Camden Biodiversity Action Plan
2013-2018

Camden

Contents

1.0 Introduction

Camden is an inner-London borough that is defined by both its built and natural environment. Biodiversity plays an integral role in defining this character– from the expansive open spaces in the north of the borough, to the tree-lined squares in the south, and the canal that weaves through its centre.

What is biodiversity?
Biodiversity is the variety of life on Earth. This includes wildlife (such as animals, birds and plants), the places where they live (habitats) and the ecosystems of which they are part.

Camden's biodiversity helps to provide us with a variety of vital services and benefits. For example, trees and plants improve air quality, absorb carbon dioxide and help to regulate city temperatures; vegetated areas reduce surface water run-off and flooding risk; and insects such as bees provide valuable pollination services. There are also a number of social, cultural, education, health and recreation benefits provided by biodiversity.

This means that protecting biodiversity is not just about looking after rare species and habitats, but also helps us to ensure that we have the capacity to support future generations of Camden residents.

This is the third iteration[i] of the Camden Biodiversity Action Plan (BAP) and will run over 5 years from 2013-2018. The Camden BAP is a partnership document involving many organisations engaged with biodiversity in the borough, including land managers, community groups and Council services (see Table 1).

This Camden BAP translates the UK Biodiversity framework, England Biodiversity Strategy and the regional London BAP targets onto the local level. The Plan outlines a series of actions to ensure that biodiversity is safeguarded in the borough and that Camden's residents are given opportunities to access the natural environment.

The focus and content of this BAP has been informed by an evidence base (the Camden Biodiversity Audit, Appendix 1) and policy requirements (see Table 2). This was further shaped through stakeholder engagement, including a biodiversity workshop with key partners (see Appendix 2) As a result there will be three key areas of focus:

1. Access to Nature
2. The Built Environment
3. Open Spaces and Natural Habitats

Table 1: Camden BAP Partners

- Allotment associations and community garden associations
- Camden Council: Children, Schools and Families
- Camden Council: Community Investment Programme
- Camden Council: Corporate Sustainability
- Camden Council: Development Management
- Camden Council: Environment Service
- Camden Council: Housing and Adult Social Care
- Camden Council: Parks and Open Spaces
- Camden Council: Placeshaping
- Camden Council: Sports and Physical Activity
- Camden Council: Transport Strategy
- Camden Nature Reserves Forum
- City of London
- English Heritage
- Friends groups
- Froglife
- Greenspace Information for Greater London
- Groundwork
- Heath Hands
- London Bat Group
- London Wildlife Trust
- Mill Lane Action Group
- Peoples Trust for Endangered Species
- Reddington Frognal Association
- RSPB
- The Conservation Volunteers
- The Royal Parks

2.0 Why does Camden need a Biodiversity Action Plan?

Having a BAP provides the strategic framework to deliver biodiversity across Camden and enables us to work in partnership to achieve more with limited resources.

The BAP is the main mechanism for delivering against policy and legislative requirements for the consideration of biodiversity at the national, regional and local level (outlined in Table 2).

Notably, the 'Biodiversity Duty' as set out in the Natural Environment and Rural Communities Act 2006 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*'.

The BAP also goes beyond this by outlining the key opportunities for maximising the wider social and environmental benefits that biodiversity provides to Camden's residents.

Table 2: Policy Context

National	Natural Environment and Rural Communities Act 2006	Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services
	Wildlife and Countryside Act 1981 (as amended)	
	National Planning Policy Framework 2011 *Section 11: Conserving and enhancing the natural environment*	ODPM Circular 06/2005 Biodiversity and Geological Conservation
	Natural Environment White Paper 2011	UK Biodiversity Action Plan
Regional	London Plan policies: • *2.18 Green infrastructure* • *5.3 Sustainable design and construction* • *5.9 Overheating and cooling* • *5.10 Urban greening* • *5.11 Green roofs and development site environs* • *5.12 Flood risk management* • *5.13 Sustainable drainage* • *7.5 Public realm*	• *7.17 Metropolitan Open Land* • *7.18 Protecting local natural space and addressing local deficiency* • *7.19 Biodiversity and access to nature* • *7.21 Trees and woodlands* • *7.22 Land for food* • *7.23 Burial space* • *7.28 Restoration of the Blue Ribbon Network* • *7.30 London's Canals and other Rivers and waterspaces*
	Connecting with London's nature: The Mayor's Biodiversity Strategy 2002	Connecting Londoner's with trees and woodlands: A Tree and Woodland framework for London 2005
	London Biodiversity Action Plan	The All London Green Grid
Camden	Local Development Framework 2010 • *Core Strategy Policy 15: Protecting and improving our parks and open spaces and encouraging biodiversity* • *Development Policy 22: Promoting sustainable design and construction* • *Development Policy 31: Provision of, and improvements to, open space and outdoor sport and recreation facilities*	Camden Planning guidance • *1. Design (Section 6) Landscape design and trees* • *3. Sustainability Section 10 Brown roofs, green roofs and green walls, Section 13 Biodiversity, Section 14 Local food growing*
		Sites of Nature Conservation Importance Supplementary Planning guidance
		Green Action for Change
		Camden Parks and Open Spaces Action Plan 2012/13
	The Camden Plan	Camden Tree Policy (2012)

3.0 Wider benefits of biodiversity

This section of the BAP outlines how the natural environment helps to make our borough a better place to live for Camden's residents. Biodiversity contributes to our quality of life by providing opportunities for physical activity or quiet contemplation. It also plays a wider role in securing the future of our borough by cleaning our air and helping to mitigate the impacts of climate change. There is not equal access to the natural environment across Camden and this plan will seek to address those inequalities so that all of our residents have the opportunity to access the benefits that biodiversity can provide.

3.1 Health and Wellbeing

Health and wellbeing is recognised as a priority in The Camden Plan. Key health issues highlighted in Camden's Joint Strategic Needs Assessment 2012[ii] and the draft Health and Wellbeing Strategy[iii] include providing better outcomes for families with multiple needs and supporting action on weight management and active living.

What this means for the BAP?
Camden's BAP links closely to health and wellbeing priorities in the borough including 'healthy weight, healthy lives', increasing physical activity and mental health by encouraging access to the natural environment.

The issues	How biodiversity can contribute
The prevalence of childhood obesity is significantly higher in Camden than in England as a whole; around one in ten 4-5 year olds and around one in five 10-11 year olds is obese. It is estimated that 15.5% of Camden adults are obese.	Biodiversity provides residents with opportunities to access outdoor recreation and informal 'green exercise', including walking and conservation activities. Those who live within 500m of green space are 24% more likely to achieve recommended physical activity levels[iv]. The amount of green space in a neighbourhood has been found to increase the sense of well-being among residents[v]; biodiverse green spaces can further increase this feeling among visitors[vi].
Camden has the second highest prevalence of recorded serious mental illness in both London and England and the 5th highest rate of depression in London.	It has been shown that areas with higher amounts of green space have reduced prevalence of mental illness in surrounding areas[vii] and increased access to nature can improve the well-being of those suffering from mental illness[viii].
Air pollution is associated with a number of adverse health impacts and has been linked to 5,000 premature deaths in London each year[ix].	Greening of the built environment (through street trees, living walls and roofs, and areas of green space) helps to improve air quality and therefore contributes to safeguarding public health.

3.2 Engagement and education

The natural environment provides a valuable engagement resource, particularly in urban areas. However levels of access to, and engagement with, this resource is not equitable across the borough or for Camden residents. A key focus of this BAP is to work in key geographic areas and with under-represented groups to address this inequality.

Engagement activities can range from physical volunteering activities to talks on wildlife or open days. These can be led by a variety of different groups, including voluntary organisations (such as London Wildlife Trust and The Conservation Volunteers), businesses, Friends groups and residents associations, and the Council. Volunteering can provide health benefits (as outlined in section 3.1), contribute to conservation work and instil a sense of pride and community in local greenspace.

The provision of high quality green space with biodiversity value can also enhance community cohesion and reduce crime. The presence of natural vegetation in housing estates has been shown to reduce crime rates[x]. Conservation and Friends groups can also act as a mechanism to engage communities and facilitate community dialogue and cohesion[xi].

Figure 1: Camden Green Gym at Primrose Hill

3.2.1 Inequalities in access

Levels of deprivation vary widely across the borough; Camden contains areas that are amongst the 10% *most* deprived and those that are in the 20% *least* deprived in the country. Deprivation is a key factor influencing health outcomes in Camden. The importance of prioritising these areas is reflected within the Camden Parks and Open Spaces Priorities and Strategic Objective 4 of the Camden Plan[xii], which strives to invest in communities to ensure sustainable neighbourhoods. There are typically lower levels of active engagement with the natural environment in more deprived areas.

Areas of Deficiency in Access to Nature are defined localities that are more than one kilometre walking distance from a publicly accessible Borough or Metropolitan Site of Importance for Nature Conservation (SINC). This was defined in the 'Improving Londoners' Access to Nature London Plan (Consolidated with Alterations since 2004) Implementation Report'[xiii]. Parts of the west, east and south of the borough have low levels of access to nature (shown as the shaded areas in Figure 1). With all the benefits provided by the natural environment, it is important to reduce this inequality by targeting activities and improvements to communities within these areas.

As well as geographic areas that have unequal access to nature, The Government's Diversity Review[xiv] identified four social groups which have significantly lower levels of access to nature:

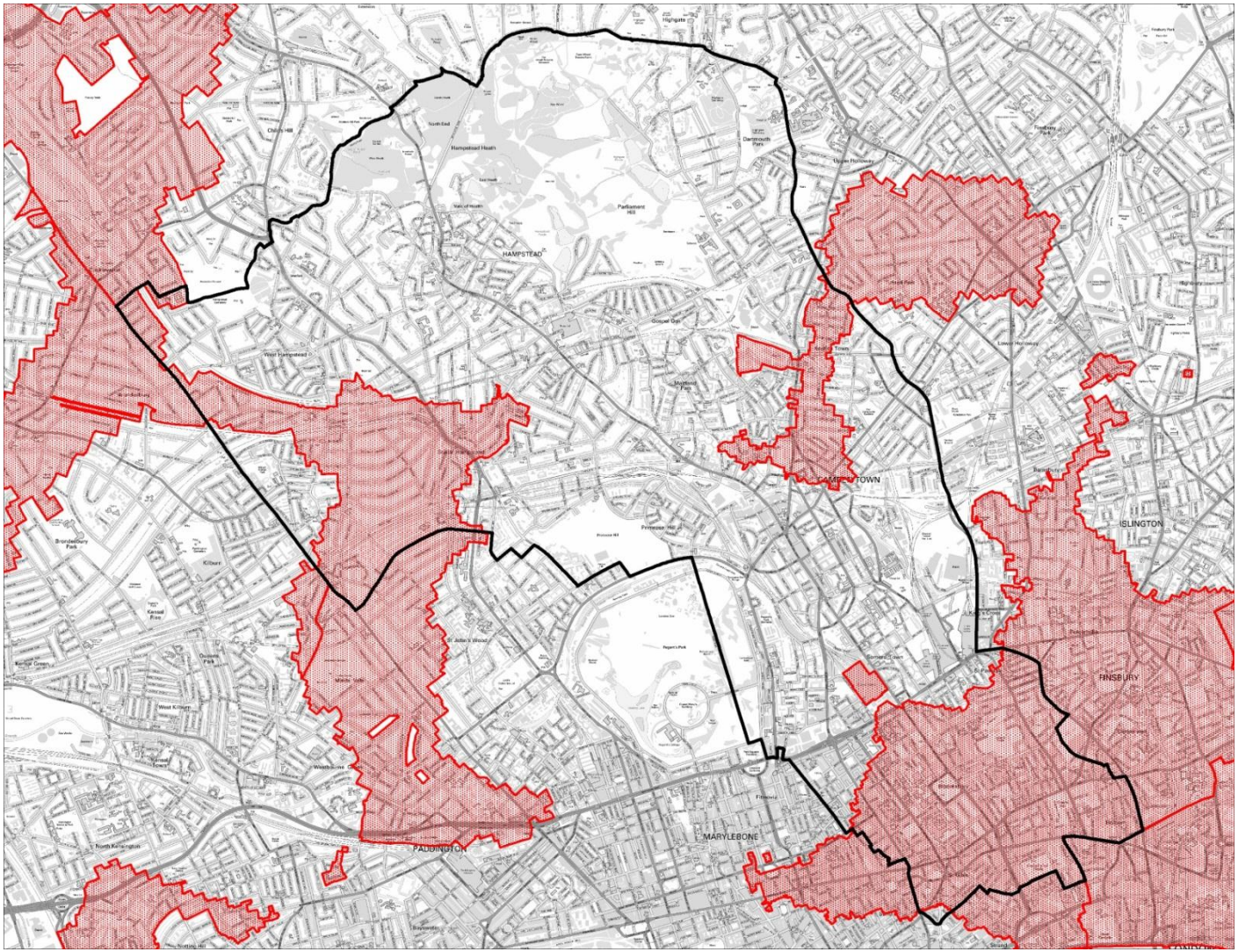
- Disabled people
- Black and minority ethnic groups
- Young people
- Residents of inner cities

These groups represent a significant proportion of Camden's diverse population. It is important to ensure that social and cultural barriers to accessing the natural environment are considered as fully as the physical barriers.

What this means for the BAP?

Camden's BAP has a strong focus on physical and social access to the natural environment. We want to have more places where people can experience nature and address any barriers to use. Camden's residents will be informed of and given the opportunity to participate in a range of engagement activities.

Figure 2: Areas of Deficiency in Access to the Natural Environment in Camden



Red shading shows the areas of deficiency in access to the natural environment (more than 1km walking distance from a publicly accessible Borough or Metropolitan SINC)

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3.2.2 Children and young people

Young people are identified as a specific target group in The Camden Plan, with particular outcomes around training and education. Camden's children and young people come from a wide range of backgrounds; a higher proportion of Camden schoolchildren are eligible for free school meals (38%) compared to London (26%) and England (18%)[xv]. Biodiversity can benefit young people through providing an educational resource. Access to nature can improve children's well-being and provide health benefits (as mentioned above), including helping to tackle obesity and behavioural problems.

Formal and informal activities in wildlife-rich green spaces present an opportunity for inner-city children to learn about the natural world. 'Learning outside the classroom' provides a varied environment and new experiences for pupils, which have been found to increase concentration, motivation, creativity and confidence[xvi].

A higher proportion of pupils in Camden (54%) are identified as having speech, language and communication needs (SLCN) or behavioural, emotional and social difficulties (BESD) than in England as a whole (40%). Activities in green space can be particularly beneficial for children with additional needs and can improve the behaviour of children suffering from attention deficit hyperactivity disorder (ADHD)[xvii].

What this means for the BAP?
Camden's BAP will focus on providing opportunities for children and young people to experience nature through organised activities and self-led learning.

Figure 3: Father and child Forest School session

3.3 Climate change and resilience

The London Climate Change Partnership predicts that climate change is likely to result in:

- increasing temperatures, with one third of London's summers exceeding 'heatwave' temperatures by the 2050s;
- more prevalent summer drought - particularly relevant considering London is already an area of 'Serious Water Stress';
- winter rain increases by as much as 15% and an increase in extreme weather events such as storms and heatwaves[xviii].

