



Bromley Biodiversity Plan 2015-2020

Promoting biodiversity management at a local level.

FOREWORD

With over 150 parks, commons, country parks and woodlands the London Borough of Bromley boasts an impressive range and variety of habitats, species, wildlife and biodiversity.

It has London's largest area of countryside and over 90 Sites of Importance for Nature Conservation including 5 Sites of Special Scientific Interest, 5 Local Nature Reserves, open spaces and farmed land, including large areas of Green Belt.

Despite ever increasing pressure to provide new housing and other development, we believe it essential and remain determined to protect these vital spaces as best we possibly can; likewise to enhance our biodiversity for residents to continue enjoying, both now and as importantly, for the future generations who will follow us.

The Bromley Biodiversity Partnership established in 1998 brings together a range of organisations, individuals, landowners, Friends Groups and biodiversity experts, who have been working together to promote, encourage, manage and maintain biodiversity on sites across our Borough.

Our Plan is intended to provide a coordinated approach for biodiversity actions at a local level. It contains best practice guidelines for planners, developers, land owners, contractors, Friends groups and other volunteers. We hope you find it of interest.

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Bromley Biodiversity Plan 2015- 2020

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The country is extraordinarily rural and quiet with narrow lanes and high hedges and hardly any ruts. It is really surprising to think London is only sixteen miles off...

Charles Darwin to his sister Catherine, July 1842 after first viewing Down House, in the village of Downe.



1. Mission Statement

The Bromley Biodiversity Plan endeavours to promote coordinated action for biodiversity at the local level. This document recommends best practise guidelines for protecting and enhancing biodiversity in the borough. The guidelines are aimed at planners and developers, land owners and contractors, volunteers and Friends Groups, schools and the general public. The biodiversity surrounding us in Bromley was an inspiration for Charles Darwin and his insights into the natural world. This plan aims to sustain our local species and habitats for future generations, ensuring that a long-term strategy for conserving, protecting and enhancing biodiversity is in place.



2.

Introduction

2. INTRODUCTION

What is Biodiversity?

Biodiversity simply means the variety of life on earth in all its various forms. From vertebrates (e.g. mammals, birds) through to invertebrates (e.g. insects, spiders, worms), higher plants, ferns and bryophytes to fungi, bacteria, viruses and micro-organisms.

Biodiversity encompasses the complex relationships between living things and their physical surroundings. No organism can exist in isolation and each contributes to the balance of nature and the survival of life on earth.

Why does biodiversity matter?

Biodiversity is important for its own sake but it also provides us with a wide range of services. Human lives depend upon a balanced and functioning ecosystem. The wide variety of life on earth provides us with food, shelter, medicines, pollinators, healthy soil, purification of water, clean air, climate regulation, flood management, carbon storage, and mental and physical health benefits.



Biodiversity constantly responds to changes in the environment and measuring the number of species in a given area (its biodiversity index) can indicate environmental trends and changes. Many human activities directly affect species and habitats; alteration of ecosystems is happening at an ever increasing rate, and in many cases has led to extinctions.

Key issues influencing biodiversity

- habitat loss and fragmentation
- legislation, policy and planning
- a changing climate
- large scale habitat restoration and creation

Biodiversity in Bromley

The London Borough of Bromley boasts an impressive range of wildlife, having species and habitats in common with both Kent and London. It contains London's largest area of countryside, stretching down to the crest of the North Downs, and a good proportion of London's semi-natural habitats. In order to protect these habitats, many areas of the borough are designated in the UDP/Local Plan as Sites of Importance for Nature Conservation (SINCs). Some sites hold other designations as well; at the local level as Local Nature Reserves (LNRs), within London as Sites of Metropolitan Importance (SMIs) or are of national importance as Sites of Special Scientific Interest (SSSIs). Wildlife is not restricted to open countryside, but thrives in urban areas too and in a wide range of situations. Urban habitats make a significant contribution to the biodiversity of Bromley and are residents' first and most

frequent points of contact with the natural world. (See **Appendices A and B**, Bromley SINCS and Map of Bromley SINCS.)

The Geology of Bromley

The north and western half of the Borough is capped with London Clay and Blackheath Beds. The Clay produces damp, heavy soils supporting oak dominated woodland. Where this has been cleared, some of the few examples of species-rich neutral grassland occur. The Blackheath Beds form plateaux with thin, nutrient-poor acid soils. Following woodland clearance on these soils and subsequent management, heathland developed of which only small remnants remain. The Ravensbourne and the Cray river valleys have exposed Woolwich and Reading Beds and Thanet Sand, while alluvial deposits line the valley bottoms. Patches of alder woodland have survived in the damper valleys. The southern and eastern half of the borough is dominated by the chalk and clay-with-flints, which forms part of the North Downs. Originally covered in deciduous woodland, progressive clearances were made for agriculture, which led to the development of species-rich chalk grassland, ancient hedgerows and remnant ancient woodlands.



Bromley in the wider landscape

Bromley's position between Kent, Surrey and London means that it is an important bridge between the habitats of the North Downs and those of the London basin. The chalk grassland of the southern and eastern half of the borough link Bromley with London's other downland habitats in Surrey and Croydon and with the North Downs Area of Outstanding Natural Beauty (AONB). Bromley's remaining heathland links the borough to the heathland areas of Croydon, Mitcham and beyond. The Thames tributaries of the Cray, Ravensbourne and Beck rivers extend beyond Bromley's boundaries and link Bromley with the heart of London.

Bromley's Biodiversity Heritage: Darwin and Lubbock.

Charles Darwin moved to Bromley in 1842. For many years, he walked in the countryside around his home in Downe (and Cudham, High Elms and Keston). He observed, took specimens and did experiments in many of the habitats and landscapes that remain to this day. There are many references to the local area in his published works, including *On the Origin of Species*, published in 1859.



High Elms Country Park was once the home of Sir John Lubbock, the first Lord Avebury who was tutored by Darwin. John Lubbock, among his many interests, was a respected archaeologist and entomologist, who, like Darwin, was inspired by his surroundings. His book *Ants, Bees and Wasps*, published in 1884 was a keystone text in the study of hymenoptera.

In 2006, the UK Government submitted the 'Darwin at Downe' nomination to UNESCO. The nomination was re-submitted in 2009 as 'Darwin's Landscape

Laboratory'. The World Heritage nomination highlighted the areas of the borough that were used by Darwin in his field work for so many years.



The works of both Darwin and Lubbock created a foundation of scientific observation and understanding of Bromley's biodiversity. Their legacy continues in the many volunteers, land owners, teachers, gardeners and many more Bromley residents who care about the borough's ecology.

Much of the borough's natural heritage is closely linked to its historical heritage, from the Wilberforce Oak near Holwood House to the Prehistoric Monsters at Crystal Palace Park; an idea of Professor Richard Owen who first introduced the term 'dinosaur'.

When considering the future of Bromley's biodiversity, coordinated action is necessary between land managers, planners, developers, Friends groups and volunteers. This document seeks to develop the work of the Bromley Biodiversity Action Plans.

Biodiversity Action Plans in Bromley

Bromley's first Biodiversity Action Plan (BBAP) was published in 1999. It was London's first BAP and followed establishment of the Bromley Biodiversity Partnership and widespread consultation. Since then there have been 4 Editions of the BBAP each of which reviewed, extended and/or refined targets. The BBAP has been an effective way of promoting, protecting and enhancing biodiversity in the borough with widespread community involvement and has achieved a great deal for biodiversity, including practical projects with many different partners and many well attended public walks, talks and events aimed at a wide range of age groups, interests and socio-economic groups.



Why does Bromley need a new Biodiversity Plan?

Despite much work since the Rio Summit in 1992, targets to halt global biodiversity decline by 2010 were missed. In the UK patterns of loss for some habitats and species have slowed or reversed, but a general decline in the quality and variety of England's natural environment has continued.

The Lawton Report, Making Space for Nature (Lawton, 2010), summarised what needs to be done in England to halt and reverse biodiversity losses in four words: '*more, bigger, better and joined*'.

This call for a larger network with **more** areas rich in wildlife, **bigger** sites, **better** managed sites, and more **inter-connected** sites was recognised in the Natural Environment White Paper, '*The Natural Choice: securing the value of nature*' (2011).

Table I: Biodiversity Policies and Strategies

<p>National Policies</p>	<p>National Environment and Rural Communities Act 2006</p> <p>Wildlife and Countryside Act 1981 as amended by the CROW Act 2000</p> <p>The National Planning Policy Framework 2012 : Section 11: Conserving and enhancing the natural environment & Planning Practice Guidance 2014</p> <p>Biodiversity 2020: A strategy for England’s wildlife and ecosystem services</p> <p>A Simple Guide to Delivering Biodiversity 2020 and Progress Update. July 2014</p> <p>The Natural Environment White Paper 2011</p> <p>ODPM Circular 06/2005. Biodiversity and Geological Conservation- statutory obligations and their impact within the Planning System</p> <p>The National Pollinator Strategy: for bees and other pollinators in England 2014</p>
<p>Regional Policies</p>	<p>The London Plan 2011. Policy numbers: 2.18*, 7.8, 7.10, 7.16*, 7.17, 7.18, 7.19*, 7.20, 7.21*, 7.22, 7.24, 7.28, 7.30 Also of relevance to biodiversity are policies 1.1, 2.1, 3.2*, 3.5, 3.6, 3.19, 5.10, 5.11, 5.13, 7.1* * amended in REMA document (below)</p> <p>The London Plan Spatial Development Strategy for Greater London Revised Early Minor Alterations (REMA): to allow consistency with the National Planning Policy Framework October 2013. Policies: 2.18 (amend clauses B and F and supporting paragraph 2.87), 7.16 (paragraphs 7.55, 7.56), 7.19 (paragraph 7.60), 7.21 (amend clause C). Also of relevance to biodiversity are policies 3.2 (supporting paragraphs 3.9, 3.10A), 7.1 (paragraph 7.5)</p> <p>Connecting with London’s Nature: The Mayor’s Biodiversity Strategy 2002</p> <p>The Greater London Authority Act 1999 which states that that the Mayor of London’s Biodiversity Strategy is to ‘have regard to any plans relating to biodiversity prepared by a London borough council’.</p> <p>London Biodiversity Action Plan</p> <p>Connecting Londoners with trees and woodlands: A Tree and Woodland Framework for London 2005</p> <p>The All London Green Grid Supplementary Planning Guidance (SPG) 2012</p>
<p>Local Policies</p>	<p>UDP Policies: NE1, NE2, NE3, NE4, NE5, NE6, NE7, NE8, NE9, NE11, NE12 and ER10. Also of relevance to biodiversity are policies H7, BE7, BE14, G1, G2, G6, G7, G8, L3, L5, EMP6, ER16 and ER17</p> <p>Draft Local Plan Policies: 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 8.12, 8.13, 8.18, 8.19, 8.25, 8.38, and 10.9. Also of relevance to biodiversity are policies 5.2, 8.14, 8.15, 8.16, 8.23, 8.24, 8.26, 8.28 and 8.32</p> <p>UDP Policies current at time of going to press will be replaced by Policies in the Local Plan (currently in draft form).</p>

Although much has been achieved for biodiversity in Bromley, some species and habitat were lost between 1999 and 2010. A great deal still needs to be done to halt and reverse biodiversity decline and fulfil the outcomes in England’s biodiversity strategy (see Biodiversity 2020: A strategy for England’s wildlife and ecosystem services).

In order to follow these new strategies and new legislation in a time of declining budgets, it was felt that a change in biodiversity action planning was needed in Bromley.

The Bromley Biodiversity Plan 2015 – 2020

The new Bromley Biodiversity Plan (BBP) translates national and regional strategies, priorities and targets into local action on the ground (see Table 1).

The Bromley Biodiversity Plan is critical to the delivery of LBB’s biodiversity duty as outlined in the Natural Environment and Rural Communities Act (NERC) 2006, section 40 of which requires that *‘Every public body 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’*.

Habitats and species in the Bromley Biodiversity Plan are a material consideration in the determination of planning applications.

In order to fulfil amended biodiversity outcomes in a time of diminished budgets the format of the Bromley Biodiversity Plan has been modified and the scope for partnership working widened.

The Bromley Biodiversity Plan will provide background and guidance for those in the position to improve and enhance the borough’s natural assets.

The new Bromley Biodiversity Plan has been written by members of Bromley Biodiversity Partnership: a partnership of organisations and groups led by the London Borough of Bromley. Working in partnership helps more to be achieved for biodiversity within the borough with limited resources. A list of partners can be found in Table 2.

The Bromley Biodiversity Partnership recommends the following principals for the management of the borough’s biodiversity:

General Principals for Biodiversity Management in Bromley

- Maintain, enhance and restore Sites of Importance for Nature Conservation (SINCs) and other green spaces for biodiversity.
- Follow existing site Management Plans, updating as necessary.

- For sites lacking appropriate Management Plans, follow generic management guidance for Land Managers, Friends and Volunteers, and Schools (**Appendices E, G and H**).
- Safeguard Bromley's protected, rare or threatened species and monitor all wildlife in the borough to inform appropriate management and planning practices. (**Section 4 and Appendix C**)
- Promote a landscape scale approach to biodiversity management through partnership working and the planning system.
- Promote wildlife corridors between existing habitats, for example along rivers (Rivers Ravensbourne, River Cray and their tributaries) and walking routes (London LOOP, Green Chain).
- Protect, enhance and promote the public's access to nature for example through environmental education and walks, talks and events.

The following sections of the plan list the habitats and species of note in the borough, along with detailed guidance for land managers, planners and developers, Friends groups, volunteers and schools on how best to maintain and enhance them for the benefit of the borough.

Table II: Bromley Biodiversity Partnership List of Partners

Name of Organisation
Bromley Countryside Volunteers
Bromley Friends Forum of Parks and Green Spaces
Bromley Friends of the Earth
Bromley RSPB
City of London Corporation
Downe Scout Activity Centre
English Heritage Trust (formerly English Heritage)
Forestry Commission
Friends of Bromley Town Parks and Gardens
Friends of Darrick and Newstead Woods
Friends of High Elms Country Park
Friends of Jubilee Country Park
Friends of Kelsey Park
Friends of Keston Common
Friends of Scadbury Park
Holwood Trust
Kent Mammal Group
Kent Wildlife Trust
London Borough of Bromley
London Reptile and Amphibian Group
London Wildlife Trust
National Trust
Orpington Bee Keepers
Orpington Field Club
Thames 21
The Landscape Group
Trustees of Chislehurst Common
West Kent Badger Group



3. Habitats in Bromley

3.1 WOODLAND

Woodlands are an important element in the natural environment of the Borough. They provide an essential habitat for wildlife and a valuable component of the landscape. They also provide opportunities for recreation and employment, contribute to the supply of wood and fuel, and help reduce the effects of a changing climate. Many of Bromley's woodlands are 'ancient woodland' (that which has been in existence since at least 1600); they are described as 'semi-natural' because they received past management and are the most important woodland habitats for wildlife, sometimes containing species of national rarity. The soil in these woodlands is of prime importance because although the trees were regularly harvested, the ground was relatively undisturbed for hundreds of years and therefore supports a very complex community of interdependent organisms including fungi, very many tiny animals and plants. Many of them are not found away from this habitat and support special invertebrates.



The majority of Bromley's woods are comprised of broad-leaved species, although some coniferous plantations do exist. The Great Storm of 1987 had a widespread impact on trees and woodlands throughout the Borough, shaping the landscape and bringing benefits, including a profusion of deadwood habitat. Public support for protecting woodlands has never been higher since the Government launched proposals in 2011 to change the way the public forest estate might be managed. This led to the Independent Panel on Forestry and the Government Forestry Policy statement 2013 to protect, improve and expand woodlands.

1. Area and Distribution

The UK is one of the least wooded countries in Europe, with 3.1 million hectares (ha) of woodland representing 13% of the total land area, of which only 1.2% is classified as ancient semi natural woodland. 44% of these woodlands are certified woodlands and have been independently audited against UKWAS, the UK Woodland Assurance Standard (Forestry Statistics published by Forestry Commission, 2013).

Broadleaved, mixed and yew woodland is estimated at covering 18038 acres (7300ha) or 4.5% of Greater London and may include ancient semi-natural woodland, new plantations, carr (wet woodland), secondary woodland and mature scrub. The range of vegetation found in London's woodland is influenced by soil type and climate. Seven key types of woodland and scrub are identified in the London Biodiversity Plan (2000). Bromley is fortunate in containing around one third of London's ancient woodlands. Nearly a quarter of Bromley's Green Belt is wooded.

The estimated total of wet woodland in the UK is 70 000ha. In Bromley, narrow strips of wet woodland or 'carr' exist mainly along rivers retaining semi-natural features, where the soil remains waterlogged for much of the year, for example at High Broom Wood, Scadbury Park Nature Reserve and Ravensbourne Open Space. Wet woodland has a dense structure with fallen trees, difficult ground conditions and therefore is more difficult for the public to enjoy. The clearance of river embankments

and the loss of natural landform have led to a reduction in the abundance of wet woodland (carr). The species composition of wet woodland communities is dependent on high humidity and high water levels. They are threatened by changes in water regime, succession to drier habitat, poor water quality, including toxic water pollutants, traditional clearance of ponds to prevent succession and drainage works to improve public access.

Coppiced woodlands are common in the area and provide many opportunities for wildlife when actively managed. Up until the 20th Century, they were some of the most productive of Bromley's broad-leaved woodland, where coppice stools were cut on a regular rotation to near ground level so the shoots would regrow to provide long straight poles. Commonly the coppiced trees were sweet chestnut and hazel but sometimes included ash, hornbeam, alder, beech, field maple, birch and oak. 3% (17 ha) are sweet chestnut coppice coupes. Sweet chestnut coppice was traditionally harvested for hop poles, and is still used for post and rail fencing which provides an important habitat for lichen and moss species. Coppiced hazel is used for hedgelaying. There are many examples of coppiced woodland in Bromley, including Padmall Wood and Well Wood.

Pollarding of trees e.g. hornbeam, is another traditional method of management, which comprises the regular cutting of the branches back to the trunk of the tree, at a height of about 1 to 1.5m above ground level. This was usually done on a regular cycle of about 15 years.

2. Historical Management

'Wildwood' covered Britain after the Ice Age. A changing climate and human interference has developed the wooded landscape we see today. Undoubtedly there has been significant, accelerated loss in recent centuries, however when given the opportunity woodland will develop relatively quickly.

Many of Bromley's woodlands have ancient origins, being remnants of old landscapes. Other woodlands were created or adapted to satisfy the formal landscaping desired by large estates or houses on the outskirts of London (e.g. High Elms and South Hill Wood). These are often characterised by large ornamental trees such as Cedars or Planes. Some commercial coniferous plantations exist and these mostly date from just after the First World War when developing a strategic reserve of timber was a national priority of the Forestry Commission although some are more recent (e.g. Ruxley Woods). These conifers often replaced broadleaved woodland and the woodland floor and banks can retain the original ground flora, which can sometimes recover when the conifers are felled.

New woodland grows up alongside railways and trees regenerate on cleared land through natural succession. Some areas of chalk grassland have become scrubbed over since the last World War; these new secondary woodlands are often dominated by ash and maple (including Norway maple and sycamore). They now make a significant impact upon the Borough's landscape. In other areas, where acidic soils on sands and gravels dominate, the secondary woodland comprises birch and oak.

Increased threats from pests and diseases both imported on plants and arriving in the UK due to changes in the climate are likely to bring about a shift in the species composition of woodland and put some species in isolated woodlands at particular risk. The designation of 9142 acres (3700ha) of woodland as Sites of Metropolitan Importance in London, indicates the high wildlife value and regard in which woodland is held.

3. Current Status

Several woods are of particularly high wildlife interest and designated as Sites of Special Scientific Interest by Natural England (e.g. High Elms, Crofton Woods). Many others are designated as Local Nature Reserves (e.g. Scadbury Park, Darrick & Newstead Woods) or Sites of Importance for Nature Conservation (e.g. Well Wood).

Many woodland sites are covered by Tree Preservation Orders. Felling licence regulations provide the Forestry Commission with some control.

It could be argued that woodlands are better protected than a number of other habitats, through felling licences and the planning system. However, secondary woodland remains the most susceptible to loss. The natural and cultural heritage associated with woodlands means that their loss generates significant interest from people. Their popularity is evident where trees or woodland are perceived to be threatened, even when sympathetic conservation management is taking place.

Demand for woodland products has always had a major influence on the nature and management of woodland. During the Second World War many of the woodlands in Bromley were systematically worked for any usable timber to create a strategic timber reserve. The Timber Price Indices (Forestry Commission 2014) show that after a long period of decline there has been an overall increase in average prices for coniferous timber over the past 10 years. This presents an opportunity for thinning and coppicing in woodlands not only improving biodiversity, but also generating revenue through timber sales to invest back into future woodland management. There remains a need for woodland owners to plan for and manage woodlands in the long-term. Landowners are strongly encouraged to deliver multi-forestry objectives influenced by national policy, grant funding and forest certification.

3.1 Policies

The Government forestry policy is set out in Defra's and Forestry Commission England's forestry and woodland policy statement (2013). It sets out clear priorities for future policy-making, focused on protecting, improving and expanding our public and private woodlands. It also incorporates the Government's Response to the Independent Panel on Forestry's Final Report. This follows the public outcry after the government launched proposals in 2011 to change the way the public forest estate might be managed. Public response strongly demonstrated the importance and value placed on woodlands for the benefit of people, nature and the economy. The English Woodland Grant Scheme (EWGS) has until recently run two funding

streams, the Woodland Improvement Grant (WIG) and the Woodfuel Grant Scheme (WGS), which supported the sustainable production of woodfuel and other timber products. These will now be incorporated into the new Countryside Stewardship scheme with Natural England. There are also small grants specific to London for community projects and street tree projects – The London RELEAF Grant.

3.2 Factors Affecting the Habitat

Adverse Factors

- a) Fragmentation of woodland, leaving isolated remnants.
- b) Inappropriate management, e.g. poor timing of forestry operations.
- c) Lack of active management
- d) Loss of woodland to development or conversion of wood and scrub to other land uses.
- e) Disturbance or compression of woodland soils by heavy machinery.
- f) Replacement with non-native trees.
- g) Planting bulbs etc. rather than waiting for natural regeneration.
- h) Invasion of non-native species (eg. rhododendron, sycamore, Norway maple, cherry laurel).
- i) Illegal picking of fungi and flora.
- j) A changing climate.
- k) Tree pests and diseases e.g. Ash dieback (*Chalara fraxinea*), Oak Processionary Moth (OPM), Acute Oak Decline
- l) Grazing and browsing damage (eg. deer, squirrels) including encroachment of livestock.
- m) Dumping, vandalism and arson.
- n) Loss of deadwood through felling and 'tidying-up'
- o) Lack of money, resources and desire to manage woodlands.
- p) Pollution from traffic, industry, agricultural chemicals affecting ground flora and epiphytes.
- q) Overuse and unofficial paths leading to soil erosion and loss of ground flora.

Positive Factors

- r) Public support for woodlands.
- s) Desire for more trees and new woodland planting and better woodland management.
- t) Sympathetic recreational opportunities.
- u) Increased demand for domestic woodfuel from sustainable sources.
- v) Increase in average timber and woodfuel prices.

4. Future Management

Aims:

- To protect and enhance Bromley's woodlands and link together wherever possible to improve biodiversity.
- Promote access, information and quiet enjoyment of woodlands.

Objectives:

1. Continue to maintain and enhance woodlands as per Management Plans. For woodlands without a specific Management Plan follow generic woodland plan for Land Managers and/or Friends and Volunteers.
2. For London Borough of Bromley owned woodlands follow UKWAS guidelines to meet targets agreed and funded by the Forestry Commission or when woodland management is funded by Higher Level Stewardship, follow Natural England guidelines.
3. Survey and monitor woodlands and use data to inform management.
4. Work with partners and the planning system to link woodlands wherever possible providing a corridor for movement of wildlife between sites and bringing the countryside into urban areas to improve access to nature for people.
5. Promote woodlands through walks, talks and events e.g. bat walks, wildflower walks, surveying etc.

5. Woodland Management Guidelines

The majority of woodlands in the Borough are privately owned. Few are managed purely for their commercial value. Most are managed on an estate woodland basis, although some are small farm woodlands.

Good woodland management will protect and enhance woodlands and help to fulfil the aims and objectives of the Bromley Biodiversity Plan.

For detailed woodland management guidance, see

Appendix E: Best Practise Guidelines for Land Managers.

6. Key Species (not exclusive)

Flagship Species:

Flora: Trees e.g. alder, ash, aspen*, beech, field maple, hazel, hornbeam*, pedunculate oak, sessile oak*, small-leaved lime*, wild service tree*. Ground flora e.g. bluebell*(native), early-purple orchid*, goldilocks buttercup*, moschatel* opposite-leaved golden-saxifrage*, ramsons*, wood anemone*, wood melick*, wood sorrel*, yellow archangel*, yellow bird's-nest*. Ferns: hard fern*, hart's-tongue*. *Semi-natural ancient woodland indicator species for SE England (Rose, F. 2006)

Epiphytes: mosses, liverworts and lichens.

Standing and fallen deadwood and ancient trees.

Fungi

Fauna. Invertebrates: speckled wood and silver-washed fritillary butterflies, stag beetle.

Birds: great spotted woodpecker, green woodpecker, lesser spotted woodpecker, marsh tit, nuthatch, song thrush, spotted flycatcher, tawny owl, tree creeper, willow tit.

Mammals: badgers, bats, hazel dormouse, yellow-necked mouse.

Negative Indicators: cherry laurel, hybrid bluebell, Japanese knotweed, Norway maple, Portugal laurel, rhododendron, snowberry, Spanish bluebell, spotted laurel, sycamore, variegated yellow archangel.

Case Study: Crofton Woods

Crofton Woods is a site in Petts Wood. It was notified as a Site of Special Scientific Interest in 1975 as it contains extensive areas of ancient woodland on London Clay and is amongst the largest woods of its kind in Greater London.

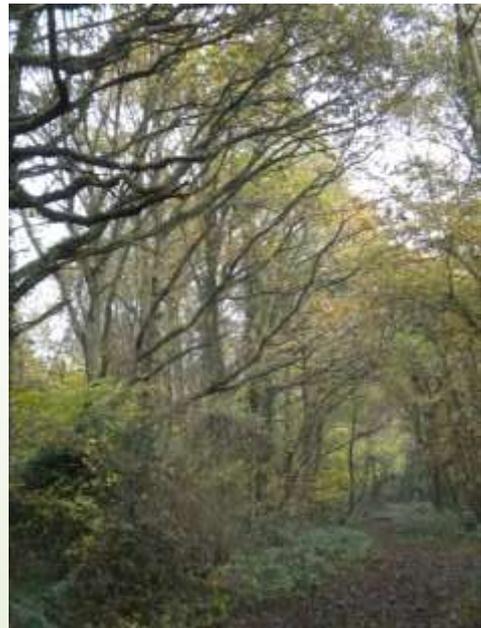
Part of the site is owned by the London Borough of Bromley and part is in private ownership. The site has received some funding for works through a Woodland Improvement Grant from the Forestry Commission.

Crofton Woods is a remnant of a much larger area and includes wet alder carr, mature oak forest with hazel coppice, as well as areas of secondary woodland and woodland pasture. Over 300 species of vascular plants have been recorded in the woodlands, including ancient woodland indicator species such as bluebell, wood anemone and wild garlic.

The SSSI is currently in favourable condition. Challenges at this site include encroachment by non-native species such as Rhododendron and limited access. There are also issues surrounding public engagement; the site can suffer from anti-social behaviour such as vandalism and fly-tipping.

Since 2011, the Bromley Countryside Volunteers have reintroduced a hazel coppice regime to the woodland, and have improved visitor access through footpath enhancements.

Future management objectives include improving site interpretation and developing links with the community to combat anti-social behaviour. The woodland habitat would benefit from a long-term approach to management of the high forest, with areas thinned and coppiced on long term rotation and with investment in sensitive site infrastructure for timber extraction.



