GREENWICH BIODIVERSITY ACTION PLAN

Greenwich Council

Promoting equality and quality of life for all

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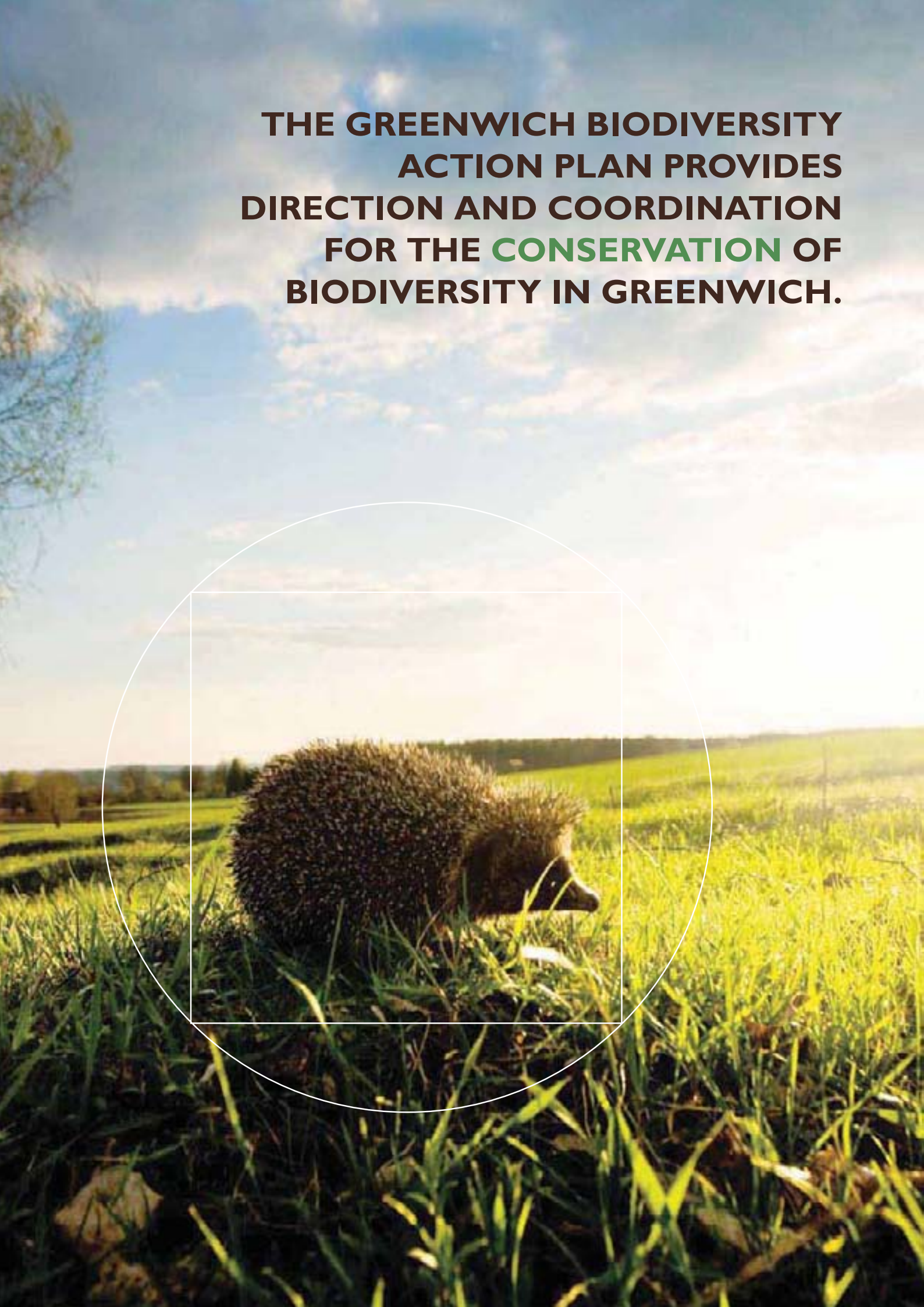


THE GREENWICH BIODIVERSITY ACTION PLAN PROVIDES DIRECTION AND COORDINATION FOR THE CONSERVATION OF BIODIVERSITY IN GREENWICH.

CONTENTS

SECTION I
BACKGROUND

What is Biodiversity?

Biological diversity is defined as:

"the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems" *(Convention on Biological Diversity, 1992).*

Biodiversity (biological diversity) is the variety of all life on earth. It refers to plants, animals and the habitats in which they live. Protecting and enhancing biodiversity is important both for the intrinsic value of the flora and fauna themselves and for humankind. Human activities continue to deplete biodiversity at an ever-increasing rate.

The Convention on Biodiversity

The Convention on Biodiversity was agreed at the Earth Summit in Rio de Janeiro, 1992 as part of a strategy for sustainable development. Three main aims were identified:

- Conservation of biological diversity;
- Sustainable use of its components; and
- Fair and equitable sharing of the benefits from the use of genetic resources.

As a signatory of the Convention on Biodiversity, the UK is committed to developing a national strategy, plan or programme for the conservation and sustainable use of biodiversity.