The 'urban heat island effect' is likely to exacerbate the effects of climate change in inner city areas such as Camden. The built surfaces of urban areas absorb radiation and release it as heat, which can result in urban areas having temperatures up to 10°C higher than surrounding rural areas[xix]. Biodiverse green space plays a key role in mitigating these impacts; the release of water by vegetation in green space helps to cool air and reduce this 'heat island' effect[xx].

A recent flood risk assessment[xxi] identified parts of Camden as at risk of flooding (up to 19,100 properties in Camden with a 0.05% risk of flooding within a year). Natural green space can help reduce the risk of floods by increasing the permeability of the surfaces and providing somewhere for water to drain away[xxii].

There are many ways in which biodiversity can be integrated into climate change adaption and mitigation measures as detailed in the report on 'Creating Natural Resilience' published by the London Climate Change Partnership. Biodiversity can be incorporated into the following to help to mitigate the effects of climate change:

- living roofs;
- landscaping schemes;
- gardens;
- tree planting;
- urban greening projects.

What this means for the BAP?
Camden's BAP will deliver biodiverse urban greening through land management, the planning process and bespoke projects to address climate change and flood risk.

4. Camden's biodiversity

A biodiversity audit was carried out by Greenspace Information for Greater London (GiGL) in 2012 to inform the development of the Camden BAP. GiGL is the London environmental records centre and holds the most comprehensive and up-to-date data in relation to biodiversity and open spaces.

The full biodiversity audit is available in Appendix 1, including habitat maps and a list of protected and priority species recorded in the borough. The data provided represents a snapshot of best available data as at 2012; it does not represent a comprehensive list of all species that *may* be in Camden but shows prevalence and distribution of known records.

4.1 Species and habitats

Camden has a wealth of common wildlife, the sorts of species that you're likely to come across in a brief walk in your local park or along the canal such as a blackbird or moorhen. Camden is also home to specialist species such as the peregrine falcon, which can be found nesting on tall buildings in the south of the borough which are the equivalent of more traditional cliff breeding sites. There are also more than 500 individual records of bats in Camden from at least nine different species, all of which are afforded legal protection. Camden is also home to a variety of insects, including the protected Stag beetle and a number of BAP priority butterflies.

Habitat quantity and quality varies across the borough. Amenity grassland is the most prevalent habitat (c.130ha) and is distributed across Camden (see Appendix 1); it has very limited value for wildlife but does offer significant scope for improvement. Woodland is the second most prevalent habitat (c.124ha) and supports a wide range of wildlife. However, our woodland is mainly in the north of the borough (see Appendix 1) meaning it is not readily accessible to all Camden residents. Camden also has small areas of UK BAP priority habitats (i.e. habitats that are considered nationally important), including both acid grassland and heathland.

Figure 4: Common blue butterfly at Adelaide LNR

4.2 Designated sites

4.2.1 Sites of Special Scientific Interest (SSSIs)

SSSIs are the country's best wildlife and geological sites. They are designated by Natural England and are managed by a wide range of owners and occupiers. Hampstead Heath Woods SSSI[xxiii], part of the Kenwood Estate managed by English Heritage, is the only SSSI in Camden. SSSIs are statutory nature conservation (or geological) sites.

4.2.2 Local Nature Reserves (LNRs)

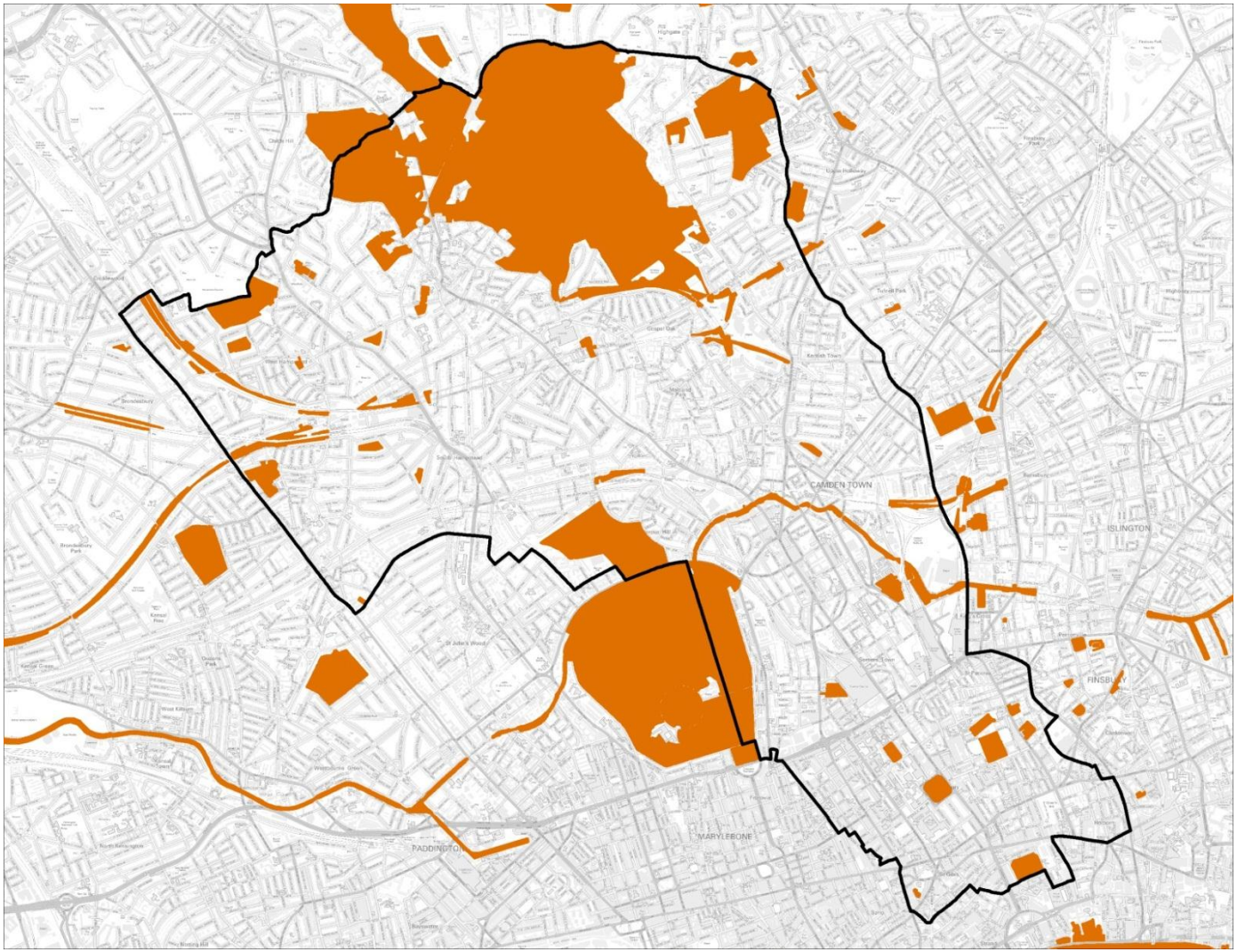
LNRs are sites that are important for wildlife and also provide local communities with opportunities to access and engage with nature. They are designated by local authorities, in consultation with Natural England. LNRs are statutory nature conservation sites. There are four LNRs in Camden: Adelaide, Belsize Woods and Westbere Copse (all managed by Camden Council), and Camley Street Natural Park (managed by London Wildlife Trust).

4.2.3 Sites of Importance for Nature Conservation (SINCs)

SINCs are areas that have been designated for their biodiversity value and are afforded some protection through the planning process. In London they are declared by the local authority in conjunction with the London Wildlife Sites Board[xxiv]. Camden has 36 SINCs which are owned and managed by a variety of organisations. A full list of SINCs is included in Appendix 1 and a map showing their distribution is shown as Figure 6. SINCs are non-statutory nature conservation sites.

Figure 5: Adelaide Local Nature Reserve

Figure 6: Sites of Importance for Nature Conservation in Camden



Orange shading shows the areas that have been designated as Sites of Importance for Nature Conservation in and around Camden. A list of Camden's 36 SINCs is in Appendix 1.

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5. The Action Plans

Action Plan 1: Access to Nature

Access to the natural environment is at the heart of this plan. Camden is an inner-London borough, but we are fortunate to have natural areas in our open spaces, gardens and the built environment. Other sections of this BAP deal with the management and quality of these spaces to ensure they are beneficial for wildlife. Here, we focus on the actions that will encourage our residents to access the natural environment for the range of health, wellbeing, social and community benefits that it can deliver.

Access to nature can be promoted through organised events, volunteering opportunities[xxv] and education sessions. It can also be spontaneous or accidental – passing through a nature reserve to get from A to B, or seeing a robin from a kitchen window. This BAP seeks to ensure that Camden's residents have the opportunity to stumble across nature in their day-to-day lives, as well as addressing issues of both physical and psychological access to natural spaces.

Broad outcome: *Opportunities are available for Camden's residents to access and engage with the natural environment across the borough for the range of health and wellbeing and social benefits it can provide.*

Links to The Camden Plan Objectives:
2. Developing new solutions with partners to reduce inequality
4. Investing in our communities to ensure sustainable neighbourhoods

Links to Parks and Open Spaces Priorities:
A: The community, especially young people, are partnering us in the management of our parks and open spaces
B: The health, wellbeing and social cohesion of Camden's residents is enhanced by our Parks and Open Spaces
E: Income and external funding has led to improved engagement in Open Spaces in harder to reach areas in Camden

Links to Green Action for Change Key Issues:

- *adapting to a changing climate*
- *improving air quality*
- *enhancing biodiversity, improving green spaces and involvement in gardening and food growing*

No.	Broad area	Action	Target Date	Lead Partner	Resources
1.1	Physical access	Evaluate the potential to increase public access to Local Nature Reserves (LNRs) in Camden. As at 2013, there are 4 LNRs in Camden. Adelaide, Belsize Wood and Westbere Copse are managed by LBC and are open weekends only 8-4. Camley Street is managed by London Wildlife Trust and is open Mon-Fri and Sun (times vary throughout the year).	2014	Camden Parks and Open Spaces (Nature Conservation)	Staff time Potential for additional operational costs if opened
1.2	Physical access	Address unequal access to nature across Camden by focusing effort in 'Areas of Deficiency in Access to Nature' (see section 3.2.1). Review current situation in 2013 and draw up plan to address deficiencies for 2014-18.	2013	Camden Parks and Open Spaces (Nature Conservation)	Staff time
1.3	Physical access	Increase the amount of publicly accessible open space in Camden by working with partners. Two open spaces that are currently not publicly accessible to become publicly accessible by 2018[xxvi].	2018	Camden Parks and Open Spaces (Head of Service) *Camden Housing and Adult Social Care* *Camden Corporate Investment Programme*	Staff time Opening and running costs to be assessed case by case

1.4	Psychological access and engagement	Increase levels of access to and engagement with the natural environment. Pilot a co-production community engagement approach in Kilburn Grange Park, assuming a baseline of zero current engagement, with London Sustainability Exchange.	2013 – develop-ment of approach	Camden Parks and Open Spaces (Nature Conservation)	Phase 1 funded. Resources to be sought from external funders for delivery.
1.5	Volunteering	Provide volunteering opportunities across Camden to enable residents to get involved with the natural environment. Parks and open spaces 'Friends'[xxvii] groups to increase the number of volunteering hours by 10% per annum (from a baseline of 1308 hours in 2012/13[xxviii]).	Ongoing	Friends groups *Camden Parks and Open Spaces (Parks Services Team and Nature Conservation)*	Delivered by volunteers Camden Parks and Open Spaces staff time for co-ordination
1.6	Volunteering	Provide volunteering opportunities across Camden to enable residents to get involved with the natural environment. Heath Hands to continue to offer a regular programme of volunteering activities open to all at Hampstead Heath.	Ongoing	Heath Hands *City of London*	City of London staff oversee work of Heath Hands and provide financial contribution

1.7	Volunteering	Provide volunteering opportunities across Camden to enable residents to get involved with the natural environment. Camden Green Gym programme to deliver regular conservation volunteering/green exercise sessions across Camden. Total number of volunteers to increase by 10% per annum (from a baseline of 170 in 2012/13).	Ongoing	The Conservation Volunteers *Camden Parks and Open Spaces (Nature Conservation)*	Camden part funding for 2013/14, future funding not yet secure
1.8	Volunteering	Provide volunteering opportunities across Camden to enable residents to get involved with the natural environment. Establish a new independent Oasis Green Gym and develop a food growing area at the Oasis Sports Centre. At least 34 target Camden residents to be engaged with the project (as identified in the project plan).	2014	The Conservation Volunteers *Camden Sports and Physical Activity* *Camden Parks and Open Spaces (Nature Conservation)*	Funding part secured from LBC and GLL. Further external match funding sought.
1.9	Volunteering	Provide volunteering opportunities across Camden to enable residents to get involved with the natural environment. Deliver 420 hours (per annum) of volunteering activities associated with canals and their surroundings through the Wildlife on your Waterways project. (NB 140 sessions as part of the project)	Annual until 2014	London Wildlife Trust	Funded via HLF, more funding sort for expansion and future years delivery.