7. Responsible bodies

All woodland owners, Bromley Biodiversity Partnership, City of London Corporation, Forestry Commission, Friends Groups, Greater London Authority, English Heritage Trust, The Guide Association, Holwood Trust, Kent Wildlife Trust, London Biodiversity Partnership, The Landscape Group, London Borough of Bromley, London Wildlife Trust, National Trust, Natural England, Orpington Field Club, The Scout Association, Trees for Cities, Trustees of Chislehurst Common, Woodcraft Folk, Woodland Trust.

3.2 ANCIENT TREES

Ancient trees are important as part of our cultural and historical landscape and are valuable for a wide variety of wildlife. A tree may be considered to be ancient when it is in the last third of its life. An ancient tree can also continue for many years in a moribund or dead state, serving as the host to a number of rare organisms. They are important for many organisms that inhabit dead wood, such as beetles, spiders and other invertebrates. Small mammals, bats and birds often use the holes and slits in trunks and boughs for nesting and roosting. These trees are also important for: lichens (where air is reasonably unpolluted); climbing plants, such as ivy and honeysuckle, fungi and mosses, all of which themselves may host a number of associated invertebrates including beetles and flies. The greatest threat to the future of ancient trees is misunderstanding, resulting in the cutting down of 'non-perfect' trees.



1. Area and Distribution

Britain is considered to have more ancient trees than most of the rest of Europe because the practice of pollarding trees and the establishment of deer parks was less common elsewhere. Ancient trees can be found almost anywhere in the country, in parkland, pasture woodland, old hedgerows, wooded commons, ancient woodland, as marker trees for parish boundaries, along roads and trackways, in gardens and churchyards.

Ancient trees are widely distributed across Bromley. Being the largest Borough with a large proportion of countryside, Bromley has a large number of ancient trees, though not necessarily in the equivalent densities as other London Boroughs. Comprehensive records of the locations of these trees are not yet available, highlighting the need for further survey work. Orpington and the countryside near Chelsfield have some impressive walnut trees, for example in Cockmannings Lane. There is a line of old limes behind Orpington High Street and there are large sweet chestnuts in gardens in Knoll Rise.

2. Historical Management

The term 'ancient trees' encompasses trees that are in their ancient or third and final stage of life, trees that are of interest biologically, culturally or aesthetically because of their age and trees that are old relative to others of the same species.

A veteran tree is usually in the second or mature phase of its life and has important wildlife and habitat features. A notable tree is a tree with the potential to become a next generation veteran or ancient tree.

It is amazing to think that in some places only 3 generations of trees would link back to the first tree colonists at the end of the Ice Age. People often greatly value ancient trees as landmarks and a characteristic part of the local landscape. They are direct connections to older landscapes and have survived as mementos. For example, ancient yew trees may mark sites of pagan or Christian worship, while the

remnants of the Wilberforce Oak' on the Keston Ridge and its connection with William Pitt, William Wilberforce and anti-slavery legislation provides a more recent example of the cultural relevance of ancient trees.

Many ancient trees are still around because of traditional management practises that have helped them to survive the centuries. Pollarding and coppicing are traditional methods of harvesting wood that allows trees to survive longer whilst still providing timber. These traditional management methods often had other purposes, for example, a line of pollarded trees might be used to mark property boundaries.

The large size of ancient trees and the frequently strange, contorted shapes into which they grow, fascinates people. It is in these ways, rather than their direct value for wildlife, that they have sometimes been most appreciated. Awareness of the importance of ancient trees for wildlife has become more widely recognised through high-profile sites such as Richmond Park and Windsor Great Park and national campaigns.

A long-lived tree, such as oak, provides a stable, long-term habitat for many animals, especially invertebrates. Greater effort has been placed in recent times into assessing the importance of the wildlife value of ancient trees. Difficulty arises in that many of the species that benefit from the presence of older trees are obscure and difficult to identify; many of the species do not appeal to most and surveyors are difficult to source.

Ancient trees are often removed as being dangerous or unsightly. In recent years, Natural England, conservation organisations, the Forestry Commission, and local authorities, including the City of London Corporation, have led the way in seeking a balanced approach to ancient tree management. Hazardous limbs rather than whole trees by footpaths have been removed, for example. More effort is being placed into uncovering the success of different management approaches and monitoring their associated species. The Veteran Trees Initiative - a national partnership between English Nature, National Trust, English Heritage, Countryside Commission, The Forestry Commission, The Ancient Tree Forum and the City of London Corporation – aims to promote the conservation of veteran (or ancient) trees wherever they occur to ensure their future continuity. The Bromley Oak, beside the Pavilion Leisure Centre, was highlighted as one of the 'Great Trees of London' in 1997. A leaflet was produced by the London Tree Forum to encourage the public to help find and watch-out for these trees.

3. Current Status

Since 1999, some effort has been placed into revealing the presence of many ancient trees within the Borough and over 50 ancient trees have been mapped,

On council-owned woodlands, conservation of ancient trees and standing dead wood is ensured through management plans with sympathetic management. Encouraging maiden trees has also been important.

Case Study: Darrick Wood Ancient Coppice & Pollards

Darrick and Newstead Woods is a Local Nature Reserve owned by the London Borough of Bromley. Darrick Wood is ancient woodland, managed continuously as woodland for more than 400 years. The woods contain many ancient features such as ditch and bank systems and pollarded trees.

Pollarding involves cutting trees at 1m high, which historically allowed timber to be harvested whilst protecting new growth from grazing animals.

Lines of pollarded trees were used to mark boundaries.

Some areas of Darrick wood were coppiced, a traditional form of woodland management where wood is harvested on rotation from the same coppice stool. Old coppice stools can grow very large; an old coppiced ash stool 2m in diameter may be 500 years old. In Darrick Wood there are several examples of ancient coppice stools and pollarded trees of oak and hornbeam. They are particularly valuable for wildlife because of the many nooks and crannies that can make ideal habitats.



3.1 Policies

Some ancient trees have Tree Preservation Orders (TPOs). The main purpose of TPOs is to protect trees of high amenity value. This designation enables some ancient trees that are also important for wildlife to enjoy protection and sympathetic management. Individual trees are protected as important parts of woodland or area TPOs.

Even if the tree itself is not protected, it may still have legal protection if it provides a home to another species, such as bats, which are protected under the Wildlife and Countryside Act (1981 as amended). See **Section 4: Protected Species**.

3.2 Factors Affecting Ancient Trees

Adverse Factors

- Removal of trees as unsightly or dangerous.
- Tarmac/concrete around the base can kill trees.
- Cutting roots when work is undertaken close to the tree.
- Loss through development.
- Neglect and inappropriate management.
- Lack of future-generation trees due to grazing, cutting and intensive landscaping.
- Removing deadwood which naturally collects around ancient trees.
- Footpaths and tracks very close to ancient trees leading to soil compaction and removal of limbs for health and safety.

Positive Factors

- Increased awareness of the value of ancient trees.
- Historical appreciation e.g. Bromley Oak

4. Future Management

Aims

- To protect Bromley's ancient trees and promote their historical and biological importance.

Objectives:

1. To survey and record the borough's ancient and veteran trees.
2. To encourage appropriate management of veteran trees.
3. To promote the importance and value of ancient trees through walks, talks and events.

5. Ancient Trees Management Guidelines

Many of the borough's ancient trees are privately owned. Good management practise will help to protect and preserve Bromley's ancient trees.

Ancient trees and the communities they support can obviously not be replaced easily or quickly. A combination of ancient tree conservation and encouraging the growth of the next generation of ancient trees is vital.

For advice about the management of ancient trees, see **Appendix D: Best Practise Guidelines for Land Managers**

6. Key Species (Not exclusive)

Flora: Ash, English Elm, hornbeam, pedunculate oak, sessile oak, sweet chestnut, yew, ferns, mosses, lichens.

Fungi.

Fauna: *Invertebrates:* beetles including stag beetles.

Birds and bats.

7. Responsible Bodies

Aboricultural organisations and contractors, Bromley Biodiversity Partnership, City of London Corporation, English Heritage, Forestry Commission, Friends Groups, Greater London Authority, Holwood Trust, Kent Wildlife Trust, London Biodiversity Partnership, The Landscape Group, London Borough of Bromley, London Wildlife Trust, National Trust, Natural England, Orpington Field Club, private landowners, Woodland Trust.

3.3 HEDGEROWS

A hedgerow is defined as a line or narrow belt of closely spaced woody shrubs, retained or managed to form a more or less continuous barrier. Hedges make a significant contribution to the Borough's landscape. Many of Bromley's hedgerows are rich in species and help provide links with other semi-natural habitats.

There is a wide variety of hedgerow types in Bromley reflecting differences in geology and a diverse history. They shape the pattern of Bromley's countryside and form a network of corridors for wildlife that must be protected.



1. Area & Distribution

It is estimated that 42% of British hedges (154 000km) are ancient and/or species rich. The majority are concentrated in southern England and southern Wales.

It is estimated that Bromley has approximately 400km of hedgerows in the Green Belt. Hedges occur in greatest profusion in the fields of the Downs and often enclose a network of ancient rights of way and rural sunken lanes. To the east of the Borough, particularly on the ridge between the Cray and the Darent Valleys, remnant field boundary systems persist as lines of old pollarded trees. An almost uninterrupted system of roadside hedges remains.

The Bromley Countryside Volunteers (formerly the Countryside Management Service) conducted a Hedgerow Survey of the Green Belt in 1995 and found the following patterns of distribution:

- *Elm hedges* – in the area to the east of St. Paul's Cray, elm constitutes over 90% of the species present.
- *Mixed hedges* – Found frequently on the Downs and on top of the ridge between the Cray and the Darent. Hedges made up of at least three of the following species: hawthorn, hazel, field maple, holly and blackthorn.
- *Hawthorn hedges* – Tend to occur where fields were reorganised in the 19th and 20th centuries.
- *Boundary hedges* – Found on old boundaries where tree species are particularly evident and often pollarded; examples are in Norsted valley and the boundary between Bromley and Crockenhill.

2. Historical Management

Since 1945 there has been a drastic loss of hedgerows throughout the UK through removal and neglect. The total length of hedge in England in 1984 was estimated at over 200,000 miles. Between 1984-90 two miles of hedge were grubbed-up for every one mile planted (Department of Environment, 1990).

However, the UK remains the most significant country in Europe for hedgerows. Of particular importance are ancient hedgerows (those which predate the period of the Enclosure Acts 1720 – 1840) and species rich hedgerows.

Bromley's hedgerows are rich in shrub and tree species; 34 species were identified in the 1995 Hedgerow Survey. The most diverse hedgerows are found in the downland areas, with an average of 9 species, compared with the Cray valley with 7 species and the Ridge between the Rivers Cray and Darent with 5 species. In the Downs it may be that as woodland was removed, strips or Shaws were left to form hedges; or saplings from the locality may have been uprooted and planted as hedgerows.

The 1995 survey revealed that the vast majority of hedgerows (85%) is connected either to other hedgerows or woodland. The high degree of connectivity in Bromley is favourable to wildlife movement. Hedges are thought to act as wildlife corridors for many species, including reptiles, amphibians, small mammals and bats. There are relatively few large gaps in hedges. Only 5% of hedges have gaps which form more than 40% of the hedge length. Over half the hedges have no (or only occasional) gaps. The optimum structure is seen as a tall, dense hedge with a broad base and with standard trees, which are particularly good for nesting birds. Bats and dormice prefer overgrown hedges, cut on a 2-3 year cycle. Ancient hedgerows tend to be those that support the greatest diversity of plants and animals. Banks, verges and ditches associated with hedgerows can further contribute to their wildlife value. Some historic hedgerows may still remain within existing urban areas.

Since 1945, traditional management has declined, primarily due to the change from mixed farming to arable, which does not require stock proofing. Decline in livestock has been particularly pronounced since the 1970s. This has led to gappy hedgerows and lack of continuity. There have been losses of hedgerows due to Dutch elm disease. The demand for land, the intensification of agriculture, high labour costs and loss of traditional skills, larger farm equipment needing larger fields, heavy snow fall, urbanisation and the expansion of the road network since the late 1800s have all contributed to hedgerow loss. This has been most pronounced on the ridge between the rivers Cray and Darent. Fewer hedgerows have been removed from the Downland areas.

The 1995 survey indicated that 40% of Bromley's hedgerows are unmanaged. In the short term this can often benefit wildlife, but where lack of management continues, gaps develop and hedges change into lines of trees, become useless for keeping in animals and are eventually removed. 56% of hedgerows are trimmed, clipped or flailed. This can eventually open up gaps in the lower part of the hedge. 2% of hedgerows are layed and 2% coppiced and although initially an apparently drastic approach, recolonisation is quick and longevity of a thick, dense and potentially diverse hedge is ensured.

Appropriate management has been encouraged by the fact that provision of grants for the removal of hedgerows has been replaced by incentives for their management and creation, (e.g. DEFRA Schemes). The 2004/5 linking of agricultural payments with appropriate timing of hedgerow trimming, the retention of field margins and the prevention of pesticides and fertilisers close to the base of hedgerows on arable land has benefitted hedgerow species. In other areas, trimming of hedgerows at inappropriate times of year remains a problem on some sites. Too frequent and badly timed cutting of hedges, leads to poor habitat conditions, the development of

gaps and probably species change. It also affects other species, such as nesting birds, insects, small mammals, reptiles and climbing plants.

Traditional management is costly and is aimed at hedgerows of high value. There has been an increase in interest in the traditional skill of hedgelaying, with examples being set by the Council at sites such as Scadbury Park (2013/14).

Lack of protection from the browsing effects of stock, including horses, continues to have a detrimental impact on hedgerows and their ground flora. Some landowners have begun to construct fence-lines away from hedgerows. It is particularly important to protect new hedges from grazing animals.

Increased use of rural lanes by vehicles has led to the undercutting and erosion of roadside hedgebanks. Banks become unstable, flora associated with the hedgerow bottoms is lost and exposure of root systems can lead to loss of woody species. Bromley Council has taken steps to protect hedgerow bottoms, by the installation of sympathetic wooden revetments.

Case Study: Hedgelaying at Bottom Barn Farm

Bottom Barn Farm is a privately-owned farm in the Cudham Valley. A right of way crosses through the farm, and is bordered by native hedgerows. As part of a Higher Level Stewardship agreement with Natural England, the farm received funding for hedgelaying alongside the footpath.

The hedgelaying work was done through a combination of the Bromley Countryside Volunteers and a private contractor. Layed hedges form a thick, bushy barrier, which reinforced the existing stock fencing. The hedgelaying also lowered the height of the hedge improving the footpath for walkers.

Hedgelaying is a traditional hedgerow management tradition, previously used as a way of stock-proofing grazing land. It is technically challenging, but when done correctly provides an attractive, effective barrier for stock, whilst also providing valuable wildlife habitat.

Small birds and mammals benefit from layed hedges as they provide nesting sites and protection from predators. The new growth attracts insects, which brings bats, which not only feed along hedgerows but use them for navigation. Layed hedges are thick at the base, and the grasses and wildflowers that grow alongside the hedge are extremely valuable to a wide variety of species.



3. Current Status

3.1 Policies

The UDP/Local Plan includes policies to encourage positive management of hedgerows, replacement of hedgerows and the planting of new ones (see **Introduction, Table I**).

The Hedgerow Regulations 1997 require owners to notify the local the UDP/Local Planning authority before removing any stretch of hedgerow which is more than 30 years old and over 20 metres in length, or under 20 metres in length and meeting another hedgerow at each end. Owners who fail to do this will be guilty of an offence. Important hedgerows are assessed according to criteria in the Regulations.

3.2 Factors Affecting the Habitat

Adverse factors

- Lack of management.
- Too frequent and badly timed cutting of hedges.
- Overstocking leading to over-browsing of hedgerows or hedgerow ground flora.
- Landowners are sometimes reluctant to gap up existing hedgerows or create new hedgerows due to cost of plants and protective shelters/fencing.
- Increased use of rural lanes by vehicles leading to undercutting and erosion of roadside hedgebanks.
- The use of pesticides (herbicides & insecticides) and fertilisers at the base of hedgerows.
- The cost of management favouring a mechanical approach.
- Road widening and dumping of plantings on to hedgerow banks.
- Loss of hedgerow trees through senescence and felling, without replacements being made.
- Loss of hedgerows through development and landscaping works, including around gardens.

Positive factors

- An increase in interest in the traditional skill of hedgelaying.
- An increase in native hedgerow planting for wildlife.

4. Future Management

Aims:

- to protect and enhance Bromley's hedgerows.
- Promote their wildlife and heritage value and encourage hedgerow restoration

Objectives:

1. Continue to maintain and enhance existing hedgerows as per Management Plans. For hedgerows on sites without a specific management plan, follow generic hedgerow management guidance in Appendix E.
2. Promote the planting of new hedgerows using native hedge plants of local provenance.
3. Survey and monitor hedgerows and use data to inform management.
4. Promote hedgerows through walks, talks and events.

5. Hedgerow Management Guidelines

Landowners are responsible for the management of hedgerows on their land. Good hedgerow management will protect and enhance this habitat and help to fulfil the aims and objectives of the Bromley Biodiversity Plan.

For detailed hedgerow management guidance see
Appendix E: Best Practise Guidelines for Land Managers

6. Key Species (not exclusive)

Flagship Species

Flora: bluebell (native), butcher's-broom, common hawthorn, dog's mercury, English elm (mature), field maple, guelder-rose, goldilocks buttercup, greater stitchwort, hazel, honeysuckle, primrose, spindle, traveller's-joy, wood anemone, wood sorrel.

Ancient trees

Fauna. Invertebrates: gatekeeper butterfly, bees.

Amphibians and Reptiles: slow worm, toads.

Birds: bullfinch, dunnock, house sparrow, lesser whitethroat, linnet, song thrush, whitethroat, yellowhammer.

Small mammals: bats, hazel dormouse, hedgehog, shrews.

Negative indicators: cherry laurel, Japanese knotweed, aggressive arable weed species e.g. cleavers, docks and nettle, gaps in hedgerows, dead shrubs and trees, tarmac, litter.

Retrievables: Whole hedges, white-letter hairstreak.

7. Responsible Bodies

Allotment holders and local allotment groups/associations, Bromley Biodiversity Partnership, City of London Corporation, Department of Food and Rural Affairs, farmers and landowners, Friends Groups, garden associations, garden centres, Greater London Authority, Historic England, Kent Wildlife Trust, London Biodiversity Partnership, London Borough of Bromley, London Wildlife Trust, National Trust, Natural England, Orpington Field Club, Woodland Trust.

3.4 GRASSLANDS

Chalk, Neutral and Acid



The common link between these grasslands is that they are 'unimproved', so supporting a rich variety of less common grasses and broad-leaved herbs. All survive due to sensitive cutting or grazing, which prevents trees and shrubs from colonising. They differ in that they occur on different soils with varying pH and mineral balances, but all soils are nutrient poor.

Chalk grasslands develop on shallow, lime-rich soils, derived in Bromley from chalk bedrock. They contain an exceptional diversity of wild flowers and other plants, many of which are restricted to lime-rich soils. Consequently the invertebrate fauna is also very rich. Downe Bank, a Kent Wildlife Trust nature reserve, is internationally known for its association with Charles Darwin.

Species-rich neutral grasslands, unaffected by agricultural improvement, are rare and threatened in the UK. These grasslands are mainly managed as hay meadows or pasture and are colourful because they contain a high proportion of broad-leaved herbs relative to grasses. In Bromley, they tend to be found on soils over London Clay or clay with flints in pockets of small fields with hedgerows.

Acid grassland occurs on nutrient poor, generally free draining soil. It is characterised by fine-leaved grasses such as common bent and fescues, with typical herbs such as sheep's sorrel, tormentil and hedge bedstraw. In Bromley they are generally found on the gravels and sands of the Blackheath Pebble Beds and Woolwich Beds. In the UK lowlands, acid grasslands are now rare and those of Bromley are limited in extent and much fragmented. Acid grassland tends to be restricted to open areas of the remaining commons, sometimes associated with lowland heath and mire communities.

1. Area & Distribution

Chalk:

Bromley supports around 227 acres (92ha) of chalk grassland, nearly a third of Greater London's resource (London Biodiversity Partnership 2000). Although Bromley's chalk grassland is important in the London context, it is less so when compared to Kent's which contains around 5% of the UK's resource.

The majority of existing chalk grassland in Bromley is restricted to the dry valley sides of the North Downs, south of a line drawn east/west through Farnborough. Outliers occur in the Green Belt to the east of the Borough, as far north as Goddington Park.

Bromley's chalk grasslands support a number of nationally rare species. Many of these are continental in their distribution and only occur in Britain in the extreme

south-east (notably on the North Downs) where climatic conditions closely approach those of mainland Europe. The Greater London area also harbours some of the eastern-most populations of rare species with a more Atlantic tendency.

Case Study: High Elms Orchid Bank (Chalk Grassland)

The orchid bank at High Elms Country Park (owned by the London Borough of Bromley) contains 9 species of orchid. It is a remnant of chalk grassland habitat within a predominantly woodland site. The bank is managed under a Higher Level Stewardship agreement with Natural England and is part of the Downe Bank and High Elms SSSI. The bank suffers from scrub encroachment, predominantly birch and



snowberry (which was originally introduced to the estate to the estate as game cover). It is currently managed through a co mechanical cutting, scrub and tree clearance and sheep grazing.

Besides wild flowers, the bank is home to notable invertebrate species such as silver-washed fritillary, glow-worm, and Roman snail. Future management for the orchid bank includes connecting the site with other nearby grassland areas and tackling scrub encroachment through the introduction of spring

grazing. This will require careful management and monitoring in order to protect the existing orchid population.

Neutral:

The UK has an estimated 15,000ha of species-rich, neutral grassland. Although neutral grasslands are relatively common in Bromley, unimproved species-rich neutral grasslands are particularly rare, especially those of damper soils. These grassland types are also considered to be of county importance in Kent. The accurate area of neutral grassland in Bromley remains to be determined.

Good quality neutral grassland can be found in very few areas, notable amongst these are Jubilee Country Park, High Elms Country Park, Holwood, and Belmont Meadow in Chislehurst. Some churchyards contain fragments of neutral grassland. Some of the fields at Ravensbourne Open Space are good examples of wet neutral grassland.

Acid:

Little information is available about the extent of acid grassland in lowland Britain, but it is likely to be rare at an estimated 30,000 ha. Acid grassland is widespread in London, occurring in 26 of the London Boroughs and estimated at 1300 ha. However, it is likely to be under-recognised due to the difficulty in locating examples.

Acid grassland in Bromley tends to be fragmented but Bromley supports a significant proportion of London's acid grassland, which is an important reservoir of rare or scarce species. The accurate area of acid grassland in Bromley remains to be determined.

Acid grassland in Bromley tends to be strongly associated with the Blackheath Pebble Beds in the central and northern parts of the Borough. Hayes, Keston, Farnborough, Chislehurst and St. Paul's Cray Commons all have areas of acid grassland, as do open spaces such as Sundridge Golf Course. Other examples may be found at Hoblingwell Recreation Ground, St Nicholas Churchyard in Chislehurst and verges in Keston Park Estate.

Case Study: Martin's Hill (Acid Grassland)

Martin's Hill is an urban park in Bromley town centre (owned by the London Borough of Bromley). It contains a mixture of amenity grassland & secondary woodland whilst retaining remnants of acid grassland meadow.

The area also supports typical heathland shrub species such as gorse and broom, after which Bromley is named.

The acid grassland areas are currently managed under a Higher Level Stewardship agreement with Natural England. Scrub encroachment is controlled through the use of local volunteers and the Friends of Bromley Town Parks and Gardens.

Grass is cut and cleared mechanically once a year. The grassland contains species such as sheep's sorrel, mouse-ear hawkweed, buck's horn plantain and common stork's bill.

On-going work is needed to balance the protection of the acid grassland species with the needs and requirements of the site as a local amenity.



2. Historical Management

Between 1930 and 1984 semi-natural lowland grassland decreased by an estimated 98% in England (Natural England survey report 2013).

Chalk:

There is no comprehensive data concerning rates of chalk grassland loss nationally or locally. However, the ploughing of land for arable use, 'improvement' of swards through the sowing of high-yielding pasture grasses, afforestation and the increase in the use of pesticides and fertilisers over the last 100 years have all taken their toll on the North Downs. Since the demise of sheep pasturing and the decline of the rabbit after myxomatosis, much grassland succumbed to invasion by scrub then

woodland (the process of natural succession). Rabbit numbers have once again increased. The most common management approach is to produce a mosaic of different habitats so as to support as wide a range of species as possible. Coordinated grazing of important chalk downland sites in the valleys either side of Cudham plateau over the last 10 years has greatly improved the connectivity and appropriate management of grasslands. Some sites are managed with specific species in mind; for example, efforts are being made to promote horseshoe vetch at West Kent Golf Course for the small blue butterfly.

Neutral:

The extent and quality of unimproved neutral grasslands in Bromley have no doubt shown a similar decline. As with chalk grassland, loss of habitat through development; heavy grazing by horses; re-seeding, pesticides and fertiliser use; scrub and woodland encroachment are likely to have had significant impacts on Bromley's unimproved neutral grasslands.

Acid:

Lowland acid grassland is declining in extent nationally. It is likely that the habitat has declined greatly with the loss of open healthy habitat on the various commons in Bromley, as traditional management practices were abandoned. The LBP suggest that this grassland type suffers from lack of clear identity and low image and therefore is vulnerable to damage. The majority of the resource is also subject to heavy amenity use.

There has been a limited amount of progress in generating interest in grassland amongst the public nationally; highest profile has been given to chalk grasslands. The majority of the public, including landowners, are likely to be unaware of the key differences between grassland types and their significance. As such, sites supporting these grasslands are likely to be managed with little understanding of the requirements of the plant species they support. Management, including grazing, is extremely influential in determining the range of species which predominate within a sward. The value of woody scrub and uncut vegetation for species, including for butterflies and reptiles, is not always appreciated.

Though not as diverse as unimproved grassland, semi-improved grasslands can provide important habitat for a number of invertebrates and can provide important corridors for species moving between sites of greater interest.

Grazing in urban-fringe areas has declined for a number of reasons, amongst these are lack of profitability, distance to slaughter houses, vandalism, theft and animal health issues. The small and often isolated areas of semi-natural grassland can deter contract graziers.

3. Current Status

The Council, sympathetic landowners and groups, such as Kent Wildlife Trust and London Wildlife Trust, now manage the majority of important chalk grassland sites for their nature conservation value (eg. Salt Box Hill). Kent Wildlife Trust owns

Downe Bank, of great inspiration to Charles Darwin; the Council owns most of the remainder of the Downe Bank and High Elms Site of Special Scientific Interest. Relict chalk grassland communities have been found at Goddington Park and Glentrammon Recreation Ground.

Management includes scrub clearance, grass cutting, baling and grazing. Beyond these, only a small handful of sites have the potential to support good quality chalk grassland; scrub removal and grazing with nature conservation in mind has been implemented in some areas.

Significant areas of scrub have been removed from a number of chalk downland sites over many years. Arable reversion areas have included Bottom Barn Farm, Charmwood Farm, Hang Grove and fields off Cockmannings Lane and Avalon Road.

With the help of local fundraising, the Woodland Trust purchased Blackbush Shaw in 1997, including a small but important area of chalk grassland. In 1999, London Wildlife Trust purchased 7 hectares of chalk grassland and woodland at Salt Box Hill, with the help of the public and sponsors.

There is regular monitoring of plants (e.g. orchids) and butterflies on some key sites, usually as species lists. Student projects have been undertaken. Glow-worm surveys are also undertaken on selected sites.

Approximately 53 hectares of Bromley-owned grassland meadows are currently managed through Higher Level Stewardship schemes with Natural England.

Case Study: Jubilee Country Park (Neutral Grassland)



Jubilee Country Park is a Local Nature Reserve between Petts Wood and Bickley owned by the London Borough of Bromley. It contains 8 neutral grassland meadows, currently managed under a Higher Level Stewardship agreement with Natural England. The meadows were historically grazed pasture, with some areas being included as part of the former West Kent Golf Course in the early 1900s and other areas utilised for a gun emplacement during the second world war. The site is seasonally wet, due to its underlying geology of London Clay.

The site has been a country park since 1978 and was declared a Local Nature Reserve (LNR) in 1996, in part due to the dominant population of the locally scarce corky-fruited water-dropwort.