Furthermore, signatories are expected to integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

Biodiversity for People

Access to the natural environment provides physical, educational and health benefits for the people that utilise it. This is particularly relevant for people living in an urban environment like Greenwich. Maintaining biodiversity is a key component of enhancing the value of the environment for people; species and habitats are conserved because they are beautiful or because they can enrich our lives. Preserving biodiversity and the ecological processes that underlie the character of natural areas will contribute to their stability and play a part in securing their future for the people of Greenwich.

Open areas and vegetated habitats also have a more functional role in Greenwich. Vegetation helps to slow water runoff and allows water to infiltrate the ground more than paved areas, reducing the flood risk of London's rivers. Vegetation also provides local climatic benefits and helps to prevent erosion, reduces ambient noise and absorbs pollutants.

Appreciating that biodiversity is important in enhancing the quality of life for people in Greenwich; contributions that the public can make to enhancing biodiversity are included in the species and habitat sections of the Biodiversity Action Plan.

It is considered useful to include this information and encourage residents to contribute where they are legally able to do so. Actions include those that can be achieved both in gardens and through participation in larger projects.

The Greenwich Biodiversity Action Plan

The Greenwich Biodiversity Action Plan (BAP) is the Borough's contribution to achieving the targets identified in both the UK and London BAP. The formation of a local plan facilitates the targeting of species and habitats that are not only of significance nationally, but are of local importance within London and Greenwich. Biodiversity is an important part of securing the continued provision of access to natural habitats and species and cannot be achieved solely by conserving species included in this Plan. Habitats and species featured in the Greenwich Plan have been selected as flagship constituents of biodiversity within the Borough to ensure that non target species as well those in the Plan benefit from actions taken.

The Greenwich Biodiversity Action Plan provides direction and coordination for the conservation of biodiversity in Greenwich.

The aim of the Plan is:
'To secure the conservation, enhancement and public appreciation of the biodiversity in the London Borough of Greenwich'.

Aims for the conservation of habitats and species included in this Plan are outlined individually. The actions required to achieve the aims included in the individual plans are outlined in Section 2.

For each habitat and species the following are outlined:

- aims (based upon those from the London BAP);
- main factors affecting the population/ habitats;
- status and protection; and
- actions that residents in Greenwich can take for conservation and other benefits to biodiversity.

These have been included to provide the reader with an understanding of why particular habitats and species have been included in the Plan and the main factors affecting their persistence in Greenwich.

The information and aims for individual species and habitats should be read concurrently with the generic tables of actions set out in Section 2.

The Greenwich BAP will build upon and coordinate action already undertaken by the Council. Many sites in Greenwich are designated as Sites of Nature Conservation Importance and are listed in the Greenwich Unitary Development Plan (UDP) which provides a level of protection to biodiversity in the Borough. Greenwich also forms part of the South East London Green Chain which acts as a wildlife corridor and contributes to biodiversity in south London.

Biodiversity enhancement in Greenwich has previously, and will continue to be, delivered by the Council in partnership with key organisations and community groups. This partnership of organisations has already been involved in public consultation to involve local people in choosing priority habitats and species to be included in the Greenwich Biodiversity Action Plan.

The Natural Environment and Rural Communities Act 2006 places a duty for local authorities to integrate measures to conserve biodiversity when making decisions on spatial planning, waste or facilities management. The Greenwich BAP will be a material consideration in the determination of planning applications. The overriding objectives are to restore, protect and connect priority habitats and species while improving ecosystem services, such as pleasant surroundings and clean air, land and water for people as well as habitats to benefit from.

Summary of key habitats and species of Greenwich

The Greenwich Biodiversity Action Plan contains Action Plans for six priority species and six priority habitats:

Priority habitats:

- Acid Grassland and Heath land
- Gardens
- Parks and Green Spaces
- Wasteland
- Waters Edge, Rivers, Ponds and Wetland
- Woodland

Priority species:

- Bats
- Black Poplar
- Black Redstart
- Hedgehog
- Stag Beetle
- Water Vole

The Greenwich Biodiversity Action Plan and Climate Change

Climate change is one of the greatest challenges facing the environment and biodiversity; it is likely to exacerbate the pressures that habitats and species are already under from human activity. Urgent action is required to reduce greenhouse gas emissions that contribute to climate change in order to avoid long-term effects. However, even if target reductions are achieved, climate in the short-term (next 10 – 15 years) has been determined by previous action and some climate change will occur during this time. London is believed to be particularly sensitive to increases in temperature resulting from climate change because it is an urban heat island (temperatures in the centre are a few degrees higher than at the edge of the city).

Greenwich Council is currently in the process of formulating a climate change strategy. This will include sections on biodiversity with reference to mitigation and adaptation to climate change.

Changes in climate and the effects on weather in London will affect biodiversity. The precise nature of impacts upon species and habitats and their interactions are difficult to predict as ecological systems are complex. A number of issues are anticipated and these include:

- Warmer weather is likely to favour exotic plant and invertebrate species, facilitating their spread and creating new pest species.

- Wetland habitats may be threatened by sea level rise and drought.
- Drought is likely to stress many habitats and species.
- Long, frost free winters and early spring is likely to affect the timing of flowering and egg laying and may also place stress on species that normally hibernate during the winter. Mismatch between predator and prey species could occur as a result of differential responses to changes in seasonal timing.