1.10	Volunteering	Provide volunteering opportunities across Camden to enable residents to get involved with the natural environment. Recruit 50 volunteers for the 'Wild About Hampstead Heath' project to lead on wildlife interpretation events and wildlife monitoring. (NB this project seeks to encourage volunteers from new audiences and local deprived areas).	2014	RSPB *City of London*	Staff time
1.11	Education	Provide opportunities for environmental education for Camden children. Increase environmental education delivered at Hampstead Heath by 5% from the 2010 baseline of 4750	2013	City of London	
1.12	Education	Provide opportunities for environmental education for Camden children. Deliver environmental education sessions to 2000 children (70 classes) per year at Camley Street Natural Park.	Ongoing	London Wildlife Trust	Currently funded via Lottery Funding until April 2013. Sustainable funding sort.
1.13	Education	Provide opportunities for environmental education for Camden children. Support the development of 6 additional Forest Schools[xxix] with Children's Centres across Camden. As at 2013, there are 15 childcare settings in Camden running regular Forest Schools.	2018	Camden Children Schools and Families	Staff time
1.14	Engagement	Engage Camden's residents with the natural environment. Deliver 300 wildlife interpretation events and activities across Hampstead Heath to engage c.30,000 people.	2015	RSPB *City of London*	Staff time and resources funded by £450k HLF grant

1.15	Engagement	Engage Camden's residents with the natural environment. Deliver 8 public engagement events as part of the Wildlife on your Waterways project.	April 2014	London Wildlife Trust	Funded via HLF, additional funding sort to enrich events
1.16	Surveys	Encourage involvement with wildlife surveying. Run 70 survey sessions for volunteers along the Regent's Canal as part of the Wildlife on your Waterways project. Submit all data to Greenspace Information for Greater London (GiGL).	April 2014	London Wildlife Trust	Funded via HLF, additional funding sort to enrich events
1.17	Surveys	Encourage involvement with wildlife surveying. Encourage members of the public and partners to record wildlife and submit records to Greenspace Information for Greater London (GiGL) Camden survey page[xxx]	Ongoing	Camden Corporate Sustainability *Camden Parks and Open Spaces (Nature Conservation)*	Share of GiGL SLA time Staff time
1.18	Surveys	Encourage involvement with wildlife surveying. Run two wildlife surveying workshops for Camden residents.	2018	Camden Nature Reserves Forum	Volunteer time
1.19	Surveys	Encourage involvement with wildlife surveying. Encourage members of the public to participate in the Peoples Trust for Endangered Species (PTES) and British Hedgehog Preservation Society Hedgehog Hibernation Survey in and around Waterlow Park, Hampstead Heath and Regents Park.	2013 (Survey period 1/2/13 – 31/8/13)	Peoples Trust for Endangered Species	PTES staff time

1.20	Food growing	Encourage contact with the natural environment through food growing. Incorporate sustainability and food growing into Camden in Bloom judging criteria.	2013 (then ongoing)	Camden Parks and Open Spaces (Parks Services Team)	Staff time
1.21	Food growing	Encourage contact with the natural environment through food growing. Allotments and food growing areas to be managed sensitively for biodiversity and using sustainable practices (including water use). NB at 2012: allotments - Antrim Grove, Branch Hill and Fitzroy Park, Westcroft. Community food growing in parks – Waterlow Park, Swiss Cottage, Elm Village, Montpelier Gardens.	Ongoing	Camden Parks and Open Spaces (Parks Services Team) *Allotment and community garden associations*	Staff time
1.22	Food growing	Encourage contact with the natural environment through food growing. Promote the benefits of local food production to Camden residents through Green Camden and Camden in Bloom. Provide support for food growing projects in Camden Green Zones.	Ongoing	Camden Corporate Sustainability	Staff time
1.24	Food growing and gardening	Encourage contact with the natural environment through food growing and gardening. Run the Camden Greening programme to encourage food growing and gardening. Engage 350 residents and improve 730m2 of land over 9 estates/ areas[xxxi].	Ongoing	Groundwork *Camden Housing and Adult Social Care*	Funded through HASC
1.24	Gard-ens	Promote wildlife gardening to Camden residents through: • Providing information on Camden Council website; • Green Camden communications; • Camden in Bloom.	Ongoing	Camden Corporate Sustainability	Staff time

1.25	Gardens	Encourage positive action for wildlife in gardens, balconies or window boxes through the 'Wild About Hampstead Heath' project. Provide free wild flower seed to residents to create their own mini-meadows that are beneficial for a wide variety of both invertebrates and birds.	2015	RSPB *City of London*	Staff and volunteer time plus wildflower seed to give away
1.26	Gardens	Encourage residents in the Reddington Frognal area to survey their gardens to highlight the areas biodiversity value. The online survey is available at: http://www.gigl.org.uk/Submitrecords/Oneoffrecords/CamdenRedFrog/tabid/99/Default.aspx	Ongoing	Reddington Frognal Association	Volunteer time
1.27	Gard-ens	Encourage Camden residents and school children to take part in the Big Garden Birdwatch in January each year.	Ongoing	RSPB	Staff time

Action Plan 2: Built Environment

The built environment provides significant opportunities for urban greening and enhancing biodiversity. In an urban borough such as Camden, buildings and infrastructure are dominant in the cityscape and we need to ensure they deliver environmental services for the benefit of our residents. Enhancements should provide multi-functional benefits that address issues of biodiversity, air quality, flood alleviation, climate change and access to the natural environment.

The built environment includes buildings, developments, streets, public realm and infrastructure. The main opportunities for providing biodiversity enhancements in the built environment are:

- living roofs and walls;
- biodiversity enhancing landscaping;
- installation of artificial nesting and roosting sites;
- sustainable drainage systems (SuDS);
- trees.

This BAP includes Camden Biodiversity Advice Notes for Living Roofs and Walls (Appendix 4) and Landscaping Schemes and Species Features (Appendix 5).

The current planning policy environment *requires* that developers consider biodiversity in their proposals and contribute to an overall biodiversity enhancement. This BAP seeks to work with existing planning policy (see Table 1) and provide further direction on what the priorities are in Camden and how enhancements can be delivered. The BAP also seeks to encourage retro-fitting of biodiversity enhancements within the existing built environment.

Broad outcome: *Camden's built environment makes a positive contribution to the green infrastructure and biodiversity of the borough.*

Links to The Camden Plan Objectives:
4. Investing in our communities to ensure sustainable neighbourhoods

Links to Parks and Open Spaces Strategy:
C: Camden's parks, open spaces and trees are high quality and meet the needs of local people
F: Environmental Sustainability is embedded across all service activities

Links to Green Action for Change Key Issues:

- *adapting to a changing climate*
- *improving air quality*
- *enhancing biodiversity, improving green spaces and involvement in gardening and food growing*

No.	Broad area	Action	Target Date	Lead Partner	Resources
2.1	Monitoring	Establish a mechanism for recording biodiversity enhancements in the built environment (including living roofs, species features, landscaping etc) in order to measure progress. This should include establishing a baseline for living roof area and quality if possible.	2014	Camden Development Management *Camden Parks and Open Spaces (Nature Conservation)* *Greenspace Information for Greater London*	Staff time Share of GiGL SLA
2.2	Living roofs	All developments to include living roofs wherever feasible, in line with Camden Development Policy 22. 75% of living roofs should be biodiverse extensive roofs, in line with best practice and guidance from the Environment Agency. Further guidance on living roofs is included in Appendix 3.	Ongoing	Camden Development Management *Camden Parks and Open Spaces (Nature Conservation)*	Staff time Developer costs
2.3	Living roofs	Camden Housing and Adult Social Care will appraise green roofs as a formal option for all roof replacements. NB although living roofs may initially cost about 30% more than standard roofing, this can be justified due to the increased lifespan of over 60 years (standard roof lifespace is c.20 years).	Ongoing	Camden Housing and Adult Social Care	Within project budgets and seeking external funding

2.4	Living walls	Encourage greening of the built environment through installation of sustainable living walls at key locations in the borough. Further guidance on living walls is included in Appendix 3. This is in line with London Plan Policies 5.9, 5.10 and 5.11.	Ongoing	Camden Development Management *Camden Housing and Adult Social Care/ Camden Transport Strategy*	TBC
2.5	Nesting and roosting features	Implement best practice requirements for biodiversity enhancements in new developments as part of the development management process. Further guidance is provided in Camden Planning Guidance 3. To include installation of species features such as bird and bat bricks. These should be targeted to Camden priority species as listed in Appendix 1.	Ongoing	Camden Development Management	Staff time Developer costs
2.6	Landscaping and trees	Implement best practice requirements for biodiversity enhancements in new developments as part of the development management process. Guidance is provided in Camden Planning Guidance 3 and also as appendices to this BAP. All landscaping schemes to include biodiversity enhancing landscaping (as per guidance in Appendix 4).	Ongoing	Camden Development Management	Staff time Developer costs
2.7	Green corridors	Improve the 'green network' in Camden by retaining existing habitat corridors and securing biodiversity improvements along gaps in habitat corridors (as identified in the Camden Core Strategy 2010). NB this is a requirement through Core Strategy Policy CS15 and reflects the All London Green Grid.	Ongoing	Camden Development Management	Staff time

2.8	Front gardens	Implement Camden Planning Guidance 1 requirements in relation to paving of front gardens; planning permission will not be granted for hard standings greater than five square metres[xxxii] that do not incorporate sustainable urban drainage systems (SUDS) into the design.	Ongoing	Camden Development Management	Staff time
2.9	Rear gardens	Gardens with nature conservation value will be protected from development, in accordance with Camden Core Strategy Policy CS15 and Development Policy DP 24.	Ongoing	Camden Development Management	Staff time
2.10	Street trees	Plant and maintain c.400 street trees per year (this will result in an increase of c.200 trees per year due to losses).	Ongoing	Camden Parks and Open Spaces	Tree Planting budget
2.11	SuDs	Provide Biodiversity elements of Sustainable Drainage Scheme (SuDS) Approval Body policies.	2014	Camden Corporate Sustainability	Staff time
2.12	SuDS	Provide input into briefs for Camden Council flood alleviation scheme designs to ensure all biodiversity opportunities taken.	Ongoing	Camden Corporate Sustainability *Camden Parks and Open Spaces (Nature Conservation)*	Staff time
2.13	CIP	Ensure all Community Investment Programme projects deliver an overall biodiversity enhancement. This could include living roofs, walls, landscaping and species features, and improvements to SINCs and LNRs, in line with this BAP.	Ongoing	Camden Community Investment Programme	Staff time Integrate into wider project costs

2.14	Retro-fitting	Encourage retro-fitting of biodiversity enhancements (i.e. living roofs, species features) by promoting Biodiversity Advice Notes (see Appendix 3 and 4) to Camden Climate Change Alliance and Business Improvement Districts (BIDs).	Ongoing	Camden Corporate Sustainability	Staff time
2.16	Bats	Provide new roosting opportunities for bats across Camden. Implement roost protection and mitigation in structures at the Kenwood Estate and enhance adjoining habitats. Dairy roost to be available mid-May 2013, monitoring visits June/July and August 2013. Hibernaculum with hibernation box in place. Multi-chamber bat box and at least three Schwefler boxes to be retained in area north of the dairy after the project. Monitoring of external lighting effects around Dairy to take place, lights cowled and placed on sensor.	End September 2013	English Heritage	Delivered though 'Caring for Kenwood' project with support from the Heritage Lottery Fund

Action Plan 3: Open Spaces and Natural Habitats

This section of the BAP focuses on looking after our open spaces so that they provide opportunities for wildlife to thrive. This means managing existing natural spaces, such as woodlands, the canal and heath, to the best of our ability. It also means making formal and amenity spaces more wildlife friendly by looking at the landscaping schemes we use and making the right decisions about the projects that we run. This is all about integrating wildlife into our decision making and site management – having features that will be beneficial to birds, butterflies, bats and other wildlife throughout a site, rather than isolated pockets of nature.

Camden is about 2,171hectares (ha) in size[xxxiii], of which c.529ha is open space and of that c.400ha is publicly accessible. Although that means that the borough is deficient in terms of open space[xxxiv], it is within these spaces that most of our wildlife thrives. The Biodiversity Audit 2012 in Appendix 1 highlights the current extent of habitats in the borough.

This section of the BAP links closely to the 'London Regional BAP Habitat Targets for 2020'[xxxv], as outlined in The London Plan and outlined in Appendix 2.

Broad outcome: *Camden's open spaces and natural habitats are managed to benefit wildlife across the borough.*

Links to The Camden Plan Objectives:
4. Investing in our communities to ensure sustainable neighbourhoods

Links to Parks and Open Spaces Strategy:
C: Camden's parks, open spaces and trees are high quality and meet the needs of local people
F: Environmental Sustainability is embedded across all service activities

Links to Green Action for Change Key Issues:

- *adapting to a changing climate*
- *improving air quality*
- *enhancing biodiversity, improving green spaces and involvement in gardening and food growing*

<table>
<tr><th>No.</th><th>Broad area</th><th>Action</th><th>Target Date</th><th>Lead Partner</th><th>Resources</th></tr>
<tr>
<td>3.1</td>
<td>Maintain extent</td>
<td>Maintain the extent of London Regional BAP Habitats present in Camden[xxxvi]:

<table>
<tr><td>Habitat</td><td>2012 extent</td></tr>
<tr><td>Woodland (native broadleaved)</td><td>109.8ha</td></tr>
<tr><td>Meadows and pastures[xxxvii]</td><td>69.7ha</td></tr>
<tr><td>Standing water (including canals)</td><td>18.9ha</td></tr>
<tr><td>Woodland (non-native broadleaved)</td><td>14.2ha</td></tr>
<tr><td>Acid grassland</td><td>14.2ha</td></tr>
<tr><td>Reedbed</td><td>3.6ha</td></tr>
<tr><td>Heathland</td><td>1.2ha</td></tr>
<tr><td>Rivers and streams</td><td>0.02ha</td></tr>
<tr><td>Orchards</td><td>Camden extent not known</td></tr>
</table>

The extent will be monitored using the SLA with Greenspace Information for Greater London (GiGL)[xxxviii].</td>
<td>Ongoing (annual)</td>
<td>Camden Parks and Open Spaces (Nature Conservation)

Greenspace Information for Greater London

Key land managers include:
- City of London
- The Royal Parks
- English Heritage
- London Wildlife Trust</td>
<td>Staff time

Share of GiGL SLA</td>
</tr>
</table>

<table>
<tr>
<td>3.2</td>
<td>Maintain extent</td>
<td>Maintain the 2012 extent of designated sites in Camden, including Sites of Importance for Nature Conservation, Local Nature Reserves and the Hampstead Heath Woods Site of Special Scientific Interest[xxxix]. This is in line with regional and national policy including Core Strategy CS15.

<table>
<tr><th>Designation</th><th>2012 extent (hectares)</th></tr>
<tr><td>Site of Special Scientific Interest</td><td>16.12</td></tr>
<tr><td>Local Nature Reserve</td><td>1.76</td></tr>
<tr><td>Site of Importance for Nature Conservation: Metropolitan</td><td>323.81</td></tr>
<tr><td>Site of Importance for Nature Conservation: Borough Grade I</td><td>39.77</td></tr>
<tr><td>Site of Importance for Nature Conservation: Borough Grade II</td><td>31.94</td></tr>
<tr><td>Site of Importance for Nature Conservation: Local</td><td>18.44</td></tr>
</table>

The extent will be monitored using the SLA with Greenspace Information for Greater London (GiGL). Reporting will also occur annually in the Council’s Annual Monitoring Report.</td>
<td>Ongoing (annual)</td>
<td>Camden Parks and Open Spaces (Nature Conservation)

Camden Development Management

Camden Placeshaping</td>
<td>Staff time

Share of GiGL SLA</td>
</tr>
<tr>
<td>3.3</td>
<td>Improved local biodiversity</td>
<td>Increase the proportion of Sites of Importance for Nature Conservation (SINCs, aka local sites) considered to be in ‘positive conservation management’ to 63% in 2013. The 2012 baseline is 58% (or 21 of the 36 SINCs)

Reporting is carried out annually through Single Data List 160-00 using Defra guidelines[xl].</td>
<td>2013

(target to be updated annually)</td>
<td>Camden Parks and Open Spaces (Nature Conservation)</td>
<td>Staff time</td>
</tr>
</table>

3.4	SINCs	Carry out a review of Sites of Importance for Nature Conservation (SINCs) in Camden based on best practice approach endorsed by the London Wildlife Sites Board[xli].	2013	Camden Placeshaping Camden Parks and Open Spaces (Nature Conservation)	Resources to be identified
3.5	Estates & social housing	Manage green spaces within social housing and estates to provide opportunities for wildlife. Review opportunities and implementation mechanisms by December 2013.	2013	Camden Housing and Adult Social Care	Staff time
3.6	Estates & social housing	Plant 160 additional trees per annum in Camden Council managed housing land.	Ongoing	Camden Housing and Adult Social Care	Within existing HASC budgets
3.7	Landscaping	Include biodiversity enhancing landscaping (including nectar rich planting) within all open space refurbishment and enhancement projects. NB guidance on landscaping is included as Appendix 4 of this BAP.	Ongoing	Camden Parks and Open Spaces (Park Projects Officers)	Incorporated within overall project costs
3.8	Acid grassland	Contribute to London Plan Habitat Targets for 2020 – increase acid grassland extent. Restore and manage an additional 1.6ha of acid grassland at Primrose Hill.	2014	The Royal Parks *Camden Parks and Open Spaces (Nature Conservation)*	External funding through SITA (plus some match)