Current management consists of an annual cut and take of the grassland, with a rotating 20% of each meadow left uncut each year. Regular local surveys are undertaken by the Friends group and Orpington Field Club, and consistently find a wide variety of plants including chicory, devil's-bit scabious and betony and many invertebrates including large, small and Essex skippers.

3.1 Policies

There are two SSSIs in the Borough notified for their chalk grassland communities; Downe Bank and High Elms SSSI (also a LNR) and Saltbox Hill SSSI. A number of other chalk grassland sites are SINCs and have some protection under the UDP/Local Plan. Others currently have no protection.

Significant areas of neutral grassland fall under Council ownership; meadows in Ravensbourne Open Space forms part of Hayes and Keston Common SSSI. Scadbury Country Park and Jubilee Country Park have been declared Local Nature Reserves and are managed for nature conservation; they are also designated as SINCs.

Keston Common and a small area of Hayes Common have been designated as SSSIs for their acid grasslands. Significant fragments of acid grassland are found on Hayes Common, Sundridge Golf Course, Hoblingwell Wood and Chislehurst and St. Paul's Cray Commons - areas all designated as SINCs.

3.2 Factors Affecting Habitat

Adverse Factors

- Loss of habitat through lack of traditional management, especially grazing, causing encroachment by rank grasses, scrub and trees.
- Over grazing by horses or change from hay cutting to spring and summer grazing.
- Fragmentation and isolation of remaining habitat.
- Damage to the habitat by ploughing and from inappropriate pesticide use, application of fertilisers or lime (on non-chalk grasslands), reseeding, over-cutting, irrigation, tree planting.
- Damage and erosion caused by increased recreational pressure (eg. thin turf of chalk and acid grassland).
- Pollution and a changing climate.
- Direct loss of habitat through development.
- Genetic variation of 'imported' seeds.
- Lack of awareness leading to inappropriate mowing of grass preventing development and seeding of wildflowers.

Positive factors

- Creation of new grasslands on arable land.
- Nationwide promotion of wildflower meadows to help pollinating insects
- Popularity and appreciation of orchid walks by the public.
- Funding from Higher Level Stewardship (HLS) schemes.
- Increased interest in wildflower gardening.

4. Future Management

Aims:

- To protect important grassland habitat and seek establishment and good management of semi-natural grasslands, including through the planning process.
- Promote areas of wildflower meadow habitat on all soil types.

Objectives:

1. Continue to maintain and enhance existing grassland habitat as per management plans. For sites without specific management plans, follow generic grassland plan in Appendix D.
2. For grasslands under Higher Level Stewardship agreements follow and meet targets agreed and funded by Natural England.
3. Survey and monitor grasslands and use data to inform management.
4. Promote grasslands through walks, talks and events.

5. Grassland Management Guidelines

Landowners and contractors are responsible for the management of grasslands in open spaces. Good grassland management will protect and enhance this habitat and help to fulfil the aims and objectives of the Bromley Biodiversity Plan.

For detailed hedgerow management guidance see:

Appendix E: Best Practise Guidelines for Land Managers

6. Key species (not exclusive)

Chalk grassland

Flagship Species

Flora. Autumn gentian, autumn lady's-tresses, carline thistle, chalk milkwort, common rock-rose, cowslip, fly orchid, fragrant orchid, greater knapweed, hairy violet, horseshoe vetch, kidney vetch, man orchid, pyramidal orchid, quaking grass, small scabious, sheep's fescue, wild basil, wild thyme, yellow-rattle, yellow-wort, mosses.

Fauna. Invertebrates: bees, chalkhill blue butterfly, dark green fritillary butterfly, glow-worm, hoverflies, narrow-bordered five-spot burnet moth, Roman snail, small blue butterfly, ant hills.

Amphibians and Reptiles: adder, common lizard, slow-worm.

Birds: barn owl, green woodpecker, house martin, kestrel, linnet, meadow pipit, skylark, song thrush.

Small mammals: field vole, harvest mouse.

Negative Indicators: cock's-foot, false oat-grass. Woody scrub.

Retrievables: horseshoe vetch, marbled white and small blue butterflies.

Neutral Grassland

Flagship Species & Retrievables

Flora: Adder's-tongue fern, bird's-foot-trefoil, common sorrel, common spotted-orchid, corky-fruited water-dropwort, cuckooflower, lesser stitchwort, pepper-saxifrage, ragged-robin, sneezewort, yellow-rattle, mosses.

Fauna. Invertebrates: bees, six-spot burnet moth, yellow meadow ant

Amphibians and Reptiles: slow worm

Birds: barn owl, green woodpecker, house martin, kestrel, linnet, meadow pipit, skylark, song thrush, swallows.

Small Mammals: field vole, harvest mouse, serotine bat.

Negative Indicators: coarse grasses and scrub.

Acid Grassland

Flagship species:

Flora: bird's-foot, blinks, heath bedstraw, sheep's sorrel, upright chickweed, wavy hair-grass, lichens e.g. *Cladonia* spp.

Fauna. Invertebrates: green hairstreak and small copper butterflies, solitary/burrowing bees and wasps, anthills.

Amphibians and Reptiles: adder, common lizard

Birds: barn owl, green woodpecker, house martin, kestrel, linnet, meadow pipit, skylark, song thrush, swallows.

Small Mammals: harvest mouse.

Negative indicators: birch and other trees, bracken, coarse grasses (high percentage of perennial rye grass).

Retrievables: All flagship species above.

7. Responsible bodies

Bromley Biodiversity Partnership, Chislehurst and St. Paul's Cray Common Conservators, City of London Corporation, Department of Food and Rural Affairs, Friends Groups, The Guide Association, Greater London Authority, Historic England, Holwood Trust, Kent Wildlife Trust, The Landscape Group, London Biodiversity Partnership, London Borough of Bromley, London Wildlife Trust, National Trust, Natural England, Orpington Field Club, The Scout Association, Woodland Trust.

3.5 LOWLAND HEATHLAND AND MIRE

Lowland heathland is usually found on acid, sandy free-draining soils that are nutrient poor. It is characterised by the presence of plants such as heather, purple bell heather, dwarf gorse and cross-leaved heath, and is generally found below 300m in altitude. Areas of good quality heathland consist of an ericaceous layer of varying heights and structures, some areas of scattered trees and scrub, areas of bare ground, gorse, wet heath, bogs and open water. Lowland Valley Mire develops above areas of impermeable clay soil. Bromley has one of only eight mires in the Greater London boundary and it is the most species rich. The habitat is also important for invertebrate and reptile species. Charles Darwin visited Keston Common especially to study sundew plants.



1. Area and Distribution

Over half the UK area of lowland heath is found in southern England; this represents 20% of the international total for this habitat. Only a small amount of heathland is found in Kent. Greater London has a total of only 80ha. In Bromley, the majority of this habitat can be found on Keston and Hayes Commons and St Pauls Cray Common, with small patches present on Chislehurst Common, West Wickham Common, Farnborough Common and Petts Wood. All these sites occur on Blackheath Pebble Beds. There is currently only an estimated 6 hectares of heathland remaining, although isolated patches are under woodland or where disturbance of the soil and gaps in the tree canopy coincide (e.g. bridleway margins). A valley mire of approximately 0.5 hectares survives on Keston Common. The restoration of small areas historically supporting heathland species and further linkage between existing relics of heathland over the period of the BBAPs has led to changes in heathland areas on individual sites.

Heathland in Bromley does not support the range of rare species found in larger tracts. However, many of the species present are regionally rare or notable, including those of the valley mire. Bromley has one of only six mires in the Greater London boundary, and is the most species rich, despite its size and long-term isolation. The varied topography and terrain of many heathland sites makes them especially attractive to a range of specialised invertebrates; local information is limited to Odonata.

2. Historical Management

Lowland heathland has largely developed through human exploitation over thousands of years. Because of this, it has significant historical as well as ecological importance. Heathland vegetation and fauna would have originally occurred in Britain's ancient wild wood in temporary glades on acidic, sandy or peaty soils, where fallen trees created clearings. Stone Age humans were the first to start clearing areas of woodlands where larger patches of heathland would develop. In

the Bronze Age there was considerable expansion of open ground and developments in farming, which resulted in larger heathland areas. Settlements at Hayes have been dated back to this period. Heathland areas continued to develop due to the clearance of trees for agricultural and timber, reaching a peak in the mid-18th century. Heathland areas were prevented from reverting back to mature woodland through grazing, and coppicing wood for fuel.

Lowland heathland began to decline with the industrialisation of Britain. In England, only one sixth of the heathland present in 1800 now remains. At the turn of the century, maps show much of Keston, Hayes and West Wickham Commons as open heathland; scattered trees were indicated on the margins of the commons in the 1930s. Heathland here has declined by over 90% in the last 100 years. A similar history can be traced for Chislehurst and St Paul's Cray Commons.

After World War I, pine plantations were established on large areas of lowland heathland. During the second world war, heathland was converted to farmland. Since the wars, the increased expansion of urban areas, and the need for sand and gravels for building have contributed to the huge reduction of heathland habitats. The remaining fragments of heathland continued to decline as grazing practises stopped, resulting in woodland encroachment.

In the last 20 years, efforts have been made on Bromley's commons to halt the spread of woodland on to the borough's remaining heathland fragments.

Greater promotion of the value and complex nature of this habitat has been undertaken nationally over the last few decades, for example through English Nature's Lowland Heathland Campaign. Significant progress had been made on a London-wide basis in sharing information, seeking funding and promoting heathlands, through the LBP's Heathland Working Group. Work to connect heathland fragments as part of the restoration process has been in progress at Hayes and Keston Commons and St. Paul's Cray Common.

In 2011 Hayes and Keston Commons (already part-SSSIs) were declared a Local Nature Reserve by the London Borough of Bromley.

3. Current Status

The small fragments of heathland which currently exist in London are more vulnerable to unsympathetic works. It is important to maintain the distribution of lowland heathland across its range in order to minimise the risk of species extinction. A number of these sites are particularly vulnerable to rubbish dumping and fires.

The LBP states that the gauges of habitat quality include the age-range of heather and kindred plants, the extent of important associated habitat components such as scrub and bare ground and their comparative species diversity.

Higher Level Stewardship funding for Hayes and Keston Commons has supported heathland restoration here since 2010. This is due to continue until 2020.

Case Study: Keston Bog (Valley Mire)



Keston Bog lies within Keston Common and is part of the Hayes and Keston SSSI owned by the London Borough of Bromley. The valley mire at Keston is the largest of the eight remaining bogs in Greater London and contains many species that are rare in the region.

For many years, Keston Bog was decreasing in size due to a combination of woodland encroachment and reduction of the local drainage area both contributing to decreased water availability. Several bog species were lost as a result, including round-leaved sundew, once studied by Darwin at Keston, which became extinct here in 1986. Recently, larger scale restoration works have been undertaken at the bog, supported by Natural England's Higher Level Stewardship funding since 2010. This has included drainage improvements and tree felling. Smaller scrub has been removed by volunteers including the Orpington Field Club and the Friends of Keston Common.

As a result of the restoration works, the bog flora has started to recover; sphagnum species, bog asphodel, common cottongrass and cross-leaved heath are increasing in extent. In 2014, the area was assessed as being in favourable condition by Natural England. Careful ongoing management is required in order to maintain the site's current status.



3.1 Policies

The majority of Bromley's heathland is under Council ownership. Keston Common and a small area of Hayes Common is a Site of Special Scientific Interest (SSSI). Other public heathland areas are West Wickham Common (City of London Corporation) and the Hawkwood Estate (National Trust). Greater recognition of the value of local heathland sites by highway and other statutory agencies would be beneficial.

3.2 Factors Affecting Habitat

Negative Factors

- Loss of habitat through lack of traditional management, especially grazing and cutting, causing encroachment by trees and scrub.
- Intensive or inappropriate management through regular mowing, fertiliser application or tree planting.
- Fragmentation and disturbance from development such as road construction.

- Nutrient enrichment (eutrophication), particularly deposition of nitrogen compounds emitted from car exhausts.
- Management constraints eg. stock availability, public access.
- Limited opportunity for expansion of habitat.
- Increasing recreational pressure and illegal parking.
- Management of water table and water quality.
- Arson and accidental fires.

Positive Factors

- Increasing awareness of heathland ecology amongst the public.
- Gradual extension of fringes of heathland through scrub and woodland clearance and re-establishment through re-seeding.
- Support for restoration from HLS funding

4. Future Management

Aims:

- To protect and enhance Bromley's heathland habitats.
- Continue to promote the importance of heathland and valley mire for wildlife and its historic importance for Darwin's studies at Keston and Hayes Commons.

Objectives:

1. Continue heathland restoration work at Hayes and Keston Commons,
2. To maintain and enhance existing or restored heathland areas, as per Management Plans. For heathland without a specific Management Plan, follow generic heathland management advice (**Appendix E**).
3. Survey and monitor heathlands and use data to inform management.
4. Promote heathlands through walks, talks and events e.g. bat walks, wildflower walks, surveying etc.
5. Work towards the reintroduction of traditional management methods such as grazing.

5. Heathland Management Guidelines

Good heathland management will protect and enhance Bromley's heathlands and help to fulfil the aims and objectives of the Bromley Biodiversity Plan.

For detailed heathland management guidelines, see **Appendix E: Best Practise Guidelines for Land Managers**

Case Study: Heathland Restoration at Hayes Common

The heathland at Hayes Common is part of the Hayes and Keston Local Nature Reserve, owned by the London Borough of Bromley. Part of the heathland is designated as SSSI. Since the 1930s, when open grazing on the common ceased, the heathland areas have been decreasing and secondary woodland has developed in its place. The reduction and fragmentation of the heathland habitat has resulted in 16 heathland species historically recorded on Hayes and Keston becoming locally extinct.



Restoration works have been undertaken on the heathland at Hayes since 2005/6. The restoration work occurs in four stages; (1) Clearance of trees and scrub. This needs to be done gradually and sensitively. (2) Soil scraping of the cleared areas. This removes the top layer of soil; without soil scraping, secondary woodland will continue to encroach. (3) Re-seeding with heather. (4) Scrub and bracken control. On restored heathland, ongoing management of heather, gorse and bracken is required. This was traditionally achieved by grazing. The works at Hayes Common in the last few years have increased the size of the existing heathland to approx 12 acres (5ha). Current restoration works aim to increase the area by another 12 acres (5ha) by 2020. The site supports a wide variety of species, including ling, bell heather and dwarf gorse and is an important reptile site. The dry heathland also supports an area of lichen heath containing 12 species of *Cladonia*.

6. Key Species (not exclusive)

Flagship Species

Flora: bell heather, bilberry, bog asphodel, bog-moss species, common cottongrass, common cow-wheat, cross-leaved heath, dwarf gorse, green-ribbed sedge, harebell, heath bedstraw, heather, heath rush, lichens e.g. *Cladonia* spp., lousewort, wild onion, wood sage. Heathland grasses such as fine-leaved sheep's fescue.

Fauna. Invertebrates: green tiger beetle, solitary bees & wasps.

Amphibians and Reptiles: adder, common lizard, slow worm

Birds: stonechat

Negative indicators: scrub encroachment- birch and other trees, excessive European gorse, bracken, coarse grasses (high percentage of perennial rye grass).

7. Responsible Bodies

Bromley Biodiversity Partnership, Chislehurst and St. Paul's Cray Common Conservators, City of London Corporation, Department of Food and Rural Affairs, Friends Groups, Greater London Authority, The Landscape Group, London Biodiversity Partnership, London Borough of Bromley, National Trust, Natural England, Orpington Field Club,

3.6 WETLAND

Wetland habitats in the Borough include ponds, lakes, rivers and ditches. A great variety of plants grow in wetland, ranging from floating plants in open water to marginal plants in marshy areas. The boundaries of wetland are often unclear, but blur into the wider landscape.. Determining factors on the range of species found include water level, flow and quality. Wetland is particularly important for amphibians, invertebrates and birds. Invertebrates are particularly indicative of habitat quality and type.



1. Area & Distribution

There are 450kms of rivers and streams, including the Thames, in Greater London. Bromley's main rivers, the Ravensbourne and Cray, rise from the chalk aquifer of the North Downs and run northward to the River Thames. There are 30kms of river courses, including tributaries, spread across the northern half of the Borough. The Ravensbourne originates at Keston and leaves the Borough near Shortlands; the Cray originates in Orpington and leaves the Borough via the lakes at Ruxley. Tributaries include the Beck and Kyd Brook. 200m of 'new' river have been created at Norman Park through the destruction of a culvert and the landscaping of a new channel. Enhancement has also been undertaken at Shaftesbury Park.

Ponds are found throughout the Borough. Their full extent is unknown as only a proportion are actually mapped. There are an estimated 250 mapped ponds and the majority are under private ownership. Ponds tend to be concentrated in the semi-natural areas of the Green Belt, in open spaces such as parks and golf courses, and also in private gardens. There are relatively few ponds on the chalk. Garden ponds are thought to make a significant contribution to the overall pond resource.

Ponds can be permanent or seasonal (filled with water during the wettest parts of the year only); both can provide important habitat. Existing data suggests that as many as 15% of mapped ponds may be seasonal. Ponds can be of varying size, between 1m² and 2ha, and are filled with water for at least four months of the year. Bromley is likely to be important in London for its pond resource as it has the remnants of historic estates and traditional landscapes.

Lakes are areas of water greater than 2 hectares in size. Lakes occupy around 24 hectares of the Borough. The most significant of these, Ruxley Lakes, were developed as a result of gravel extraction at Ruxley along the River Cray, and are now managed for angling and nature conservation. Ruxley Lakes are of national importance, particularly for birds, and are designated as a SSSI. Lakes tend to be located on the rivers. Other examples include the parkland lakes at Kelsey Park and Rookery Lake, which is privately owned. They can support a similar range of species to ponds, when management and fish stocking is not too intense. Once created, there is little threat of lakes being filled in. It is unlikely the lake resource in Bromley will increase significantly and therefore effort must be focussed on enhancing the quality of existing sites.

Transition zones, swamp & fen, valley mire, wet grassland and carr woodland all contribute to the overall wetland habitat.

Case Study: Kelsey Park Heronry

Kelsey Park is an urban park in Beckenham owned by the London Borough of Bromley. The River Beck flows through Kelsey Park and fills the park's lakes. The large areas of open water and the central island in the lake provide fantastic habitat for wetland birds and other bird species. Over 65 species of bird have been recorded in the park.



Photograph: Friends of Kelsey Park

Perhaps most importantly, Kelsey Park contains a breeding population of 25 pairs of Grey Herons, which nest every spring on the island in Kelsey Park lake. Such a large breeding heron population is rare, especially in Greater London. Other wetland bird species recorded include Kingfisher, Cormorants, Little Egret, Ringed Teal and several species of ducks and geese. Bats can be seen feeding over the water.

The Friends of Kelsey Park undertake a 'Heronwatch' each year, in order to monitor the breeding population and involve the public in this wetland spectacle. In 2008, the site received a grant from SITA for pond improvement works. This included reinforcing the banks with coir to stop erosion caused by other wildfowl. The banksides were also planted with emergent vegetation such as flag iris and spearwort. Trees have been planted on the island when needed, as without careful monitoring, the natural degeneration of the existing trees may decrease the value of the site for breeding.

2. Historical Management

Wetlands are dynamic systems and their status and condition is dependent upon water levels. Wetlands can be river fed, surface-water fed or groundwater fed. Historically, human activity has altered the hydrological conditions of wetland habitats through a variety of means, most significantly with the development of drainage and irrigation systems. In the UK, the industrial revolution led to a large increase in water pollution, caused by both human and industrial waste. Between 1830 and 1860, open sewage flowed directly into the river Thames and cholera was rife. Since the 1950s, improvements in water treatment works and restrictions on the disposal of industrial waste have improved water quality in freshwater systems. However, wetland habitat areas have been in decline due to urban expansion often directly on top of wetland areas such as floodplains.

Urbanisation has led to channel straightening, culverting and narrowing of natural river corridors so that few semi-natural features exist. Risk of flooding in populated

areas, prevalence of pollution and domination of flow regimes by run-off are all factors of concern. In their upper reaches, the rivers mostly follow a natural course and predominantly occur within rural, semi-natural situations. The fairly good water quality supports a variety of macro-invertebrate species, which are otherwise rare in south London, some of these are pollution sensitive. The rivers in these rural areas of Bromley will continue to support a good range of invertebrates if negative 'urbanising' effects and agricultural and amenity operations close to the edge of the system are limited. Opportunities for river corridor enhancement and restoration exist, but cost and impact on a landholdings limits progress. These networks help provide wildlife connections between otherwise isolated sites of nature conservation value.

The 1990 National Pond Survey stated that 65% of ponds were lost in Britain over the previous 100 years. The Lowland Ponds Survey 1996 suggested that 15,000 new, generally small (0.09 acres (<0.04ha)) ponds were created in the interim and an estimated 17,000 lost during the same period, particularly in arable and pastoral landscapes. There is an estimated continuing rate of loss of 1% per year. The amount of open water in Kent has doubled over the last thirty years, mainly as a result of reservoir building and the flooding of gravel pits; however, a significant decline in the number of ponds has occurred during this time too. In Bromley, a 1997 Council survey revealed that around a quarter of mapped ponds no longer exist on the ground. Infilling of ponds for the purposes of development, landscaping or cultivation is occurring.

The density of ponds and lakes can influence their relative value for wildlife. Close proximity of these 'stepping stones' in a 'pondscape' can assist colonisation, breeding and feeding of associated wetland species.

Of the London Boroughs, Bromley is one of the most highly valued for its great crested newt populations, a protected species. However, it is a species in decline across London and internationally. Amphibian surveys of over 100 ponds in 2002 and 2003 showed great crested newt populations to be small and vulnerable to change. Palmate newts are also found in the Borough; they are uncommon in Greater London. Ponds provide habitat for other amphibians, a number of invertebrates (including dragonflies and damselflies), bats, birds and plant species. These species rely on wetland habitats and their surroundings.

3. Current Status

Ruxley Gravel Pits are designated as a Site of Special Scientific Interest (SSSI), in addition much of the riverside habitat in the upper reaches of the Ravensbourne and Cray is designated as SINC. There are several other wetland SINC's in the borough including Priory Gardens Lake, Oakley Road Pond and Bassetts Pond. A number of ponds are important features within other SINC's. Scadbury Park, for example, has numerous ponds and is also a Local Nature Reserve.

Garden ponds are becoming an increasingly important part of the wetland resource; it is estimated that 1 in 10 gardens in London has a pond. Though becoming

increasingly popular, wildlife is not always a primary consideration. Intensive management of sites and a desire for: a high proportion of open water; unusual, exotic plants; keeping fish, remains the norm. These have a significant impact on the range of species found.

Wetlands in urban areas often suffer from recreational pressure, including intensive angling and excessive feeding of wildfowl, which also attracts rats.

A buffer zone around a wetland is an area of land that provides additional habitat for wetland species. It also helps to intercept the worst of agricultural or urban pollutants and shields the wetland from disturbance. Buffer zones have come under increasing pressure for other land uses, although now their importance is being recognised. In most cases adequate buffer zones are little considered. Wildlife corridors linking wetlands would help reduce the effects of fragmentation.

Collection of ecological data in rivers and ponds in urban areas and on privately owned land is often difficult, as the majority are not accessible and permission is often restricted, sometimes due to safety concerns.

Succession is occurring in still water bodies such as Ruxley Lakes, where woodland is developing on marshy areas. However, the mid-successional stage remains the most represented phase in the Borough, and the presence of a range of stages would not be detrimental to wildlife.

3.1 Policies

There is no direct protection for ponds. Sites may be protected indirectly if protected species, such as the great crested newt, occur. Planning permission is required for engineering operations and trees covered by TPOs around wetland.

The Government's policy for improving water quality follows the EU Water Framework Directive 2000.

The Environment Agency has a statutory responsibility to protect and manage some wetland and has the power to issue licences (e.g. abstraction, fishing), or to prosecute (eg. pollution). The role of the Environment Agency is published in the Environment Agency Corporate Plan 2014 – 2016.

3.2 Factors Affecting the Habitat

Adverse Factors

- Widely fluctuating annual rainfall led to drought conditions in the 1990s and flooding in the 2000s.
- Water abstraction from rivers
- Disturbance and damage of wetland habitat as a result of recreational use.
- Eutrophication and pollution (e.g. sewage contamination, dumping of rubbish, road run-off).

- The spread of invasive and non-native species, including *Crassula helmsii*, *Azolla filiculoides*, signal and Turkish crayfish and Canada geese.
- Viruses such as red leg disease of frogs and the *Phytophthora* disease of alder trees.
- Ecological succession.
- Filling in of ponds.
- Introduction of fish to wildlife ponds, use of ponds for ornamental fish.
- Fisheries: overuse of bait.
- Over-feeding of ducks.
- Flood lighting and lighting along river corridors (detrimental to insects, birds and bats).
- Discarded fishing lines (detrimental to birds and bats).
- Rubbish dumping.

Positive Factors

- Increasing range of dragonfly species.
- Creation of wetland habitats, including ponds, within gardens and on farmland.

Case Study: Ruxley Gravel Pits

Ruxley Gravel Pits is a Site of Special Scientific Interest along the River Cray managed partly by the Kent Wildlife Trust and partly as a private fishery. The site consists of four small gravel pits with patches of fen vegetation surrounded by a thin fringe of dry land. The River Cray flows through three of these pits while the fourth is fed by springs. The pits date from 1929 and with extraction ceasing in 1951, the pits have been colonised by an increasingly diverse range of plants and animals. Over 500 plant species have been recorded at Ruxley and it is an important site for birds, with over 53 breeding species on record, recently including Great Crested Grebe, Kingfisher, Reed Warbler and Garden Warbler. Water vole are also thought to be on site. There is a species-rich community of insects, with particular diversity within its dragonfly and beetle populations. The site is currently in favourable condition but at risk from environmental pollution from a neighbouring waste management site.



Photoaraph: Kent Wildlife Trust

4. Future Management

Aims:

- To protect and enhance Bromley's wetland habitat.
- To promote the importance of ponds and wetlands for wildlife.

Objectives:

1. Maintain existing ponds.
2. Seek out grant funding for the creation of new ponds and the restoration of badly silted ponds.
3. Survey and monitor wetland habitats and use data to inform management.
4. Promote wetlands through walks, talks and events.

5. Wetland Management Guidelines

Good wetland management will protect and enhance wetland habitats and help to fulfil the aims and objectives of the Bromley Biodiversity Plan.

For detailed wetland management guidelines for ponds, ditches and river banks see **Appendix E: Best Practise Guidelines for Land Managers**

6. Key species (not exclusive)

Flagship species

Flora: alder, common sedge (=black sedge), curled pondweed, ivy-leaved crowfoot, meadowsweet, nodding bur-marigold, purple-loosestrife.

Fauna: *Invertebrates:* dragonflies and damselflies, *Goera pilosa* (a caddisfly), *Nemurella picteti* (a stonefly), *Isoperla grammatica* (a stonefly)

Amphibians and Reptiles: frog, grass snake, great crested newt, palmate newt, smooth newt, toad

Fish: minor fish species e.g. stickleback, minnows

Birds: great crested grebe, grey wagtail, heron, kingfisher, little grebe, reed bunting, water rail.

Small mammals: Bats, water shrew, water voles.

Negative indicators

Flora: Canadian pondweed, curly waterweed, floating pennywort, Indian (=Himalayan) balsam, Japanese knotweed, New Zealand pigmyweed, parrot's-feather.

Fauna: brown rat, Chinese mitten crab, red-eared terrapin, signal and Turkish crayfish.

Other: pollution, algal blooms

Retrievables

Fauna: water shrew, water vole, minor fish species (e.g. eel, gudgeon).

7. Responsible bodies

Angling Clubs, Bromley Biodiversity Partnership, Bromley RSPB, City of London Corporation, Department of Food and Rural Affairs, English Heritage, Environment Agency, Friends Groups, Froglife, garden associations, garden centres, Greater London Authority, Holwood Trust, householders with ponds, Kent Mammal Group, Kent Reptile & Amphibian Group, The Landscape Group, London Biodiversity Partnership, London Borough of Bromley, London Water Vole Project, London Wildlife Trust, National Trust, Natural England, Orpington Field Club.

3.7 SCRUB

Scrub habitat and its biodiversity value are often overlooked. In the eyes of many, scrub is associated with derelict land and unmanaged habitats. However, scrub habitats are important to a wide variety of wildlife, providing nesting sites, food and protection to many birds and invertebrates, mammals, reptiles and amphibians, as well as supporting a diverse flora.



1. Area & Distribution

It is difficult to accurately assess the distribution of scrub as it is often a transitional and dynamic habitat, seen, for example, as grassland develops into woodland. In the UK, scrub only exists as the climax vegetation where there are extremes of climate or physical processes that halt succession; such as those on coastal dunes, eroding cliffs, or land exposed to strong winds, salt spray zones or cold temperatures.

Scrub in Bromley is generally in a transitional stage, and as such is common at woodland/grassland margins or on unmanaged or derelict sites, particularly those that have been previously cleared. Occasionally scrub can be considered as a habitat in its own right, such as a grassland shaw or a hedgerow. Scrub can also be an important part of a habitat mosaic, for example, scrub on grassland edges can provide protection for grass species intolerant of grazing.

Scrub boundaries can be difficult to measure, for obvious reasons. However most, if not all, of the SINC sites in the borough will contain areas of scrub. Within the London Borough of Bromley's Higher Level Stewardship agreements, approximately 4 hectares of land is funded for restoration or maintenance of scrub habitat.

2. Historical Management

Scrub communities have been present in the UK since the last ice age. Scrub replaced tundra as the climate warmed and before succession led to dominant woodland cover. Human settlement and development led to woodland clearances, and controlled grazing, leading to mobile scrub mosaics, as scrub would take over whenever human intervention changed or moved on.

During the 20th century, there was a large expansion of scrub between the World Wars when large areas of agricultural land were abandoned. This trend was reversed during the Second World War and in the following decades of agricultural intensification.

In the lowlands, changes in agricultural practices and the decline of chalk grassland and heathland grazing led to scrub colonisation on many sites. Likewise, scrub expansion occurred on wetlands as traditional management such as reed and turf cutting declined from the end of the 19th century.

At the turn of the 21st century, landscape-scale conservation projects aimed at restoring lost grassland and heathland habitats are likely to have reduced overall scrub coverage.

In these projects and in general habitat management, scrub has often been regarded as a problem, with little consideration given to its wildlife value. However, the importance of scrub communities is become increasingly recognised. The JNCC produced a report in 2000 on *The Nature Conservation Value of Scrub in Britain*.

3. Current Status

Although most if not all the borough's Sites of Scientific Interest and SINC's will contain scrub, no sites are designated primarily for their scrub habitats.

Scrub is often associated with unmanaged sites, for example derelict or unregistered land, and so can be seen by the public as untidy or a target for antisocial behaviour.

3.1 Policies

Some scrub habitat is included within the UK Biodiversity Action Plan, such as Mountain Heaths and Willow Scrub.

3.2 Factors Affecting the Habitat

Adverse Factors

- Direct loss of habitat – many development sites contain large areas of scrub.
- Lack of management
- Removal of scrub for the benefit of other habitats.
- Lack of protection - scrub is not directly listed in SSSI guidelines.
- Negative attitudes of the public towards 'untidy' habitat.

Positive Factors

- Increased interest in 'foraging' and often valued by local people for blackberry picking, collecting sloes, plums etc.
- Increased public interest in pollinators.

4. Future Management

Aim:

- To promote the importance of scrub for wildlife.

Objectives:

1. Maintain scrub habitat where possible and control habitat as required.
2. Manage woodland habitats to enable scrub edge habitats rather than abrupt changes of habitat.
3. Survey and monitor scrub and use data to inform management.
4. Promote the importance of scrub through wildlife walks, talks and events and educational activities.

5. Management Guidelines

Landowners are responsible for the management of scrub on their land. Good management will allow controlled scrub development.

For detailed scrub management guidance, see

Appendix E: Best Practise Guidelines for Land Managers.

Case Study: Jail Lane Orchard



Jail Lane Orchard is a small area of community woodland situated between Cudham and Biggin Hill owned by the London Borough of Bromley. It contains a wide range of planted and naturally-colonised tree and shrub species, including orchard varieties, thick blackthorn scrub and bramble margins. The area also incorporates grassy paths and small glades. Being an accessible green-space immediately alongside a footpath and providing an 80m 'green' road frontage, the site provides a gateway to rural land uses to the south of Jail Lane.

The site is now managed especially for the value of its scrub habitat, partly funded by a Higher Level Stewardship agreement from Natural England. Badgers and foxes have

both been recorded on site, dragonflies and butterflies such as meadow brown and speckled wood, many bird species too including wren, robin, blackbird, long-tailed tit, yellowhammer, chaffinch and song thrush. 18 Lichen species have been recorded on site.

6. Key Species (Not Exclusive)

Flora: Blackthorn, Bramble, Dogwood, Elder, European Gorse, Hawthorn, Hazel, Spindle, Willow,

Fauna. Invertebrates: Jersey Tiger Moth, Orange-Tip Butterfly, shield bugs, white admiral butterfly.

Amphibians and Reptiles: slow worm

Birds: bullfinch, house sparrow, lesser whitethroat, nightingale, whitethroat, wren.

Small Mammals: bank vole (and therefore predator species such as owls), hedgehog, slow worm.

7. Responsible Bodies

Allotment holders and local allotment groups/associations, Bromley Biodiversity Partnership, Bromley RSPB, City of London Corporation, English Heritage, Forestry Commission, Friends Groups, garden associations, Greater London Authority, Holwood Trust, Kent Reptile & Amphibian Group, Kent Wildlife Trust, London Biodiversity Partnership, London Borough of Bromley, The Landscape Group, London Wildlife Trust, National Trust, Natural England, Orpington Field Club, private landowners, Woodland Trust.

3.8 Gardens & Allotments



Gardens and allotments are oases of green space in our towns and cities and may contain remnant countryside. Together they form a mosaic of hedges, trees, shrubs and flowering plants that offer breeding sites, foraging areas and shelter for wildlife. To maintain viable species populations, links between areas are vital. Gardens and allotments can provide essential networks linking up otherwise isolated green spaces. Gardens and allotments also provide many individuals with their most frequent contact with nature. Managing our gardens and allotments with wildlife in mind helps connect where we live to the wider countryside.

1. Area and Distribution

In the UK, 84% of UK households have gardens. In London, there are an estimated 30 000 hectares of gardens; an amazing 20% of Greater London's land cover. Household gardens occur throughout Bromley but are of highest density in the urban areas. Larger gardens and those located in more rural areas near to nature conservation sites have the most potential for wildlife. Back alleys between rows of houses can form local 'green corridors'.

There are 52 allotment sites in Bromley, covering over 65 hectares. Most are distributed in central or northern parts of the borough, with one site, Biggin Hill Allotments, in the south.

2. Historical Management

The earliest gardens were created for practical reasons – to grow herbs and vegetables. As far back as ancient times, gardens have also appeared as decorative features.

The human involvement in gardening has meant that gardens have had an effect on the natural environment around them for thousands of years. When the Romans conquered Britain, they brought many non-native species from the Empire to the British Isles, including roses, apples and plums amongst many others.

In the Middle Ages, gardens were walled to protect them from grazing wild animals and for shelter. Monasteries often grew gardens of medicinal herbs and vegetables, as well as orchards and vineyards.

From the 1400s onwards, many large houses and estates would have formal gardens as well as kitchen gardens. The formal gardens would often be specially designed and contain popular features of the times such as topiary, follies or grottoes. In 1725, the Society of Gardeners was founded in England and the first public gardens appeared in London (visitors had to pay for entry).

During the 19th century, new plants were introduced into Europe by travellers and explorers returning to Britain. Estates were planted with non-native specimen trees such as those planted by the Lubbock family at the High Elms estate, many of which remain to this day. Other species introduced to large estates such as rhododendron,

cherry laurel and Japanese knotweed subsequently spread into the wider countryside.

Greenhouses were introduced for the first time in the 1800s, with the largest, the Crystal Palace, being built in 1851 in Hyde Park and later moved to what is now Crystal Palace Park in Bromley. With the growth of the middle classes in the 19th century, the number of private gardens started to increase as a feature of suburban villas.

In 1908, the Small Holdings and Allotments Act came into force. The Act placed a duty on local authorities to provide allotments based on demand. The Allotments Act of 1925 established statutory allotments which could not be sold off or converted without Ministerial consent.

The Dig for Victory campaign during the 1940s and post war rationing saw a rise in people taking up allotments. The number of private gardens has continued to increase in the 20th and 21st century, with 84% of UK households having one.

3. Current Status

Gardens and allotments often have great potential for increasing their biodiversity. There is generally an interest in wildlife amongst gardeners and allotment holders; however there may be a lack of understanding with regards to habitat management. Threats to wildlife in gardens and allotments include inappropriate management (e.g. clearing shrubs, levelling ground, inappropriate application of pesticides, herbicides and fungicides) often relating to a public expectation of tidiness.

The division of large gardens to provide several smaller housing plots (infill and back-land development) has caused considerable loss of habitat. It has been found that bird numbers and diversity in gardens decreases as resident density increases (i.e. when there is a reduction in garden size).

The public are becoming more aware of the fact that urban habitats provide more than refuges for wildlife; they also add to residents' quality of life, provide social, landscape and environmental benefits. Gardens and allotments enable close contact with wildlife and are possibly the best way of generating public interest in it. From a survey undertaken in 1998 'Do You Know about the Birds and the Bees', it was found that gardens are residents' favourite place to see wildlife.

Gardens and allotments provide: a restful and pleasant environment for people; keep city dwellers in contact with the seasonality of nature and sometimes provide an educational resource. Gardens and allotments, often green oases in built up areas, contribute to a localised cooling effect, improving air circulation and help to reduce water run-off, reducing the risk of flooding. Trees and shrubs act as living air filters, decreasing particulate pollution in the atmosphere,

3.1 Policies

Local authorities have a statutory obligation to provide allotments as a result of a succession of parliamentary acts starting with the Small Holdings and Allotments Act 1908 and most recently the Localism Act 2011.

No private gardens or allotments are currently registered as SINC, although one is proposed in the Proposed Changes to SINC included in the new Local Plan. Some open spaces in urban areas (such as allotments) have protection from many forms of built development under the Local Plan. Many allotment sites are under Council ownership.

Tree preservation orders help to protect thousands of trees outside of existing parks and nature reserves.

Case Study: Brook Lane Community Garden

Brook Lane Community Garden is a former allotment site in Plaistow owned by the London Borough of Bromley. It houses a community garden



which has been developed with local community groups including Nash College, Burnt Ash Lane Primary School, youth charity JusB and Brook Lane Community Church. As well as providing learning and volunteering opportunities for the local community, the garden serves as a wildlife refuge in a busy suburban area. As well as vegetable plots, and a small orchard, the site contains areas of

wildflower meadow and a wildlife pond with scrub boundary. The sites many helpers have helped to build a bug hotel and log pile, installed two hedgehog hibernation boxes, and planted or conserved wildlife-friendly plants such as buddleia and thistle along the boundaries.

Species recorded on site include; yellow wagtail, great spotted woodpecker, starling, a wide variety of invertebrates including brimstone, tortoiseshell and peacock butterflies, emperor dragonfly and broad-bodied chaser; the pond supports frogs, toads and common newts. In addition, a local wildlife rescue centre has used the site to release four rescued hedgehogs back into the wild.



3.2. Factors affecting the habitat

Negative factors

- Direct loss of habitat (e.g. redevelopment, replacement of traditional building materials)
- Inappropriate management and damage to habitat from pesticide and fertiliser application.

- Pollution (e.g. rubbish, accumulation of chemicals including salt, illegal dumping of waste materials.)
- Pressure and disturbance from people and pets.
- Intensive management regimes
- Intolerance of certain species in urban areas (e.g. foxes)

Positive Factors

- Better understanding of certain species inhabiting urban areas (e.g. badgers, stag beetles)
- Increasing popularity of habitat creation in urban areas, especially wildlife gardens.

4. Future Management

Aims: To promote the importance of gardens and allotments for wildlife.

Objectives:

1. Manage garden and allotment habitats to allow areas for wildlife such as hedgerows, scrub edges and native wildflowers.
2. Survey and monitor gardens and allotments and use data to inform management.
3. Promote the importance of gardens and allotments through walks, talks, events and educational activities.

5. Gardens and Allotments Management Guidelines

It is difficult to gauge the full extent of management, but many residents and allotments are actively encouraging wildlife to gardens.

Gardening with wildlife in mind helps to fulfill the aims and objectives of the Bromley Biodiversity Plan. For practical advice on managing gardens and allotments for wildlife see **Appendix E: Best Practise Guidelines for Land Managers** and **Appendix G: Best Practise Guidelines for Friends Groups and Volunteers**.

6. Key Species (Not exclusive)

Flora: native and non-native garden varieties of nectar-rich plants such as buddleia, lavender, marjoram, verbena, etc, 'wall plants' such as ivy, lichens, spleenworts. Hedge plants e.g. garden privet, bramble, native hedge plants

Fauna: *Invertebrates:* bees, butterflies e.g. comma, orange-tip, peacock, red admiral, small tortoiseshell and white butterflies, ladybirds, spiders, stag beetle.

Amphibians and Reptiles: common frog, common lizard, common toad, grass snake
great crested newt, palmate and smooth newts, slow worm
Birds: blackbird, blue tit, great tit, house sparrow, song thrush, starling
Mammals: badger, hedgehog, bumblebees, hedgehogs.

7. Responsible Bodies

Allotment holders and local allotment groups/associations, Bromley Biodiversity Partnership, contractors, developers, garden centres, gardeners, horticultural groups, private home owners and residents.

3.9 CHURCHYARDS AND CEMETERIES



The prime purpose of churchyards and cemeteries is for burial of the deceased and for remembrance. The needs of the families of those buried there must be of primary concern. However, churchyards and cemeteries contain a variety of wildlife habitats (church building, boundary wall and gravestones, grassland, trees and shrubs) supporting a large number of plants, animals and fungi and appropriate management can enhance this biodiversity. In urban areas these oases of 'countryside' provide places for quiet reflection and enjoyment of the wildlife they contain. The gravestones, in particular, are of supreme importance for lichens and bryophytes (mosses and liverworts); some churchyards have over 70 species of lichen and 30 species of bryophytes. The undisturbed grassland around the church building is often unimproved, the soil never having been exposed to fertilisers, pesticides or fungicides and can support internationally important fungi as well as uncommon moss and higher plant species. Boundary walls can support plants and ferns. Historical aspect of tombs, inscriptions etc. can also provide the starting point for local history or family history research.

1. Area & Distribution

It is, for the most part, the Church of England parish churches and their associated graveyards that provide the best opportunities for wildlife. Some of these are no longer available for burials and are 'closed' churchyards. Most churches of other denominations do not have associated graveyards, an exception being the Catholic church in Chislehurst. There are eight cemeteries which are owned by the borough.

2. Historical Management

Traditionally, churchyards were managed as meadows and after hay cutting they were grazed; usually by sheep. When grazing ceased, the management of grassland became more time consuming and expensive and little-used areas of graveyards often reverted to brambles, scrub and eventually woodland. Yew trees are a common site in ancient churchyards and are symbolic in Christian and Pagan traditions.

3. Current status

If the graveyards are still available for burials, management is carried out under the auspices of the Diocese of Rochester. There are 10 closed churchyards in the borough managed by the Landscape Group on behalf of LBB and there are 8 cemeteries, one, Beckenham, managed by Dignity UK; the other seven managed by the Landscape Group on behalf of LBB. One church (Holy Trinity, Beckenham) has a Friends Group and one church (St Nicholas, Chislehurst) has an active group which helps manage the churchyard. Four churchyards are SINCs: St Mary Hayes, St Martin Chelsfield, All Saints Orpington and Holy Trinity Bromley Common.

3.1. Policies

Faculties from the Chancellor of the Diocese are still needed for works to church buildings and gravestones even in 'closed' churchyards.

The Ministry of Justice has issued guidelines relating to the safety of memorials '**Managing the Safety of Burial Ground Memorials**' 2009 and these (and subsequent updates) should be followed by managers of graveyards.

3.2 Factors affecting the habitat

- a) Health and safety issues and repairs to the built structures and gravestones,
- b) Inappropriate mowing regimes.
- c) Overzealous tidiness.
- d) Inappropriate use of herbicides and algicides.

4. Future Management

Aim:

- To protect and enhance the wildlife value of churchyards and cemeteries in a way which is sympathetic to the prime purpose of these areas as burial grounds and places of remembrance.

Objectives

1. Encourage PCCs or Friends Groups to do surveys of the wildlife in their churchyard. Expert help can be given (contact LBB for details).
2. Survey to ascertain whether there is a bat roost in the church.
3. Maintain the flora (lichens, mosses and ferns) on stonework and enhance the habitat for these species by promoting the use of natural, unpolished stone for headstones
4. Maintain walls in good condition by the use of lime-based mortar
5. Maintain fungi-rich grassland by keeping lawns close-mown and free from herbicides and weed killers

5. Churchyards and Cemeteries Management Guidelines

For practical advice on biodiversity management in Churchyards and Cemeteries see **Appendix E: Best Practise Guidelines for Land Managers**

6. Key Species

Flora: Several churchyards in the Borough have 'special' plants – these include wall bedstraw (St Martin of Tours, Chelsfield), meadow saxifrage (St Nicholas, Chislehurst and St Mary the Virgin, Hayes), rue-leaved saxifrage (All Saints Orpington), and harebell (St Mary the Virgin, Hayes). Ferns, mosses, liverworts.

Fungi: waxcap fungi e.g. St. Giles Church, Farnborough, Lichens.

Fauna: Bats, bees, butterflies

7. Responsible Bodies

Bromley Biodiversity Partnership, Orpington Field Club, London Bat Group, London Borough of Bromley, Rochester Diocese; Parochial Church Councils. The Landscape Group

Case Study: All Saints Churchyard, Orpington.



All Saints Churchyard is a closed cemetery in the centre of Orpington owned by the diocese of Rochester and managed by the London Borough of Bromley. The principal interest of this churchyard lies in the flora of the tombs and the old walls. Rue-leaved saxifrage occurs at its only site in Bromley, with common whitlow-grass and dark mullein also found on the walls. The tombstones have an excellent lichen flora, with 60 species recorded, including several uncommon ones. The site lies on clay-with-flint soil and the neutral grassland between the graves supports a variety of common grasses and wild flowers. Shrubs and trees enhance the interest of the site, and several common butterflies have been noted. The bird fauna is diverse; spotted flycatcher has bred here in recent years.



4. Protected Species in Bromley

4. Protected Species in Bromley

The wealth and variety of habitats in the borough mean that Bromley boasts an impressive diversity of wildlife. It can be difficult to single out individual species for attention, as the survival of any given species is intricately linked with the many other species with which they share a habitat. However, some species are more at risk than others of being lost. Because of this, UK legislation and international convention or directives provide legal protection to many plants and animals.

Species Protection through Site Designation

Sites of Special Scientific Interest (SSSI). Designated by Natural England under the National Parks and Access to the Countryside Act (1949), amended under Wildlife and Countryside Act (1981) and CRoW Act (2000). This statutory designation of protected areas for nature conservation protects habitats from operations notified as potentially damaging, thereby protecting species within them.

Local Nature Reserves (LNRs) are designated by local authorities under the National Parks and Access to the Countryside Act (1949) and protect species through protection of their habitats under the planning system.

Sites of Importance for Nature Conservation (SINCs) are non-statutory wildlife sites identified and designated by the Greater London Authority (GLA) and are given some protection under the London Plan, in borough unitary development plans and local development frameworks.

Bromley currently has 92 Sites of Importance for Nature Conservation (SINCs) – see **Appendices A** and **B** for their names and distribution across the borough. There are 15 additional SINC sites proposed in the new Local Plan (under consultation at time of writing).

Wildlife Legislation

There are several pieces of legislation that give protection to species found in Bromley. The base of all legal wildlife protection in the UK is the **Wildlife and Countryside Act 1981**. This has been amended several times, most significantly by the **Countryside and Rights of Way Act 2000**. Other significant legislature includes the **European Union Directive on the Conservation of Wild Birds**, the **European Union Directive on the Conservation of Natural Habitats and Wild Fauna and Flora**, the **Protection of Badgers Act 1992** and the **Wild Mammals (Protection) Act 1996**.

In addition, the **NERC Act 2006**, section 41 states, The Secretary of State must [...] publish a list of the living organisms and types of habitat which [...] are of principal importance for the purpose of conserving biodiversity.

<http://www.legislation.gov.uk/ukpga/2006/16/section/41>

Throughout the wildlife legislation, certain species are mentioned by name as species requiring special protection.

Through amendments, reviews and subsequent Acts, the list of protected species is continually updated depending on individual species status. Not all of the species named in the legislation are present in Bromley. The following sections summarise the current named species that can be found in the borough.

4.1 Birds

4.2 Mammals

4.3 Reptiles, Amphibians & Fish

4.4 Invertebrates

4.5 Plants, Mosses, Fungi & Lichens

Priority Species in Bromley

As stated in the General Principles for Biodiversity Management (**Section 1: Introduction**), this plan aims to safeguard all species in the borough through appropriate habitat management and the planning process. In addition to the following protected species, **Appendix C** list further plant, fungi, bird and butterfly species of rare or threatened status that can be found in the borough.

All species in this section and **Appendix C** are considered priority species for Bromley. These species must be taken into special consideration with regards to land management or land use changes.

4.1 Birds

Under **Section 1 of the Wildlife and Countryside Act 1981** it is an offence to intentionally kill, injure or take (handle or remove) any wild bird (with the exception of a few pest species which may be controlled under licence), take or damage a nest whilst in use or being built, or take or destroy eggs. In addition some especially threatened species are named in the legislation; those present in Bromley are listed below. Further bird species with rare or threatened status in the borough are listed in **Appendix C**.

Species	Distribution	Typical Habitat & Factors Affecting Species	Level of Protection
Barn Owl <i>Tyto alba</i>	Rare and vulnerable in Greater London, some breeding populations in the east. In Bromley, Barn Owls have been recorded on sites in the south of the borough, within the Cudham & Downe valleys.	A bird of prey, Barn Owls feed on small mammals of rough grassland Factors Affecting Species: -loss of roosting and nesting sites e.g. through development of old agricultural buildings. -loss of semi-natural grassland habitat	Barn Owls are protected under Schedule 1 of the Wildlife and Countryside Act (as Amended) . It is an offence to take, injure or kill a Barn Owl, or to intentionally or recklessly disturb nesting pairs.
Fieldfare <i>Turdus pilaris</i>	Nationally numbers are low, although they are found throughout the UK. Distribution is widespread across the borough.	Fieldfare are large, colourful winter visitors that are seen in large flocks on open grassland and alongside hedgerows. They favour larger open spaces such as playing fields or arable fields. They feed on small insects, worms and winter berries. Factors Affecting Species: - changes in agricultural practice e.g.	Fieldfare are protected under Schedule 1 of the Wildlife and Countryside Act (as Amended) . It is an offence to take, injure or kill a Fieldfare, or to intentionally or recklessly disturb nesting pairs.

		winter crops -loss or fragmentation of habitat	
Firecrest <i>Regulus ignicapillus</i>	Only seen in Eastern and southern England, and a year-round resident only in the south-east. Rare & sporadic breeder in Greater London in outer boroughs. Very rare in Bromley, recorded at only a handful of sites including High Elms Country Park.	One of the UK's smallest birds, they can sometimes be seen within flocks of other small birds. Their preferred habitat is evergreen woodland. They eat small spiders and insects and other small items such as moths eggs. Factors Affecting Species: - severe winter weather - loss/fragmentation of habitat	The Firecrest is protected under Schedule 1 of the Wildlife and Countryside Act (as Amended) . It is an offence to take, injure or kill a Firecrest, or to intentionally or recklessly disturb nesting pairs.
Hobby <i>Falco subbuteo</i>	A summer resident only in the UK, Hobby's are widely distributed across England and south Wales. Rare in Greater London, but numbers are increasing in outer boroughs. In Bromley, sightings have been made in central and eastern areas, including Chislehurst/Hawkwood.	A bird of prey, the Hobby feeds on insects and small birds, hunting over woodland edges and heathland or open areas such as gravel pits. Factors Affecting Species: -loss/fragmentation of habitat - reforestation of open habitat such as heathland.	The Hobby is protected under Schedule 1 of the Wildlife and Countryside Act (as Amended) . It is an offence to take, injure or kill a Hobby, or to intentionally or recklessly disturb nesting pairs.
Kingfisher <i>Alcedo atthis</i>	Widespread in Greater London along cleaner sections of the Thames and tributaries. Found in catchment areas and along the rivers Kyd Brook, Cray,	Kingfishers are found by still or slow flowing water such as lakes or rivers. They may also visit larger garden ponds. They eat fish and aquatic insects. Kingfishers create burrows in which to	Kingfishers are protected under Schedule 1 of the Wildlife and Countryside Act (as Amended) . It is an offence to take, injure or kill a Kingfisher, or to intentionally or

	Ravensbourne and the Beck.	<p>nest in river banks. They breed in the spring and remain in the UK year round.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - severe winter weather - predation by cats and rats - contamination of food supply through pollution and agricultural run-off - disturbance - loss of habitat and suitable nest sites, especially through the mechanical grading of river banks. 	recklessly disturb nesting pairs.
<p>Redwing <i>Turdus iliacus</i></p>	Redwings are a winter visitor. They are widespread across the borough.	<p>Redwings are a winter visitor to the UK. They feed in on invertebrates, seeds and berries in back gardens and on open ground with hedges and scrub.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Loss and/or fragmentation of habitat - Changing climate - Loss of hedgerows and mature scrub that can provide food and shelter from predators 	Redwings are protected under Schedule 1 of the Wildlife and Countryside Act (as Amended) . It is an offence to take, injure or kill a Redwing, or to intentionally or recklessly disturb nesting pairs.