Residents in Greenwich can play a part in prevention and adaptation to climate change, primarily by reducing activities that lead to the release of greenhouse gas emissions into the atmosphere. By following the recommendations in the Biodiversity Action Plan, residents can also improve the resilience of habitats and species in Greenwich to the effects of climate change.

Structure of Plan

The Plan is composed of three main sections:

Section 2: Strategic Themes and Actions

This section outlines generic objectives and tables of actions to be met in order to achieve the aims outlined for all species and habitats. Most of the objectives and targets specified, for example education and protection and enhancement, apply to all biodiversity and will play a significant role in achieving the aims of each habitat or species action plan. Some of the objectives are more relevant to addressing issues relating to specific species or habitats. Discretion will be required when applying these objectives to species and habitats in the Action Plan.

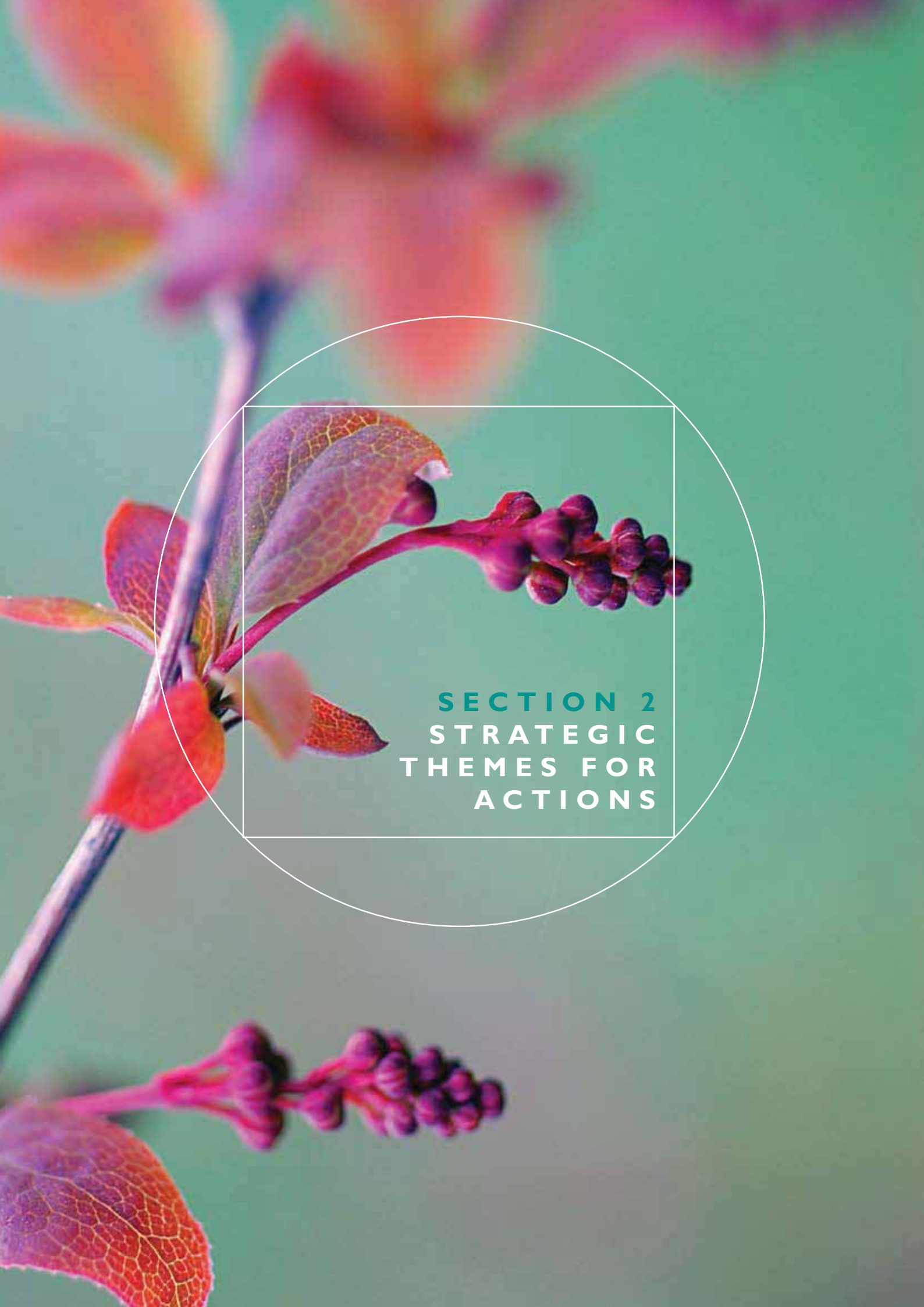
Section 3: Habitat Action Plans

Providing habitats of suitable quality will provide the conditions for species in the Action Plan to thrive. Habitats were selected in line with priorities from the UK and London BAPs meaning that they are nationally and/or locally rare or in decline. They were also selected based upon habitats that are distinct to Greenwich and those that could be effectively enhanced locally.

Section 4: Species Action Plans

Species often serve as flagships to generate public awareness of the habitats included in the Plan and are also indicators of habitat quality. Species were selected in line with priorities from the UK and London BAPs meaning that they are nationally and/or locally rare or in decline. Species were also selected where there is a significant proportion of the population in Greenwich, the population is distinct to the Borough, species are popular or where species serve as indicators of habitat quality in the area.