3.9	Heathland and acid grassland	Contribute to London Plan Habitat Targets for 2020 – increase heathland extent. Create and manage an additional 0.2 hectares of heathland and acid grassland on Hampstead Heath.	2015	The City of London	External funding from City Bridge Trust
3.10	Meadows	Contribute to London Plan Habitat Targets for 2020 – increase meadows and pasture extent. Create 0.5ha of perennial wildflower meadow.	2014	The City of London RSPB	External funding from City Bridge Trust and Heritage Lottery Fund
3.11	Meadows	Contribute to London Plan Habitat Targets for 2020 – maintain and enhance meadows and pasture. Establish and implement appropriate maintenance regimes for existing meadows (c.1.35ha[xlii]) within Camden Council managed open spaces.	2013	Camden Parks and Open Spaces (Nature Conservation)	TBC
3.12	Standing water	Contribute to London Plan Habitat Targets for 2020 – maintain and enhance standing water habitats. Restore and enhance the pond at Mill Lane Open Space (c.60m2 or 0.006ha).	2013	Froglife *Camden Parks and Open Spaces (Nature Conservation)* *Mill Lane Action Group*	External funding (Biffa) plus some match
3.13	Reedbed	Contribute to London Plan Habitat Targets for 2020 – maintain and enhance reedbed. Cut back 1/3 of reedbed in Waterlow Park per year on rotation to maintain the habitat.	Ongoing	Camden Parks and Open Spaces (Nature Conservation)	In 2013/14 to be included in Green Gym SLA (future years tbc)

3.14	Veteran trees[xliii]	Maintain veteran trees on Hampstead Heath following cyclical programme – 50 trees per year (including standing dead wood monoliths).	Ongoing	The City of London	Within existing tree budget
3.15	Hedges	Lay 100m of hedgerow at Hampstead Heath (NB laying is a management technique that is beneficial for wildlife).	2014	The City of London	External funding from City Bridge Trust
3.16	Canal	Improve 15m of canal sides through emergent and marginal planting as part of Wildlife on your Waterways project.	2014	London Wildlife Trust	Argent allocated funding for nesting enhancement + additional funding to be secured.
3.17	Canal	Install 15m of nesting rafts (for a range of species) within the Regent's Canal.	2014	London Wildlife Trust	Argent allocated funding for nesting enhancement + additional funding to be secured.
3.18	Invasive species	Identify and remove invasive species (including Japanese Knotweed) in Camden Council managed open spaces in line with the London Invasive Species Initiative.	Ongoing	Camden Environment Service *Camden Parks and Open Spaces* (all)	Funded through grounds maintenance budgets

3.19	Invasive species	Identify and remove invasive species associated with the Regent's Canal in line with the London Invasive Species Initiative.	Ongoing	London Wildlife Trust	Funded via HLF, more funding sort for expansion and future years delivery
3.20	Invasive species	Monitor and remove aquatic invasive species within Hampstead Heath Ponds	Ongoing	The City of London	External funding from City Bridge Trust
3.21	SuDS	Increase and improve aquatic and meadow habitats through the Flood and Water Management Project on Hampstead Heath. [Targets to be added in 2013/14.]	2015	The City of London	TBC
3.22	Wood-land	Incorporate Camden Council managed woodland areas at Adelaide, Belsize Wood and Westbere Copse Local Nature Reserves and Baynes Street Canalside Garden in to cyclical tree inspections.	Ongoing	Camden Parks and Open Spaces (Tree Team)	Within existing tree survey budgets
3.23	Dead wood	Dead wood (including standing dead wood) will be left in situ wherever possible to provide habitat for invertebrates (NB standing dead wood is likely to be in areas with lower footfall due to health and safety requirements).	Ongoing	Camden Parks and Open Spaces (Tree Team)	Within existing tree management budgets
3.24	Tree health	Forestry Commission guidance will be followed in all matters relating to tree health, including ash dieback and oak processionary moth. Camden Council's Tree Team will work in partnership with other land managers in the borough to ensure a co-ordinated approach.	Ongoing	Camden Parks and Open Spaces (Tree Team)	Staff time
3.25	Bats	Conduct regular bat surveys at Hampstead Heath and Highgate Cemetery. Submit any survey data to GiGL.	Ongoing	London Bat Group	Volunteer time

3.26	Insects	Install 20 invertebrate loggeries in parks and open spaces to provide habitat for stag beetles and other insects.	2018	Camden Parks and Open Spaces (Nature Conservation) *Friends groups* *Camden Nature Reserves Forum* *The Conservation Volunteers*	Volunteer time
3.27	Sustainable Drainage	Ensure that parks, open spaces and areas of biodiversity take up any opportunities to increase sustainable drainage and rainwater harvesting opportunities.	Ongoing	Camden Parks and Open Spaces (Park Projects Officers)	Staff time to identify projects Project funded needed to implement
3.28	Bees	Establish a beekeeping approach for Camden Council managed open spaces. Focus on pollinator conservation through land management and maintenance, nectar rich planting and educational hives.	2013	Camden Parks and Open Spaces (Nature Conservation)	Staff time
3.29	SINC management	Investigate options for management of the Site of Importance for Nature Conservation (SINC) currently known as 1 Mill Lane Area of Nature Conservation[xliv], due to be transferred to Council ownership during 2013.	2013	Camden Parks and Open Spaces (Nature Conservation)	Staff time S106 contribution for management

Appendices

Appendix 1: Biodiversity Audit 2012

The biodiversity audit includes:

- List of Sites of Importance for Nature Conservation in Camden
- Type and extent of habitats within Camden (table and maps)
- Protected and priority species in Camden

Sites of Importance for Nature Conservation (SINCs) in Camden (as at 2012)

Site	SINC Grade	SINC Code	Owned by	Managed by
Camley Street Natural Park	M	M095	LB Camden	London Wildlife Trust
Hampstead Heath	M	M072	City of London	City of London
Highgate Cemetery	M	M088	Friends of Highgate Cemetery Trust	Friends of Highgate Cemetery Trust
London 's Canals	M	M006	British Waterways	British Waterways
Regent's Park	M	M097	The Royal Parks	The Royal Parks
Branch Hill	I	CaBI02	LB Camden	LB Camden
Chalk Farm Embankment & Adelaide Nature Reserve	I	CaBI05	Network Rail	LB Camden
Hampstead Cemetery	I	CaBI01	LB Camden	LB Camden & LB Islington
Mortimer Terrace	I	CaBI04	Private	London Wildlife Trust
Kentish Town City Farm			LB Camden	Kentish Town City Farm
Gospel Oak Rail sides			Network Rail	Network Rail
St John's Churchyard, West Hampstead	I	CaBI08	Church of England	LB Camden
Waterlow Park	I	CaBI03	LB Camden	LB Camden
West Hampstead Rail sides, Medley Orchard & Westbere Copse Nature Reserve	I	CaBI06	Network Rail	LB Camden
		CaBI06	Network Rail	Network Rail
Belsize Wood Nature Reserve	II	CaBII01	LB Camden	LB Camden
Broadhurst Gardens Meadow	II	CaBII02	LB Camden	LB Camden
Frognal Court Wood	II	CaBII03	LB Camden	LB Camden
Gondar Gardens Covered Reservoir	II	CaBII10	Kennet Properties	Kennet Properties
Green Triangle	II	CaBII08	Maryon Wilson Estate	The Green Triangle Association
King's College Hampstead Campus	II	CaBII09	Kings College London	Kings College London
North London Line at York Way	II	CaBII06	Network Rail	Network Rail
Primrose Hill	II	CaBII05	The Royal Parks	The Royal Parks

St Pancras Gardens	II	CaBII07	LB Camden	LB Camden
160 Mill Lane Community Garden	L	CaL03	LB Camden	LB Camden
Calthorpe Community Garden	L	CaL05	LB Camden	The Calthorpe Project
Coram's Fields	L	CaL14	The Council of Management of Coram's Fields	The Council of Management of Coram's Fields
Frognal Lane Gardens	L	CaL07	(Unknown) Private	(Unknown) Private
Gordon Square	L	CaL13	University College London	University College London
Greville Place Nature Reserve	L	CaL02	Unknown	London Wildlife Trust
Holly Lodge Gardens	L	CaL01	Holly Lodge Estate	Holly Lodge Estate Committee
Kilburn Grange Park	L	CaL16	LB Camden	LB Camden
Lincoln's Inn Fields	L	CaL12	LB Camden	LB Camden
Phoenix Community Garden	L	CaL04	LB Camden	The Phoenix Garden
Rochester Terrace Gardens	L	CaL15	LB Camden	LB Camden
Russell Square	L	CaL11	LB Camden	LB Camden
St Andrew's Garden	L	CaL08	LB Camden	LB Camden
St George's Garden	L	CaL09	LB Camden	LB Camden
St James's Garden	L	CaL10	LB Camden	LB Camden

SINC Grades:
M = Site of Metropolitan Importance
I = Site of Borough Importance (Grade I)
II = Site of Borough Importance (Grade II)
L = Site of Local Importance

Type and Extent of Habitats within Camden (as at 2012)

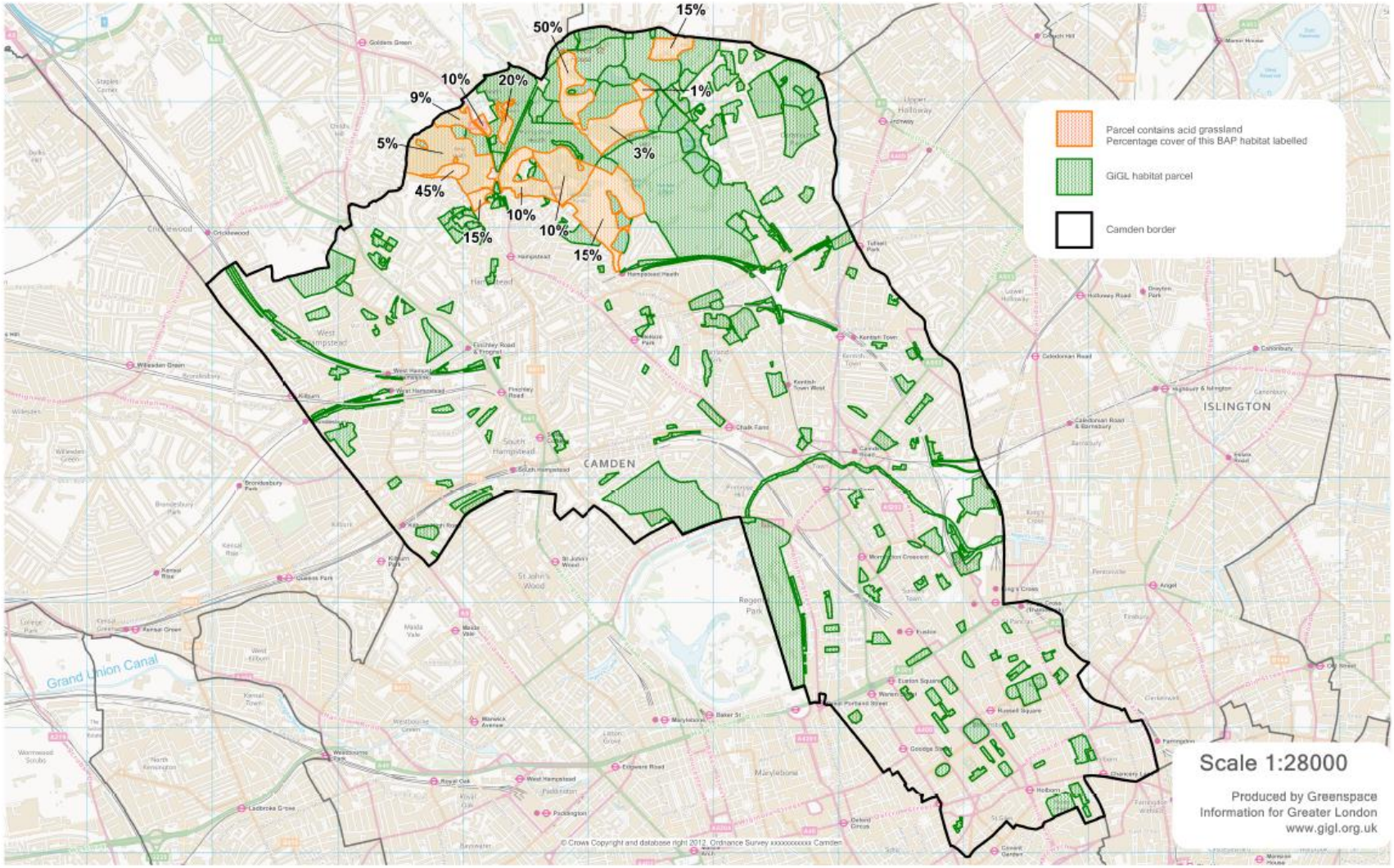
Camden habitat (GiGL typology)	Area (ha)	Relevant London BAP Habitat	Relevant UK BAP Habitat
Amenity grassland	129.78		
Native broadleaved woodland	**109.84**	**Woodland**	**Lowland mixed deciduous**
Neutral grassland (semi-improved)	*69.73*	*(Meadows and Pastures)*	*(Neutral grassland – lowland meadows)*
Scattered trees	59.94		
Bare artificial habitat	46.93		
Standing water (includes canals)	**18.87**	**Standing water**	**Eutrophic standing waters/ Ponds**
Tall herbs	18.75		
Acid grassland	**14.21**	**Acid grassland**	**Lowland dry acid grassland**
Non-native broadleaved woodland	*14.16*	*(Woodland)*	
Scrub	10.94		
Planted shrubbery	9.63		
Bare soil and rock	7.03		
Native hedge	*4.71*		*(Hedgerow)*
Reedswamp	**3.63**	**Reedbeds**	**Reedbeds**
Allotments (active)	3.21		
Other	1.55		
Heathland	**1.16**	**Heathland**	**Lowland heathland**
Vegetated walls, tombstones etc.	0.85		
Non-native hedge	0.81		
Bracken	0.72		
Arable	0.50		
Recently felled woodland	0.45		
Wet marginal vegetation	0.42		
Ruderal or ephemeral	0.41		

Bog	**0.23**		**Lowland raised bog**
Saltmarsh	0.07		
Ditches (water filled)	0.06		
Typha etc. swamp	0.06		
Running water (rivers and streams)	**0.02**	**Rivers and streams**	*(Rivers)*
Neutral grassland (herb-rich)	*0.01*	*(Meadows and Pastures)*	*(Neutral grassland – lowland meadows)*
Total	528.68		

Camden Nature Conservation

Acid Grassland 1 October 2012

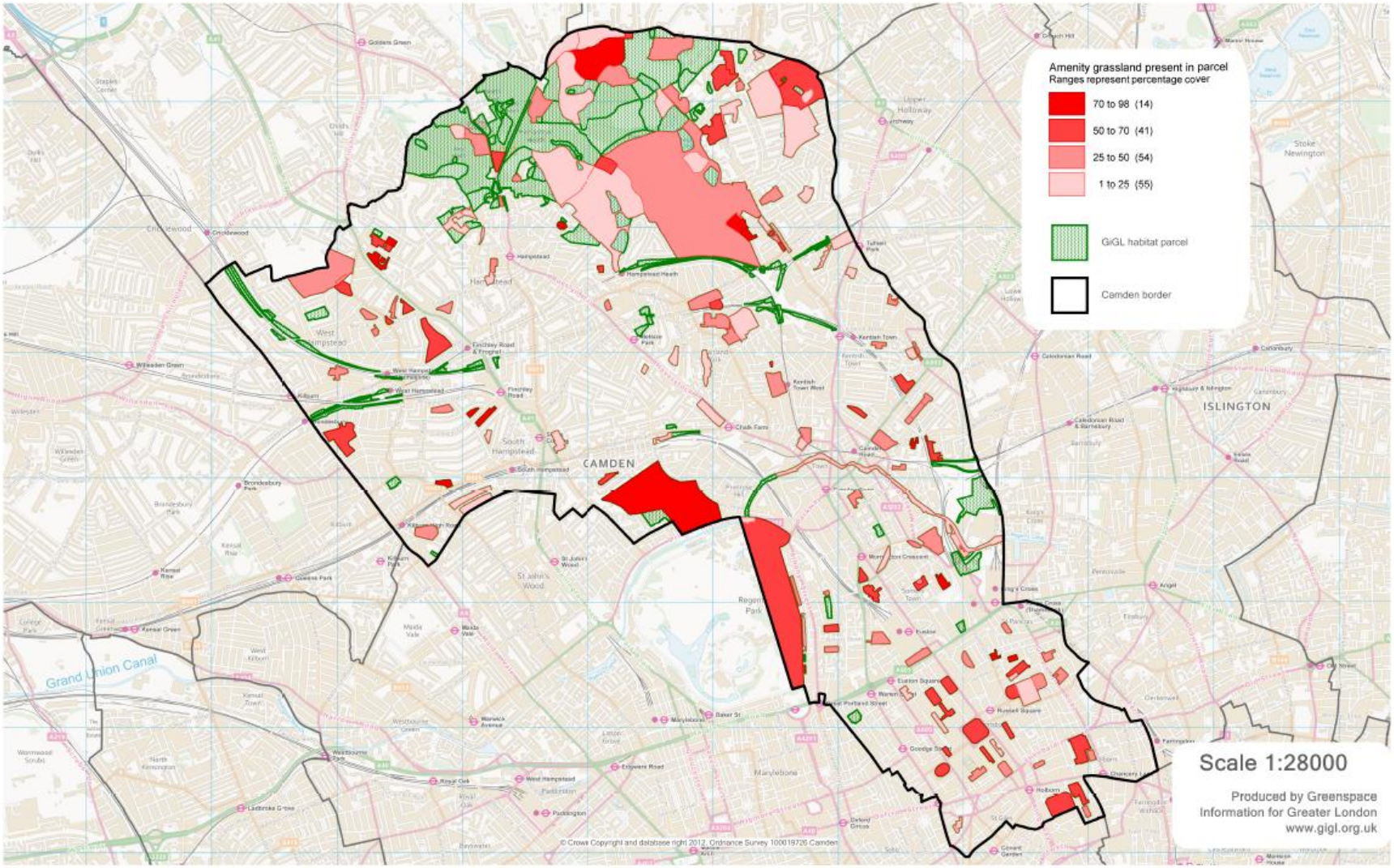
GiGL



Camden Nature Conservation

Amenity Grassland 1 October 2012

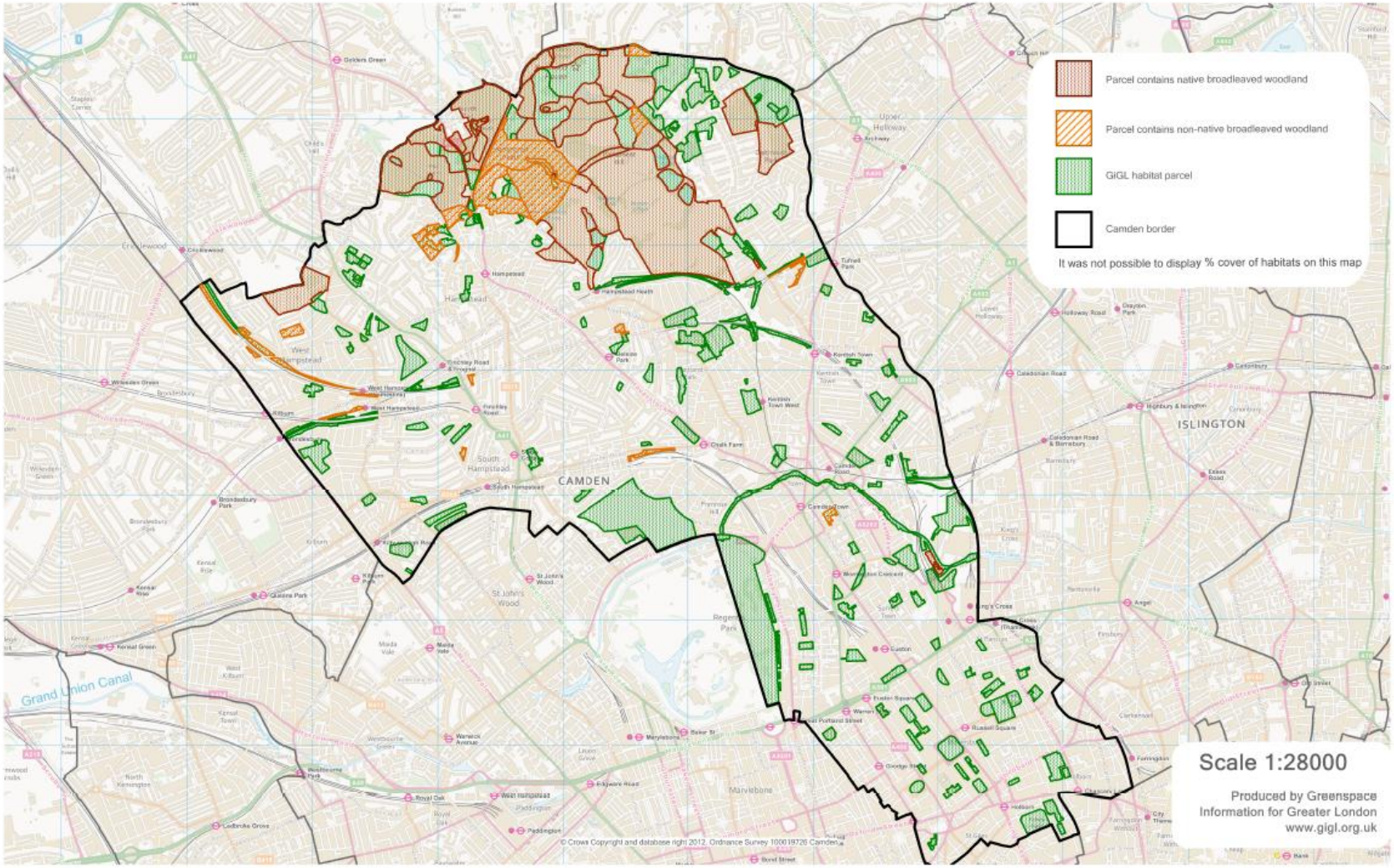
GiGL



Camden Nature Conservation

Broadleaved woodland 1 October 2012

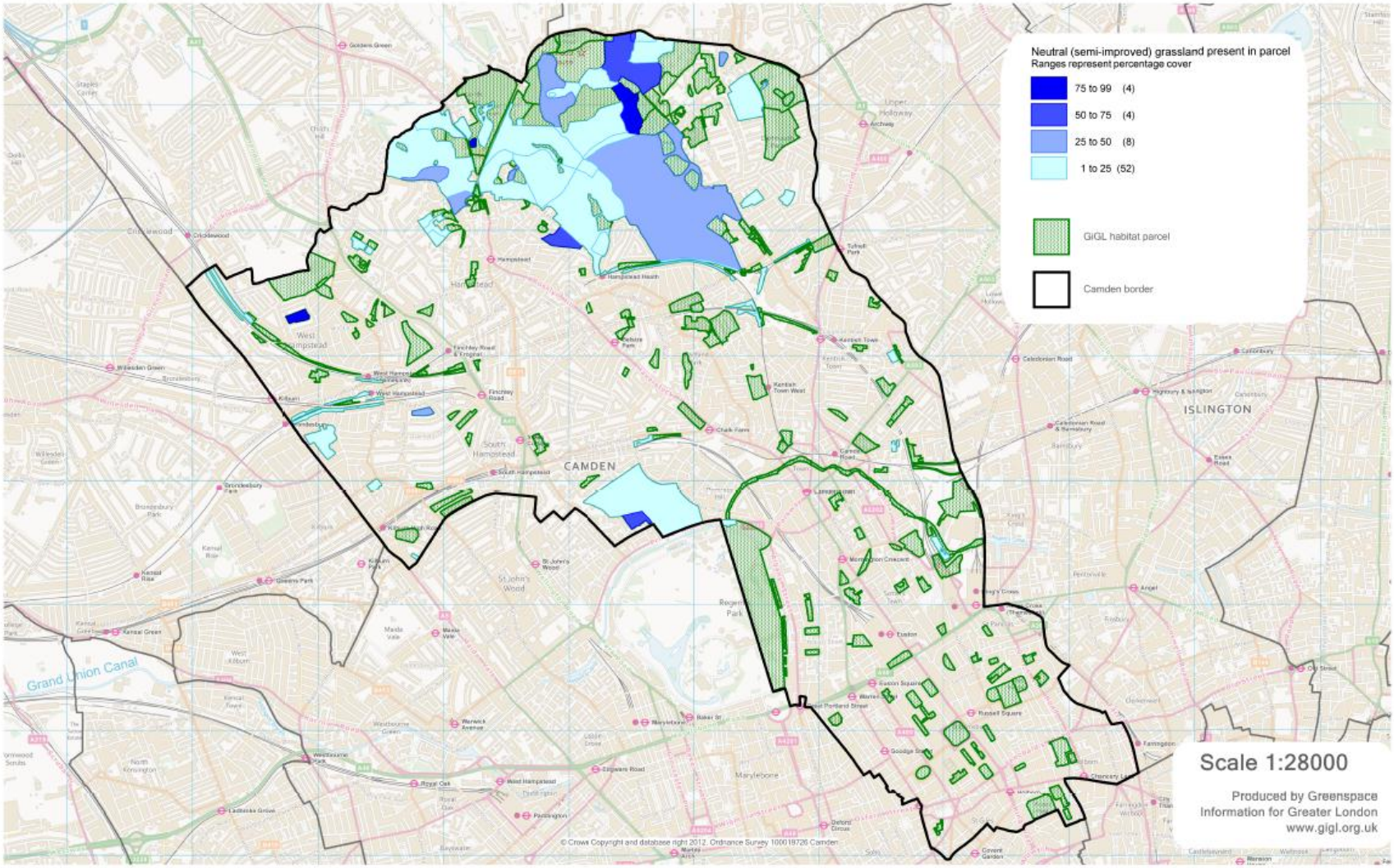
GiGL



Camden Nature Conservation

Neutral (semi-improved) grassland 1 October 2012

GiGL



Protected and/or Priority Species Records for Camden (as at 2012)

Species Group	Total Records	Protected Species		Number of Records	Protected Status													
		Common name	Scientific name		London BAP	National BAP	WCA 1-1	WCA 1-2	WCA 5-9.1	WCA 5-9.4a	WCA 5-9.4b	WCA 5-9.5a	WCA 5-9.5b	Birds Dir. Anx. 1	Cons RegSch 2	Cons Reg Sch 4	Hab Dir Anx 2	Hab Dir Anx 4
Birds	13249	Hedge Accentor	*Prunella modularis*	321	X													
		Song Thrush	*Turdus philomelos*	267	X													
		Common Starling	*Sturnus vulgaris*	222	X													
		House Sparrow	*Passer domesticus*	126	X	X												
		Redwing	*Turdus iliacus*	117			X											
		Eurasian Hobby	*Falco subbuteo*	85			X											
		Fieldfare	*Turdus pilaris*	82			X											
		Herring Gull	*Larus argentatus*	77	X													
		Common Redpoll	*Carduelis flammea*	73	X													
		Yellow Wagtail	*Motacilla flava*	58	X													
		Greylag Goose	*Anser anser*	56				X										
		Spotted Flycatcher	*Muscicapa striata*	52	X	X												
		Common Linnet	*Carduelis cannabina*	50	X													
		Common Kingfisher	*Alcedo atthis*	49			X							X				
		Brambling	*Fringilla montifringilla*	48	X													
		Tree Pipit	*Anthus trivialis*	44	X	X												
		Sky Lark	*Alauda arvensis*	42	X													
		Northern Lapwing	*Vanellus vanellus*	40	X	X												
		Sand Martin	*Riparia riparia*	33	X													
		Common Crossbill	*Loxia curvirostra*	30			X											

Birds		Reed Bunting	*Emberiza schoeniclus*	26	**X**	**X**												
		Black Redstart	*Phoenicurus ochruros*	26	**X**		**X**											
		Ring Ouzel	*Turdus torquatus*	24		**X**												
		Common Tern	*Sterna hirundo*	24			**X**											
		Wood Warbler	*Phylloscopus sibilatrix*	23	**X**	**X**												
		Common Cuckoo	*Cuculus canorus*	17	**X**	**X**												
		Yellowhammer	*Emberiza citrinella*	15	**X**	**X**												
		European Turtle Dove	*Streptopelia turtur*	14	**X**	**X**												
		Lesser Spotted Woodpecker	*Dendrocopos minor*	12	**X**													
		Peregrine Falcon	*Falco peregrinus*	12	**X**													
		Firecrest	*Regulus ignicapilla*	12			**X**											
		Lesser Redpoll	*Carduelis cabaret*	9		**X**												
		Wood Lark	*Lullula arborea*	8		**X**	**X**							**X**				
		European Honey-buzzard	*Pernis apivorus*	7			**X**							**X**				
		Larus cachinnans	*Larus cachinnans*	6	**X**													
		Green Sandpiper	*Tringa ochropus*	6			**X**											
		Eurasian Golden Oriole	*Oriolus oriolus*	5			**X**											
		Common Bullfinch	*Pyrrhula pyrrhula*	4	**X**													
		Short-eared Owl	*Asio flammeus*	4										**X**				
		Hawfinch	*Coccothraustes coccothraustes*	3	**X**	**X**												
		Red-backed Shrike	*Lanius collurio*	3		**X**	**X**							**X**				
		Arctic Tern	*Sterna paradisaea*	3										**X**				
		European Golden Plover	*Pluvialis apricaria*	3										**X**				
		Smew	*Mergellus albellus*	3										**X**				
		Osprey	*Pandion haliaetus*	3			**X**							**X**				
		Whimbrel	*Numenius phaeopus*	3			**X**											
		Grasshopper Warbler	*Locustella naevia*	2	**X**	**X**												

Birds		Eurasian Curlew	*Numenius arquata*	2		**X**												
		Little Egret	*Egretta garzetta*	2									**X**					
		Little Bittern	*Ixobrychus minutus*	2			**X**						**X**					
		Little Tern	*Sternula albifrons*	2			**X**						**X**					
		Mediterranean Gull	*Larus melanocephalus*	2			**X**						**X**					
		Merlin	*Falco columbarius*	2			**X**						**X**					
		Montagu's Harrier	*Circus pygargus*	2			**X**						**X**					
		Red Kite	*Milvus milvus*	2			**X**						**X**					
		Corn Bunting	*Emberiza calandra*	1	**X**													
		Eurasian Tree Sparrow	*Passer montanus*	1	**X**	**X**												
		Arctic Skua	*Stercorarius parasiticus*	1		**X**												
		Eurasian Wryneck	*Jynx torquilla*	1		**X**	**X**											
		Barnacle Goose	*Branta leucopsis*	1									**X**					
		Ruddy Shelduck	*Tadorna ferruginea*	1									**X**					
		Sandwich Tern	*Sterna sandvicensis*	1									**X**					
		Dartford Warbler	*Sylvia undata*	1			**X**						**X**					
		Eurasian Marsh Harrier	*Circus aeruginosus*	1			**X**						**X**					
		Barn Owl	*Tyto alba*	1			**X**											
		Common Greenshank	*Tringa nebularia*	1			**X**											

Flowering Plants	14387	Cornflower	*Centaurea cyanus*	11		**X**												
		Chamomile	*Chamaemelum nobile*	7	**X**	**X**												
		Spreading Bellflower	*Campanula patula*	5		**X**												
		Marsh Sow-thistle	*Sonchus palustris*	4	**X**													
		Triangular Club-rush	*Schoenoplectus triqueter*	4		**X**												
		Mistletoe	*Viscum album*	2	**X**													
		Populus nigra subsp. betulifolia	*Populus nigra subsp. betulifolia*	2	**X**													
		Pennyroyal	*Mentha pulegium*	2	**X**	**X**												
		Creeping Marshwort	*Apium repens*	2		**X**	**X**									**X**	**X**	**X**
		Caraway	*Carum carvi*	2		**X**												
		Corn Buttercup	*Ranunculus arvensis*	2		**X**												
		Divided Sedge	*Carex divisa*	1	**X**	**X**												

Insects and Spiders	7236	Stag Beetle	*Lucanus cervus*	21	**X**	**X**						**X**	**X**				**X**	
		White-letter Hairstreak	*Satyrium w-album*	11	**X**	**X**						**X**	**X**					
		Wall	*Lasiommata megera*	8	**X**	**X**												
		Grey Dagger	*Acronicta psi*	3	**X**	**X**												
		White Admiral	*Limenitis camilla*	3		**X**												
		Brindled Beauty	*Lycia hirtaria*	2	**X**	**X**												
		Buff Ermine	*Spilosoma luteum*	2	**X**	**X**												
		Centre-barred Sallow	*Atethmia centrago*	2	**X**	**X**												
		Cinnabar	*Tyria jacobaeae*	2	**X**	**X**												
		Dusky Thorn	*Ennomos fuscantaria*	2	**X**	**X**												
		Mouse Moth	*Amphipyra tragopoginis*	2	**X**	**X**												
		Sallow	*Xanthia icteritia*	2	**X**	**X**												
		Small Heath	*Coenonympha pamphilus*	2	**X**	**X**												
		Small Square-spot	*Diarsia rubi*	2	**X**	**X**												
		Beaded Chestnut	*Agrochola lychnidis*	1	**X**	**X**												
		Brown-spot Pinion	*Agrochola litura*	1	**X**	**X**												
		Double Dart	*Graphiphora augur*	1	**X**	**X**												
		Dusky Brocade	*Apamea remissa*	1	**X**	**X**												
		Knot Grass	*Acronicta rumicis*	1	**X**	**X**												
		Lackey	*Malacosoma neustria*	1	**X**	**X**												
		Large Nutmeg	*Apamea anceps*	1	**X**	**X**												
		Mottled Rustic	*Caradrina morpheus*	1	**X**	**X**												
		Mullein Wave	*Scopula marginepunctata*	1	**X**	**X**												
		Oak Hook-tip	*Watsonalla binaria*	1	**X**	**X**												
		Shaded Broad-bar	*Scotopteryx chenopodiata*	1	**X**	**X**												
		Shoulder-striped Wainscot	*Mythimna comma*	1	**X**	**X**												

Insects and spiders		Small Phoenix	*Ecliptopera silaceata*	1	**X**	**X**												
		White Ermine	*Spilosoma lubricipeda*	1	**X**	**X**												
		Bombus (Thoracombus) ruderarius	*Bombus (Thoracombus) ruderarius*	1		**X**												
		Narrow-bordered Bee Hawk-moth	*Hemaris tityus*	1		**X**												
		Oil Beetle	*Meloe proscarabaeus*	1		**X**												

Terrestrial Mammals	812	Soprano Pipistrelle	*Pipistrellus pygmaeus*	105	**X**	**X**			**X**	**X**	**X**	**X**	**X**		**X**			**X**
		Pipistrellus	*Pipistrellus*	96	**X**				**X**	**X**	**X**	**X**	**X**					**X**
		Pipistrellus pipistrellus	*Pipistrellus pipistrellus*	86	**X**				**X**	**X**	**X**	**X**	**X**		**X**			**X**
		Daubenton's Bat	*Myotis daubentonii*	59	**X**				**X**	**X**	**X**	**X**	**X**		**X**			**X**
		Noctule Bat	*Nyctalus noctula*	50	**X**	**X**			**X**	**X**	**X**	**X**	**X**		**X**			**X**
		West European Hedgehog	*Erinaceus europaeus*	41	**X**	**X**												
		Brown Long-eared Bat	*Plecotus auritus*	41	**X**	**X**			**X**	**X**	**X**	**X**	**X**		**X**			**X**
		Natterer's Bat	*Myotis nattereri*	16	**X**				**X**	**X**	**X**	**X**	**X**		**X**			**X**
		Unidentified Bat	*Myotis*	12	**X**				**X**	**X**	**X**	**X**	**X**					**X**
		Vespertilionidae	*Vespertilionidae*	11	**X**				**X**	**X**	**X**	**X**	**X**		**X**			
		Lesser Noctule	*Nyctalus leisleri*	8	**X**				**X**	**X**	**X**	**X**	**X**					**X**
		Nathusius's Pipistrelle	*Pipistrellus nathusii*	8	**X**				**X**	**X**	**X**	**X**	**X**		**X**			**X**
		Serotine	*Eptesicus serotinus*	8	**X**				**X**	**X**	**X**	**X**	**X**		**X**			**X**
		Nyctalus	*Nyctalus*	2	**X**				**X**	**X**	**X**	**X**	**X**		**X**			
		Kuhl's Pipistrelle	*Pipistrellus kuhlii*	1	**X**				**X**	**X**	**X**	**X**	**X**		**X**			**X**

Reptiles and Amphibians	242	Common Frog	*Rana temporaria*	129								**X**	**X**					
		Common Toad	*Bufo bufo*	55	**X**	**X**						**X**	**X**					
		Smooth Newt	*Lissotriton vulgaris*	14								**X**	**X**					
		European Pond Terrapin	*Emys orbicularis*	7													**X**	**X**
		Palmate Newt	*Lissotriton helveticus*	2								**X**	**X**					
		Adder	*Vipera berus*	1	**X**	**X**			**X**			**X**	**X**					
		Slow-worm	*Anguis fragilis*	1	**X**	**X**			**X**			**X**	**X**					
Other	3	Common Juniper	*Juniperus communis subsp. communis*	1	**X**	**X**												
		Zoned Rosette	*Podoscypha multizonata*	1	**X**	**X**												
		Fairy Shrimp	*Chirocephalus diaphanus*	1					**X**	**X**	**X**	**X**	**X**					

Glossary of Protected Status definitions

London BAP Priority	A species listed as a priority in the London BAP
National BAP Priority	Listed as a priority species under Section 41 of the NERC Act 2006
WCA 1-1	Wildlife and Countryside Act 1981 (as amended) Schedule 1, Part 1 species
WCA 1-2	Wildlife and Countryside Act 1981 (as amended) Schedule 1, Part 1 species
WCA 5-9.1	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Part 9.1 species
WCA 5-9.4a	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Part 9.4a species
WCA 5-9.4b	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Part 9.4b species
WCA 5-9.5a	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Part 9.5a species
W&C Act Sch 5 Part 9.5b	Wildlife and Countryside Act 1981 (as amended) Schedule 5, Part 9.5b species
Birds Dir Anx 1	Listed as an Annex 1 species under the European Bonn Convention (Directive 2009/147/EC)
Cons Reg Sch 2	Listed as a Schedule 2 species in the Conservation Regulations 1994
Cons Reg Sch 4	Listed as a Schedule 4 species in the Conservation Regulations 1994
Hab Dir Anx 2	Listed under Annex 2 of the European Habitats Directive (92/43/EEC)
Hab Dir Anx 4	Listed under Annex 4 of the European Habitats Directive (92/43/EEC)

Appendix 2: Camden Biodiversity Action Plan 2013-2018 Stakeholder Engagement

The following information was collated following a Camden BAP Workshop held on 12 October 2012 and subsequent communication with a number of key stakeholders to identify what they thought were the priorities for the Camden BAP 2013-18.

Organisation	Acronym	Attended workshop	Provided response
Buglife	Buglife		X
Camden Council Corporate Sustainability	LBC(s)	X	X
Camden Council Development Management	LBC(p)		X
Camden Council Housing and Adult Social Care (Estates)	LBC(h)	X	X
Camden Council Housing and Adult Social Care (Sustainability)	LBC(h2)	X	X
Camden Council Transport Policy	LBC(t)		X
Camden Nature Reserves Forum	CNRF	X	X
Camden Town Unlimited	CTU		X
City of London	CoL	X	X
Ecology Network	EN	X	X
English Heritage – Kenwood House	KH		X
Fitzrovia Partnership	FP		X
Friends of Highgate Cemetery	FoHC	X	X
Froglife	Froglife	X	X
InMidTown	IMT		X
London Bat Group	LBG		X
London Wildlife Trust	LWT	X	X
People's Trust for Endangered Species	PTES	X	X
Reddington Frognal Association	RFA	X	X
Royal Society for the Protection of Birds	RSPB		X
Swift Conservation	SC		X
The Conservation Volunteers	TCV	X	X
The Phoenix Garden	PG		X
The Royal Parks	TRP		X

BAP Habitat and Species Priorities

Habitat	Responses	Organisations
Green corridors	8	CNRF, RFA, EN, LBC(h), LBC(t), RSPB, LBC(p), Buglife
Green roofs	8	LBC(s), LBC(h), PG, LBC(p), Buglife, PTES, IMT, CTU
Public parks/amenity grass	7	CV, CNRF, LNHS, CoL, LWT, Buglife, IMT
Gardens	6	CNRF, RFA, CoL, LBC(s), Froglife, Buglife
Hedges	4	CoL, FoHC, RFA, LBC(h)
Housing estates	3	PTES, CNRF, LWT
Acid grassland	3	LBC(p), TRP, KH
Ponds and standing water	3	CNRF, Froglife, SC
Wetlands, canals	2	TCV, LWT
Orchards	2	CoL, PTES
Woodland	2	LBC(p), KH
Meadows	1	CV
Roadside verges	1	RFA
Brownfield	1	Buglife

Species	Responses	Organisations
Bats	6	LWT, CoL, PG, SC, LBG, KH
Hedgehogs	5	PTES, FoHC, RSPB, CoL, TRP
Butterflies	3	LWT, EN, PG
Sparrows	3	FoHC, PG, RSPB
Swifts	3	FoHC, RSPB, SC
Bees	2	LWT, Buglife
Slow worm	2	Froglife, CoL
Stag Beetles	1	CoL

BAP Engagement and Strategy Priorities

Area		Responses	Organisations
Engagement	Reconnecting with nature	3	PTES, EN, RSPB
	ID skills and recording	2	CNRF, Froglife
	Mobilise and support local groups	2	CNRF, LBC(s)
	Food growing	1	LBC(h)
	Access	1	CV
Strategy	Halt loss of green to grey	3	RFA, RSPB, SC
	Supporting endangered wildlife	2	LBC(h), LBC(p)
	Planning	2	LBC(t), LBG
	Light Pollution	2	LBC(t), LBG
	SUDs	1	SC
	Reducing herbicide use	1	SC
	Cross-links - site partners	1	CV
	Quantifying biodiversity values	1	LBC(h)
	Cross-links - boroughs	1	CNRF
	Improve contactor maintenance	1	PG
	Funding for Green infrastructure	1	LBC(p)
	Landscape level	1	Buglife

BAP workshop – key issues during group discussion session

- **Prioritising** key species and prioritising funds and effort for projects with good return
- **Improving reserves** - publicise reserves and activities to locals, practical access, adding more features e.g. murals, transferring (e.g. ID) skills to the community,
- **Planning** and taking opportunities to incorporate biodiversity into new development
    - Campaign and planning measures to halt paving over of front and rear gardens
    - Following up developers. Pilot fine scheme.
- **Species and Habitats** - Hedgehogs, sparrows, swifts, grass snakes, acid grassland, heath, pond margins, hedgerows, removal of non-native species, green roofs
- **Housing estates** – sustainable planning, pilot schemes, orchards, community ownership, external grants, incorporate biodiversity into food growing schemes
- **Contractor practice** improvements, writing biodiversity into procurement
- **Young people** and skills training – apprenticeships, jobs in biodiversity

Conclusions from BAP engagement exercise

- A total of 36 individuals from 29 organisations were contacted and 26 responses received. These were representative of a wide range of organisations across the borough, including the Council, Friends groups, local business partnerships and conservation organisations. The consultation workshop on 12th October 2012 was attended by 14 individuals.
- The questionnaires were able to collate information on the current biodiversity projects being carried out by various groups, as well as gather opinion on the biodiversity priorities in order to help focus the BAP.
- Green corridors and living roofs emerged as top BAP habitat priorities, with biodiversity improvements to parks and amenity grass and garden habitat also highlighted as key areas. In discussion, biodiversity improvements on housing estates, hedge planting and the integration of biodiversity more thoroughly into planning emerged as priorities.
- Bats were the species most prioritised by respondents, followed by hedgehogs, sparrows, swifts and pollinators (including butterflies).
- In terms of engagement and more strategic approaches to biodiversity, there was a wider variety in responses, but a key theme was reconnecting people with nature, for example by increasing access and supporting local groups and wildlife recorders. Planning and reducing the loss of greenspace to hard surfaces in the borough, as well as developing partnerships, were also stated as being important focuses for future biodiversity work.

Appendix 3: London Regional BAP Habitat Targets for 2020

Habitat type	Maintain current net extent	Target to enhance by 2020	Target to increase by 2020
Coastal and floodplain grazing marsh	850	200	50
Chalk grassland	350	30	10
Acid grassland	1466	40	10
Heathland	45	20	5
Reedbeds	131	20	16
Woodland	4909	500	20
Orchards	18	13	5
Meadows and pastures	685	40	20
Tidal Thames	2300 [1]	2 km [2]	-
Rivers & streams [3]	614 km	100 [4]	25 [5]
Standing water [6] (large and small sites +2 ha combined)	599	7 >2ha sites 20 <2ha sites	250 ponds <2ha
Fen, marsh and swamp	109	10	-
Open Mosaic habitats on previously developed land [7]	185 (conserved and/or created)	-	-

Notes (NB all figures are in hectares and use 2008 baseline)

[1] 2300 ha includes habitat features found with the tidal Thames including mudflats, saltmarsh and reedbeds

[2] Target for enhancement relates primarily to small interventions along river walls. Enhancement and restoration targets for other habitat types found within the tidal Thames are dealt with separately in the table.

[3] Defined as main river by the Environment Agency – includes larger streams and rivers but can include smaller watercourses of local significance.

[4] Enhancement includes interventions such as control of invasive species, removal of toe-boarding, etc.

[5] Increase involves full-scale restoration resulting from de-culverting or re-profiling of the river channel

[6] Includes canals

[7] Formerly wastelands. The new title reflects UK BAP priority habitat nomenclature. The target for the former wastelands habitat differs from the others as it remains the Mayor's target, not that of the London Biodiversity partnership and does not seek to protect the whole of the existing habitat resource. 185ha is the area of wasteland habitat estimated within the framework of strategic importance for biodiversity set out in paragraph 7.60. This target should be used to inform the redevelopment of brownfield land so that important elements of wasteland habitat are incorporated in development proposals as well as recreating the characteristics of the habitat within the design of new development and public spaces, for example on green roofs (policy 5.11)

Appendix 4: Camden Biodiversity Advice Note: Living Roofs and Walls

Camden Biodiversity Advice Note: Living Roofs and Walls

The following note provides advice for living roofs and walls as part of new developments, regeneration schemes or retro-fitting projects. Camden expects living roofs to be designed and maintained in a way that is sympathetic to biodiversity, alongside their other environmental functions.

Types of living roof

Living roofs are roof areas with additional waterproofing and substrate material in order to encourage the establishment of plants and wildlife. There are three main categories of living roofs:

1. **Intensive** – Provide accessible amenity space e.g. rooftop gardens and food growing areas, and often require higher levels of design and maintenance.
2. **Semi-intensive** – Can provide different degrees of access and ecological habitat.
3. **Extensive** - Generally demand less maintenance and consist of three sub-types:
    - **Sedum** – type of low-growing plant with shallow roots.
    - **Biodiverse living roofs** – designed to optimize wildlife value. Sparsely sown with wildflowers or re-colonised naturally. Substrate can be brownfield habitat ('Brown roofs') with crushed brick or concrete; or nutrient poor soil ('green roofs') or a mixture of the two substrates.
        - *Brownfield or 'Open mosaic on previously developed land' is a UK BAP Priority*

Biodiverse roofs can consist of a combination of 'brown' and 'green' habitat. Different types of roofs, however, will deliver different levels of each benefit and will be appropriate in different contexts. The Environment Agency state that around **75% of living roofs should be designed for biodiverse green or brown roofs** and 25% should be intensive/semi-intensive.

Benefits of living roofs

Living roofs can deliver many benefits including:

- Sustainable drainage systems (SuDS) appropriate to urban areas
- Climate change mitigation and reducing the urban heat island effect
- Thermal regulation of buildings (heat insulation and cooling)
- Economic benefits such as lifetime extension of a roof and reductions in maintenance costs
- Aesthetic and educational value
- Habitat provision and increasing connectivity
    - *For example, rare black redstarts and endangered stag and streak bombardier beetles can benefit from biodiverse brown and green roofs.*

Policy Background

National	Living roofs are supported by the National Planning Policy Framework, including under *Section 11: conserving and enhancing the natural environment* and several national strategies, including *Climate change – the UK programme,* 2006 and the government's sustainable development strategy, *Securing the Future 2005*. N.B. the Flood and Water Management Act 2010 will require Camden Council to become a Sustainable Drainage Systems (SuDS) Approval Body, eventually approving the drainage of all developments with any drainage implications. Living roofs are recognised as one of the forms of SuDS most suited to urban environments.

Regional	The London Plan has a specific policy relating to living roofs, **Sustainable Energy 5.11**: *"The Mayor will and boroughs should expect major developments to incorporate living roofs and walls where feasible and reflect this principle in LDF policies. It is expected that this will include roof and wall planting that delivers as many of these objectives as possible:* • *Accessible roof space* • *Adapting to and mitigating climate change* • *Sustainable urban drainage* • *Enhancing biodiversity* • *Improved appearance"* Living roofs are also consistent with other policies in the London Plan including those relating to climate change adaptation (5.1, 5.12 and 5.13) and biodiversity (7.19).

Camden	Camden's **Development Policy DP22** states that: *"Schemes must incorporate green and brown roofs and green walls unless it is demonstrated that this is not possible or appropriate. This includes new and existing buildings. Special consideration will be given to historic buildings to ensure architectural and historic features are preserved"* This is supported by Camden Planning Guidance 3: Sustainability. The implementation of living roofs also contributes to the aims of Camden Core strategy policy **CS15: protecting and improving parks and open spaces and encouraging biodiversity**.

Green Roof Design Basics

There are many things to consider when designing and implementing a green roof:

- Whether site is overlooked and any potential privacy infringements;
- Root barriers and waterproofing and drainage capacity (*see below for design specifications*);
- Amount of external heat generated by the building and surface flooding risk;
- Weight and structural considerations;
- Ease of installation and maintenance;
- Aesthetics, access and amenity provision;
- Habitats and biodiversity.

Biodiversity design and considerations

The following outline some key principles for maximising the biodiversity benefit of living roofs. These can be most extensively be applied on green or brown roofs designed for biodiversity; however they can also be incorporated to varying degrees into intensive and semi-intensive green roofs.

Surroundings

- In built-up areas, living roofs and walls can make a significant contribution to an area's greenspace.
- Habitats in the surrounding areas should be considered e.g. if there are important brownfield sites nearby, the strategic provision of brownfield habitat on roofs could increase connectivity between sites.

Substrate

- Substrate depth should be between 80 and 150mm and vary across the roof.
- For brown biodiverse roofs, reclaimed building material can be used but should be screened to ensure that it is not contaminated.
- Areas of bare ground can provide habitat for warmth-loving invertebrates and recreate an open mosaic habitat structure.
- Mounds and ridges can provide varying microclimates suitable for different species and create structurally diverse vegetation.

Planting

- Planting should consider the climate, microclimate, plant attributes and objectives.
- Vegetation can establish either through natural colonisation or planting
    - Colonisation can produce habitat of high value but can also create problems with undesirable species.
- The sowing of annuals or plug planting combined with seeding can be beneficial as it provides a resource for species for the first few years during establishment
- **Sedum** has less biodiversity value but can still deliver drainage benefits etc. and can be combined with other plantings and substrates (on biodiverse roofs should be less than 30%).
- **Wildflowers** provide a habitat for beetles, bees, butterflies and moths. Planting density should be 15-20 species/m^2. In addition to constituting the main planting for biodiverse green roofs, they can be incorporated into extensive brown roofs and sedum roofs. Mosses, succulents and grasses can provide additional variation.
- **Shrubs and cover** can be provided depending on structural considerations and substrate depth and can provide cover for wildlife, perches and winter food for birds, and windbreaks.

Other Biodiversity Features

- *Over-wintering* vegetation allows many invertebrates to complete their lifecycle;
- *Log piles and deadwood* can provide habitat and perches for invertebrates and birds;
- *Bee banks* are mounds of sand and provide valuable nesting sites;
- *Stones and mounds of cleaned bricks* can provide insect and spider habitat;
- *Ponds and wet areas* can provide a valuable resource for many species;
- *Bug hotels and habitat walls* for nesting and overwintering invertebrates.

Maintenance

- Maintenance will vary between roofs and it is important to understand the maintenance requirements before the roof is installed;
- Most extensive green roofs do not require extensive irrigation and fertiliser;
- Initial watering will usually be required during establishment (for around 6 weeks);
- Monitoring and removal of undesirable species may be required;
- Habitat management e.g. re-creating bare-ground areas may be required.

Photovoltaic (PV) Panels

PV can be installed in combination with green roofs. In fact, green roofs can regulate the temperature and improve the efficiency of PV panels, which in turn can provide shaded areas and enhance the biodiversity value of a roof.

(image © Dusty Gedge)

Species Suggestions

Chosen species must be appropriate for the location (ideally local provenance), persistent in harsh conditions (e.g. drought and high winds) and able to form resilient low-growing cover.

Suggested wildflowers

Achillea millefolium / Yarrow (BL)
Agrimonia eupatoria / Agrimony
Anthyllis vulneraria / Kidney vetch
Centaurea nigra / Common knapweed
Echium vulgare / Viper's-bugloss
Galium verum / Lady's bedstraw
Hypericum perforatum / Perforate St. Johnswort
Knautia arvensis / Field scabious
Lamium album / White dead nettle (BL)
Leontodon autumnalis / Autumn hawkbit
Leontodon hispidus / Rough hawkbit
Leucanthemum vulgare / Oxeye daisy
Linaria vulgaris / Common toadflax
Lotus corniculatus / Bird's-foot trefoil
Malva moschata / Musk mallow
Origanum vulgare / Wild marjoram
Plantago media / Hoary plantain
Primula veris / Cowslip
Prunella vulgaris / Selfheal
Ranunculus acris / Meadow buttercup
Ranunculus bulbosus / Bulbous buttercup
Reseda lutea / Wild mignonette
Sanguisorba minor / Salad burnet
Silene latifolia / White Campion
Silene noctiflora / Night flowering catch-fly
Silene uniflora / Sea campion (GRG)
Silene vulgaris / Bladder campion
Thymus ducci / Wild Thyme (GRG)
Trifolium Pratense / Red clover (BL)

Suggested grasses

Briza media / Quaking-grass
Festuca ovina / Sheeps fescue
Other *festuca spp.*
Koeleria macrantha / Crested hair-grass

Living walls

Living walls are walls that have vegetation growing on them. Living walls can provide many of the benefits of living roofs, including pollution alleviation, aesthetics and insulation. They can also provide well-being benefits through urban greening at the street level.

They can be grouped into three types:

1. **Self-clinging climbers** –plants that climb directly up wall surfaces e.g. Ivy (*Hedera sp.*)
2. **Supported climbers** – plants that climb up a grid or trellis e.g. Jasmine (*Jasminum sp.*)
3. **Vertical systems** –wall panels with plants grown directly within them. Watering systems and nutrient supply are incorporated within these and as such, require intensive management.

When implementing a living wall important considerations are:

- The number of species included and their biodiversity value e.g. for pollinators, birds etc.;
- Building features and structure, especially in relation to the weight of the wall;
- Any threat to the structural fabric and material of the building;
- The maintenance and sustainability of the wall (especially irrigation and fertilisation);
- Position and amenity provision e.g. especially in built-up areas with a lack of greenspace.

Further Guidance and information

More information on biodiversity and other elements of living roof and wall design can be found at:

- Environment Agency: Green roof toolkit www.environment-agency.gov.uk/business/sectors/91967.aspx
- GLA: Living roofs and walls technical report http://legacy.london.gov.uk/mayor/strategies/sds/tech_rpts.jsp
- GRO Code http://www.greenroofcode.co.uk/
- Green roof guide http://www.greenroofguide.co.uk/
- FLL European standards http://www.fll.de/shop/english-publications.html
- Green roof centre of excellence http://www.thegreenroofcentre.co.uk/
- Livingroofs.org http://livingroofs.org/
- Design for Biodiversity resource www.d4b.org.uk
- Creating Green Roofs for Invertebrates - a best practice guide http://www.buglife.org.uk/AboutBuglife/publications

Appendix 5: Camden Biodiversity Advice Note: Landscaping Schemes and Species Features

Camden Biodiversity Advice Note: Landscaping Schemes and Species Features

The following note provides advice for landscaping schemes and species features as part of new developments and regeneration schemes or in parks and open spaces. Camden expects landscaping schemes to be developed in a way that is sympathetic to biodiversity, alongside their other social, aesthetic and environmental functions. Species features are artificial habitats created to support nesting, roosting or shelter for wildlife such as birds, bats and insects. These features can be valuable in urban areas where there are fewer natural nesting sites available.

Policy Background

National	There is support for the incorporation of biodiversity into developments at the national level in the Natural England White Paper and Biodiversity 2020: A strategy for England's wildlife and ecosystem services. The National Planning Policy Framework under **section 11: conserving and enhancing the natural environment** also encourages the consideration of biodiversity.

Regional	Biodiversity-sympathetic landscaping is supported by many London policies; principally **London Plan policy 7.19 Biodiversity and access to nature**. It is also supported by the *Mayor's biodiversity strategy 2002 proposal 6: Greening new developments*. In addition, biodiversity-sympathetic landscaping is in line with other London policies, such as Policy *5.3 Sustainable design and construction* and *5.10 Urban greening*. The *All London Green Grid* highlights the importance of considering surrounding greenspace and the context of London-wide ecological networks. The protection, appropriate care and planting of new trees are also supported by the London Plan policy *7.21 Trees and woodlands* and the strategy document *Connecting Londoners with Trees and Woodlands: A Tree and woodland framework for London 2005*.

Camden	Camden provides advice on biodiversity landscaping and planting within Camden Planning Guidance 3: Sustainability (section 13). The development of wildlife friendly landscaping is also in accordance with Development policy **DP22: promoting sustainable design and construction** and Core Strategy policy **CS15: promoting and improving our parks and open spaces in encouraging biodiversity**.

Benefits of biodiverse landscaping

- Habitat provision - wildlife-friendly planting and features will provide habitat for Camden's species.
- Amenity - a large body of research links exposure to nature with positive well-being effects; volunteering in natural space can benefit personal health and community capacity.
- Education - wildlife provides learning and engagement opportunities.
- Climate change adaptation and sustainable urban drainage - reducing hard surfaces will reduce flooding risk and 'urban heat-island' effects; choosing the most appropriate species, e.g. of trees, will reduce planting risks from changes in temperature.

Landscaping Features and Considerations

Retaining existing habitats

- Existing habitat should be retained as a refuge for local species, with particular consideration given to habitat networks and whether the site forms part of an ecological green corridor.
- In particular mature trees have many conservation benefits for insects, birds and bats.
- If existing topsoil remains, it may contain a local seed bank and should be retained if possible

New planting

- Wildlife friendly planting will increase food, shelter and breeding site resources for wildlife.
- Native species often have the highest ecological value; however wildlife-friendly non-natives can also be useful. The spatial and functional context of the site will effect what planting is most appropriate. Non-native species that are harmful invasives should be completely avoided (see list below).

Meadows and long grass areas

- Meadows can be restored or created to provide visual amenity and wildlife in appropriate context (e.g. if replacing amenity grass; if an area already has high wildlife value however, creating a meadow may be inappropriate).
- Wildflowers provide an important nectar source for many pollinating insects
- If possible, species should be native and of local provenance.
- A variety of plant species should be included to provide for a range of wildlife.
- Wildflower schemes should have plans and provisions for continuing management.
- A programme of cutting and removal of arisings will maintain floral diversity.
- Mown strips surrounding meadow areas indicate to the public or residents these areas are undergoing management.
- Amenity grass has little biodiversity value. Reducing areas of very short grass and replacing it with longer grass will have a range of wildlife benefits.
    - Longer grass provides shelter and humid conditions for invertebrates.
    - A range of different vegetation structures provide a variety of conditions.
    - Permanent long grass areas provide over-wintering areas for invertebrates.

Tree, shrub and understory planting

- Can provide food, shelter, breeding sites and varied microclimates for many species.
- If possible, a variety of heights should be established including large canopy trees (15-20m high when mature), as these help to regulate urban temperatures
- Native species are often the best to plant although the principle of 'the right tree for the right site' should be used in designing planting schemes
    - 'Right tree, right place' guidance at: http://www.forestry.gov.uk/ltwf
- While native shrubs have high value, non-native shrubs with high wildlife value can also be considered (see species list below).
- Hedgerows created with native species are of high ecological value
    - Hedgerows will have to be properly managed to maintain their value (see below for further guidance).

Surfacing

- Permeable 'natural' surfaces reduce run-off and encourage insects and so are favourable to hard surfaces.
- Creating some variation in the topography of the soil or the type of substrate (e.g. some bare ground) will create varying microclimates suitable for different species.

Features

- **Deadwood** is important for food, shelter and breeding for some invertebrates, small mammals and birds.
- **Ponds** (both permanent and seasonal) are vital habitats for many amphibians and invertebrates and provide drinking water for birds and mammals. They can also form part of a sustainable drainage strategy.
- **Water courses** should be naturalised where opportunities arise.
- **Bird and bat boxes** integrated into buildings or on trees can provide additional nesting sites. Plans for their maintenance should be considered when they are installed.

Product use

- Peat is a valuable and depleted natural resources and all projects should aim to use peat-free growing mediums.
- Herbicide and insecticide use should be kept to a minimum in order to reduce harm to non-target wildlife species.

Species Suggestions

Most of the species suggested here are native. Some are non-native but they are non-invasive and are valuable to urban wildlife. Non-native species are indicated by (NN). Size of tree species is indicated by: (S) = small (<12m high and 4-8m wide); (M) = medium (>12m high and 4-8m wide); and (L) = large (>12m high and >8m wide).

Meadow plants and grasses

Yarrow (*Achillea millefolium*)	Ribwort Plantain *(Plantago lanceolata)*
Agrimony (*Agrimonia eupatoria*)	Common toadflax (*Linaria vulgaris*)
Lesser Knapweed (*Centaurea nigra*)	Cowslip (*Primula veris*)
Greater knapweed (*Centaurea scabiosa*)	Red/white/bladder campion (*Silene sp.)*
Field scabious (*Knautia arvensis*)	Common sorrel (*Rumex acetosa)*
Ox-eye daisy (*Leucanthemum vulgare*)	False Brome (*Brachypodium sylvaticum*)
Bird's foot trefoil (*Lotus corniculatus*)	Cocksfoot (*Dactylis glomerata*)
Yellow rattle (*Rhianthus minor*)	Sheep's Fescue (*Festuca ovina*)
Viper's bugloss(*Echium vulgare*)	Common velvet grass (*Holcus lanatus*)
Red clover (*Trifolium pratense*)	Rough bluegrass (*Poa trivialis*)
Lady's bedstraw (*Galium verum*)	Crested dog's tail (*Cynosurus cristatus)*
Common cat's ear *(Hypochaeris radicata)*	Meadow Cranesbill (*Geranium praetense*)

Tree species

Field maple (*Acer campestre*) (M)	Crab apple (*Malus sylvestris*) (S)
Alder (*Alnus glutinosa*)(M)	Oaks (*Quercus robur* and *petraea*) (L)
Common beech (*Fagus sylvatica*) (L)	Rowan (*Sorbus aucuparis*) (M)
Silver birch (*Betula pendula*) (L)	Lime (*Tilia cordata*) (L)
Bird cherry (*Prunus padus*) (M)	Common Holly (*Ilex aquifolium*) (M)
Wild cherry (*Prunus avium*) (L)	Whitebeam (*Sorbus aria*) (L)
Whitebeam (*Sorbus aria*) (L)	

Annuals and perennials (border plants)

Rooper's Red-hot poker (*Kniphofi a rooperi*) (NN)	Bluebell (native only) (*Hyacinthoides non scripta*)
Bugle (*Ajuga reptans*)	Fleabane (*Erigeron*)
Wood anemone (*Anemone nemorosa*)	Sea Holly (*Eryngium matitimum*)
Ox-eye chamomile (*Anthemis tinctoria*)	Wall Flower (*Erysinum cheiri*)
Rock cress (*Arabis alpine*)	Stinking Hellbore (*Helleborus foetidus*)
Thrift (*Armeria maritima*)	Foxglove (*Digitalis purpurea*)
Aubrieta spp. (*Aubrieta spp.*)	Toadflax (*Linaria vulgaris*)
Gold dust (*Aurinia saxitalis*)	Primrose (*Primula vulgaris*)
Tussock bellflower (*Campanula carpatica*)	Blessed Mary's Thistle (*Silybum marianum*)
Red valerian (*Centranthus ruber*)	Hedge Mustard (*Sisymbrium officinale*)
Ivy-leaved toad-flax (*Cymbalaria muralis*)	Wood Betony (*Stachys officinalis*)
Wild daffodil (*Narcissus pseudonarcissus*)	Snowdrop (Galanthus nivalis)
Darley Dale Heath (*Erica x darleyensis*) (NN)	Crocus spp. (*Crocus spp.*) (NN)
Squill species (*Scilla spp.*) (some NN)	Winter aconite (*Eranthis hyemalis*) (NN)
Grape Hyacinth (*Muscari neglectum*) (NN)	Glory-of-the-snows (*Chinodoxa spp*.) (NN)

Hedge or shrub species

These species can be used in hedge planting (H) or some can also be wildlife-friendly free-standing shrubs (S).

Hawthorn (*Craetaegus montana*) (H/S)	Wild pear (*Pyrus pyraster*) (H)
Common Gorse (*Ulex europaeus*) (H/S)	Common hornbeam (*Caprinus betulus*) (H)
Common Elder (*Sambucus nigra*) (S)	Wild Privet (*Ligustrum vulgare*)
Common Hazel (*Corylus avellana*) (H/S)	Dog rose (*Rosa canina*) (H)
Common Dogwood (*Cornus sanguinea*) (H)	Field rose (*Rosa arvensis*) (H)
Blackthorn (*Prunus spinosa*) (H)	Spindle (*Euonymus europaeus*) (H)
Alder buckthorn (*Alnus glutinosa*) (H/S)	Guelder rose (*Viburnum opulus*) (H/S)
Purging buckthorn (*Rhamnus carthartica*) (H/S)	Bay/Crack/Goat/White Willow (*Salix sp.*) (H/S)
Wayfaring tree (*Viburnum lantana*) (H)	Crab apple (*Malus sylvestris*) (H)
Hardy Fuschia (*Fuchsia magellanica*) (NN) (S)	Ivy (*Hedera helix*) (Climber)
Orange ball-tree (*Buddleia Globosa*) (NN) (S)	Silver wattle (*Acacia dealbata*) (NN) (S)
Witch-hazel (*Hammamelis*) (NN) (S)	Barberry (*Berberis spp.*) (NN) (S)
Hedge Veronica (*Hebe spp.*) (NN) (S)	Firethorn (*Pyracantha coccinea*) (NN) (S)
Daisy Bush (*Olearia spp.*) (NN) (S)	Escallonia (*Escallonia macrantha*) (NN) (S)
Flowering Currant (*Ribes sanguinem*) (NN) (S)	Wintersweet (*Chimonanthus praecox*) (NN) (S)
Portuguese laurel (*Prunus lustanica*) (NN) (S)	

Invasive species (to be avoided)

Butterfly bush (*Buddleia davidii*)	Holm oak (*Quercus ilex*)
Cherry laurel (*Prunus laurocerasus*)	Johnson grass (*Sorghum halepense*)
Floating pennywort (*Hydrocotyle ranunculoides)*	Montbretia (*Crocosmia x crocosmiiflora*)
Giant hogweed (*Heracleum mantegazzianum*)	Pale Galingale (*Cyperus eragrostis*)
Himalayan balsam (*Impatiens glandulifera)*	Perfoliate Alexander (*Smyrnium perfoliatum*)
Japanese knotweed (*Fallopia sachalinensis*)	Rhododendron (*Rhododendron ponticum*)
New Zealand Pigmyweed (*Crassula helmsii)*	Snowberry (*Symphoricarpos albus*)
Parrots-feather (*Myriophyllum aquaticum)*	Turkey Oak (*Quercus cerris*)
Cotoneaster (*Cotoneaster sp.*)	Water fern (*Azolla sp.*)
Few-flowered garlic/leek (*Allium paradoxum*)	Duck Potato (*Sagittaria latifolia*)

Key principles for species features

- It is preferable to install species bricks and boxes into the fabric of a building as this provides longevity (i.e. they will last longer) and they are less likely to be disturbed;
- Species will not be attracted to a site unless there are areas for them to feed and cover for them to move around. Appropriate landscaping should be in place for the species being targeted (see Camden Biodiversity Advice Note: Landscaping Schemes).

Locations for species features

The quantity and location of species features will depend on the site conditions, the species being targeted and the availability of commuting/foraging habitat. The following points provide general guidance only.

Bat bricks and boxes

- Should be located at least 5m above ground level;
- Place two or three bricks/boxes facing different directions between south-east and south-west.

Bird bricks and boxes – hole-front

- Should be located 2-4m above ground level;
- Should face between north and east to avoid strong sunlight and winds;
- Make sure birds have a clear flight path to the nest;
- Terraces or multiple boxes can be used for species that live in colonies, such as House sparrow.

Bird bricks and boxes – Swift bricks

- Should be installed at a height of at least 6-7m, preferably under the shelter of the eaves or overhanging roofs;
- Should be sited on a north, north west or west aspect out of the sun and heat which can harm the chicks;
- A 5 metre drop, clear of obstructions provides clear airspace for high speed entry and egress;
- Several boxes together will assist the formation of swift colonies.

Bird bricks and boxes – open-front (Robins and Wrens)

- Position below 2m, well hidden in vegetation.

External boxes

The following should be considered if it is not possible to use 'integrated' species features and it becomes necessary to attach boxes to trees or structures:

- Avoid damaging trees when fixing boxes;
- Use tree ties or strapping (not nails). A rubber strap with buckle should be screwed or bolted to the box with the washer and flat side pointing out. Multiple ties can be tied together to secure the box to the tree around the trunk. It is recommended that tree ties are checked and loosened once every two years to ensure they do not start to restrict the tree or become degraded;
- Ensure the boxes are not placed directly above a path or other area used by the public (in case they fall down);
- Ensure the box is clear of overhanging branches;
- Locate in lines of mature trees or by hedgerows if possible;
- Tilt boxes forward slightly so rain will bounce away.

Further guidance and information

Landscaping

- Species suggestions:
  - www.habitataid.co.uk/
  - www.wildaboutgardens.org.uk/plants.aspx
  - www.plantforwildlife.ccw.gov.uk/
  - www.joyofplants.com/wildlife/home.php
  - http://apps.rhs.org.uk/advicesearch/Search.aspx?oa=true
- Landscaping:
  - http://www.tcpa.org.uk/pages/biodiversity-by-design.html
  - http://www.plantlife.org.uk/publications/landscaping_without_harmful_invasive_plants/
- Right Tree Right Place:
  - www.forestry.gov.uk/ltwf
- Wildlife gardening:
  - www.lbp.org.uk/guidancepubs.html
- Hedgerows:
  - www.hedgelink.org.uk/index.htm

Species features

- Bat Conservation Trust www.bats.org.uk
- Swift Conservation www.swift-conservation.org/
- Blackredstarts.org www.blackredstarts.org.uk
- RSPB www.rspb.org.uk/advice/helpingbirds/nestboxes/

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[xxiii] Further information about the Hampstead Heath Woods SSSI is available at http://www.sssi.naturalengland.org.uk/Special/sssi/sssi_details.cfm?sssi_id=1003451
[xxiv] Information about the SINC declaration process is available at http://www.london.gov.uk/priorities/environment/greening-london/biodiversity/sites-importance-nature-conservation
[xxv] All volunteering actions should link to Camden's Volunteering Partnership Strategy
[xxvi] This may include Rochester Square, Cartwright Gardens, housing land, 1 Mill Lane Area of Nature Conservation, part of Gondar Gardens, Bluebell Wood or other sites not yet identified
[xxvii] There are a number of constituted Friends groups for parks, open spaces and nature reserves managed by Camden Council. Many of these groups run their own volunteer gardening or conservation sessions.
[xxviii] The figure of 1308 volunteering hours from Friends groups (including LNR Friends) was taken as an estimate based on the volunteering hours reported to Parks and Open Spaces during Q2 and Q3 (654)
[xxix] Childcare settings in Camden are currently using a number of open spaces to run Forest School sessions including parks and nature reserves.
[xxx] GiGL Camden survey at http://www.gigl.org.uk/Submitrecords/Camden/tabid/98/Default.aspx
[xxxi] The 9 areas included in the Camden Greening project are Regents Park Estate, Ampthill, West End Sidings, Abbey Estate, Broadfield Estate, Millmans Street Place and Court, Clarence Way and Castle Road, Ingestre, Parsifal Road.
[xxxii] NB areas less than five square metres in private houses (but not flats or in Conservation Areas) are considered permitted development and would not go through Development Management.

[xxxiii] Information from GiGL 2012
[xxxiv] Camden Core Strategy 2010 section 15
[xxxv] The Mayor's London Plan 2011: Chapter 7 London's Living Places and Spaces http://www.london.gov.uk/shaping-london/london-plan/strategy/chapter7.jsp
[xxxvi] NB open mosaic habitats on previously developed land have been omitted from this action due to issues of baseline and monitoring
[xxxvii] Due to discrepencies between the GLA and GiGL habitat typologies, in this instance 'meadows and pastures' has been taken to mean herb rich and semi-improved neutral grassland from the GiGL biodiversity audit
[xxxviii] The City of London do not currently hold an SLA with GiGL so a solution will be sought to monitor their data
[xxxix] NB this target is in line with policy CS15 of the Camden BAP to protect sites of nature conservation value.
[xl] Guidance on Single Data List 160-00 reporting is at http://www.defra.gov.uk/rural/protected/nationally/local-sites/.
[xli] Guidance on SINC selection criteria is available at http://www.london.gov.uk/priorities/environment/greening-london/biodiversity/sites-importance-nature-conservation
[xlii] As at 2012, meadow (both annual and perennial) areas in Camden Council managed parks are approximately 13,494m2 or 1.35ha. This is made up of:

- Euston Square c.1000m2
- Hampstead Green c.1559m2
- Harrington Square c.400m2
- Oakley Square c.280m2
- St Andrew's Gardens c.1238m2
- St James' Gardens c.420m2
- St Martin's Gardens c.300m2
- Talacre c.461m2
- Waterlow Park c.7836m2.

[xliii] Veteran trees in Camden's parks and open spaces are dealt with on a case-by-case basis through the usual arboricultural practices.
[xliv] Part of West Hampstead Railsides, Medley Orchard & Westbere Copse Borough Grade I SINC.