4.2 Mammals

Species	Distribution	Typical Habitat & Factors Affecting Species	Level of Protection
Bats (all species) <i>Chiroptera</i>	<p>Ten species of bat occur in Bromley, but only the Pipistrelle can be considered relatively common.</p> <p>Daubenton's bat (<i>Myotis daubentonii</i>)</p> <p>Whiskered, Brandt's and Alcahloe's bats (<i>Myotis mystacinus</i>, <i>M brandtii</i>, <i>M alcahloe</i>) Considered as one species.</p> <p>Natterer's Bat (<i>Myotis nattereri</i>)</p> <p>Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)</p> <p>Soprano Pipistrelle (<i>P. pygmaeus</i>)</p> <p>Nathusius Pipistrelle (<i>P. nathusii</i>)</p> <p>Serotine Bat (<i>Eptesicus serotinus</i>)</p> <p>Brown long-eared bat (<i>Plecotus auritus</i>)</p> <p>Noctule Bat (<i>Nyctalus noctula</i>)</p> <p>Leisler's bat (<i>Nyctalus leisleri</i>)</p>	<p>Bats are the only flying mammal; that and their complex lifestyle means that they rely on many types of habitat. Woodland, hedgerows, grassland, lowland heath and mire, wetland, churchyards and cemeteries and other urban habitats are all important.</p> <p>Factors Affecting Species <i>Adverse Factors</i></p> <ul style="list-style-type: none"> - Ignorance or intolerance of the public to bats can affect numbers, particularly if it leads to inappropriate building works, or in concealing the presence of bats. - Loss, damage and disturbance of summer roost sites. - Loss of feeding areas - Loss of navigation landmarks/commuting routes e.g. hedgerows. - Cat kills in suburban areas - Disturbance to foraging areas and flight paths through inappropriate lighting e.g. of water corridors. - Loss or disturbance of winter hibernation 	<p>All bats and their roosts are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and also under Annex IX of the EU Habitats and Species Directive. It is an offence intentionally or recklessly to damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection and for any person intentionally to kill, injure or take any wild bat.</p>

		<p>sites.</p> <p><i>Positive Factors</i></p> <ul style="list-style-type: none"> - Increasing awareness of bats and their protective status. - Increasing awareness of wildlife gardening for bats, including the use of bat boxes. 	
<p>Hazel Dormouse <i>Muscardinus avellanarius</i></p>	<p>Dormice are rare in Greater London; Bromley and Croydon are the only London boroughs with dormice colonies. Bromley has four sites in Farnborough, Downe, Cudham and Biggin Hill which are monitored as part of the National Dormouse Monitoring Scheme. Dormice have been found in survey tubes at several sites in the Downe and Cudham Valleys.</p>	<p>Dormice live in broadleaved woodland habitat, nesting in hollow trees, brambles or coppice stools. They are arboreal and rarely venture to the ground. They require 20ha of suitable woodland habitat to support a viable population. They require a diverse woodland structure and range of food plants more typical in semi-natural ancient woodland.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Loss or fragmentation of broadleaved woodland. - Inappropriate woodland management such as a decline in coppicing, intensive management or stock incursion into woodland. - Loss of hedgerows and other linear features, such as tree lines, removing essential links between small isolated woodland habitats. - Loss of suitable woodland habitat. - Under recording and incomplete knowledge of their distribution in Bromley. 	<p>Dormice are protected under Schedule 5 of the Wildlife and Countryside Act 1981 and Schedule 2 of the Conservation Regulations 1994 (Regulation 38), and Schedule 12 of the Countryside and Rights of Way Act 2000.</p> <p>It is an offence to intentionally or recklessly possess, injure, kill, obstruct or disturb the species' breeding site or resting place.</p>

<p>Hedgehog <i>Erinaceus europaeus</i></p>	<p>In London, hedgehogs were common and widespread in the urban fringe, including Bromley. But it is thought in the last 30 years that numbers have declined.</p>	<p>Hedgehogs are characteristic of suburban gardens, woodland edges, hedgerows and similar habitats. An individual hedgehog's home range is around 20 hectares.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Decline and loss of suitable habitat - lack of nesting sites and foraging areas due to insensitive habitat management (excessive tidiness) - increasing road traffic - presence of dogs - feeding of hedgehogs in gardens - use of slug pellets - direct hazards or barriers e.g. bonfires, high walls and fences. - steep-sided garden ponds 	<p>Hedgehogs are protected under Schedule 6 of the Wildlife and Countryside Act (as amended). It is an offence to kill or take hedgehogs by certain methods.</p>
<p>Shrews (all species)</p>	<p>Three species of shrew occur in Bromley; Pygmy Shrew (<i>Sorex minutus</i>), Water Shrew (<i>Neomys fodiens</i>), Common Shrew (<i>Sorex araneus</i>).</p>	<p>Shrews are typical of woodland and grassland habitats. Water shrews are found near water bodies such as rivers and valley mires.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - fragmentation of habitat - habitat loss - insecticides 	<p>Shrews are protected under Schedule 6 of the Wildlife and Countryside Act (as amended). It is an offence to kill or take shrews by certain methods.</p>

Water Vole
Arvicola terrestris

Water voles are rare in the borough but they have been recorded at one site in the Cray Valley.

Water voles occur along well vegetated banks of slow flowing rivers, ditches, dykes and lakes. They eat grasses and other waterside vegetation. Water voles excavate extensive burrow systems into the banks of waterways or within dense reed beds.

The water vole is protected under **Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)**.

Factors Affecting Species

- habitat loss
- predation by North American Mink

4.3 Amphibians and Reptiles

Species	Distribution	Typical Habitat & Factors Affecting Species	Level of Protection
Adder <i>Vipera berus</i>	<p>Only a few populations remain in London. They are known to be present at one site in Bromley.</p>	<p>Adders are restricted to specific habitats, including heathland, chalk grassland, scrub, woodland edges and rail and road embankments.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Loss of habitat - Lack of genetic diversity due to isolated populations - Persecution due to public misconceptions - Insensitive management e.g. intensive mowing, over-grazing, burning, intensive recreational use 	<p>Adders are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to kill or injure an adder and the sale or trade of adders is prohibited.</p>
Common Frog <i>Rana temporaria</i>	<p>The common frog is London's most widespread amphibian, but numbers are generally thought to be in decline. Common and widespread within Bromley.</p>	<p>Frogs can be found in a wide range of damp habitats across woodlands, wetlands, grasslands and many urban environments too, particularly gardens. Early stages of development are confined to water bodies. Adults can be wide ranging in surrounding habitat. Log piles or stone walls can provide protection to adults and contain food.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Tadpole predation from fish & newts - Adult predation by birds, reptiles and mammals. - Infectious disease such as red-leg. - use of fertilisers and pesticides in arable land & gardens. 	<p>Frogs are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) whereby they cannot be removed for sale.</p>

		- Infectious diseases such as Chytrid.	
Common lizard <i>Zootoca vivipara</i>	Common lizards are widespread in London, but concentrated in the outer boroughs. Generally widespread within Bromley.	Common lizards prefer open, dry, undisturbed habitats with good exposure to the sun such as chalk meadows, commons and railway and road embankments. Factors Affecting Species - lack of suitable basking sites - predation	Common (or Viviparous) lizards are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in regard to killing or injuring or taking for the purpose of sale only.
Common toad <i>Bufo bufo</i>	Less common than frogs across London. Generally widespread and common in Bromley.	Toads can be found in a wide range of habitats, and are more tolerant of dry conditions than frogs or newts. Unlike frogs, toads will co-exist with fish. Like frogs, early stages of development are confined to water bodies. Toads are loyal to their preferred breeding sites, and often follow migration routes to their spawning ponds each spring. Factors Affecting Species - Use of fertilisers and pesticides in arable land. - development along migration routes - Infectious diseases such as Chytrid.	Common toads are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) whereby they cannot be removed for sale.
Grass snake <i>Natrix natrix</i>	Grass snakes are widespread throughout London. They are found throughout Bromley, particularly within the Ravensbourne and Cray catchments.	Grass snakes often reside in open woodland and grassland, and are regularly encountered within or nearby water due to their diet of amphibians and fish. They require warm, composting vegetation for egg-laying, and so are sometimes seen in gardens and allotments. Factors Affecting Species - insensitive management e.g. intensive mowing, over-	Grass snakes are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in regard to killing, injuring or taking for sale or trade.

		<p>grazing, burning, intensive recreational use</p> <ul style="list-style-type: none"> - Isolated populations - persecution due to public misconceptions 	
<p>Great Crested Newt <i>Triturus cristatus</i></p>	<p>Although widespread in the UK, numbers of Great Crested Newts are declining hugely. It is more abundant in lowland England than elsewhere. Present in low numbers in Bromley, found in central and north-eastern areas of the borough.</p>	<p>Great Crested Newts have a preference for larger ponds, although will occasionally breed in smaller, garden ponds where they co-exist with smooth newts. Ideally, they require a network of ponds that can act as transitional ponds. They do not require permanent ponds, but they must hold water until at least August to allow successful metamorphosis of young. Adults spend a lot of time on land. They hibernate through the winter in log piles, for example.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Predation by fish and other animals. - fragmentation of habitat - use of pesticides and herbicides in agriculture - lack of rainfall & changing climate resulting in early drying out of seasonal ponds. 	<p>Great Crested Newts are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is an offence for any person to intentionally kill, injure or take a great crested newt or to intentionally or recklessly damage, destroy or obstruct access to any place that a Great Crested Newt uses for shelter or protection.</p>
<p>Palmate Newt <i>Lissotriton helveticus</i></p>	<p>Less common and less widespread in London than the smooth newt. Recorded at sites in central and northern Bromley.</p>	<p>Palmate newts have a greater tolerance for acidic ponds, so can be associated with woodland ponds, as well as heathland ponds. On land they are generally tolerant of dry conditions, and can range far from water.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Predation by fish - loss or destruction of habitat 	<p>Palmate newts are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) whereby their sale is prohibited.</p>

<p>Slow-worm <i>Anguis fragilis</i></p>	<p>The most common reptile in London. Widespread in Bromley.</p>	<p>Slow-worms are found in a variety of habitats including urban habitats such as road and rail embankments, wastelands, gardens and allotments as well as grassland and scrub.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Loss of habitat - Isolated populations - Persecution (mistaken for snakes) 	<p>Slow-worms are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) wherein is an offence to kill, injure or sell a slow-worm.</p>
<p>Smooth Newt <i>Triturus vulgaris</i></p>	<p>A widespread species in London. Common and widespread in Bromley.</p>	<p>Smooth newts are often found in garden ponds, although have a preference for small, fish-free ponds and ditches.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Predation by fish - loss or destruction of habitat 	<p>Smooth newts are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) wherein the sale of smooth newts is prohibited.</p>

4.4 Invertebrates

Butterfly species with rare or threatened status in the borough are listed in **Appendix C**.

Species	Distribution	Typical Habitat & Factors Affecting Species	Level of Protection
Chalkhill Blue <i>Lysandra coridon</i>	Still widespread in southern England but numbers have declined greatly. Recorded on one site in the Downe valley.	Characteristic of chalk and limestone hillsides. Factors Affecting Species - loss or fragmentation of habitat - changes in agricultural practices	Chalkhill Blue butterflies are protected by Schedule 5 of the Wildlife and Countryside Act (as amended) wherein their sale or other forms of trade are prohibited.
Purple Emperor <i>Apatura iris</i>	Rare, numbers in steady decline. Distribution in the UK limited to deciduous woodland in central southern England. In Bromley, it has been recorded at High Elms Country Park.	Typical habitat is mature broadleaved forests. Woodland rides and clearings are important for providing food sources. Caterpillars feed on sallows. Factors Affecting Species - loss or fragmentation of ancient woodland habitat - Records may be unreliable due to difficulties observing and identifying.	Purple Emperor Butterflies are protected by Schedule 5 of the Wildlife and Countryside Act (as amended) wherein their sale or other forms of trade are prohibited.
Roman Snail <i>Helix pomatia</i>	UK distribution is limited to central and southern England particularly along the North Downs and the Chilterns. In Bromley, Roman Snails have strong local populations in the	Roman snails are the largest land snail in the UK. They prefer lime-rich free-draining soils and inhabit open woodland, rough and tussocky grassland, hedge banks, chalk grasslands and quarries. Factors Affecting Species	Roman Snails are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) . It is an offence for any person to intentionally kill, injure or take possession of a roman snail and it is

	Cudham and Downe valleys.	<ul style="list-style-type: none"> - Also known as the 'edible snail', their numbers can be affected by illegal foraging. - loss and fragmentation of habitat. - over-grazing of open habitat. 	protected against sale.
Small Blue Butterfly <i>Cupido minimus</i>	Numbers are in decline across the UK, although distribution is widespread. Recorded on some chalk grassland sites in the south of the borough.	<p>The smallest butterfly in the UK, the small blue is typically found on chalk grassland habitats, as well as roadsides and railway embankments. Food plant is Kidney Vetch.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - loss of habitat 	Small blues are protected by Schedule 5 of the Wildlife and Countryside Act (as amended) wherein their sale or other forms of trade are prohibited.
Stag Beetle <i>Lucanus cervus</i>	Globally threatened. In the UK, stag beetles are no longer widespread, with populations concentrated in the south-east. In Bromley, stag beetles are still locally common, with highest recorded numbers in Beckenham. .	<p>Stag beetles are found in broad-leaved woodland, parks and many gardens in the borough. The stag beetle is Britain's largest beetle. The larvae live in the decaying wood of trees, such as roots & stumps or even rotting timber fence posts.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - Loss of sites through urban development, unsympathetic woodland management, and agriculture, 'tidiness'. - Removal of fallen timber and tree stumps. - substitution of wooden garden fence posts with concrete or metal. - Predation by cats, foxes, crows and 	Stag beetles are protected by Schedule 5 of the Wildlife and Countryside Act (as amended) whereby sale or trade is prohibited, and also under Annex II of the European Community Habitats Directive .

		<p>magpies</p> <ul style="list-style-type: none"> - Ignorance of the presence of stag beetles and larvae. 	
<p>White-letter hairstreak <i>Strymonidia w-album</i></p>	<p>Widespread within England, particularly central regions.</p>	<p>A woodland species of butterfly. White-letter hairstreak caterpillars feed exclusively on elm trees. Butterflies feed on woodland nectar sources such as honeydew, thistles and bramble.</p> <p>Factors Affecting Species</p> <ul style="list-style-type: none"> - drastic loss of food plant due to Dutch Elms Disease in the 1970s. 	<p>White-Letter Hairstreaks are protected by Schedule 5 of the Wildlife and Countryside Act (as amended) wherein their sale or other forms of trade are prohibited.</p>

4.5 Plants, Fungi, Lichens and Mosses

Under the **Wildlife and Countryside Act 1981** (as amended) it is an offence to intentionally or recklessly uproot **any wild plant** if you do not have permission from the owner or occupier of the piece of land in question.

Species	Distribution	Typical Habitat & Factors Affecting Species	Level of Protection
Greater Yellow Rattle <i>Rhinanthus serotinus</i>	Formerly widespread in the UK, now nationally rare, only found on the North Downs and mainly within Greater London. Local populations can be abundant.	Found in chalk grassland and open scrub on chalk soils. Factors Affecting Species - changes in agricultural practice	Greater Yellow Rattle is protected under Schedule 8 of the Wildlife and Countryside Act (as amended) . It is an offence to intentionally pick, collect seed, or possess for sale or trade.
Bluebell <i>Hyacinthoides non-scripta</i>	The UK contains more than half of the global bluebell population. Widespread in the UK and common in many areas.	Bluebells are found in shady woodland conditions, although can also grow along hedgerows, or in scrub or grassland. Bluebells are one of the indicators for ancient woodland habitat. Factors Affecting Species - loss or fragmentation of ancient woodland habitat - hybridisation with non-native bluebells - trampling - people picking or digging up bluebells	Bluebells are protected under Schedule 8 of the Wildlife and Countryside Act (as amended) whereby they are protected against selling, offering or advertising for sale, possessing or transporting for the purpose of sale.

Plants, Fungi, Lichens and Mosses of Local Importance

Few of the borough's plants, lichens and mosses are directly named in wildlife legislation. However, Bromley contains a great number of species that are of threatened status and are of either regional or national importance. The loss of these species from habitats within the borough would likely be an irreversible trend.

Plants

Appendix C lists rare and threatened plant species in Bromley.

Fungi

Appendix C lists rare and threatened fungi species in Bromley.

Lichens

Sites in the borough containing rare lichen species and of particular importance are the lichen heath at Hayes Common and the ancient trees at Holwood.

Mosses

There are some sites in the borough that are worthy of special care due to their variety of moss species:

- Downe Bank
- Hayes Common
- High Elms
- Holwood House & Estate
- Keston Common (including Keston Bog), which includes species rare in Kent.
- Leasons Wood
- Musk Orchid Bank
- Petts Wood
- Ruxley Gravel Pits
- Shaws Guide Site



6. Appendices

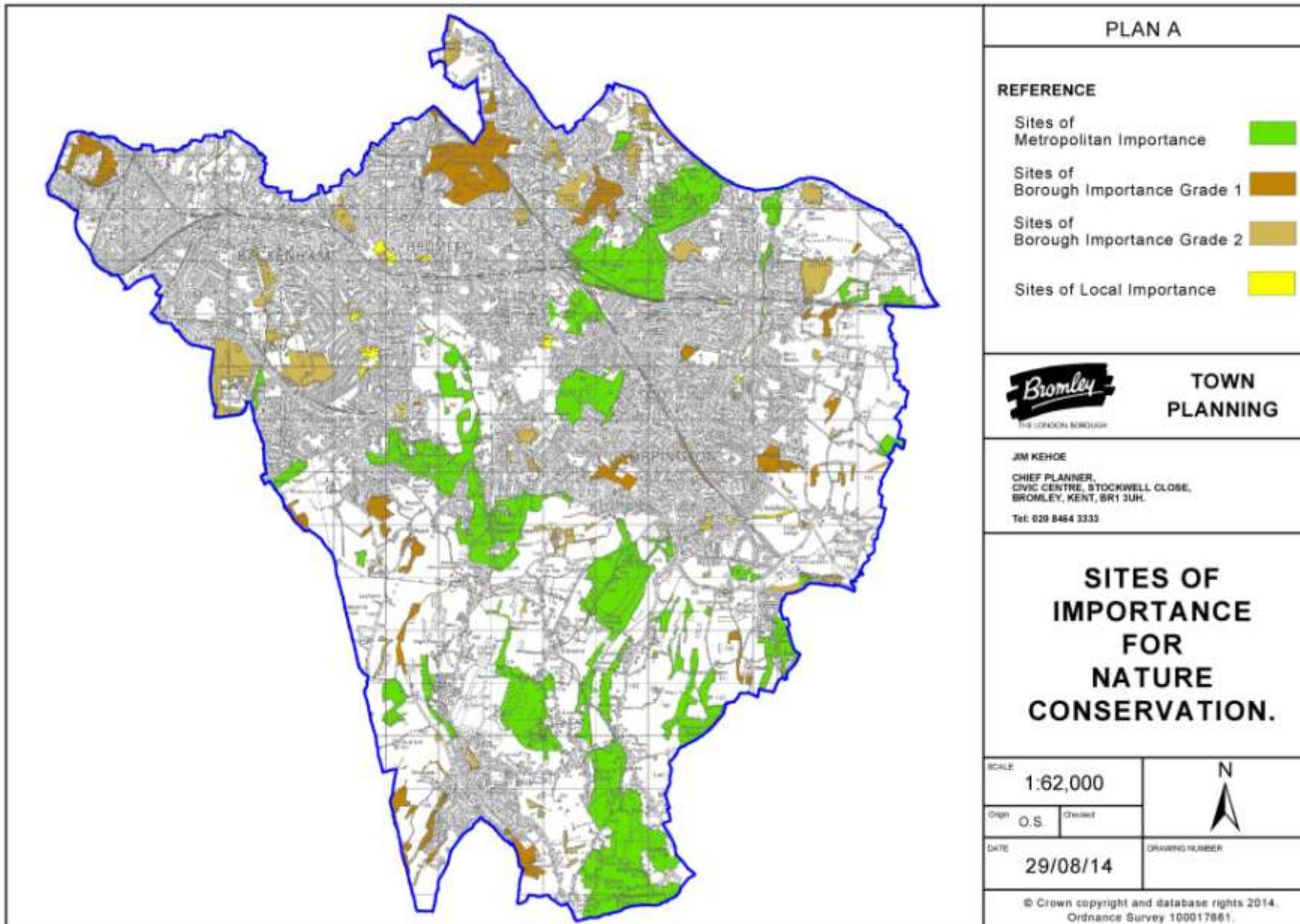
Appendix A: List of Bromley Sites of Importance for Nature Conservation (SINCs)		
N.B. Some changes/additions to the SINCs are included within the Local Plan (currently in draft form). In addition to this list, there is a geological SSSI at Elmstead Pits.		
Site Name	GLA Type	Other Designations
Belmont Pasture	Sites of Metropolitan Importance	
Bourne Wood	Sites of Metropolitan Importance	
Bradsmanshill Wood	Sites of Metropolitan Importance	
Chelsfield Hill	Sites of Metropolitan Importance	
Crofton Wood	Sites of Metropolitan Importance	SSSI
Crown Wood	Sites of Metropolitan Importance	
Cudham Valley South	Sites of Metropolitan Importance	
Downe Bank and Cudham Valley North	Sites of Metropolitan Importance	Part SSSI
Hewitts Chalk Bank	Sites of Metropolitan Importance	
High Broom Wood	Sites of Metropolitan Importance	
High Elms	Sites of Metropolitan Importance	SSSI, LNR
Hockenden Wood	Sites of Metropolitan Importance	
Jubilee Country Park	Sites of Metropolitan Importance	LNR
Ninehams Wood, Lake Wood, South Park Paddocks and Holwood Estate	Sites of Metropolitan Importance	
Norsted Valley Woods	Sites of Metropolitan Importance	
R. Ravensbourne, Ravensbourne Valley Woodlands, Keston Common, Hayes Common, West Wickham Common	Sites of Metropolitan Importance	Part SSSI, LNR
River Cray	Sites of Metropolitan Importance	
Rushmore Hill Woodlands	Sites of Metropolitan Importance	
Ruxley Gravel Pits	Sites of Metropolitan Importance	SSSI
Saltbox Hill and Jewels Wood	Sites of Metropolitan Importance	Part SSSI
Scadbury Park, St Paul's Cray Common, Pett's Wood, and Hawkwood Estate	Sites of Metropolitan Importance	LNR
Shirley Heath, Spring Park and Threehalfpenny Wood	Sites of Metropolitan Importance	
West Kent Golf Course and Down House	Sites of Metropolitan Importance	
Biggin Hill South and Painter's Wood	Sites of Borough Grade I Importance	
Charm Wood and Lower Brooms Wood	Sites of Borough Grade I Importance	
Chislehurst Common	Sites of Borough Grade I Importance	
Covet Wood	Sites of Borough Grade I Importance	
Crystal Palace Park	Sites of Borough Grade I Importance	

Darrick & Newstead Woods	Sites of Borough Grade I Importance	LNR
Fox Hill Shaw	Sites of Borough Grade I Importance	
Fuller's Wood, James's Wood and Broomfieldbank Shaw	Sites of Borough Grade I Importance	
Furze Bottom and Higham Hill	Sites of Borough Grade I Importance	
Goddington Park	Sites of Borough Grade I Importance	
Griff's Wood	Sites of Borough Grade I Importance	
Hockenden Sand Pit	Sites of Borough Grade I Importance	
Lilly's Wood and Black Bush Wood	Sites of Borough Grade I Importance	
Norheads Lane Woodlands	Sites of Borough Grade I Importance	
Sevenoaks Road Chalk Bank	Sites of Borough Grade I Importance	
St Martin's Churchyard, Chelsfield	Sites of Borough Grade I Importance	
St. Mary the Virgin Churchyard, Hayes	Sites of Borough Grade I Importance	
Sundridge Park Golf Course, Elmstead Wood and Lower Marvels Wood	Sites of Borough Grade I Importance	
Sundridge Park Golf Course, Elmstead Wood and Lower Marvels Wood	Sites of Borough Grade I Importance	
The Warren	Sites of Borough Grade I Importance	
Well Wood, Long Shaw and Cooper's Wood	Sites of Borough Grade I Importance	
All Saints Churchyard, Orpington	Sites of Borough Grade II Importance	
Bassetts Pond	Sites of Borough Grade II Importance	
Bogey Lane, Farthing Street and Orange Court Lane	Sites of Borough Grade II Importance	
Bullers Wood School and Yester Road Railway Embankment	Sites of Borough Grade II Importance	
Camden Park Golf Course	Sites of Borough Grade II Importance	
Farnborough Common	Sites of Borough Grade II Importance	
Glentrammon Recreation Ground	Sites of Borough Grade II Importance	
Hoblingwell Wood	Sites of Borough Grade II Importance	
Holy Trinity Churchyard, Bromley Common	Sites of Borough Grade II Importance	
Hoppershatch Shaw	Sites of Borough Grade II Importance	
Jugg Hill	Sites of Borough Grade II Importance	
Kingswood Glen	Sites of Borough Grade II Importance	
Knockholt station and Chelsfield Lakes Golf Course	Sites of Borough Grade II Importance	
Knowlehill, Nobody's and Pokeridden Woods	Sites of Borough Grade II Importance	
Kynaston Wood	Sites of Borough Grade II Importance	
Langley Park Golf Course	Sites of Borough Grade II Importance	

Mottingham Nature Reserve and River Quaggy	Sites of Borough Grade II Importance	
New Road Hill Bank	Sites of Borough Grade II Importance	
Oaklands Lane Soakaway and Lord's Field	Sites of Borough Grade II Importance	
Oakley Road Pond	Sites of Borough Grade II Importance	
Orpington Railway Embankment	Sites of Borough Grade II Importance	
Pauls Cray Hill Park	Sites of Borough Grade II Importance	
Pimlico Wood	Sites of Borough Grade II Importance	
River Beck including Langley Park Nature Reserve	Sites of Borough Grade II Importance	
River Pool at New Beckenham	Sites of Borough Grade II Importance	
Rounds Wood	Sites of Borough Grade II Importance	
Rushfield Shaw and Baldwin Shaw	Sites of Borough Grade II Importance	
Ruxley Wood	Sites of Borough Grade II Importance	
Sage Wents	Sites of Borough Grade II Importance	
Shaftsbury Park - river and pond	Sites of Borough Grade II Importance	
Shortlands Golf Course and adjacent River Ravensbourne	Sites of Borough Grade II Importance	
Skeet Hill Bank	Sites of Borough Grade II Importance	
The Larches, Mill Hill and Broom Bank	Sites of Borough Grade II Importance	
Whyte's Woodland and Walden Recreation Ground	Sites of Borough Grade II Importance	
Withins Wood	Sites of Borough Grade II Importance	
Amherst Wood	Sites of Local Importance	
Aspen Spring	Sites of Local Importance	
Bromley Civic Centre Grounds	Sites of Local Importance	
Chelsfield Green	Sites of Local Importance	
Farnborough Recreation Ground - stream	Sites of Local Importance	
Foxbury Wood	Sites of Local Importance	
Hollydale Recreation Ground	Sites of Local Importance	
Martins Hill and Church House Gardens	Sites of Local Importance	
Parkfield Recreation Ground Woodland	Sites of Local Importance	
Pickhurst Green and Cupola Wood	Sites of Local Importance	
Priory Gardens Lake	Sites of Local Importance	
South Hill Wood	Sites of Local Importance	
The Knoll	Sites of Local Importance	

Wayside Grove	Sites of Local Importance	
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Appendix B: Map of Bromley Sites of Importance for Nature Conservation (SINCs)



Appendix C: Rare and Threatened Species in Bromley

Table III: Rare and Declining Higher Plants in Bromley

Taxon		*NERC Act 2006 Section 41 (2014)	England Red List Status 2014	Status in London 2007	London BAP Species 2007	Kent Rare Plant Register Check List 2014	Location	Comments
<i>Aira caryophylla</i>	Silver Hair-grass			rare			Hayes Common	
<i>Avenula pratensis</i>	Meadow Oat-grass			rare			Chalk grassland e.g. Chelsfield Hill	
<i>Blechnum spicant</i>	Hard-fern			rare			Padmall Wood, Keston Common	
<i>Briza media</i>	Quaking-grass		NT				Widespread in unimproved chalk grassland eg Cudham and Downe valleys	
<i>Buxus sempervirens</i>	Box					Yes	High Elms	probably introduced
<i>Calluna vulgaris</i>	Heather		NT				Keston, Hayes, St Paul's Cray, West Wickham & Farnborough Commons	
<i>Campanula rotundifolia</i>	Harebell		NT				Dry grassland e.g. Hayes Churchyard, Hayes Common, Farnborough Common	
<i>Carex binervis</i>	Green-ribbed Sedge			rare			Keston Bog	
<i>Carex demissa</i>	Common Yellow-sedge			rare			Keston Bog	
<i>Carex echinata</i>	Star Sedge		NT	rare		Yes	Keston Bog	
<i>Carex nigra</i>	Common Sedge					Yes	Keston Bog, Ravensbourne wet meadows	

<i>Carex pallescens</i>	Pale Sedge			rare			Padmall Wood, Ravensbourne Meadow, Keston Common	
<i>Carex panicea</i>	Carnation Sedge			rare		Yes	Keston Bog	
<i>Carex strigosa</i>	Thin-spiked Wood-sedge			rare			Scadbury Park	
<i>Carlina vulgaris</i>	Carline Thistle		NT	rare			Chalk grassland e.g. the Shaws Girl Guide Campsite, Hangrove, High Elms	
<i>Cephalanthera damasonium</i>	White Helleborine	Yes	VU	rare	Yes	Yes	Woodland (esp. beech) on chalk e.g. High Elms, Downe Bank, Cudham Frith, Jewels Wood	
<i>Ceratocarpus claviculata</i>	Climbing Corydalis			rare			Petts Wood	
<i>Chrysosplenium oppositifolium</i>	Opposite-leaved Golden-saxifrage			rare			Wet woodland e.g. Hoblingwell Wood, High Broom Wood	
<i>Cichorium intybus</i>	Chicory		VU				Jubilee Country Park	
<i>Clinopodium acinos</i>	Basil Thyme	Yes	VU	rare	Yes	Yes	Chalk grassland: Hewitts Bank, The Hillside (opposite Charmwood Farm), Cudham Valley	
<i>Convallaria majalis</i>	Lily-of-the-valley			rare			Padmall Wood, Hayes & Keston Commons	
<i>Cruciata laevipes</i>	Crosswort		NT				Chalk grassland e.g. West Kent Golf Course, High Elms, Goddington Meadow	
<i>Daphne mezereum</i>	Mezereon		VU	rare			Birthday Wood	
<i>Epipactis purpurata</i>	Violet Helleborine			rare			High Elms	present intermittently up till 1972, then 2006 & 7 after clearance of cherry laurel.

								Likely to be in the seed bank
<i>Erica cinerea</i>	Bell Heather		NT	rare			Keston & Hayes Commons	
<i>Erica tetralix</i>	Cross-leaved Heath		NT	rare			Keston Bog & West Wickham Common	
<i>Eriophorum angustifolium</i>	Common Cottongrass		VU	rare		Yes	Keston Bog	
<i>Erysimum cheiranthoides</i>	Treacle-mustard		NT				Hayes Street Farm	
<i>Euphorbia exigua</i>	Dwarf Spurge		VU			Yes	Cudham Valley & valley below Jewels Wood. Arable field edges on chalk e.g. arable field south of Shire Lane	
<i>Euphorbia platyphyllos</i>	Broad-leaved Spurge			rare			field below Jewels Wood	not checked 2014
<i>Euphrasia pseudokernerii</i>	Chalk Eyebright	Yes	VU	rare	Yes	Yes	Chalk grassland e.g. Cudham Valley	
<i>Filago vulgaris</i>	Common Cudweed					Yes	Field at Hockenden	
<i>Fragaria vesca</i>	Wild Strawberry		NT				grassland and woodland edges on chalk eg Cudham Valley	
<i>Galium parisiense</i>	Wall Bedstraw		VU	rare	Yes	Yes	Wall of St Martin's Churchyard, Chelsfield	only site in LBB
<i>Gentianella amarella</i>	Autumn Gentian		NT				Chalk grassland: West Kent Golf Course (area managed by London Wildlife Trust), Hewitts Bank	
<i>Geranium columbinum</i>	Long-stalked Crane's-bill			rare			Chalk grassland e.g. Cudham Valley: Hangrove	

<i>Gymnadenia conopsea</i>	Chalk Fragrant-orchid			rare			Downe Bank Nature Reserve	
<i>Helianthemum nummularium</i>	Common Rock-rose		NT				Chalk grassland e.g. The Shaws, Hangrove fields, High Elms, Downe Bank Nature Reserve, Chelsfield Hill	
<i>Helleborus viridis subsp. occidentalis</i>	Green Hellebore			rare			High Elms	
<i>Hyacinthoides non-scripta</i>	Bluebell				Flagship species		semi-natural ancient woodland throughout LBB	
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort		NT	rare			Keston Bog	
<i>Hypericum montanum</i>	Pale St John's-wort			rare		Yes	Sundridge railway embankment & Sundridge Park	not checked 2014
<i>Hypopitys monotropa</i>	Yellow Bird's-nest	Yes	EN	rare	Yes	Yes	High Elms (in beech woodland)	
<i>Juncus squarrosus</i>	Heath Rush			rare		Yes	Keston Common, Bassetts Campus Broadwater Gdns	
<i>Juniperus communis</i>	Common Juniper	Yes	NT	rare	Yes	Yes	Downe Bank Nature Reserve	
<i>Kickxia elatine</i>	Sharp-leaved Fluellen			rare			Occasional edges arable fields e.g. Cudham Valley	
<i>Kickxia spuria</i>	Round-leaved Fluellen			rare			Occasional edges arable fields on chalk e.g. arable field south of Shire Lane & Cudham Valley	
<i>Knautia arvensis</i>	Field Scabious		NT				Chalk grassland eg High Elms, Hangrove, Goddington Meadow etc	
<i>Koeleria macrantha</i>	Crested Hair-grass			rare			Keston Common & Chislehurst Cockpit area, Goddington Meadow	
<i>Lathraea squamaria</i>	Toothwort			rare			semi-natural ancient woodland e.g. High Elms, Downe & Cudham Valleys,	

							Biggin Hill	
<i>Lathyrus linifolius</i> var. <i>montanus</i>	Bitter Vetch			rare			acid soils e.g. Ravensbourne Valley Woodlands -Barnet Wood & Kingswood Glen	
<i>Melampyrum pratense</i>	Common Cow-wheat		NT	rare			Hayes & Keston Commons	
<i>Misopates orontium</i>	Weasel's-snout		VU			Yes	Jubilee Country Park	
<i>Moenchia erecta</i>	Upright Chickweed		VU	rare			Keston War Memorial, Tugmutton Common	dry acid grassland
<i>Narthecium ossifragum</i>	Bog Asphodel			rare		Yes	Keston Bog	
<i>Neottia nidus-avis</i>	Bird's-nest Orchid		VU	rare		Yes	In beech leaf litter Keston Common, High Elms, Holwood	
<i>Onobrychis viciifolia</i>	Sainfoin		VU			Yes	West Kent Golf Course, High Elms	reported by Charles Darwin in the Downe Valley where it was probably planted as a fodder crop in rotation
<i>Ophrys insectifera</i>	Fly Orchid	Yes	VU	rare	Yes	Yes	High Elms, Downe Bank, Blackbush Shaw, Cudham Frith	
<i>Orchis anthropophora</i>	Man Orchid	Yes	EN	rare	Yes	Yes	Chalk grassland & scrub e.g. High Elms	
<i>Orchis mascula</i>	Early-purple Orchid			rare			semi-natural ancient woodland e.g. Homefield Spring, Darrick Wood, Pond Wood	

<i>Oxalis acetosella</i>	Wood-sorrel		NT				semi-natural ancient woodland e.g. Padmall Wood, Darrick Wood, High Elms, Barnet Wood, Crofton Woods	
<i>Pedicularis sylvatica</i>	Lousewort		VU	rare			Hayes Common	
<i>Plantago media</i>	Hoary Plantain		NT				Chalk grassland e.g. High Elms, Hangrove, Goddington Meadow etc	
<i>Platanthera chlorantha</i>	Greater Butterfly-orchid			rare		Yes	High Elms	
<i>Polygala calcarea</i>	Chalk Milkwort			rare			Downe valley	
<i>Polygonatum multiflorum</i>	Soloman's-seal			rare			Ravensbourne Valley Woodlands including Brook Wood & Padmall Wood	
<i>Potamogeton polygonifolius</i>	Bog Pondweed			rare			Keston Bog	
<i>Potentilla argentea</i>	Hoary Cinquefoil		NT	rare		Yes	Acid grassland at Keston Common & Holwood Estate	
<i>Potentilla erecta</i>	Tormentil		NT				Keston Bog	
<i>Ranunculus flammula</i>	Lesser Spearwort		VU				Keston Bog, Ravensbourne wet meadows	
<i>Rhinanthus angustifolius</i>	Greater Yellow-rattle			rare	Yes	Yes	High Elms, Ravensbourne wet meadow, Darrick Wood, Jubilee Country Park, Spring Park.	?Bought in on mowers
<i>Rosa micrantha</i>	Small-flowered Sweet-briar			rare			On chalk e.g. Cudham Valley	
<i>Sanicula europaea</i>	Sanicle		NT				semi-natural ancient woodland e.g. Darrick Wood, Jubilee Country Park	
<i>Saxifraga granulata</i>	Meadow Saxifrage					Yes	Keston Common War Memorial, Darrick Wood, Hayes Churchyard	
<i>Scutellaria minor</i>	Lesser Skullcap			rare			Keston Bog	

<i>Silene flos-cuculi</i>	Ragged-Robin		NT				Ravensbourne wet meadows, Goddington Meadow	
<i>Solidago virgaurea</i>	Goldenrod		NT				Hayes & Keston Commons	
<i>Succisa pratensis</i>	Devil's-bit Scabious		NT	rare			Jubilee Country Park	
<i>Thalictrum flavum</i>	Common Meadow-rue			rare			Ruxley Gravel Pits	
<i>Tilia cordata</i>	Small-leaved Lime					Yes	Spring Park & along Croydon Boundary	Includes very large old coppice stools at Spring Park
<i>Ulex minor</i>	Dwarf Gorse			rare			Hayes & Farnborough Commons	
<i>Vaccinium myrtillus</i>	Bilberry			rare			Keston Common	
<i>Valerianella dentata</i>	Narrow-fruited Cornsalad		EN	rare	Yes	Yes	Hewitts Chalk Bank & arable field edges in Cudham valley	
<i>Valeriana officinalis</i>	Common Valerian		NT	rare			Padmall Wood, Gumping Common, Darrick Wood	
<i>Verbascum lychnitis</i>	White Mullein			rare		Yes	High Elms	
<i>Veronica officinalis</i>	Heath Speedwell		NT				Jubilee Country Park	
<i>Viscum album</i>	Mistletoe					Yes	Bromley Common mainly on lime, Norman Park including on hawthorn, Downe Orchard on apple, Beckhenham.	Spreading

All plants present 2014 unless otherwise stated. Plant names follow Stace 2010

*Listed as Species of Principal Importance for the Purpose of Conserving Biodiversity in England under the NERC Act 2006, section 41 (2014)

England Red List Species follow IUCN criteria (see Stoh et al., 2014)

Key to status: NT Near Threatened VU Vulnerable EN Endangered

References:-

Kent Rare Plant Register Check List (2014) see bsbi.org.uk/rare_plant_register_list_v8_with_English_names.rtf

London Biodiversity Action Plan - Priority Species & Species of Conservation Concern see <http://www.lbp.org.uk/londonpriority.html>

Natural England Section 41 Species List (May 2014)- see <http://publications.naturalengland.org.uk/publication/4958719460769792>

Stace C. 2010. New Flora of the British Isles third edition Cambridge University Press

Stoh P. A. et al. 2014. A Vascular Plant Red List for England. Download at http://bsbi.org.uk/England_Red_List_1.pdf

Table IV: Priority Fungi Species in Bromley

Taxon	English name	*NERC Act 2006 Section 41 (2014)	Red Data List 2006 (provisional)	UK BAP Priority Species (from LBAP list 2007)	Status in London (2007)	London BAP Species (2007)	Rare in LBB	Location	Comments
<i>Amanita inopinata</i>	None found						Yes	St. Martin of Tours, Chelsfield	On/with <i>Chamaecyparis lawsoniana</i> 2002, 2009
<i>Boletus legaliae</i> (= <i>B. splendidus</i> , <i>Boletus satanoides</i>)	None found						Yes	Petts Wood	road verge, with oak
<i>Cortinarius purpurascens</i> var. <i>occidentalis</i>	Bruising Webcap						Yes	Crofton Woods	semi-natural ancient woodland 2007
<i>Gyrodon lividus</i>	Alder Bolete		NT				Yes	Petts Wood	alder carr 2010
<i>Hericium cirrhatum</i>	Tiered Tooth			yes	rare	Yes	Yes	Brook Wood Bromley Common (1995), Ninhams Wood (1996), Jewels Wood (1997), Petts Wood (2002), Crofton Woods	on dead beech at Brook Wood, on fallen beech in Jewels Wood, on ash at Crofton Woods
<i>Lactarius spinosulus</i>	Lilac Scale Milkcap						Yes	Birthday Wood (within LBB) 2000	with sycamore
<i>Microglossum olivaceum</i>	Olive Earthtongue	Yes	Annex	yes & SPI (CRoW Act)	rare	Yes	Yes	Saltbox Hill (London Wildlife Trust Reserve)	chalk grassland
<i>Mycena inclinata</i> var. <i>alba</i>	Clustered Bonnet						Yes		
<i>Podoscypha multizonata</i>	Zoned Rosette	Yes	NT	yes	rare	Yes	Yes	Beckenham Place Park	with oak

<i>Scytinostroma portentosum</i>	Mothball Crust						Yes	Downe Bank Nature Reserve 2007	on dead beech
<i>Spongipellis delectans</i>	Spongy Mazegill						Yes	Cudham Valley: Girl Guide site	on dead beech
<i>Squamanita paradoxa</i>	Powdercap Strangler		NT				Yes	West Kent Golf Course, Downe Valley 1982	parasitic on <i>Cystoderma amianthinum</i>
<i>Tricholoma populinum</i>	Poplar Knight		VU B		rare		Yes	Hayes Common 2008	with <i>Populus tremula</i> (aspen)

All fungi recorded since 2004 unless otherwise stated. Fungal names follow Evans et al.

Key to status: NT Near Threatened VU Vulnerable EN Endangered SPI Species of Principal Importance (CRoW Act 2000)

*Listed as Species of Principal Importance for the Purpose of Conserving Biodiversity in England under the NERC Act 2006, section 41 (2014)

References:-

Evans, S. Henriki, A. & Ing, B. (2006) Red Data List of Threatened British Fungi (see <http://www.britmycolsoc.org.uk/mycology/conservation/red-data-list>)

London Biodiversity Action Plan - Priority Species & Species of Conservation Concern see <http://www.lbp.org.uk/londonpriority.html>

Natural England Section 41 Species List (May 2014)- see <http://publications.naturalengland.org.uk/publication/4958719460769792>

Table V: Priority Bird Species in Bromley

Species	*NERC Act 2006 Section 41 (2014)	RSPB Red List 2009	RSPB Amber List 2009	Status in London 2007	London BAP Species 2007	LBB Priority Spp for recording & reporting	Location	Comments
Barn owl			Yes	rare			South of Biggin Hill	
Bearded Tit			Yes	rare		Yes	Ruxley Gravel Pits	occasional winter visitor
Bittern	Yes	Yes			Yes	Yes	Ruxley Gravel Pits	occasional winter visitor
Black-headed Gull			Yes			Yes	Jubilee Country Park, Goddington Park, Crofton Heath, Priory Gardens, Keston Ponds, Kelsey Park, Ruxley Gravel Pits, Crystal Palace Park	winter visitor
Brambling						Yes	near Well Wood, top of Cudham Lane, Mottingham	seen in gardens during winter
Bullfinch	Yes		Yes	declining	Yes	Yes	woodland edge & scrub eg Darrick Wood, Jubilee Country Park, Crofton Heath, High Elms and hedgerows in rural areas LBB	
Cetti's Warbler				rare		Yes	Ruxley Gravel Pits	occasional winter visitor
Common Gull			Yes			Yes	Crofton Heath, Ruxley Gravel Pits, Jubilee Country Park, Charmwood Farm, Crystal Palace Park	winter visitor
Common Linnet	Yes	Yes			Yes	Yes	High Elms area (12-15 seen Cudham 2013), fields along River Ravensbourne eg Rookery Estate & Norman Park, Chelsfield, Charmwood Farm	
Common Whitethroat			Yes			Yes	woodland edge & scrub eg Darrick Wood, bred at High Elms/Downe bank 2013 and 2014	
Corn Bunting	Yes			rare	Yes	Yes	Chelsfield area	winter visitor

Cormorant				rare		Yes	Kelsey Park, Ruxley Gravel Pits, Crystal Palace Park	
Cuckoo	Yes	Yes			Yes	Yes	Heard in the Cudham Valley every year to 2014 (inclusive), including High Elms	
Dunnock (= Hedge Accentor)	Yes		Yes		Yes	Yes	Crofton Heath, Ruxley Gravel Pits, Crystal Palace Park, parks & gardens	Breeding in gardens e.g. 2013 Durham Ave., Cathcart Drive
Fieldfare		Yes				Yes	Hedgerows & meadows, eg Jubilee Country Park, Darrick Wood, Crofton Heath, High Elms & Chelsfield, Cudham.	winter visitor
Firecrest			Yes	rare		Yes	Hayes Common, Jubilee Country Park, St. Paul's Cray Common	winter visitor
Gadwall			Yes			Yes	Ruxley Gravel Pits	winter visitor
Goldcrest						Yes	Scadbury, Ruxley area, Darrick & Newstead Woods, Petts Wood, Jubilee Country Park, Hayes & Keston Common, Crofton Heath, High Elms, Chelsfield, South Hill Wood, Crystal Palace Park	Breeding resident, e.g. Kingswood Glen 2010
Green Woodpecker			Yes			Yes	Areas with woodland & adjacent grassland eg High Elms, Darrick & Newstead Woods, Crofton Heath, Jubilee Country Park	fairly common: an indicator of grassland with anthills
Grey Heron				important in London		Yes	Crystal Palace Park. Breeds in Kelsey Park herony	fairly commonly seen around lakes and ponds, sometimes in gardens
Greylag Goose			Yes			Yes	Priory Ponds, Kelsey Park, Keston Ponds, Crystal Palace Park	
Grey Wagtail			Yes			Yes	Keston Ponds, Kelsey Park, Churchill Gardens, Priory Gardens, St Mary Cray, Crofton Heath	small numbers: a biodiversity indicator of good water quality
Herring Gull	Yes	Yes		rare	Yes	Yes	Crofton Heath, Ruxley Gravel Pits, Kelsey Park, Keston Ponds, Crystal Palace Park	winter visitor

Hobby				rare		Yes	Petts Wood, Cudham Valley, bred at High Elms 2006, bred at Scadbury Park 2010	Important indicator of invertebrate diversity
House Martin			Yes			Yes	south of Jewels Wood, Cudham Valley south, Crofton Heath, Ruxley Gravel Pits and Downe Valley between Jail Lane & Down House. Breeds at junction of Shire Lane & Downe Road	declining, nests recently lost from Bromley South area and Bromley Common
House Sparrow	Yes	Yes		rare, LSAP	Yes	Yes	Gardens and parks with good hedgerows or scrub e.g. Crofton Heath, High Elms, Jubilee Country Park, Darrick & Newstead Woods, High Elms & private gardens	declining
Kestrel			Yes			Yes	Crofton Heath, Crystal Palace Park, Ruxley Gravel Pits, Chelsfield, Keston, Petts Wood. Bred at High Elms up to 2014 (inclusive)	good biodiversity indicator
Kingfisher			Yes			Yes	Ruxley Gravel Pits, River Beck & seen at Keston until 2010	Occasional. An indicator of good water quality & aquatic biodiversity
Lapwing	Yes	Yes		rare	Yes	Yes	Biggin Hill Airport 2005	very occasionally recorded, usually on post breeding dispersal
Lesser Black-backed Gull			Yes	rare		Yes	Ruxley Gravel Pits, Crystal Palace Park	winter visitor
Lesser Redpoll	Yes	Yes			Yes	Yes	Crofton Heath, Jubilee Country Park, Hayes Common	Declining- used to be seen in flocks with siskins Petts Wood
Lesser Spotted Woodpecker	Yes	Yes		rare	Yes	Yes	Jubilee Country Park	seen in 2007 Elmstead Woods/Sundridge Park area, pre 2000 was in Petts Wood
Lesser Whitethroat						Yes	Darrick Wood & Jubilee Country Park	in scrub

Little Egret			Yes			Yes	River Cray Orpington & Kyd Brook, Sundridge Park, Crofton Heath	
Little Grebe			Yes			Yes	Kelsey Park, Ruxley Gravel Pits, Keston	
Mallard			Yes			Yes	Lakes & ponds	fairly common
MarshTit	Yes	Yes		rare	Yes	Yes	High Elms & Downe Bank	Has bred in dormouse boxes at both sites
Meadow Pipit			Yes			Yes	Cudham valley, Chelsfield, Great Pucklands (Down House)	occasional winter visitor
Mistle Thrush			Yes			Yes	Crofton Heath, Spring Park, High Elms, Jubilee Country Park, Ruxley Park Golf Course, Crystal Palace Park, Goddington Park & private gardens	
Mute Swan						Yes	Priory Gardens, Crystal Palace Park, Kelsey Park, Ruxley Gravel Pits	
Nightingale			Yes	rare		Yes	Jubilee Country Park	passage birds for 2 weeks only 2014
Pochard				rare		Yes	Ruxley Gravel Pits, Kelsey Park & Crystal Palace Park	winter visitor
Reed Bunting	Yes		Yes		Yes	Yes	Ruxley Gravel Pits	Breeds at this site: only place known in LBB
Redwing		Yes				Yes	Hedgerows and scrub throughout LBB e.g. Jubilee Country Park, Darrick & Newstead Woods, Crofton Heath, Keston & gardens when winter severe	winter visitor
Rook				rare, declining		Yes	Downe area, Keston Common, Crystal Palace Park	breeding species
Sand Martin			Yes	rare, declining, LSAP		Yes		Used to be at Ruxley Nurseries before the new road built
Shoveler				rare		Yes	Ruxley Gravel Pits & Crystal Palace Park	winter visitor

Skylark	Yes	Yes			Yes	Yes	Undisturbed fields eg Biggin Hill area, Pratts Bottom, Chelsfield, fields along Shire Lane, Mace Farm/Bottom Barn Farm, Cudham. Hazelwood Farm, Chelsfield, fields between Hayes and A21.	
Song Thrush	Yes	Yes			Yes	Yes	Crofton Heath, Jubilee Country Park, High Elms, parks & gardens, Charmwood Farm, Pratts Bottom.	
Spotted Flycatcher	Yes	Yes			Yes	Yes	Garden off Grays Road near Knockholt July 2014	Probably now just passing through. Bred in LBB till late 1980s, bred at High Elms until 2006
Starling	Yes	Yes			Yes	Yes	Crofton Heath (50+ winter 2013), Crystal Palace Park, parks & gardens	decreasing: used to roost in large nos (200+) in winter on gasometer near Tesco Homesdale Road before netting put up about 2011/12. Breeding in Crystal Palace area 2007
Stock Dove			Yes			Yes	Jubilee Country Park, Crystal Palace Park. Winter flocks seen in Scadbury Park. Feed/roost on outer urban farmland areas, e.g. Salt Box valley, Charmwood Farm, Pratts Bottom	3 pairs at Crystal Palace Park 2007
Stonechat				rare		Yes	Bromley Common Golf Course early 2000s, Keston Common (passage bird March 2012 & 2013)	Inconspicuous winter visitor/passage migrant

Swallow (=Barn Swallow)			Yes			Yes	Nash, Rookery Estates: meadows along River Ravensbourne, Crofton Heath, Ruxley Gravel Pits, Jubilee Country Park, Chelsfield, Pratts Bottom	
Swift			Yes	declining		Yes	Crofton Heath, Crystal Palace Park, Bromley South area, Ruxley Gravel Pits & SE9	declining: down to 2 birds over Durham Avenue 2014 (from 12 to 8 to 6)
Tawny Owl				declining		Yes	woodland throughout borough e.g. Jubilee Country Park, Darrick & Newstead Woods, Cudham Valley, High Elms, Salt Box. Breeding confirmed at North End Farm 2013	
Teal			Yes			Yes	Hollydale Lake, Ruxley Gravel Pits	
Tree Pipit		Yes		rare	Yes	Yes		
Tufted Duck			Yes			Yes	Kelsey Park, Keston Ponds, Ruxley & Chislehurst Ponds, Priory Park, Crystal Palace Park	
Turtle Dove	Yes	Yes		rare	Yes	Yes	Downe Bank, pre 2000 breeding species near Hockenden	Probably extinct as a breeding bird in LBB. Passage bird seen flying overhead Crystal Palace Park 2007
Water Rail				rare		Yes	Ruxley Gravel Pits, River Ravensbourne at Shortlands	wintering species
Willow Warbler			Yes			Yes	Jubilee Country Park 2003/4, Keston & Crofton Heath 2010	In early 80s & 90s fairly common in LBB, now very uncommon
Woodcock			Yes	rare		Yes	Downe Bank 2010, Hayes Common 2006	Inconspicuous wintering bird, crepuscular

Yellowhammer	Yes	Yes			Yes	Yes	Down House area, Salt Box, Cudham Valley, Knockholt, Chelsfield, Charmwood farm, Pratts Bottom, roost site on fields off Shire Lane.	Charmwood Farm is a stronghold for breeding yellowhammer
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Bird records all post 2010 unless otherwise stated

*Listed as Species of Principal Importance for the Purpose of Conserving Biodiversity in England under the NERC Act 2006, section 41 (May 2014)

Data & Criteria for red and amber lists, from RSPB's 'Birds of Conservation Concern 3' 2009 see www.rspb.org.uk/discoverandenjoynature/discoverandlearn/birdguide/status_explained.aspx

London Status from London Biodiversity Partnership Biodiversity Action Plan website at <http://www.lbp.org.uk/londonpriority.html>

Natural England Section 41 Species List (May 2014)- see <http://publications.naturalengland.org.uk/publication/4958719460769792>

NB: Locations listed are not exclusive. Birds listed may be present in other locations – records required.

Table VI: Priority Butterfly Species in Bromley

Species	*NERC Act 2006 Section 41 (2014)	Butterfly Conservation Red List 2010	Status in London	London BAPSpecies 2007	Location	Comments
Brown Argus		LC	rare		Foxhill Farm Keston, Saltbox Hill, High Elms, Hayes Common, Hewitts Bank	Chalk grassland & heathland
Chalkhill Blue		NT	rare	Yes	Cudham Valley: Hangrove. Breeding colony at Saltbox Hill, High Elms Conservation Field (single males)	Chalk grassland
Dark Green Fritillary		LC	rare	Yes	Cudham Valley: High Elms & the Shaws Girl Guide Site, Saltbox Hill, West Kent Golf Course Roughs, Down House grounds	
Dingy Skipper	Yes	VU	rare		Saltbox Hill, West Kent Golf Course roughs & area managed by LWT, Foxhill Farm Keston, High Elms, Strawberry Bank, Spring Park pond area & Bottom Barn Farm	Chalk Grassland
Green Hairstreak		LC	rare		Cudham Valley, e.g. High Elms, The Shaws Girl Guide Site, Hangrove. Also Saltbox Hill, Strawberry Bank, Hayes Common, West Kent Golf Course, Spring Park pond	Chalk grassland & heathland
Grizzled Skipper	Yes	VU	rare		West Kent Golf Course, Saltbox Hill, High Elms, Bottom Barn Farm	Chalk Grassland
Marbled White		LC		Flagship Species	Cudham Valley incl. High Elms, Foxhill Farm Keston, Hayes Common SSSI, Saltbox Hill, Down House grounds, West Kent Golf Course, Spring Park	
Purple Emperor		NT	rare		Saltbox Hill (2000), West Wickham Common & High Elms (2005)	
Silver-washed Fritillary		LC	rare		High Elms, Darrick Wood (Broadwater Gdns meadow), Spring Park	

Small Blue	Yes	NT	rare	Yes	West Kent Golf Course	only known at one site in LBB. Declining: used to be in LWT area & roughs. Lost from roughs. 1 only seen 2011, none since
Small Heath	Yes	NT			Darrick & Newstead Woods LNR, Jubilee Country Park & Scadbury Park LNRs, Saltbox Hill, West Kent Golf Course, Crystal Palace Park	Fairly widespread in low numbers
White Admiral	Yes	VU	rare		High Elms, Padmall Wood, Rookery Estates: Ravensbourne Valley Woodlands, West Wickham Common, Spring Park pond area, Hayes Farm, Coney Hall: garden	
White Letter Hairstreak	Yes	EN			High Elms. Small colonies Spring Park pond area & Coney Hall nr Gates Green Rd.	increasing

Butterfly records all post 2010 unless otherwise stated

*Listed as Species of Principal Importance for the Purpose of Conserving Biodiversity in England under the NERC Act 2006, section 41 (2014)

The Butterfly Red List for Great Britain: Key to Status: NT Near Threatened VU Vulnerable EN Endangered LC Least Concern

References

Fox, R., Warren, M.S., and Brereton, T.M. (2010). A new Red List of British Butterflies, Species Status 12; 1-32. Joint Nature Conservation Committee Peterborough. See <http://butterfly-conservation.org/files/red-list.pdf>

Greater London Biodiversity Action Plan- Species of Conservation Concern 2007. See website at <http://www.lbp.org.uk/londonpriority.html>

Natural England Section 41 Species List (May 2014)- see <http://publications.naturalengland.org.uk/publication/4958719460769792>

Appendix D

Invasive Non-Native Species in Bromley

The introduction of invasive non-native species is one of the greatest threats to biodiversity around the world. Across the globe, aggressive colonisers have the potential to displace native flora, fauna or ecosystems. In the UK - physically separated from the continent – some of our native plant, fungi and animal species may differ from other European populations because they have adapted to our climate. Native invertebrates and larger animals may also be adapted to our native flora

A non-native species is a species which has been introduced directly or indirectly by man (deliberately or otherwise) to an area where it has not previously occurred. Non-native species come into the UK and become invasive due to the lack of the usual pests and diseases that would control their populations in their native range.

Examples of non-native species having an impact on native UK wildlife includes the dramatic reduction of red squirrels following the introduction of American grey squirrels, and the decline in the native water vole population after predation by American mink. Pathological organisms can also be introduced such as the fungi *Hymenoscyphus fraxineus* which causes *Chalara* die back in ash trees and is thought to have been introduced, at least in part, on young trees imported from Europe. Some introductions can also harm humans, such as Oak Processionary Moth, the caterpillars of which are highly toxic and were introduced to this country via tree stock bought from the continent.

Legislation

The UK comes under the EU Water Framework Directive, which directs policies across Europe for rivers, lakes, groundwater and coastal beaches. Advice and guidance on the directive as it affects the UK is given by UK TAG, including [classification of alien species according to their level of impact](#).

As with rare and protected species, the main piece of UK legislation with regards to non-native species is the **Wildlife and Countryside Act 1981** (as amended). According to the act, it is an offence in England and Wales to release or allow to escape into the wild any animal which:

- is of a kind which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state, or is included in part 1 of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

In addition, it is an offence to plant or cause to grow in the wild any plant listed in part 2 of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Status in London

Greater London has a great diversity of species and wide range of habitats. However, the risk of non-native species causing harm or becoming invasive is increased in London, partly through warmer urban temperatures and partly due to high rates of importation and the presence of a port and several airports.

Many of London's non-native species are aquatic. Invasive aquatic species can increase the risk of flooding, impact on recreational use and reduce species diversity.

The London Invasive Species Initiative (LISI) is a working group formed by the London Biodiversity Partnership which aims to coordinate action to prevent control and eradicate invasive non-native species in London. LISI have produced a list of [Species of Concern in London](#). Those that are relevant to Bromley are listed in the table below.

Invasive Native Species

Some native species, such as bracken, can also be invasive and may have detrimental effects on habitats and wildlife if allowed to dominate. Further advice can be found in Appendix E: Best Practise Guidelines for Land Managers.

The Weeds Act 1959

The Weeds Act 1959 invokes statutory action to control the spread of five harmful weeds. It was designed with agricultural land in mind. The weeds listed are:

- Common Ragwort (*Senecio jacobaea*)
- Spear Thistle (*Cirsium vulgare*)
- Creeping or Field Thistle (*Cirsium arvense*)
- Curled Dock (*Rumex crispus*)
- Broad Leaved Dock (*Rumex obtusifolius*)

Responsibility for the control of these weeds rests primarily with the occupier of the land on which the weeds are growing. In LBB Parks and Greenspace these weeds are controlled rather than eradicated as they are each of them important for various animals. Spear and creeping thistle, for example, are good nectar sources for insects and together with the docks provide seeds eaten by birds. Common ragwort is the foodplant of cinnabar moth caterpillars. Good land management for biodiversity lowers the nutrient status of the soil which reduces the numbers of these weeds naturally, see **Appendix E Best Practise Guidelines for Land Management**.

For more information, please see [DEFRA Enforcing the Weeds Act 1959](#).

Table VII: Non-Native Invasive Species in Bromley

Common name	Latin name	Designation	LISI Priority Category	Recommendations for removal and further information
<i>Terrestrial Plants</i>				
Japanese Knotweed	Fallopia japonica	Water Framework Directive UK TAG alien species and WCA 1981 Schedule 9 species.	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	Spray with glyphosate 3 times /year (may take 5-7years to eradicate). See NNSS Japanese Knotweed http://www.nonnativespecies.org/index.cfm?pageid=226
Cherry Laurel	Prunus laurocerasus	Species relevant to London	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	http://www.kentwildlifetrust.org.uk/sites/default/files/kwt_1_and_mgt_advice_sheet_9_-_woodland_management_-_control_of_rhododendron.pdf
Rhododendron	Rhododendron ponticum	Schedule 9 species: Wildlife and Countryside Act 1981 (as amended).	Priority 2: Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	http://www.forestry.gov.uk/pdf/fcpg017.pdf/\$FILE/fcpg017.pdf
Snowberry	Symphoricarpos albus	Species relevant to London	Priority 2: Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	https://suttonnature.wordpress.com/2014/02/03/snowberryy-bashing-at-roundshaw-woods/
Spanish & hybrid Bluebells	Hyacinthoides hispanica & H. x massartiana	Species relevant to London	Priority 4: Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	Remove whole plant (including bulb) and dispose of securely off site. http://www.plantlife.org.uk/about_us/faq/bluebells/
Variegated Yellow Archangel	Lamiastrum galeobdolon subsp. argentatum	Schedule 9 species: Wildlife and Countryside Act 1981 (as amended).	Priority 4: Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	Remove whole plant and dispose of securely off site.

Three-cornered Garlic	Allium triquetrum	Schedule 9 species: Wildlife and Countryside Act 1981 (as amended).	Priority 4: Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	Remove whole plant and dispose of securely off site. NNSs Factsheet: http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=131
Giant Hogweed	Heracleum mantegazzianum	Water Framework Directive UK TAG alien species and WCA 1981 Schedule 9 species.	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	<u>NNSs Giant Hogweed:</u> http://www.nonnativespecies.org/index.cfm?pageid=154
Himalayan Balsam	Impatiens glandulifera	Water Framework Directive UK TAG alien species and WCA 1981 Schedule 9 species.	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	see: http://himalayanbalsamwales.co.uk/himalayan-balsam/control/
Terrestrial form of amphibious bistort	Persicaria amphibia var terrestris	Species relevant to Bromley		Remove whole plant and dispose of securely off site. Apply pesticide to leaves
Buddleia	Buddleja davidii	Species relevant to London	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	Do not introduce to countryside sites. NNSs Buddleia: http://www.nonnativespecies.org/index.cfm?pageid=540
<i>Aquatic Plants</i>				
New Zealand Pigmyweed	Crassula helmsii	Water Framework Directive UK TAG alien species and WCA 1981 Schedule 9 species.	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	For information re control/eradication, see http://www.essexbiodiversity.org.uk/invasive-species/invasive-species-aquaticplants
Parrot's-feather	Myriophyllum aquaticum	Water Framework Directive UK TAG alien species and WCA 1981 Schedule 9 species.	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	For information re control/eradication, see http://www.cabi.org/isc/datasheet/34939
Floating Pennywort	Hydrocotyle ranunculoides	Water Framework Directive UK TAG alien species and WCA 1981 Schedule 9 species.	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	For information re control/eradication, see http://www.q-bank.eu/Plants/Controlsheets/Hydrocotyle_ranunculoides_office_guide.pdf

Water Fern	<i>Azolla filiculoides</i>	Water Framework Directive UK TAG alien species and WCA 9181 Schedule 9 species	Priority 2: Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	For more information see: https://www.nobanis.org/globalassets/speciesinfo/a/azolla-filiculoides/azolla_filiculoides.pdf
<i>Birds</i>				
Ring-necked Parakeet	<i>Psittacula krameri</i>	Schedule 9 species: Wildlife and Countryside Act 1981 (as amended).	Priority 4: Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	http://www.wildlondon.org.uk/sites/default/files/files/Ring-necked%20parakeets.pdf
<i>Fish</i>				
Goldfish ?including Koi Carp	<i>Carassius auratus</i>	Water Framework Directive UK TAG species (high impact)	Priority 2: Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=655
<i>Reptiles & Amphibians</i>				
Red eared slider terrapin	<i>Trachemys scripta subsp. elegans</i>	Species relevant to London	Priority 3: Species of high impact or concern which are widespread in London and require concerted, co-ordinated and extensive action to control/eradicate.	http://www.essexbiodiversity.org.uk/invasive-species/invasive-species-reptiles
Other terrapins see	http://www.independent.co.uk/environment/nature/look-out-abandoned-terrapins-about-1863903.html			
<i>Invertebrates</i>				
Non-native crayfish (including signal & Turkish crayfish)		Water Framework Directive UK TAG alien species and WCA 1981 Schedule 0 species.	Priority 4: Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	<u>NNSS: non-native Crayfish.</u> http://www.nonnativespecies.org/index.cfm?pageid=472
Oak processionary moth	<i>Thaumetopea processionea</i>	Species relevant to London	Priority 2: Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	Do not try to remove OPM caterpillars or nests yourself, because of the health risks. Contact the Forestry Commission. http://www.forestry.gov.uk/oakprocessionarymoth

APPENDIX E

Best Practise Guidelines for Land Managers

Land managers have the responsibilities and costs associated with land management; however they also have the most power to benefit wildlife through the way they maintain their sites.

Getting started

- **Survey your site.** Have an ecological survey done or search your local records office or the NBN Gateway for existing wildlife records. Contact local wildlife groups and encourage them to send you records and notify you of new findings. Rare or unusual species will help to indicate the most sensitive areas. The presence of certain species (e.g. invasive non-native plants) may indicate where additional management is required.
- **Control public access.** If your site is open to the public, consider where you will allow the public to go and where not. This is important not just for security, but for protecting sensitive habitats. Maintain official paths in good condition to deter the formation of unofficial paths and for site safety.
- **Know the law.** There is legislation in place regarding land management practises. Ensure you have up to date information relevant to issues on your site such as protected species, felling licenses, common land, pesticide use etc.
- **Follow a management plan and update as necessary.** For SSSIs the management plan must be agreed with Natural England. Most habitats develop over years or decades. A management plan allows the land manager to plan ahead and allows for continuity of management following a change of personnel.
- **Tree safety.** Survey trees near official paths and boundaries at least once a year and maintain in a safe condition.
- **Get advice.** If in doubt, seek further advice from the local authority, government organisations such as Natural England, the Forestry Commission, the Environment Agency and DEFRA, or third sector wildlife and conservation bodies, such as the local Wildlife Trusts.

Woodland Management Guidelines

- All woodland work must take place outside the nesting/breeding bird season (October-February/March).
- Manage the woodland so as to ensure a mixed age structure, species diversity and valued wildlife habitat for example by coppicing, thinning and retaining dead wood.
- Aim for at least 10% scrub cover of species such as Hazel, Hawthorn, Blackthorn, Dog Rose, Wild Privet, Wayfaring Tree, Dogwood, Crab Apple, Elder, Goat Willow or Guelder Rose.
- Control the growth of non-native species or, if possible, remove them.

- Do not introduce garden plants or non-native species into woodland.
- Maintain open features, such as rides, glades and scalloping of woodland edges.
- Unless a safety hazard, retain any standing or fallen dead wood as habitat for invertebrates, hole dwelling birds, small mammals etc.
- Where possible, create tightly packed log piles, in both shady and sunlit areas avoiding areas of important ground flora. They provide additional habitat for fungi and invertebrates; refugia and hunting grounds for small mammals, reptiles and hibernating amphibians.
- Do not add nutrients such as fertilisers, organic manures or waste materials to woodland soil.
- Avoid disturbance or compression of woodland soils e.g. by heavy machinery.
- Use fires only for essential burning of brash and cuttings, reusing existing fire sites wherever possible. Where possible use raised structures to avoid burning directly on the ground (e.g. metal sheeting raised up by bricks or logs). Avoid locating fires within 10m of the canopy or near areas of woodland flora that indicate an ancient site.
- All new tree plantings should be of native and local provenance.
- Favour natural regeneration over restocking where possible (ground flora or trees).
- Retain mature growth of ivy on trees, except where it is growing along large tree branches and causing them to become unsafe.
- Maintain or reinstate coppicing cycles where appropriate.
- Maintain paths and encourage people to keep to them – trampling on sensitive woodland flora will kill it.
- Promote buffer zones around semi-natural ancient woodland to protect from damage.
- Introduce protective measures where significant grazing or browsing occurs (e.g. deer).
- Identify opportunities for linking existing woodland areas and utilise them, for example, through the planning system.
- Survey and monitor woodlands. Send records to GiGL/BARS and make information available to site managers and Friends Groups, including protected species such as dormice, bats, great-crested newts etc.

Management of Ancient Trees

N.B. Management of ancient trees is very difficult and requires advice from highly skilled experts.

- Have trees assessed regularly and monitor their surroundings.
- Use arborists or contractors experienced in ancient tree management for required works.
- Pollarding is a traditional method of tree management that may be suitable for ancient trees, but requires expertise to be carried out correctly.
- Make sure any ancient trees have been registered on the Woodland Trust's Ancient Tree Inventory at www.ancient-tree-hunt.org.uk/

- Re-route footpaths to prevent root compression, this also protects the public in case of branch loss and protects the tree from surgery for health and safety reasons. Tree roots extend **at least** 1-1.5 times as far as the tree canopy reaches. Consider fencing off this area around the tree.
- Try to germinate seeds/nuts/acorns from the ancient tree and plant any resulting saplings elsewhere on your site if there is an appropriate location away from any sensitive habitats.
- Clear encroaching scrub and trees growing in close proximity to ancient trees but note that sudden release from competing trees can shock and damage them so any works must be done **gradually**.

For more information about ancient trees see
www.ancient-tree-forum.org.uk/ancient-tree-forum/

Hedgerow Management Guidelines

The following guidelines apply whether maintaining by hand or using flails/machinery:

- Allow hedges to reach and maintain a minimum height of 2m, and minimum width of 0.75m (from the centre of the hedge).
- Trim hedges between 31st November and 28th February only.
- Trim hedges no more than one year in three. Trimming of the hedge should be rotated to avoid cutting the whole length in the same year.
- Each time the top of the hedge is cut, raise the cutting line about 10cms to prevent a hard knuckle of wood forming at the trim line. The development of a trim line leads to mushroom shaped growth with gaps forming at ground level.
- Only if required, cut the herb layer adjacent to the hedge every other year in autumn/winter and remove dense cuttings. Leave herb layer at least 4cm high and do not expose bare soil.
- Do not use pesticides, fungicides or herbicides at hedge bases.
- Remove hardwood cuttings from the edge of the hedge after trimming.
- Retain all mature growth of ivy on trees where it is safe to do so.
- Retain standing deadwood unless it presents a safety hazard.
- Plant any gaps in the hedge with native species of local provenance.
- Use traditional management techniques such as hedgelaying where possible; hedgelaying can reduce the need for mechanical maintenance and provide additional benefits for wildlife.
- Protect newly-laid hedges from grazing animals.
- Reduce tree branches overhanging and shading the hedge if they are causing die back of hedge plants beneath.
- Remove dumped rubbish and garden waste from hedge bases.
- Survey regularly to inform management.
- Plant new hedgerows (of native species with local provenance) where appropriate to improve links between woodland copses or other hedgerows.
- Encourage public interest and involvement in traditional hedgerow management.

- It is illegal to grub out more than 20m of hedgerow without consent from the local planning authority (**Hedgerow Regulations Act 1997**). (This regulation does not apply to domestic gardens.)

For more information see the leaflet produced by *hedgelinek* at:

http://www.hedgelinek.org.uk/assets/docs/Hedgelinek%20A5%2012pp%20leaflet_7.pdf

Grassland Management Guidelines (for Hay Meadows)

- Cut grass in late-summer or early autumn; aim to achieve a sward height of 2-10cm through the winter and early spring. **Remove all cuttings.**
- When grazing, ensure livestock breeds used are appropriate for the site, and stocking rates are correct for the area being grazed.
- Avoid summer grazing unless at very low stocking rates across large land areas.
- Keep undesirable species under control (less than 5% of the area) e.g. Common Ragwort.
- Avoid ground disturbance of more than 30% of the total grassland area in one year.
- 15-20% of the hay meadow area should be left uncut each year. The area left uncut is known as an 'insect bank' and should be moved every year (there should be an overlap with the previously uncut area).
- Manage scrub boundaries on rotation.
- Before managing grassland as hay meadow, check if any rare plants or grassland fungi are present, some of which may prefer a shorter sward height.
- Areas of bare soil within grassland are important, especially on south-facing slopes, because they provide nesting sites for solitary bees, many species of which are under threat.
- When creating new meadow habitat, survey first to establish soil type and if there are existing wildflower species present. If there is a need to re-seed, use appropriate species, sourced locally (e.g. use hay collected from another local site of the same soil type).
- Do not apply organic manure, pesticides, fungicides or herbicides to the meadow area.
- Survey regularly to inform management.

Lowland Heath and Lowland Valley Mire Management Guidelines

General Guidelines

- Do not apply fertilisers, organic manures or waste materials.
- Control undesirable species e.g. bracken.

Heathland

- Cover of dwarf shrubs should be between 25% and 90%.
- Populations of notable dwarf species such as *Erica sp.* Or *Vaccinium myrtillus* should be maintained.

- Create a wide range of age classes of dwarf shrubs present through cutting and removing a number of small patches of vegetation each year (up to 5% of the land).
- Remove areas of trees and scrub from within the main heathland so that there is no more than 15% cover. Treat cut stumps with herbicide. On SSSIs seek advice from Natural England.
- Control trees and scrub through rotational coppicing of permanent scrub, and cutting and removal of undesirable scrub and trees.
- Restrict the use of fires as far as possible. Re-use existing fire sites.
- When grazing on heathland, ensure the livestock breed is appropriate for the site, and stocking rates are correct for the area being grazed.
- Avoid summer grazing unless at very low stocking rates across large land areas.

Lowland Valley Mire

- Maintain water levels.
- Maintain areas of open water.
- Remove saplings.
- Prevent scrub development.
- Do not use pesticides, herbicides or fungicides of any kind.
- Control invasive plants such as purple moor grass (*Molinia purpurea*), preventing seeding wherever possible.
- Restrict public access but inform public of the sensitivity of this habitat.
- Survey and monitor. Use findings to inform management.

Pond & Wetland Management Guidelines

General Wetland Habitat Guidelines

- Do not use pesticides, fungicides or fertilisers within 6m of ponds, rivers, ditches or wet woodland.
- Promote scrub on selected parts of pond, river and ditch banks as it provides cover and protection for amphibians and small mammals.
- Maintain long grass adjacent to ponds, rivers and ditches as it provides shelter and protection for amphibians and invertebrates.
- Do not intentionally introduce any plants or animals (including fish) to ponds, rivers or ditches.
- Manage any undesirable weed species present.
- Control the spread of invasive and non-native wetland species such as Himalayan balsam, Japanese knotweed and New Zealand pigmy weed.

Pond Management

- Undertake management every two years between September and February to maintain a balance of submerged, floating and emergent vegetation and open water.
- If de-silting becomes necessary, it is best carried out in September when many pond species have completed their life cycles. Only 1/3rd of the pond should have silt removed at any one time, care must be taken not to damage the pond liner and where possible dredged material should be left at the side

of the pond for about 2 days to allow some of the aquatic invertebrates in the silt to return to the pond.

- Silt is very expensive to remove from the site so it may need to be deposited locally, but away from plants of conservation interest and sufficiently far back from the pond to prevent it draining back in.
- After de-silting an overgrowth of algae and duckweed may occur in the pond until the system settles down, because disturbance releases nutrients in the silt into the water. Plants such as water lilies can reduce duckweed and algal growth by shading the water.
- Where a decision has been made to introduce plants such as water lilies, they should be native species of local provenance and must be very carefully checked to make **absolutely certain** that alien plants such as New Zealand pigmy weed (*Crassula helmsii*), parrot's feather (*Myriophyllum aquaticum*), floating pennywort (*Hydrocotyle ranunculoides*) or any other invasive water plant or animal eggs (e.g. signal crayfish) are not introduced.
- If great crested newts are known to be present, seek further advice before undertaking works.
- Do not allow trees to shade more than 25% of the southern pond margins.
- Do not introduce or feed waterfowl on ponds.
- To benefit great crested newts, the land within 200m of a breeding pond must be managed and no new barriers such as buildings, walls, tracks, or footpaths created. Potential hibernation sites such as rabbit burrows, log piles, rocky areas or woodland should be retained.
- Prevent dogs from entering ponds where possible.

Ditch and River Bank Management

- Cut long grass on one side only of ditches each year in autumn, alternating the sides on a 2 year rotation.
- Clear ditches of debris and dead plant matter in winter. Leave dredged matter adjacent to ditches for 24-48 hours to allow any aquatic invertebrates to return to the ditch, then compost debris.
- Take care not to damage the roots of plants growing on ditch and river banks.

Scrub Management Guidelines

- Manage scrubland so that you have a diverse age and height structure. No more than 50% of the scrub should be mature, or over mature.
- Try and follow a rotational scrub management programme. Never manage more than 1/3 of the site in any one year and never completely eradicate scrub from the site.
- Where scrub is invading a species rich hay meadow, scalloping (cutting a wavy edge) on rotation can allow scrub habitat to remain without encroaching the meadow.
- Control all invasive species.
- Do not apply fertilisers, fungicides, pesticides, organic manures or waste materials.
- Avoid ploughing or other cultivation.
- Remove invasive, non-native species e.g. Japanese knotweed.

Gardens and Allotments Management Guidelines

- Retain natural features as far as is practicable e.g. ancient trees, ponds and watercourses, native hedgerows and scrub margins.
- Maintain a 'buffer zone' around such features by allowing grass to grow around it and avoid non-native planting in the vicinity.
- Wherever possible, avoid or reduce the use of pesticides, herbicides and fungicides e.g. slug pellets.
- Promote the use of natural predators (e.g. frogs, hedgehogs, ladybirds) and companion planting.
- Encourage gardeners and allotment holders to create habitat areas within their gardens or allotments, e.g. natural hedgerows, ponds, scrub corners.
- Encourage allotment holders to plant flowers as well as vegetables to attract more natural pollinators (bees, butterflies, beetles).

Churchyards and Cemeteries Management Guidelines

- Grassland – keep grass short where graves are visited and in areas where grassland fungi are present. More remote areas can be left to grow and set seed - 2 cuts a year (spring and autumn) should be sufficient to maintain the open areas. A mown path through longer grassy areas will allow access without trampling the vegetation. To preserve the grassland fungi do not use herbicides or weed killers on the lawns.
- Walls – use lime mortar for repairs; ivy can shade out wall plants, bryophytes and lichens so should be kept in check by cutting; do not weed kill or pull it out of mortar joints
- Gravestones – the lichens and bryophytes growing on gravestones are adapted to the prevailing conditions. Do not re-site the gravestone unless absolutely necessary; do not clean with bleach or other chemicals nor use weed killer around the base of tombs.
- Grass cuttings should be removed from low curbs and ledgers.

Species-specific Management

- *Wall ferns and wall plants*: lime based mortar should be used for repairs.
- *Bats*: roosts are protected by law so if a roost is present always seek advice from Natural England.
- *Fungi*: do not use chemicals on grassy areas.
- *Lichens and bryophytes*: do not remove these with chemicals or hard brushes when trying to read inscriptions. Use a soft brush and water, try an 'inscription rubbing', or use a tube to look at the inscription (see advice from the Family History Society).

Appendix F:

Best Practise Guidelines for Planners & Developers

Public and Local Authorities have a statutory obligation to conserve and enhance biodiversity under the Natural Environment and Rural Communities Act (NERC) 2006. This act extended the biodiversity duty set out in the Countryside and Rights of Way (CROW) Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity.

“Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity” NERC Act (2006) Section 40 (1).

Planners and developers have the greatest potential to affect the borough’s biodiversity, whether positively or negatively, in their approach to development. Whilst wildlife is present within statutorily protected sites, most often species are found outside these, and are therefore vulnerable to built developments and land use changes. Consideration for the natural history of a development plot and a sympathetic approach towards existing wildlife is fundamental to protecting Bromley’s biodiversity.

The following guidance sets out the key considerations relating to wildlife and biodiversity that should be taken into account at all stages of a development proposal.

General Approach:

Development should not lead to a loss of biodiversity and ideally should enhance it. Important habitats and species should be protected from harmful development. Any adverse effects should be avoided, minimised and/or compensated for, and every opportunity should also be taken to create improvements for biodiversity (see NERC Act 2006 section 40 (3)).

Developers are expected to

- i. Provide accurate information with the planning application on the existence of habitats or biodiversity features and species present on the proposed development site.
- ii. Where it is known a protected species or priority habitat is present, they are to ensure assessments are undertaken to show the impact of the proposed development. Priority habitats highlighted in Bromley’s Biodiversity Action Plans and the succeeding Bromley Biodiversity Plan are woodland, ancient trees, hedgerows, chalk, acid and neutral grassland, lowland heath and valley mire, wetland (including ponds), scrub, churchyards and cemeteries, gardens and allotments. Priority Species are listed in **Section 4 and Appendix C**.
- iii. When assessments indicate that species or habitats will be affected, the development proposal should be designed to minimise this impact.

Step 1: Gathering Information

Before undertaking design work or submission of a planning application, it is important for developers to be able to assess the biodiversity value of the site.

- **Are there any trees on or adjacent to the development site?** A topographical survey will show the location of existing trees. A tree survey (including information on any trees protected by Tree Preservation Orders) should take place on existing trees including ancient trees and notification of trees with holes or crevices which may be used by bats.
- **Are there any protected or priority plants, fungi, invertebrates, amphibians, reptiles, birds or mammals (including bats) using the development site? (See Bromley Biodiversity Plan, section 4: Protected Species in Bromley.)** It is advisable to contact Greenspace Information for Greater London (GiGL) for any existing site-specific species data, or you may need a survey by a qualified ecologist. The National Biodiversity Network (NBN) should also be checked for species records as some wildlife bodies send their survey data directly to the NBN, by passing the local records centre. An ecological survey should identify the presence or potential presence of any protected species on the development site.
- **Are there any priority habitats or biodiversity features or geological features on or next to the site?** Examples include:
 - **Semi-natural ancient woodland (SNAW).** Check the Ancient Woodland Inventory for Greater London. Note that activities which damage the woodland floor such as paint balling and trail riding greatly reduce the biodiversity of this habitat. Natural England provide standing advice regarding ancient woodland at www.gov.uk/ancient-woodland-and-veteran-trees-protection-surveys-licences
 - **Secondary Woodland.** All woodland may support rare and protected species including dormice, bats, stag beetles and birds.
 - **Hedgerows:** Many are an important part of Bromley's natural and historic heritage. Their importance for biodiversity and as part of the landscape is recognised in the Hedgerow Regulations 1997 (see <http://www.legislation.gov.uk/ukxi/1997/1160/schedule/1/made> and the UDP Policy NE9 and draft Local Plan section 8.9 which states, '*In considering development proposals, the Council will normally expect the retention and beneficial management of any existing hedgerow; where a hedgerow is to be removed, the Council will, where appropriate, require its replacement with native hedgerow species.*' Specific species surveys may also be required to accompany the planning application because:
 - a) Hedgerows are used by dormice (a European protected species), which are quite widespread in the south of the borough. Dormice both live in species-rich hedgerows and use them for access between woodlands. During the winter months they hibernate in hedgebanks, coppice stools etc.
Hedgerows are important for bats, both as foraging areas and to navigate through the landscape – a 10m gap will prevent bats from reaching areas previously used for foraging. Slow worms and lizards may both shelter in hedgerows and bask on open hedge banks.

- **Grassland and scrub.** Planning applications involving loss or damage to grassland and scrub may require an ecological survey since these habitats often support protected species such as great crested newts (these animals only visit ponds to breed), slow worm, common lizard, grass snake, adder and declining species such as hedgehogs and skylarks which were added to UK Priority List of Species & Habitats in 2007. Scrub is also important for nesting birds, and bats frequently forage above it.
- **Is there an old lawn present which has been untreated by fertilisers, pesticides, herbicides and fungicides for a long period of time?** If so the lawn should be surveyed for rare grassland fungi and should not be lost or damaged (e.g. by compaction from heavy machinery or stored materials). Surveying for grassland fungi needs to be carried out in October/November. These fungi are rare in Europe as well as the UK, see <http://bioref.lastdragon.org/habitats/WaxcapGrassland.html>
- **Wetland including ponds** have a high biodiversity value. Check for the presence of great crested newts, water vole (River Cray area) and grass snake.

An ecological survey by a qualified ecologist will assess the impact of the development on priority habitats.

- **Is the site adjacent to a Site of Special Scientific Interest (SSSI), Local Nature reserve (LNR) or Site of Importance for Nature Conservation (SINC)?** See Appendix B: Map of Bromley SINCs. An ecological survey must assess the impact of development on any adjacent SSSI, LNR or SINC. The layout and design of the development should avoid harm to wildlife and habitats where possible.
- **Is there a badger sett on site?** Badgers and their setts are protected under the Badgers Act 1992

Ecological Surveying

Ecological surveys should be completed in the early stages of a project, so that the information can be included in the planning application and if necessary, be incorporated into the design of the development. Planning applications can be delayed if the Local Planning Authority has to request further surveys.

It is worth noting that any pre-existing species data is only useful in guiding the way. Existing data may be old, or there may be no existing records in the area. Many sites will never have been subject to ecological survey before, and **an absence of records does not mean an absence of species.**

Table VIII gives an outline of the type of ecological survey that may be required in a development proposal. Some developments may also require an Environmental Impact Assessment (EIA) under the Town and Country Planning Regulations 1999. A Phase 1 habitat survey can be used to identify the habitat types present on a development site and which species surveys may be required.

Table VIII: Development Proposals that will require Ecological Survey

Development Details	Species Likely To Be Affected/ Surveys Required.
<p>A development including the modification, conversion, demolition or removal of buildings or structures (especially roof voids) involving the following:</p> <ul style="list-style-type: none"> • Agricultural buildings (particularly of brick or stone construction with wooden beams) • Roofs • Unused industrial chimneys which are unlined and of brick or stone construction. • Tunnels, culverts, mines, kilns, ice-houses, air-raid shelters, cellars and similar underground ducts and structures. • Bridges, aqueducts and viaducts • Green Roofs 	<p>Bats, Barn Owl, Breeding Birds</p> <p>Bats, Breeding Birds</p> <p>Bats</p> <p>Bats</p> <p>Bats</p> <p>Breeding Birds, Wintering Birds, Plants, Invertebrates.</p>
<p>Proposals for lighting of churches and listed buildings or flood lighting along river corridors, or of green space within 50m of woodland, water, hedgerows or lines of trees.</p>	<p>Bats, Breeding Birds, Invertebrates</p>
<p>Proposals affecting woodland or hedgerows and/or lines of trees with connectivity to woodland or water bodies.</p>	<p>Bats, Dormice, Breeding Birds, Badger, Reptiles, Plants</p>
<p>Proposals affecting established grassland or scrubland including roadside verges.</p>	<p>Breeding Birds, Wintering Birds, Reptiles, Plants, Invertebrates, Grassland fungi</p>
<p>Proposed tree work (felling or lopping) and/or development affecting:</p> <ul style="list-style-type: none"> • Veteran trees (>100 years old) • Trees with cracks and cavities • Trees with substantial ivy cover • Trees with girth greater than 50cm at chest height. 	<p>Bats, Barn Owl, Breeding Birds, Lichens</p> <p>Bats, Barn Owl, Breeding Birds</p> <p>Bats, Breeding Birds</p> <p>Bats, Barn Owl, Breeding Birds, Lichens</p>
<p>Proposals affecting gravel pits or quarries and natural cliff faces and rock outcrops</p>	<p>Bats, Breeding Birds,</p>

with crevices or caves.	Amphibians, Reptiles
Proposals within 250m of a pond (500m of known Great Crested Newts).	Breeding Birds, Great Crested Newt.
Proposals affecting or within 200m of rivers, streams, canals, lakes or other aquatic habitats such as reedbed.	Bats, Breeding Birds, Wintering Birds, Great Crested Newt, Water Vole, Amphibians, Plants
Proposals affecting 'derelict' land (brownfield sites), allotments and railway land.	Breeding Birds, Wintering Birds, Great Crested Newt, Badger, Reptiles, Amphibians, Invertebrates.
Proposals affecting bare ground and/or sparsely vegetated sites in any location.	Breeding Birds, Wintering Birds. Reptiles Invertebrates
Proposed development affecting any buildings, structures, feature or locations where protected and/or priority species are known to be present.	Bats, Barn Owl, Breeding Birds, Wintering Birds, Great Crested Newt, Water Vole, Badger, Reptiles, Amphibians, Plants, Invertebrates, Stag Beetle.
Proposed development involving old lawns attached to substantial houses	Fungi
Adapted from Table 5.1, Biodiversity Supplementary Planning Document, 2012, LB Barking & Dagenham.	

Surveys of particular species and habitats often need to take place at particular times of year. Surveys completed out of season will not provide accurate information and could cause delays in processing an application. Table 2. Indicates the optimal surveying times for typical species surveys.

Planners should be aware that Natural England provides Standing Advice about species most often affected by development. Local planning authorities must take this advice into account if species are identified within or adjacent to the development site. See:

<https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals>.

Table IX. Timing of field surveys for various animals and plants.

Key: **Optimal Survey Time** **Extending into**

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Plants				Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Extending		
Fungi										Optimal	Optimal	
Lichens	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal
Bats (Hibernating)	Optimal	Optimal								Extending	Optimal	Optimal
Bats (Breeding)				Extending	Optimal	Optimal	Optimal	Optimal	Optimal			
Great Crested Newts & other amphibians		Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Extending	
Reptiles			Optimal									
Badgers		Optimal	Optimal	Optimal	Extending	Extending	Extending	Extending	Extending	Optimal	Optimal	Extending
Water voles			Extending	Optimal								
Birds (wintering)	Optimal	Optimal									Optimal	Optimal
Birds (breeding)			Optimal	Optimal	Optimal	Optimal	Optimal	Optimal				
Dormice (Hibernating)	Optimal	Optimal									Extending	Optimal
Dormice (Breeding)					Optimal	Optimal	Optimal	Optimal	Optimal	Extending		
Invertebrates				Optimal	Optimal	Optimal	Optimal	Optimal	Optimal			

Step 2: Design Stage

The information provided in Step 1 should be incorporated into the development design in one of the following ways.

Protection

For sites with existing biodiversity value.

- Site layout and design should seek to retain existing habitats and features that benefit wildlife, giving priority to protected species and habitats included in the Bromley Biodiversity Plan.
- Consideration should be given to features adjacent to the development that may be affected by the scheme. For example when development is proposed adjacent to woodland, a buffer zone between the woodland and the development site should extend as least as far as the tree canopy to avoid loss of trees later.
- When a site or surrounding has clear biodiversity value and insufficient steps are taken to reasonably protect it, then planning permission may be refused on these grounds, once all other planning issues have been taken into account.
- Where a hedgerow is to be retained there should be sufficient distance between the hedgerow and any development to ensure that enough light reaches the hedgerow base to allow continued growth. Protection afforded to significant hedgerows during development under Section 8.9 of the draft UDP/Local Plan should include a minimum distance to prevent damage to the hedgerow shrub roots. A buffer zone of rough grassland of 1 metre should be retained adjacent to any hedgerow as this will increase its biodiversity value.
- In the case of retention of an important species-rich or historic hedgerow alongside a new development, the developer should be encouraged to provide short leaflets for the new property owners explaining the importance of the hedgerow, how to look after it and where to seek advice. See <http://www.hedgeline.org.uk/documents/Complete%20Good%20Hedge%20Management%20Guide%20Leaflet.pdf>

Enhancement

For sites which have limited biodiversity interest.

Developers should look to design in opportunities to improve habitats for biodiversity conservation and to increase the overall quality of the development by enhancing existing habitats or creating new areas appropriate to the wider landscape context.

For example by:

- Better management of habitats that already exist.
- Restoring habitats that have been degraded or neglected by previous development.
- Creating areas of new habitat such as woodland, hedgerows, scrubland, coarse grassland or ponds in landscaped areas or public open space.

- Siting open space and landscaping so that planting within them forms a wildlife corridor and habitat link between adjacent areas.
- Ensuring planting schemes use native species of local provenance unless there is a good reason why not (as might be the case within a garden). Any introduced plants should be locally grown from stock known to be disease free and in soil harbouring only native, and preferably local, fungi and soil animals. Otherwise there is a risk of spreading plant diseases e.g. problems caused by imported ash infected with the fungus *Chalara fraxinea*, oak processionary moth and the fungi *Phytophthora ramorum* and *P. kernoviae* imported on rhododendron.
- Where horticultural planting is appropriate, invasive species such as cherry laurel (*Prunus laurocerasus*) should never be included adjacent to any green space.
- Making provision on new buildings for species such as bats, house martins, swallows, swifts, barn owls or other species that might live locally, e.g. by incorporating bat bricks, bird boxes etc wherever appropriate.
- Restoring landfill and mineral sites to heathland, grassland or reedbed.
- Using Sustainable Drainage Schemes so that drainage infrastructure also acts as biodiversity habitat.
- Consider using green roofs/green walls in urban areas to mitigate excess heat as well as increasing biodiversity.

Mitigation of Harm

For sites where some damage to existing habitats and species will occur.

In some cases, it may be possible to minimise the harm done to wildlife through the use of design measures such as:

- Timing the development of sites to avoid the breeding seasons of species present. For example, tree work and hedgerow removal, if agreed, should be carried out during the winter months (See **Appendix E: Land Managers Guidelines**)
- Creating buffer zones between sensitive areas and development areas to reduce disturbance to habitats.
- Ensuring that new infrastructure such as bridges are built to enable movement of wildlife to continue.
- Steps to ensure that the hydrological status of sensitive sites is maintained through the careful design of drainage infrastructure.
- Translocation of species from destroyed habitat (to be used as a last resort).
- A financial contribution to management of nearby existing wildlife sites, through a commuted sum, can be required where the development could lead to increased pressure on those sites (e.g. noise and disturbance through increased amenity use).
- Artificial lighting should avoid spill on to areas of greenspace, especially woodland and woodland edge, hedgerows, wildlife corridors (including waterways), ponds, trees and buildings that may support bat roosts and foraging areas or nesting birds.

The Royal Commission on Environmental Pollution (2009) recommends that planning guidance includes a presumption against the provision of artificial light in areas where it may have a negative impact on species of concern (see, 'The Royal Commission on Environmental Pollution: Artificial Light in the Environment at

<https://www.gov.uk/government/uploads/.../9780108508547.pdf>

Public bodies also have a 'biodiversity duty' under the NERC Act 2006 to consider the impact that lighting, polarisation and reflection will have on general biodiversity.

- For sites supporting badgers, construction work within 30m of an active sett can only be carried out between July and November and an exclusion zone has to be fenced off as approved by the LPA. Work closer to the sett than 30m has to be agreed with conditions approved by the LPA (see Bromley's Standard Planning Conditions).

N.B. Mitigation reduces the level of harm caused, but it must be remembered that harm will still be done. When the proposed mitigation steps are insufficient, then planning permission may be refused once all other planning issues have been taken into account.

Compensation for Loss

For sites where damage is unavoidable, in spite of mitigation.

Where appropriate, the developer should propose steps for compensating for any loss to biodiversity by creating new habitat in replacement either on site or off-site. However, compensation for lost habitat will not make an unacceptable development acceptable. There are only very limited circumstances where this loss is justified.

Examples of compensating actions:

- Enhance existing water features or create a new one, including habitat suitable for water voles, foraging bats and amphibians.
- Allow areas of undisturbed bank-side vegetation on riverside developments
- Incorporate barn owl or bat 'lofts', bat bricks or bird boxes within building conversions. Incorporate bat bricks when repairing bridges over rivers.
- Create swift, swallow and house martin boxes attached to buildings.
- Create an area of wildflower meadow (plant native species of local origin) and allow natural expansions/colonisation.
- Retain as many trees as possible.
- Plant new trees (native and of local provenance).
- Maintain existing mature trees.
- Plant hedgerows with native species of local provenance wherever appropriate to link areas of wildlife habitat or define boundaries. The planting area should include an un-mowed buffer zone of at least 1 metre adjacent to the new hedgerow.
- Create general undisturbed areas of habitat (woodland, scrubland or grassland) that are managed for wildlife.

N.B. Artificially created habitat will be greatly inferior (from a biodiversity perspective) to established habitat. Wherever possible, it will be better to retain a remnant of an established habitat rather than to try and recreate it in another area.

Step 3. Monitoring and Management

For sites where planning permission has been agreed.

Developers awarded planning permission need to ensure the success of biodiversity protection and enhancement measures through monitoring and management.

This may include:

- Monitoring of a site during and post construction to ascertain any effects on wildlife, especially protected species.
- Ensuring the development process complies with wildlife law.
- Monitoring retained features and new or enhanced habitats to gauge their success.
- Provision for the appropriate management of retained features and of new or enhanced habitats for as long as necessary; such as a 5-year management plan with the developer.
- Avoid the use of herbicides and pesticides within the management regime.
- Include management to prevent the spread of invasive species such as Japanese knotweed, Himalayan balsam, giant hogweed and the currently unregulated cherry laurel. In wetland areas these may include New Zealand pigmyweed (*Crassula helmsii*), parrot's feather (*Myriophyllum aquaticum*), floating pennywort (*Hydrocotyle ranunculoides*) and creeping water primrose (*Ludwigia grandiflora*, *L. hexapetala* and *L. peploides*). (See **Appendix D: Invasive Non-Native Species in Bromley**)
- Agreement with a local residents or Friends group to handover on-going management responsibility.
- A commuted sum for management secured through a planning obligation to cover long-term maintenance costs.

Biodiversity Advice for Permitted Development

Permitted development refers to improvements homeowners can make to their houses without the need for a planning application.

Although planning permission is not required, it is still necessary to ascertain the presence of protected species in order to comply with relevant wildlife legislation.

Typically birds and bat species are most affected. Surveying for nesting birds or roosting bats is advisable before starting work. For work affecting ponds, a survey for great crested newts is also advisable since they are a European Protected Species. The development of a site where European protected species occur can go ahead only if licensed by Natural England.

Birds – to avoid disturbing nesting birds, necessary work must be done outside the nesting season. All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000) whilst they are actively nesting or roosting.

Bats – are European Protected Species. It is an offence to damage, destroy or disturb access to any structure or place that a bat uses for shelter or protection, even when bats are absent, and when bats are found to be present, undertaking works may require a license from Natural England. It is recommended that householders consult a qualified bat surveyor.

Badgers and their setts are protected under the Badgers Act 1992

Reptiles: Slow worm, common viviparous lizard, adder and grass snake are protected from intentional killing or injuring under the Wildlife and Countryside Act 1981.

If nesting birds, dormice, great crested newts, bats or reptiles are discovered once works have started, the work must stop immediately and the home owner should contact Natural England for advice and the local planning authority should be informed.

Useful References

A Vascular Plant Red List for England 2014: http://bsbi.org.uk/England_Red_List.pdf

Bromley Biodiversity Plan 2015 - 2020

Countryside and Rights of Way (CROW) Act 2000:
www.legislation.gov.uk/ukpga/2000/37/contents

Grassland Fungi: <http://bioref.lastdragon.org/habitats/WaxcapGrassland.html>

Hedgeline:

<http://www.hedgeline.org.uk/documents/Complete%20Good%20Hedge%20Management%20Guide%20Leaflet.pdf>

Hedgerow Regulations 1997

<http://www.legislation.gov.uk/ukxi/1997/1160/schedule/1/made>
<http://www.biodiversityplanningtoolkit.com>

Natural England Standing Advice: <https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals>

Natural Environment and Rural Communities (NERC) Act 2006
<http://www.legislation.gov.uk/ukpga/2006/16/section/40> .

Protected Species in London, Greater London Authority 2005:

http://www.legacy.london.gov.uk/mayor/environment/biodiversity/docs/protected_species_in_london.pdf

The Badgers Act 1992: <http://www.legislation.gov.uk/ukpga/1992/51/contents>

The Royal Commission on Environmental Pollution: Artificial Light in the

Environment at <https://www.gov.uk/government/uploads/.../9780108508547.pdf.pdf>

UK Priority List of Species & Habitats in 2007:

<http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>

Wildlife and Countryside Act 1981 as amended:

<http://www.legislation.gov.uk/ukpga/1981/69>

LBB UDP. Adopted UDP written statement available at

www.bromley.gov.uk/UDP/contents_written.htm

LBB Draft Local Plan available at time of writing on the LBB website at

bromley-consult.objective.co.uk/portal/lpdpd/lpdpc?pointId=2734272

Appendix G:

Best Practice Guidelines for Friends Groups & Volunteers

Friends groups and other volunteer organisations can make a real difference to the protection and preservation of local wildlife sites. However, it can often be confusing for newcomers to know how best to help wildlife. These guidelines aim to help volunteer groups find the best way to enhance Bromley's biodiversity through the work they do. They are not comprehensive and should be read in conjunction with the Bromley Friends Forum Toolkit (www.bromleyfriendsforum.org).



Getting to Know Your Site

Any park or green space will have potential for wildlife but don't rush in to do things, research your site first.

- Find out all you can about the potential biodiversity of your site.
- Check with the local authority or local biological records centre to see if there are any existing wildlife records for your site.
- Speak to the land manager to see if the site has an existing management plan before starting work.
- Check if the site you work on is already listed as a Site of Importance for Nature Conservation (SINC) – See current list of SINC's in **Appendix 1**.
- If the site is on private land, check for Tree Preservation Orders (TPO) that may have been put on significant trees.
- Some species are protected by law. If you find evidence of bats, great crested newts, adders or dormice please seek further advice. See more information in **Section 4: Protected Species in Bromley**.
- See if you can find any information about the site's history – was it always woodland or was it grazing land? Look for old boundary features. What type of soil does it have - chalky, acid, clay?
- Always get permission from the landowner or site manager before commencing any work.

Habitats with Particular Wildlife Value

- **Semi-natural Ancient Woodland** This is woodland that has been in situ for 400 years or more. It supports a rich mixture of wildlife that takes many hundreds of years to develop. Although the trees were regularly harvested the ground was relatively undisturbed so the soil fungi and plants may be the oldest things in the wood. Many of them are not found away from this habitat and support special invertebrates. Bromley contains a third of Greater London's ancient woodland habitat.
- **Secondary Woodland** Not as species rich as ancient woodland, but it is also important for wildlife and may support rare and protected species including dormice, bats, stag beetles and birds
- **Ancient Trees** Because of their age and the different niches they provide, each one provides a stable habitat supporting hundreds of species.
- **Hedgerows** – a line or narrow belt of closely spaced scrubs which forms a barrier. Typical hedgerow species include hawthorn, field maple and blackthorn. Some hedgerows are very old, and may have historical significance. Hedgerows often act as 'corridors' for wildlife, linking habitats and providing protection from predators.
- **Meadows** – grassland that is allowed to grow long and is rich in wildflowers. Many 'improved' grassland areas such as playing fields will once have been wildflower meadows. In some of these areas, wildflowers will regenerate given the opportunity.
- **Heathland** – scrubland found on acid soils, with heather and gorse being typical species.
- **Wetland: Ditches, Ponds & Rivers** – support some of the hundreds of plants and animals which need freshwater or damp habitats.
- **Scrub** – often undervalued, it provides food and protection for a wide variety of invertebrates, birds, mammals and other animals.



Wood Anemones are an ancient woodland indicator.



Jersey Tiger Moths like scrubby habitats.

For more detailed information on habitats, please see **Section 3: Habitats in Bromley**.

Managing Habitats for Wildlife

Regarding habitat management, only do tasks that you have been trained to do. Make sure that adequate risk assessments have been carried out for tasks in the field and that they are adhered to.

Ensure any planting you do is site suitable. Look after the native wild plants you have, they support more invertebrates than non-native species and therefore more birds and bats. If you have to buy native plants for planting make sure they are of local provenance, or at least from south-east England.

Remove plants that don't belong on your site, e.g. Spanish and hybrid bluebells. Garden plants may hybridise with or out-compete native species. Many are unsuitable for native invertebrates and therefore reduce site biodiversity e.g. cherry laurel.

Make sure any work you do is seasonally appropriate:

- **Scrub clearance** - must only be done during the winter, approx October to February (observe weather and act accordingly). This will ensure that birds are not disturbed during the nesting season. **Note: it is against the law to disturb some nesting birds.**
- **Coppicing & felling** (under supervision only, or if trained) mid-winter, when leaves have dropped and trees are dormant and birds are not nesting.
- **Tree planting** approx November to February
- **Pond/ditch work** September and October are the best months; most amphibians will have left ponds by then and they will not have started hibernating. If you have rare species on site, e.g. great crested newts, seek further advice.
- **Fires on site** October to March. Try not to have fires on site. If you have no alternative, re-use old fire sites whenever possible and remove the ash when cold. Always check piled up dead brash for hedgehogs and other animals before having a fire.
- **Hedge trimming** November to February. It is not necessary to cut hedges every year. Natural England recommends that hedges are cut only twice over a six year period. Consider cutting sides of a hedge on rotation. **Never** cut long grass at hedge bases. It is a very important part of hedgerow habitat and will be home to many invertebrates, e.g. butterfly caterpillars as well as larger animals such as toads, slow worms, shrews, voles and hedgehogs.

- **Grass cutting** September: leave till late summer to ensure the seed has set. Always remove any cuttings that you produce (you could either pile them up on site as a habitat pile or remove them off site and compost them).

As you can see from the above list – most habitat based work needs to be carried out during the winter (October to March), leaving you the summer months to concentrate on tasks such as footpath clearance and maintenance, furniture repair and installation and survey work.

Consider adding value to your site through...

- Bat boxes / bird boxes etc – but discuss how you will check, clean and record what is using them.
- Leave some wild areas as insect refugia.
- Make log piles and/or stag beetle loggeries. Leave dead wood on site whenever it is safe to do so as it is important for invertebrates, fungi and creatures that eat them.
- Maintain main paths in good condition and discourage trampling elsewhere within your site as this will reduce biodiversity.
- Where appropriate, plant native hedgerow species of local provenance.



For more detailed habitat management guidance please see Appendix E: Guidelines for Land Managers, Bromley Friends Forum Toolkit or contact the local authority, Bromley Biodiversity Partnership or local wildlife charities for further guidance or training.

APPENDIX H:

Best Practice Guidelines for Schools

School grounds, teachers and pupils can make a very important contribution to Bromley's biodiversity. School grounds can provide habitats for wildlife which can become a teaching aide for inspiring a new generation. These guidelines aim to outline how schools can improve their grounds for wildlife and maximise their use as an education resource.

Why should schools improve their biodiversity management?

- Because it helps meet the objectives relating to the environment and sustainability as required by the National Curriculum.
- Because it gives pupils the opportunity to appreciate wildlife and better understand the world in which they live.
- Because it improves the environment of the school grounds and therefore the workplace.
- Because it improves biodiversity for everyone in the borough.
- Because it helps to protect the future of wildlife in the region.



How to get started

The points below can be useful cross-curricular learning activities throughout the school.

- Get to know your site first. Any open space can have value for wildlife. You may already have features within your school grounds that are wildlife-friendly. Walk around the grounds and look at what you already have – any grassland, scrub, trees or a pond?
- See if you can find anything out about the land history. What was the land used for before it was built on? Was it woodland or grazing land for example? This could tell you a lot about the sort of wildlife that would naturally occur.
- What sort of soil do you have? Is it chalky, acid or clay?
- Check for any Tree Preservation Orders (TPOs) that may have been put on significant trees.
- Find out if your school grounds incorporate or are adjacent to a Site of Importance for Nature Conservation (SINC) – see **Appendices A & B**.
- Some species are protected by law. If you find evidence of bats, great crested newts, adders or dormice, please seek further advice – see **Section 4. Protected Species in Bromley**.



Habitat Creation in School Grounds

One of the easiest ways to improve your school's biodiversity is to create areas for wildlife within your grounds. The work does not need to be expensive or complicated to add significant wildlife value.

Examples of the types of habitat you could create include:

Hedgerows Create a hedgerow by planting a line of sapling trees (known as whips). The trees should be of locally sourced native species such as hawthorn, dogwood, hazel, beech, alder, buckthorn and field maple. Hedgerows provide a habitat for many species. For more information about hedgerows see **Section 3.3. Habitats; Hedgerows**

Ponds A pond should be at least 500mm in depth and have a staggered bank to allow wildlife to easily get in and out and to provide different depths of water for invertebrates. Ponds should not be stocked with fish. If you want to add plants to your pond, they must be native species that have been sourced locally. It is important to check to make **absolutely certain** that alien plants such as New Zealand pigmyweed (*Crassula helmsii*), Parrot's Feather (*Myriophyllum aquaticum*), water fern (*Azolla filiculoides*) or any other invasive water plant are not introduced since these are extremely difficult to eradicate once they are in your pond. Allow the pond to fill naturally with rain water – if a top up is required, try to collect rainwater rather than using artificial water sources. Do not attempt to bring in amphibians from garden ponds. Frogs and toads will colonise a new pond without help. For more information see **Section 3.6 Habitats; Wetland**.

Wildflower Meadows To create a successful wildflower meadow, it is important that the soil is low in nutrients. This often means removing the top soil if you are using a unwanted corner of the school field. Wildflowers can be planted from seed, but if you are buying a meadow seed mix, ensure that it is appropriate for your soil type and locality. If possible, try to source wildflower seed locally, such as hay cropped from a nearby meadow (this will require permission from the landowner). For more information, see **Section 3.4 Habitats; Grasslands**.

Woodland or Scrub Corners If you only have a small corner of the playing field available, consider planting local native tree and shrub species of local provenance in it. Native plants support more invertebrates than non-native species, providing food for other invertebrates, birds and bats. Trees and shrubs also provide food and shelter for birds and small mammals. For more information, see **Section 3.7 Habitats; Scrub**.

Bees & Butterfly Gardens This can be done even in schools with very limited outside space. Plants which provide nectar and pollen for a wide range of bees, butterflies and other invertebrates can be planted in window boxes, hanging baskets plant pots or raised beds - wherever there is some space. Many of these plants would also be suitable for a sensory garden.

Stag Beetle Loggery Stag beetles are widespread in Bromley, although scarce

elsewhere. Stag beetle larvae spend most of their lives underground eating rotten wood. To create habitat for stag beetles, 'plant' some old logs vertically into the ground, so that they are half-submerged. You can also bury piles of wood chippings. Log piles will provide a home for many other invertebrates as well as stag beetles.

Further reading: London Wildlife Trust; Wildlife Gardening Guides (<http://www.wildlondon.org.uk/wildlife-gardening-guides>)

Managing School Grounds with Biodiversity in Mind

The way school grounds are maintained is often a limiting factor when it comes to biodiversity. Some simple changes to the way your grounds are managed could greatly improve your site for wildlife.

- Landscaping - try to set some areas aside for wildlife within the context of any landscaping. For example, leave a strip of grass to grow long, only cutting once a year. Leave an 'untidy' area of scrub. Include 'buffer zones' of long grass or scrub around habitat features such as ponds or trees.
- Create or maintain linear features within the landscape, e.g. hedgerows and strips of long grass. Use them to connect existing habitat areas. They will act as wildlife corridors.
- Planting – only use native species for planting that are locally sourced. Local wildlife will be adapted to these flowers and plants.
- Incorporate wildlife-friendly features around the school buildings, such as bird and bat boxes.
- When herbicides have to be used, use only biodegradable, systemic herbicides which should ideally be applied using spot treatment methods.
- Use only peat-free composts.

Further Reading: Learning through Landscapes <http://ltl.org.uk/>

Using the Outdoor Environment as a Teaching Resource

There are many ways in which you can use the outdoor environment as a teaching resource. Habitats created for the benefit of wildlife can also be used for education activities.

- Hedgerows – bird watching, plant identification and bug hunts.
- Ponds – pond dipping
- Wildflower Meadows – plant identification, bug hunts.
- Bee & Butterfly Gardens – gardening, sensory trails, bug hunts.



- Woodland – bug hunts, bush crafts, den-building
- Forest Schools – Forest School is a popular new initiative for outdoor learning. However, if you are considering setting up your own Forest School in your local area, consider carefully the site you choose to use. Forest School should not be carried out on ancient woodland or other sensitive habitats as trampling will cause a loss of ground flora that may not be recoverable.

BEECHE – Bromley’s Environmental Education Centre at High Elms

BEECHE offers a wide range of CPD courses, run either at BEECHE or on-site at your school. Courses aim to train (and encourage) teachers to use the outdoor environment as a teaching resource. They also offer Forest School training for teachers interested in leading their own Forest School groups.



BEECHE can also offer further advice on setting up and maintaining a wildlife area in your school grounds.

BEECHE also provides curriculum-based environmental education activities for schools led by qualified teaching staff.

For current prices and bookings please ring 01689 860571 or email environmental-education.bromley@thelandscapegroup.co.uk