While the Action Plan outlines strategies for species and habitats separately, the two are inextricably linked. Many of the recommendations included in the Species Action Plans will also be relevant to a habitat type included in the Plan, thus contributing further to the enhancement of biodiversity within those habitats.



SECTION 2
STRATEGIC THEMES FOR ACTIONS

This section outlines the generic actions to be taken to address the main factors underlying a decline in biodiversity and to achieve the aims outlined in the Habitat and Species Plans. It should therefore be read in conjunction with each Plan.

Five strategic themes for action apply for this Action Plan:

1) Protection and enhancement of habitats and species;
2) Monitoring and recording;
3) Management of sites and habitats;
4) Communication and education; and Fundraising.

Protection and Enhancement of Habitats and Species

In order to maintain and enhance biodiversity in Greenwich, practical actions need to be initiated for priority habitats and species that are currently in decline.

These actions range from active conservation in parks and open spaces, to ensuring that planning consent provides provisions through which damage to habitats and species can be avoided and where possible, biodiversity can be enhanced.

Individual plant and animal species are often dependent on a specific habitat. Therefore the best way of protecting species is often through habitat protection as outlined above. Some species however require protection specific to them to reinforce their conservation. The Wildlife and Countryside Act 1981 (as amended) is the principal legislation protecting wild plants and animals in the UK and thus is relevant to the Greenwich borough.

Objective: To ensure that the Local Planning Authority, developers, site managers and site owners are fully aware of and responsive to their responsibilities in respect of biodiversity as a whole as well as protected habitats and species.

Action	Target date	Lead & other partners	Cost implications
1. Provide information about the Biodiversity Action Plan habitats and species to the planning department, developers and managers of public land.	2009 - 10	Strategic Development	GIGL Staff time
2. Ensure that all Ecological Impact Assessments submitted as part of planning applications adhere to IEEM* Best Practice Guidance.	Ongoing	Planning	Staff time

Action	Target date	Lead & other partners	Cost implications
3. Ensure that mitigation and enhancement is included in all relevant planning approvals to provide direct compensation for loss of priority habitats/species in the Biodiversity Action Plan, where appropriate.	Current & Ongoing	Planning, Strategic Development	Staff time
4. Ensure that development schemes do not cause fragmentation of wildlife corridors and that mitigation to prevent this, (e.g. through landscaping) is included before planning permission is granted. Rehabilitation and restoration of existing fragmented corridors will be promoted for new development proposals.	Ongoing	Planning, Strategic Development	Staff time
5. Ensure that planners and developers are aware of different types of green roof and their value for biodiversity.	2009-10	Strategic Development	Staff time
6. Sites of Importance for Nature Conservation (SINCs) are currently protected through policy in the UDP and should be taken forward in the LDF. Effects of planning applications for sites on or near SINCs should be mitigated/buffered/ enhanced as appropriate.	Ongoing	Planning, Strategic Development	Staff time

Action	Target date	Lead & other partners	Cost implications
7. Take measures to address the issues outlined in species/habitat specific sections of the BAP in site management plans.	2009-10	Strategic Development, Parks and Open Spaces dept, London Wildlife Trust	Staff time
8. Engage the public in activities and initiatives to enhance the area and quality of BAP habitats and species.	2010	Parks and Open Spaces dept, Strategic Development	Staff time
9. Work to enhance habitat connectivity through the creation/enhancement of wildlife corridors to link populations.	2010	Greenwich Council	Staff time
10. Engage local groups and Parks and Open Spaces to identify areas of habitat requiring enhancement, restoration and extension and developing plans to achieve these goals.	2010-11	Strategic Development, Parks and Open Spaces dept, Greenwich residents and wildlife groups	Staff time

**IEEM Best Practice is a standard set by the Institute of Ecology and Environmental Management and should be followed by reputable consultancies when producing Ecological Impact Assessments.*

Monitoring and Recording

In order to set appropriate targets, priorities and to monitor progress in relation to actions in the Biodiversity Action Plan, accessible, up-to-date and accurate biological records need to be maintained to allow informed decisions to be made about how the biodiversity interest of a site or area can be best conserved or enhanced. On a regional level, the London Wildlife Trust (LWT) helped establish Greenspace Information for Greater London (GiGL), an open space and biodiversity records centre. The GiGL resource is used to collect, manage and make available detailed information about London's plants, animals, wildlife habitats, statutory and non-statutory wildlife sites and open space. Greenwich Council will use this resource to obtain data about species and habitats of interest.

Objective: To maintain comprehensive, accessible and up-to-date records of the biodiversity of Greenwich to support the protection of biodiversity in the Borough.

Action	Target date	Lead & other partners	Cost implications
11. Maintain Service Level Agreement with GiGL to access presence, abundance and quality information relating to current baseline levels of species and habitats in Greenwich for target setting. Continue to monitor to ensure that aims are being met.	Ongoing	Strategic Development, Parks and Open Spaces, GiGL	Staff time GiGL contract
12. Identify existing and potential sites of importance to Biodiversity Action Plan habitats and species. Create a database of important sites including ownership, use and management and feed into GiGL.	2009 - 10	Strategic Development, Parks and Open Spaces, and local wildlife groups	Staff time GiGL contract, review by volunteers
13. Encourage the collection and submission of records by the public by publicising opportunities to input into monitoring schemes.	Ongoing	Strategic Development	Staff time
14. Set up GiGL reporting system for local schools and Greenwich University for biological recording.	2009 - 10	Strategic Development, Schools	Staff time

Management of Sites and Habitats

Many wildlife habitats require management to retain and enhance their value; left unmanaged, sites would undergo succession to a wooded state which does not provide the diversity of successional stages required to support a wide range of species.
Site management involves the physical management and also the management of amenity use on a site; many sites already have management plans in place to guide these issues. Both physical management and management of amenity use should be addressed in order to increase biodiversity and people's enjoyment of it. Lack of resources is often a major constraint to putting management regimes into practice.

Objective: To ensure that biodiversity conservation objectives are incorporated into the management of green spaces in Greenwich and to encourage public knowledge of and involvement in site management.

Action	Target date	Lead & other partners	Cost implications
15. Management of every SINC and other key sites should be subject to a management plan with ecological objectives.	Initiate 2009-10	Strategic Development, Parks and Open Spaces	Staff time
16. Identify and approach current land owners of key sites (SINCs/greengrid) to discuss and agree management objectives relating to improving key habitats for biodiversity.	2012	Strategic Development, Parks and Open Spaces	Staff time
17. Provide site specific and general land management advice to land owners and managers.	2012	Strategic Development	Staff time
18. Secure continued management of habitats or species through section 106 planning agreements, where applicable.	Ongoing	Planning	Staff time
19. Ensure that Natural England best practice guidance is followed for all work carried out by developers and site managers that may affect the Biodiversity Action Plan or protected species and habitats.	Ongoing	Planning, Natural England	Staff time
20. Removal of invasive species that are a threat to UK biodiversity.	Ongoing	Parks and Open Spaces, local wildlife groups	Staff time

Communication and Education

The public have an instrumental role to play in the conservation of biodiversity in the Borough. As gardens constitute around a third of green space in London, the actions that people take in their back gardens can have a significant effect on biodiversity in the Borough as a whole. Communication and education offer the opportunity to make people aware of the actions they can take to encourage biodiversity and encourage an interest in their local green space. People can also be made aware of health benefits, both mental and physical with regards to biodiversity.

Objective: To increase public awareness of the biodiversity of Greenwich and the Greenwich Biodiversity Action Plan process.

Action	Target date	Lead & other partners	Cost implications
21. Produce a summary leaflet and webpage giving educational information about the species and habitats in the Biodiversity Action Plan and what role the public can play in enhancing biodiversity.	2009 - 10	Strategic Development	Staff time
22. Provide information plaques in parks about the Action Plan habitats and species in relation to ongoing management.	2011-12	Parks and Open Spacess	Funding from commercial/ external sources
23. Provide information leaflets detailing areas of importance and maps illustrating walking trails.	2010	Parks and Open Spaces	Staff time, funding from commercial/ external sources
24. Contribute three biodiversity articles to local papers.	2009-10	Strategic Development, Schools	Staff time, funding from commercial/ external sources

Action	Target date	Lead & other partners	Cost implications
25. Hold public walks and talks with biodiversity themes within public parks, create a website and pamphlet to document upcoming events to the public.	2009-10	Parks and Open Spaces, Royal Parks, regional wildlife agencies	Volunteer/Staff time
26. Encourage schools to participate in conservation activities in their local areas and on school grounds.	2009-10	Parks and Open Spaces Local schools	Staff time
27. Engage with conservation orientated course convenors, student societies and the careers service at Greenwich University to encourage participation in conservation activities.	2009-10	Greenwich Council, Greenwich University	Staff time
28. Establish liaison networks with neighbouring Boroughs to coordinate management of cross boundary habitats and populations.	2009 - 10	Greenwich Council, Lewisham, and Bexley Councils	Staff time
29. Encourage and facilitate the formation of neighbourhood wildlife groups and friends groups for sites of importance and support existing groups.	Ongoing	Parks and Open Spaces, local wildlife groups	Staff time

Fundraising

Although much can be done to implement biodiversity action by working within existing and shared resources, many individual actions will require additional, external funding.

Objective: To secure sufficient funding to enable implementation of the Greenwich Biodiversity Action Plan.

Action	Target date	Lead & other partners	Cost implications
30. Target funding available for key biodiversity projects.	Ongoing	Strategic Development	Staff time
31. Discuss opportunities for funding with local businesses	Ongoing	Greenwich Council	Staff time
32. Liaise with London Biodiversity Partnership regarding funding.	2010	Greenwich Council	Staff time

SECTION 3
HABITAT ACTION PLANS

Gardens

Gardens are an important but often overlooked source of biodiversity in urban areas. They make up over a third of London's green space and as such are a vital part of the Capital's ecosystem. Garden birds have declined in the last decade, as have many other previously frequent visitors of urban gardens such as bumble bees *(Bombus spp)* and hedgehogs *(Erinaceus europaeus)*. No matter how big or small, gardens are an opportunity for residents to take an active interest in conservation by making management decisions that will promote biodiversity.

Aims

- To encourage, support and assist people throughout the Borough to value, conserve and enhance biodiversity and wildlife within their gardens.
- To improve and protect gardens as habitat for local wildlife.

Status and protection of gardens

The Mayor's Biodiversity Strategy states that it is expected that garden and wildlife habitat will be taken into account in proposals for the redevelopment of garden land. The Strategy also states that the amount of garden land in London is such that there generally should not be great conflict between development and biodiversity there, but guidelines are needed to ensure that nature conservation and amenity are taken into account. Gardens are a habitat listed in the London BAP.

Conservation Area status and Tree Preservation Orders give protection to some trees. Animals using gardens such as bat species, robin *(Erithacus rubecula)*, blackbird *(Turdus merula)*, house sparrow *(Passer domesticus)* hedgehog *(Erinaceus europaeus),* stag beetle *(Lucanus cervus)*, slow-worm *(Anguis fragilis)*, great crested newt *(Triturus cristatus)*, common lizard *(Lacerta vivipara)* and grass snake *(Natrix natrix)* receive protection to varying degrees by wildlife legislation.

Factors affecting the biodiversity value of gardens

- The ways in which gardens are maintained impact upon their biodiversity value. Planting native vegetation and leaving some 'wild' areas in the garden can benefit biodiversity. Ceasing the use of garden chemicals and pesticides will provide significant benefits to biodiversity.

Ways for residents in Greenwich to contribute

There are many things that can be done to support and encourage wildlife in gardens.

1) Create a range of different habitats:

- Compost heaps are a great place for invertebrates to live and the material can be used as fertilizer (check for nesting or hibernating hedgehogs before digging into compost).
- Providing shelter for animals for example; bat boxes, bird boxes, and invertebrate hibernation boxes for ladybirds, bees and lacewings etc.
- Providing food and water for garden visitors e.g. bird feed, see also the Hedgehog Action Plan.

- Piles of dead wood can provide habitat for many invertebrate species, toads and field mice. This is also an important habitat for the stag beetle (see the Stag Beetle Action Plan).
- Leaving a corner of the garden to go 'wild' and allowing whatever grows there to remain and/or piling leaves, logs and branches together to create new habitat and wildlife shelters.
- Planting native trees and shrubs will support native wildlife in hedges or shrubbery; see the Natural History Museums postcode plants database to discover which species are native to your area: http://www.nhm.ac.uk/fff/. Different plants will encourage different species, for example; nectar rich plants attract bumblebees.
- Ponds can support a vast range of insect life (such as dragonflies) and amphibians; newts and toads are present in the Borough but are in decline nationally.
- Planting wildflowers that attract butterflies and bees.
- Encouraging plants (such as ivy) to grow over walls. This can provide an excellent habitat for insects and a nesting site for birds.

2) Use organic gardening methods sympathetic to wildlife.

- Slug pellets and granules kill slugs and snails, reducing the prey available to organisms such as the hedgehog and the song thrush *(Turdus philomelos)*, both UKBAP priority and red list species of conservation concern.
- Poisons can also have effects further up the food chain; birds and hedgehogs can die as a result of eating poisoned invertebrates. These species would normally be a natural form of control for

pests and can be encouraged into the garden. Alternative yet effective control methods that are not harmful to other species are now available for the control of these garden pests (see Hedgehog Action Plan).

- Non-target species can be poisoned from consuming slug pellets/granules directly. Weed killers are known to have an adverse impact on bees.
- Non-target species are often a form of biological control by consuming pests. Their presence can be encouraged by planting certain plant species or providing shelter e.g. ladybird houses.

Other Benefits for Biodiversity

There are opportunities to achieve significant biodiversity gains from the measures suggested. The benefits in terms of species attracted are outlined above and the actions taken will determine the biodiversity gains achieved. Measures selected depend on the resources available and the species desired.

Relevant habitats/ species in the Greenwich Biodiversity Action Plan

Hedgehog, Bats, Stag beetle, and, Waters Edge, Rivers, Ponds and Wetlands.

Acid Grassland and Lowland Heath land

Acid grassland habitat generally consists of various fine-leaved grasses and associated wildflowers. In areas where drainage is impeded, grassland consists mainly of purple moor-grass.

Lowland heath consists characteristically of a mosaic of heather, tussocky grasses and dwarf shrubs with associated stands of common

gorse, broom and hawthorn. Classic heath land is covered mainly by low-growing shrubs such as heather which turns a rich purple in late summer and autumn.

Both habitats require free draining acidic soils low in nutrients and acid grassland species often co-occur with heath land species as sub-storey or mosaic elements. These habitats are therefore grouped together for the purposes of this Plan. Lowland acid grassland and heath land are part of our historical as well as environmental heritage.

Heath lands were historically used for grazing livestock, turf cutting and provided a valuable source of gorse and peat for burning. These activities prevented scrub and trees from invading the local landscape. Acid grassland and heath land have long been characteristic of soils in Greenwich, and have helped to shape its history.

Aims

- To restore and enhance the quality of acid grassland and heath land in Greenwich
- To develop a strategic approach to the protection, management, creation and restoration of a network of acid grassland and heath land within the Borough and between Boroughs.
- To promote the value of acid grassland and heath land and secure the involvement of people in Greenwich in its conservation.

Status and protection of lowland heath and acid grassland

The UK possesses 20% of the global heath land resource, so ensuring the survival of existing areas of heath land in Britain is extremely important on a global scale. Lowland heath occupies 1.1 hectares in Greenwich which equates to roughly 1.4% of London's heath land resource. Greenwich also accommodates 14 hectares of acid grassland habitat, approximately 1.1% of London's acid grassland resource. Acid grassland habitats play host to a number of species that do not occur widely in other grassland types. Bostall Heath, Royal Blackheath Golf Course and Blackheath and Greenwich Park are the main areas of importance for these habitat types. Sites of Conservation Importance are listed in Appendix 1.

Lowland dry acid grassland and lowland heath land are both listed as priority habitats for conservation in the UK BAP and are also listed on the London BAP.

Factors affecting the biodiversity value of lowland heath and acid grassland

- Alternative land use.
- Intensive management to provide formal recreation areas have contributed to the degradation of acid grassland and heath land. Fires are another hazard on public sites.

- Neglect and mismanagement have caused these habitats to lose their characteristic plants to coarse grasses, bracken and developing woodland. Extensive restoration work is required to repair the damage caused by years of neglect.
- A reduction in the heather component in these mosaics has disrupted the balance of habitats in many areas. These areas require restoration to reinstate shrub species such as heather.
- Nutrient enrichment of acid grassland and heath land soils from the polluted atmosphere, washed from the air by rain. Non heath land plant species grow more rapidly and out-compete characteristic acid grassland species.
- Acid grassland is often undervalued. This makes it particularly vulnerable to misidentification and mismanagement.

Ways for residents in Greenwich to contribute

- Volunteer some time to heath land and grassland restoration projects. Restoring and maintaining these habitats to prevent succession is very labour intensive and requires a lot of 'people power'.
- Dog walkers should clear up after their animals. Dog faeces causes localised nutrient enrichment and encourages succession by fast growing grasses that colonise and out-compete acid grassland and heath land vegetation.
- Stick to paths when visiting acid grassland and heath land sites - weight of recreational use in urban areas can be a problem and commonly causes localised soil compaction and erosion.

Other benefits for biodiversity

Acid grassland habitat generally consists of fine-leaved grasses and associated wildflowers, such as common bent (*Agrostis capillaris*), red fescue (*Festuca rubra*), sheep's fescue (*Festuca ovina*), wavy hair-grass (*Deschampsia flexuosa*), sheep's sorrel (*Rumex acetosella*), tormentil (*Potentilla erecta*), harebell (*Campanula rotundifolia*) and heath bedstraw (*Galium saxatile*).

Acid grassland provides valuable habitats for invertebrate species, especially *hymenoptera* (bees, wasps, ants) for example red-banded sand wasp (*Ammophila sabulosa*), mining bee (*Andrena florea*), bee wolf (*Philanthus triangulum*) and butterfly species such as the small copper (*Lycaena phlaeas*), small heath (*Coenonympha pamphilus*) and common blue (*Polyommatus icarus*). Acid Grassland also plays host to bird species such as linnet (*Carduelis cannabina*) – a London BAP species and a red list species of conservation concern, green woodpecker (*Picus viridis*), meadow pipit (*Anthus pratensis*) and skylark (*Alauda arvensis*) all attracted by the abundance of insect prey.

The protected Deptford pink is a nationally rare plant which may still occur in Blackheath.

Many of the associated rare invertebrates are listed in the British Red Data Book (RDB), for example, the digger wasps *Diodontus insidiosus* and *Cerceris quinquefasciata.*

The various stages of heath land succession provide a range of microhabitats comprising an array of niches required for a variety of specialists such as the green tiger beetle and the mining bee, which both require open areas of sandy ground. Many *Bombus spp* forage over heathland, playing an important role in pollination, the small heath bumblebee (*Bombus jonellus*), is especially associated with heath lands. Heath land also hosts a number of important species of *Lepidoptera* (butterflies and moths) such as the green hairstreak butterfly (*Callophrys rubi*). Birds such as the stonechat (*Saxicola torquata*) and meadow pipit are also associated with heath lands in London.

Species protected under the Wildlife & Countryside Act 1981 (as amended) associated with acid grassland and heath land sites include common lizard (*Lacerta vivipara*), slow-worm (*Anguis fragilis*) and adder (*Vipera berus*) (which is facing extinction in the greater London area). These species may colonise/be (re)introduced to the area.

Relevant habitats/ species in the Greenwich Biodiversity Action Plan

Parks and Green Spaces, Bats.

Parks and Green Spaces

Parks and green spaces are one of the most common interfaces between the public and the rural environment. They allow people to spend time in a more natural environment close to home or work and provide an opportunity to engage people with biodiversity and ecological processes as well as providing areas of amenity value. The recreational value of parks and open spaces is diverse and encouraging biodiversity in these areas will enhance both public enjoyment and the ecological value of parks and open spaces. The Council aims to promote open spaces for recreation whilst protecting and enhancing the natural habitats they offer.

Public green spaces include a variety of landscapes, such as fields, woodland, ornamental garden areas, play grounds and sport pitches. Greenwich has a large number of parks and open spaces; Greenwich Council maintains nearly 90 sites within the Borough including parks, many of which form part of the South East London Green Chain (a wildlife corridor through south London), public gardens, and sports and school grounds.

Aims

- Further enhance the biodiversity of parks and green spaces in the Borough of Greenwich whilst taking into account their amenity and landscape value.
- Encourage participation of schools to manage their grounds and playing fields for biodiversity. These areas are increasingly recognised for their role as an educational resource and as a focus for nature conservation.

Status and Protection

Open space constitutes almost a quarter of Greenwich's total land area from woodland to formal parks. Much of this green space contributes a significant amount to habitat provision and biodiversity in the Borough. Parks are not only important for wildlife in an otherwise urban environment, but also provide valuable environmental functions in terms of ameliorating pollution and noise. Parks and green spaces are listed in the London BAP. The Mayor's Biodiversity Strategy acknowledges that it is important for parks and green spaces to achieve an appropriate balance between nature and other recreational uses. There is emphasis on encouraging the use of sustainable management practices such as minimising pesticide use and managing green waste appropriately.

The Greenwich UDP focuses on the protection and improvement of public and private open land from development both for leisure activities and enhancing the environment. The management of these spaces should aid the conservation of natural features of conservation interest.

The South East London Green Chain extends through Bexley, Bromley, Greenwich, Lewisham and Southwark. It provides connectivity between the Boroughs and is given particular consideration in the UDP, with the aim of improving the provision of recreational facilities and to enhance visual and ecological features of the landscape. See Appendix 1 for the list of some Sites of Nature Conservation Importance in Greenwich.

Factors affecting the biodiversity value of parks and green spaces

- Invasive species like Japanese knotweed and giant hogweed are both difficult and costly to remove permanently. They out-compete native species and reduce the biodiversity of an area. Invasive alien animal species such as grey squirrel are often without natural predators and have direct (such as predation on small birds or eggs) or indirect (such as habitat modification or change) impacts on native species.
- Lack of wildlife corridors and fragmentation between areas make it difficult for species such as bats, butterflies and plants to spread between parks and green spaces.

- Potential conflict exists between features of parks that the public commonly value, such as formal flower displays or sports pitches, and features of parks that enhance biodiversity, such as un-mown grassland. The former require intensive management and hold little ecological value, while the latter can be perceived by the public as unkempt and not user friendly.
- Pesticides are believed to have been involved in the recent decline in the song thrush and hedgehog. Herbicides reduce the supply of weed seeds for birds, and may also affect soil organisms. The use of pesticides should be minimised wherever possible.

Ways for residents in Greenwich to contribute

- Establish/join a friends group for a local park.
- Volunteer to help with the clearance of invasive species. Only do so having sought advice from the Council about methods for removal and disposal. Japanese knotweed and giant hogweed are both Schedule 9, Part II species in the Wildlife & Countryside Act 1981 (as amended) and it is illegal to plant or cause the spread of these species so certain methods are required to remove and dispose of them.
- Avoid behaviour that disturbs breeding birds.
- Dog walkers should clear up after their animals.
- Dog faeces increase the nutrient levels in soil which affects acid grassland and heath species that prefer nutrient deficient soils. Dog waste reduces others' enjoyment of public areas and supports pest species such as crows.
- Dog walkers should ensure that their animals are under control, especially between March and September when birds are breeding.

Other benefits for biodiversity

Species such as oxeye daisy (*Leucanthemum vulgare*), lady's bedstraw (*Galium verum*), robin (*Erithecus rubecula*), song thrush (*Turdus philomenos*), house sparrow (*Passer domesticus*), bumblebee species (*Bombus spp*), holly blue *(Celastrina argiolus)* and meadow brown butterflies (*Maniola jurtina)* and hedgehogs *(Erinaceus europeaus)* are all likely to benefit from measures that can be taken to increase biodiversity.

Relevant habitats/ species in the Greenwich Biodiversity Action Plan

Hedgehog, Woodland, Water Vole, Bat, Stag Beetle

Wasteland

Wasteland comprises the range of habitats that develop on land whose industrial, commercial, or residential use has declined or ceased. Wasteland sites can support unique assemblages of biodiversity, providing a mosaic of species and communities at different stages of succession that enrich the urban environment.

Wasteland plant communities consist of a diverse mosaic of pioneer and scrub species. Pioneer species are typically short lived plants with high powers of dispersal that require open conditions and are tolerant of disturbance and nutrient poor, harsh environmental conditions. Scrub species occur in patches where the soil is more fertile and

there is less disturbance. This mosaic provides the diversity of habitats that allow the many invertebrate and reptile species associated with this habitat to thrive. This mosaic character should be retained on some sites to prevent the loss of species through natural succession. Sites that are five to ten years old are the most likely to exhibit the conditions required for scarce invertebrate species to colonise.

Not all wasteland sites have high wildlife and amenity value and appropriate consideration of each site should be undertaken. Certain sites, such as areas of hard-standing, car parks and existing empty buildings may be considered for redevelopment. In other cases, on specific wasteland sites, particular care needs to be taken. Creative mitigation can allow redevelopment in some cases without a net destruction of local wildlife habitat and could even improve the wasteland biodiversity value in an area.

Aims

- To manage wasteland sites for both biodiversity and the safe enjoyment of the public.
- To review the value of wasteland sites on an individual basis.
- