form of sewage discharge and agricultural sources, which in turn cause eutrophication. Water quality can be restored by using riparian buffer strips, which will reduce diffuse pollution. There are various forms of buffer strips that can be utilised to achieve different goals. As an example, rough grass strips and trees alongside watercourses are effective in reducing pollution, controlling temperatures of water bodies through shading, enhancing the

surrounding amenity, as well as providing habitats for wildlife and corridors for their movement. Finally the future of wetlands and water bodies will be strengthened through the partnership between the water industry, agriculture and conservationists.

Creation

5.41 Habitat creation comes in the form of the expansion of existing sites. Although creating new habitats is important, it is vital that larger existing areas are prioritised for expansion. Expanding these sites will create in effect established 'new' sites that will link other fragments from key ecological points such as river confluences (BAP).

Wetland habitat, Aldenham Reservoir.

Artificial

5.42 Habitats such as waste ground, bare ground and quarries amount to 34 ha, 0.3% of the borough. Good examples include Tyttenhanger sand and gravel pits. These provide the most important site for bees and wasps in Hertfordshire supporting at least six nationally notable / rare species, as well as a species of spider not known elsewhere in the county. The complex is also important for one of the few remaining colonies of tree sparrows. However, many old redundant features support valuable acid or calcareous flora given the nature of the substrates.

Orchards

5.43 Although planted, traditional orchards are valuable in many ways, combining both tree cover and grassland to provide small examples of what are effectively wood pastures, creating conditions that also favour lower plants and invertebrates. The trees also provide blossom and fruit for a range of wildlife during the year. Historically Hertsmere had a large number of small orchards scattered throughout the district and although many have been lost, surviving examples are of local importance.

Terwin Orchard, Hertfordshire.
Source: Clare Gray, Herts and Middlesex Wildlife Trust. (www.wildlifetrust.org.uk)

6. Protected species and species of interest in Hertsmere

Badgers

Where are they in the Borough?

6.1 Badgers are thinly scattered across the northern half of the borough but largely absent from the southern half, which is dominated by London Clay. There may be an association with the free draining chalkier soils, as there appears to be an aggregation of setts in the north-west of the borough where most chalk is at or close to the surface.

Protection and Action Plans

6.2 Badgers are a common animal in most of England, but there is specific legislation for their protection under the Protection of Badgers Act 1992. It is widely known that Badgers have been the victim of persecution and cruelty over many years. Natural England are responsible for issuing licences under section 10(1)(d) of the Protection of Badgers Act 1992 where it is necessary to interfere with a Badger sett in the course of development, which can include demolition, building, construction, mining and engineering operations and material changes of use.

6.3 Badgers are not subject to a species action plan in the Hertfordshire BAP due to their status as stable in the local decline rating. Surveys and appraisals should help to reduce the risks of disturbing Badger setts or affecting their foraging territories. Hertsmere Borough Council will advise anyone submitting an application for development in an area where there are known to be Badger setts that they must comply with the provisions of the Act.

What to look out for

6.4 There are several signs that indicate the presence of Badgers:

- Badger paths linking sett entrances and foraging areas;
- Tufts of black and white hair caught on barbed wire;
- Footprints;
- Claw marks scratched on tree trunks or stones;
- Spoil heaps of earth outside sett entrances;
- Bedding dropped on paths or near sett entrances;
- Badger latrines.

6.5 Developers will need to apply for a licence in respect to any new development that will involve interfering with a Badger sett. With respect to planning permission, disturbing a Badger sett, or adversely affecting a Badgers chance of survival are considered to be a material consideration in planning decisions.

Badgers.
Source: Clare Gray, Herts and Middlesex Wildlife Trust. (www.wildlifetrust.org.uk)

Further information:

- English Nature's 'Badgers and Development' available from www.naturalengland.org.uk
- Natural England - 'Badgers And Development A Guide to Best Practice and Licensing' available from www.natural england.org.uk

Bats

Where are they in the Borough?

6.6 Bat records are quite common across the entire borough, and seven species have been recorded – Whiskered, Natterer's, Daubenton's, Serotine, Noctule, Pipistrelle and Brown Long-eared.

Protection and Action Plans

6.7 Bats, as a European Protected Species, have been afforded strict legal protection in England, Scotland and Wales. All Bats are protected under section 9 of the Wildlife and Country Act 1981 and are also protected under regulation 39 of the Conservation (Natural Habitat) Regulations 1994 (as amended). The regulation in conjunction with the Act renders it illegal to carry out the following:

- Intentionally or deliberately kill, injure or capture (take) Bats;
- Deliberately disturb Bats (whether in a roost or not);
- Damage, destroy or obstruct access to Bat roosts;
- Possess or transport a Bat or any part of a Bat, unless acquired legally;
- Sell, barter or exchange Bats, or parts of Bats.

6.8 Of the seven species of Bats that are listed, only the Natterer's Bat (Myotis nattereri) has a Species Action Plan in the Hertfordshire BAP. The Natterer's Bat is considered vulnerable in Hertsmere due to limited habitats. The Hertfordshire Biological Record Centre is identifying key sites of which some have been designated as important Wildlife sites. A major threat to the numbers of all Bat species in Hertsmere is the decline of insect-rich feeding habitats. Some of these habitats are wetlands, hedgerows, unimproved pastures and ancient woodlands.

6.9 Below is a list of three objectives that are important to the longevity of the Natterer's Bat taken from the Hertfordshire BAP.

- Disseminate a current status report;
- Create annual roosting opportunities;
- Raise awareness by holding annual seminars for key audiences.

What to look out for

6.10 Lofts and old barn conversions pose one of the greatest risks to the decline of Bat numbers in Hertsmere, as they are one of their preferred roost sites. Other 'trigger sites' identified by the Bat Conservation Trust (2007) include:

- Buildings with weatherboard and/or hanging tiles and pre-1960 detached buildings within 200m of woodland or water;
- Pre-1914 buildings within 400m of water or woodland (especially those with gable end or slate roofs, regardless of location;
- All listed buildings;
- Rural settings with mature woodland, hedges, trees and mature trees, grassland, river, lakes and ponds.

6.11 All development effecting the types of buildings and trees outlined in the above paragraph (6.10) should be assessed for the presence of Bats. Developers must be aware that the initial absence of Bats is not sufficient evidence to proceed with development as Bats reuse roosts. Legal opinion states that a roost is protected whether or not the Bats are present at the time of a search. The habitat surrounding the types of buildings and trees outlined in paragraph 6.10 must also be documented to identify key landscape features of importance to the Bats. The clearance of old trees suitable for Bat roosts, fragmentation of colonies, and disruption of flight line features (hedgerows) have the adverse effect of isolating species and reducing the chances of breeding.

Bat.
Source: Roy & Marie Battell, Moorhen.
(http://www.moorhen.me.uk/)

Further information before starting works:

- English Nature 'Bats in Roofs. A Guidance for Surveyors'. Available from www.arborecology.co.uk
- Bat Conservation Trust 'Bat surveys Good Practice Guidance'. Available from www.Bats.org.uk
- Contact Natural England for licensing and other queries regarding Bats and development works: www.naturalengland.org

If Bats or their roosts are found during development works you must stop immediately and contact the Herts and Middlesex Bat Group.

Reptiles and amphibians

Where are they in the Borough?

6.12 Of the 33 recent reptile records scattered across the borough, 10 are Slow Worms and the majority of these are located within allotments in Potters Bar. The remainder are of grass snake, with no obvious pattern influencing their distribution of records. Therefore, care should be exercised when developing known habitat preferences such as allotments, scrubland and brownfield sites.

6.13 Great Crested Newts are occasionally spotted throughout the borough. There are limited concentrations southwest of Potters Bar, north of Borehamwood andnorth of Hillfield and Aldenham Reservoirs. All known breeding sites for Great Crested Newts have been designated as important wildlife sites in order to offer the appropriate level of protection to their declining populations. There is a possibility that there could be Great Crested Newt populations within larger garden ponds also.

Protection and Action Plans

6.14 Slow Worms are protected under Schedule 5 of the Wildlife and Countryside Act 1981 but only against deliberate injuring or killing and sale. Great Crested Newts are afforded full protection within the Wildlife and Countryside Act 1981, modified by the Countryside and Right of Way Act, 2000 (Schedule 9). The Habitats Regulations 1994 (as amended) make them a **European Protected Species**, which means that it is also illegal to disturb their place of rest or shelter and possess.

6.15 The Slow Worm has not been identified within the Hertfordshire BAP but the Great Crested Newt is the subject of 3 Hertfordshire BAP objectives:

- Gather information on the status, distribution and viability of the species;
- Restore degraded ponds to allow for re-colonisation;
- Promote greater awareness for Great Crested Newt conservation.

What to look out for

6.16 The presence of Slow Worms is particularly difficult to identify. This is because they choose to locate under heavy cover even when they are not hibernating throughout the winter months. The species preferred food is slugs, which is why they can be found within allotments. Nevertheless, care should be taken when digging through compost heaps as these warm, damp places are known to be a favourite residence for the Slow Worm. Slow Worms are also fond of rocks, dense grass vegetation and other cover such as pieces of wood and under sheds. As such, care should be taken on brownfield land development.

6.17 Great Crested Newts are easier to spot around April and May as this is their breeding season. Great Crested Newts reach their breeding ponds by March and return to land around September. Great Crested Newts need fish-free large ponds with large-leafed vegetation and rough grassland surrounding the pond. Great Crested Newts are more likely to occur where there is more than one pond in close proximity to each other that is surrounded by semi-natural grassland.

Slow Worm.
Source: Clare Gray, Herts and Middlesex Wildlife Trust. (www.wildlifetrust.org.uk).

Further information:

- Natural England - 'Great Crested Newt Mitigation Guidelines' obtained from www.naturalengland.org
- 'Great Crested Newt Conservation Handbook' obtained from http://www.froglife.org
- 'Amphibian and Reptile Conservation' found at www.arc-trust.org

A license must be obtained from Natural England In order to carry out development works that would affect a protected species.

Water Voles

Where are they in the Borough?

6.18 Although Water Voles are rare in Hertsmere, they have been recorded along the River Colne, around the Hillfield and Aldenham Reservoirs and on the Mimmshall Brook in the eastern edge of the borough. This is because Water Voles are herbivorous mammals that feed on a variety of grasses, reeds, sedges and rushes and live in burrows along the edges of rivers, streams, ponds, lakes, ditches and canals. According to a survey carried out in 1989-90 by the Mammal Society, Water Voles have been lost from 94% of their habitats sites. This has been largely due to habitat loss and fragmentation, disturbance through the channelisation of watercourses and overgrazing of banks, pollution, poisoning by rodenticides and predation by the American mink.

Protection and Action Plans

6.19 From 1998 Water Voles have been listed under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This has meant that it has been illegal to damage or destroy places used by them for shelter or protection or to disturb them whilst in such places. However, as of 6th April 2008, Water Voles have full legal protection, which means that it is also illegal to kill, injure or take them from the wild.

6.20 The Water Vole has been designated as a priority species in the UK Biodiversity Action Plan and is also listed on the Hertfordshire Local Biodiversity Action Plan. The BAP has identified 5 objectives:

- Maintaining the range of water voles in Hertfordshire through monitoring;
- Expanding the range of water voles in Hertfordshire;
- Enhancing and conserving the habitats of Water Voles;
- Increasing the population size by restoration of streams and ponds in 'key' areas;
- Raise awareness of Water Voles.

What to look out for

6.21 It has been noted that signs of the presence of Water Voles can be confused with the signs of the presence of rats. Therefore, if any of the site signs outlined below are found, it would be expedient to contact Natural England.

- Slow moving rivers;
- Steep banks for burrows that are heavily vegetated;
- Tracks in the area surrounding banks and rivers;
- Leafy food piles.

Water vole.
Source: Clare Gray, Herts and Middlesex Wildlife Trust. (www.wildlifetrust.org.uk)

Further information:

- Natural England 'Water Vole – The Law in Practice. Guidance for Planners and Developers' which can be found at: www.naturalengland.org
- The Environment Agency has information on the habitats of the water vole: www.environment-agency.gov.uk

Purple Emperor Butterfly

Where are they in the Borough?

6.22 The Purple Emperor is a one of the largest butterflies in the UK. While the species suffered from decline in the 1950's there has been an increase in sightings throughout the 1990s although the population is concentrated in south England. Sightings have occurred within the Tyttenhanger area in Hertsmere.

6.23 Redwell Wood in the northeast corner of the borough has been recognised as one of the species 'assembly' areas in the south of the county. It is likely therefore that all suitable mixed woodland areas in the vicinity are potentially valuable for this species as this is their preferred habitat.

Protection and Action Plans

6.24 The Purple Emperor Butterfly is protected under the Wildlife and Country Act 1981(as amended, sale only) and is also a priority species within the Hertfordshire BAP. The objectives of the Hertfordshire BAP for the Purple Emperor Butterfly are as follows:

- To gather more information on the species distribution and population dynamics;
- To inform woodland owners, managers and authorities of the needs of the Purple Emperor Butterfly in order to safeguard their presence.

What to look out for

6.25 The Purple Emperor Butterfly is difficult to detect as this species spends most of its time high in the canopy of the woodlands that it inhabits. Nevertheless, the species requires mixed woodland, sallows and can sometimes be tempted down from the canopy with rotting fruit. Although the species prefers large areas of woodland, they can survive by flying between smaller areas of woodland that are located within close proximity to each other.

6.26 It would be expedient to contact one of the organisations in the information box below if it is suspected that there are purple emperor butterflies elsewhere in the borough.

Purple Emperor Butterfly.
Source: Neil Hulme, Butterfly Conservation. (www.butterfly-conservation.org/)

Further information:

- Hertfordshire Environmental Forum – 'A Biodiversity Action Plan for Hertfordshire': www.hef.org.uk
- United Kingdom Butterfly Monitoring Scheme: http://www.ukbms.org
- Butterfly Conservation: www.butterfly-conservation.org

Black-necked Grebe

Where are they in the Borough?

6.27 The Black-necked Grebe has bred regularly at Hillfield Park Reservoir since 1998. In 2006, 16 birds were recorded. This is because their preferred habitats are undisturbed shallow inland lakes, ponds lochs and reservoirs that have extensive water plants. Hilfield Park Reservoir has been identified as one of the key wildlife sites of importance to maintain and hopefully increase the numbers of breeding pairs of Black-necked Grebes. The biodiversity around Hilfield Park Reservoir must be maintained or increased to facilitate the links between the surrounding fragments of wetlands and reservoirs. This can be achieved through the creation of habitats surrounding the park.

6.28 The corridor between Hilfield and Aldenham Reservoir is a key consideration for decreasing the effects of natural succession and fragmentation of wetlands. Along with the creation of new habitats, existing reservoirs, shallow lakes, pond and lakes must be identified, surveyed, assessed (over fixed yearly intervals) and maintained. Surveying the surrounding biodiversity will be essentially crucial as these areas aid in supporting the reservoir's richness.

Protection and Action Plans

6.29 Within a global context the IUCN Red List of Threatened Species has placed the Black-necked Grebe into the category of 'Least Concern'. Locally, it is a rarity for breeding in the UK and is afforded full protection under Schedule 1 of the Wildlife and Countryside Act (1981) as amended.

6.30 The Hertfordshire BAP has one simple target outlined below:

- To maintain or increase the population of the Black-necked Grebe at Hillfield Park Reservoir.

What to look out for

6.31 Black-necked Grebes prefer large undisturbed areas of water, which is vegetated in order to anchor or float their nests. During breeding season (April to July) human activity can be seen to have a detrimental impact on their behaviour.

Black necked grebe.
Source: Martin Hale, BirdLife International. (www.birdlife.org/)

Further information:

- English Heritage 'Wetlands Strategy': Available from www.english-heritage.org.uk
- The Royal Society for the Protection of Birds: www.rspb.org.uk

Appendices

Appendix A: References and Publications:

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ODPM. (2005). *Planning Policy Statement 9: Biodiversity and Geological Conservation*. HMSO, UK.

ODPM. (2005). *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact Within the Planning System*. Circular 06/2005. ODPM, London.

Appendix B: Wildlife Sites and Biodiversity Checklist

It is an offence to kill, injure, disturb or destroy **European Protected and National Protected Species** and their place of shelter, habitat or protection – whether or not planning permission is granted. In Hertsmere **European Protected Species** includes (but not limited to) Bats and Great Crested Newts. Please note that nesting birds, Badgers, Slow Worms, water voles, purple emperor butterflies (not exhaustive) also have protection in law. If **Protected species** are found during the course of any works, developers **must stop work immediately** and contact Natural England because protected Species legislation still applies.

The following biodiversity checklist will help you to establish which surveys and correspondences you will require. **Please complete and submit this checklist along with any other surveys, records and correspondence alongside your application.** If it is considered that there is either insufficient or incorrect information, the planning application may be refused or delayed.

Name of applicant .....

Address or location of site .....

.....

Description of proposed development .....

.....

.....

.....

.....

1. Land Use Designations Which of the following designations apply to the site that is being developed or the adjacent land (please fill out where you found the information and tick yes or no as to whether the site is designated)			
	Where have you checked?	**Yes**	**No**
Sites of Special Scientific Interest (or with 500m) (Please contact Natural England)			
Regionally Important Geological Sites (Please contact A Hertfordshire County Ecologist)			
Local Nature Reserves (Please contact A Hertfordshire County Ecologist)			
County Wildlife Site (or adjacent to) (Please contact A Hertfordshire County Ecologist)			
Key Biodiversity Areas (Please contact A Hertfordshire County Ecologist)			
Within 20m of a river (Please contact the Environment Agency)			
Other (please specify)			

2. Buildings Does the proposed development include the demolition, modification, or conversion of any of the following types of buildings or structures (please tick all that apply)?		
	Yes	**No**
All **agricultural buildings** (farm houses and barns), particularly those constructed of brick or stone with exposed wooden beams.		
Proposals for the **demolition** or removal of buildings and structures, especially those with roof voids and gable ends or tile/slate roofs, regardless of location.		
All buildings with weather boarding and/or hanging tiles that are within **200m** metres of woodland and/or water.		
Pre-1960 detached buildings and structures within 200m of woodland and/or water.		
Pre-1914 buildings within 400m of woodland and/or water.		
All listed buildings.		
Any works to tunnels, culverts, kilns, ice-houses, chalk mines, and cellars with access to the outside.		
Any works to **bridge structures**, aqueducts and viaducts, particularly those over water.		
Any proposals for the **exterior lighting** of churches and Listed Buildings or the floodlighting of green space and ménages, **within 50 metres** of woodland, rivers, lakes, hedgerows and lines of trees, particularly if they connect with woodland and waterbodies.		

3. Habitats Is the development proposal in a rural setting with any of the following features: mature woodland, hedgerows, trees, scrub, grassland, rivers, lakes, marshes, ponds and ditches?		
	Yes	**No**
Does the development involve the felling of any trees, particularly mature trees with hollows, cracks, crevices and loose bark?		
Does the development involve the removal of a traditional orchard, scrub, lines of trees, hedgerows and shrubs?		
Does the development affect, or is it within, 20 metres of a river, stream, ditch, canal, lake or pond?		
Does the development affect, or is it within, 100 metres of a quarry, gravel or clay pit?		
Does the development affect, or is it within, 100 metres of allotments or railway land?		
Does the development affect, or is it adjacent to, an area of rough grassland, scrub or derelict land?		
Does the development site contain any piles of wood, rubble, woodchip, compost or manure heaps?		

4. Biodiversity Management Measures Will any of the following measures be implemented either during or after the proposed development? (Please tick all that apply)		
	Yes	**No**
Enhancement and/or restoration of existing habitats.		
Creation of new habitats.		
Avoidance of adverse impacts to wildlife species and habitats.		
Mitigation to minimize adverse impacts to biodiversity on the site, adjacent land or other potentially affected areas.		
Compensation for unavoidable damage.		
Implementation of a monitoring and management plan.		
Please specify the enhancement proposal:		

5. Summary of Impacts of Biodiversity Which of the following impacts are likely to result from the development on or adjacent to the site? (mark box with an X)		
Net gain to biodiversity.		
Net loss to biodiversity.		
No change to biodiversity.		

Print name .....
(qualifications)

Signed .....**Date**
(DD/MM/YYYY)

Appendix C: Wildlife sites in Hertsmere (HBRC ratification report, 2008)

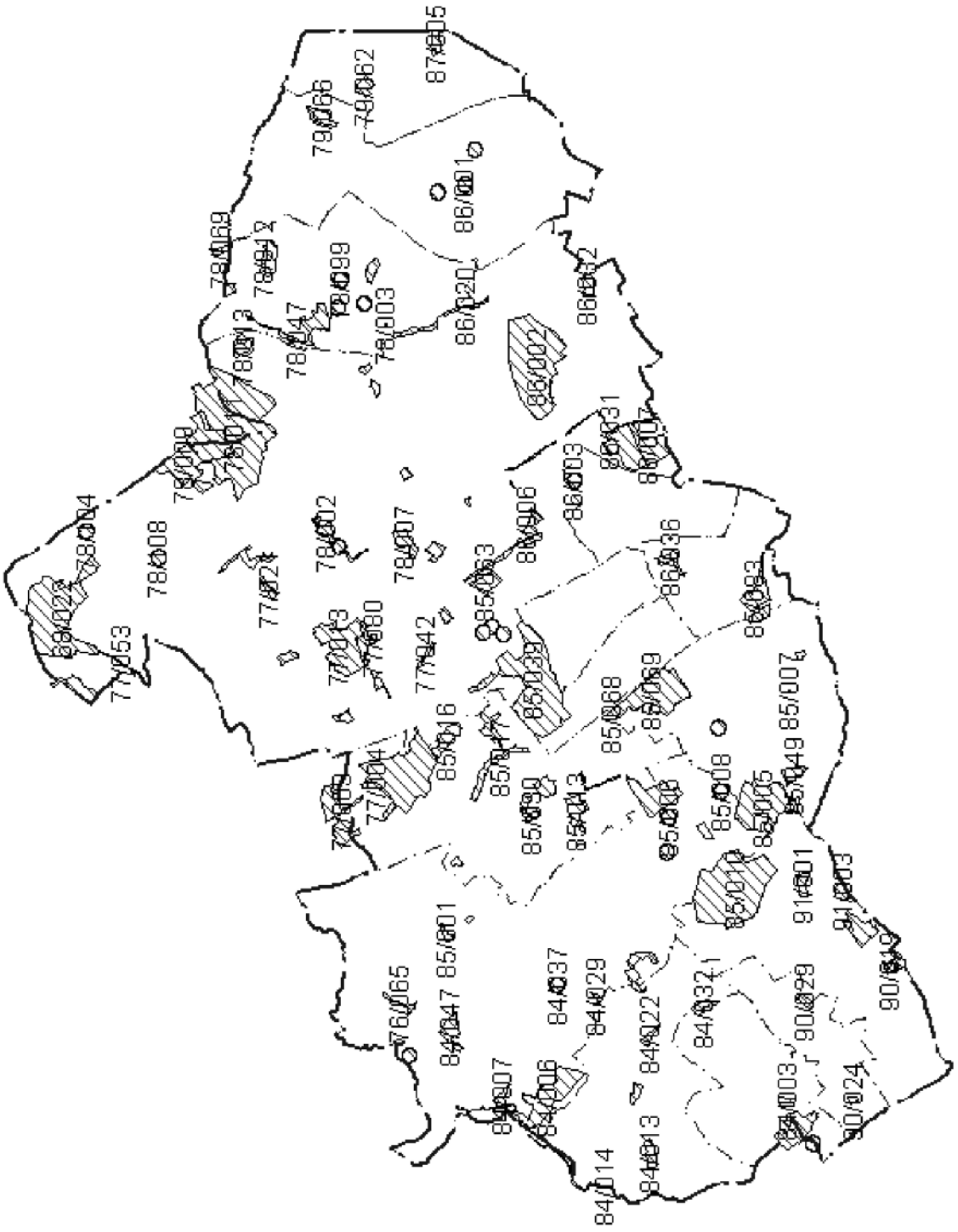
Site No.	Site Name	Location
68/022	Tyttenhanger Gravel Pits	TL190050
76/065	Blackbirds Lane Wood	TL143004
76/069	Munden House Icehouse	TL135003
77/004	Porter's Park Wood	TL171007
77/005	Coppice Wood	TL184048
77/009	Nine Acres	TL169013
77/010	Hounds Wood	TL165012
77/013	Coombe Wood	TL190011
77/014	Rectory Lane Pasture	TL190009
77/021	Salisbury Hall Farm Copse	TL196023
77/032	Porters Park Golf Course	TL173004
77/036	Dell Grove	TL188019
77/039	Cow Banks Wood	TL180013
77/040	Shenley Park Woodland and Meadow	TL185007
77/042	Woodhall Spinney	TL188001
77/043	The New Plantation	TL199047
77/053	River Colne by Bowmansgreen Farm	TL186040
77/054	Meadow E. of The Warren	TL168006
77/080	Hillcrest	TL191008
78/002	Rabley Park Farm	TL206016
78/003	Five Bells Farm Pond	TL232007
78/007	Big Pursley Wood	TL203004
78/009	Cobs Ash	TL213032
78/011	Redwell, Hawkshead and Mymmshall Woods	TL213025
78/012	Half Penny Bottom Field	TL240023
78/013	Castle Quarry	TL230025
78/017	Round Wood	TL211031
78/019	Wash Lane	TL231003
78/022	Furzefield Wood	TL241022
78/023	Meadow by St. Albans Road	TL226009
78/027	Shenley Chalk Mine	TL202012
78/033	Shenley Lodge Farm Wood	TL201024
78/039	Dovers Green Lane	TL201011
78/043	Potwells	TL216030
78/046	Motte and Bailey next to Castle Quarry	TL230026
78/047	Mimmshall Brook Pasture	TL230019
78/049	Grassland W. of Greyhound Lane	TL223007

Site No.	Site Name	Location
78/057	Pilvage Wood	TL236027
78/061	Meadows by Windmore Hall	TL232017
78/069	Spring Wood near Hawkshead Bridge	TL242028
78/088	Dugdale Hill Road Meadows	TL239008
78/092	Mill Cottage Pasture	TL212003
78/095	Footpath N. of Cranborne Road	TL243025
78/096	Mimmshall Brook by Mimms Hall	TL231021
78/099	Kimptons Mead Allotments	TL237012
78/104	Coursers Farm area	TL204047
78/105	Wroxham Fields Ponds	TL234012
78/106	Bridgefoot House area	TL234009
78/108	Coursers Road Gravel Pit	TL201037
79/062	Mandeville Road Allotments	TL263009
79/066	Parkfield	TL259015
84/003	St. James Churchyard, Bushey	TQ130952
84/006	Berrygrove Wood	TQ130985
84/007	Binghams Wood	TQ130331
84/012	Haydon Hill Pastures and Pond	TQ125951
84/013	Scotts Wood	TQ123970
84/014	River Colne, Bushey Hall Farm	TQ121981
84/015	Wall Hall Estate	TQ139995
84/022	Rough Ground N. of Bushey Jewish Cemetery	TQ138971
84/023	R. Colne near Binghams Pumping Station	TQ129991
84/029	Paddock by Summerhouse Lane	TQ143976
84/030	Land by Elstree Transmitting Station	TQ149972
84/032	Meadow N.W. of Tylers Farm	TQ142962
84/037	Round Bush	TQ145982
84/038	Otterspool	TQ128989
84/047	Abbey Wood, Wall Hall Estate	TQ193997
84/049	Hartspring Meadow	TQ130972
85/001	Dellfield Wood	TQ152998
85/005	Aldenham Country Park	TQ170954
85/006	Haberdasher's Aske's School	TQ167967
85/007	Abbotsbury Estate (part)	TQ184951
85/008	Home Farm Pond, Aldenham	TQ170960
85/010	Hilfield Park Reservoir	TQ155959
85/011	Lyndhurst Farm area	TQ191990
85/013	Meadow at Little Kendall Farm	TQ168980
85/014	Little Kendals Wood	TQ166979
85/015	Wood N. of Aldenham Park	TQ170971

Site No.	Site Name	Location
85/016	The Gorse	TQ177997
85/017	Teobalds Street Wood	TQ171993
85/018	Wood Hall Farm Wood	TQ185994
85/020	Copse by Watford Road	TQ154995
85/029	Wellhouse Dell	TQ169987
85/030	Cobdenhill Dell	TQ167987
85/033	Ham Farm, Aldenham	TQ162967
85/037	Wood Hall Wood	TQ179992
85/039	Little Organ Hall Farm Pasture	TQ183985
85/041	Kendal Wood	TQ171984
85/042	Grassland S. of Kendall Hall Farm	TQ171979
85/043	Woodland opposite Medburn House	TQ171978
85/047	Grassland and Allotments by South Medburn Farm	TQ178960
85/049	Composers Park	TQ174951
85/060	Meadow near Pursley Farm	TQ194998
85/063	Birch Wood	TQ198993
85/065	Elstree Tunnel Grasslands	TQ194955
85/067	Kitwells Lodge Pond / Lyndhurst Pond	TQ192991
85/068	Pasture by Railway, Borehamwood	TQ181975
85/069	Parkfields Open Space	TQ185967
85/075	Scrubbitts Wood	TQ161996
85/082	Kitwells Farm Pond	TQ191992
85/083	Woodcock Hill	TQ196955
86/001	Bentley Heath Pond	TQ249995
86/002	Dyrham Park	TQ226986
86/003	Rowley Farm	TQ211980
86/004	Little Pursley Wood	TQ202999
86/005	Silver Hill Woodland Strip	TQ201990
86/006	Buckettsland Lane	TQ206987
86/007	Regents Shooting Ground, Rowney Green	TQ215970
86/009	Copse S. of Crossoaks Farm	TQ209995
86/010	Wood next to Well End Road	TQ203986
86/01	Wheatsheaf Farm Meadow	TQ206986
86/016	Elm Farm Pasture area	TQ249999
86/019	Pond by Bentley Heath Church	TQ249995
86/020	Wash Lane Common	TQ234995
86/026	Packhorse Lane	TQ212990
86/031	Arkley Lane	TQ219971
86/032	Community Garden Nature Reserve	TQ238979
86/036	Maxwell Hillside Park	TQ201967

Site No.	Site Name	Location
86/037	Saffron Green Pasture	TQ215974
87/005	Fenny Slade Hill	TQ269999
87/010	Ganwick Corner Pond	TQ254994
90/019	Hartsbourne Road School	TQ148938
90/016	Valley View Farm Meadow	TQ131929
90/020	Grassland W. of "Liddisdale"	TQ148937
90/021	Meadow S. of "Liddisdale"	TQ149936
90/024	Meadow W. of Merry Hill Farm	TQ130942
90/029	King George Recreation Ground	TQ143949
90/036	Paddock Road Allotment Pond	TQ124947
91/001	Elstree Road Pastures	TQ159949
91/003	Fields by Hartebourne road	TQ157944
91/005	Covered Reservoirs, Bushey Heath	TQ152941
91/006	Northern Heights	TQ188949

Appendix D: A Map of the larger Wildlife sites in Hertsmere, 2008



Source: Hertfordshire Biological Record Centre, 2009.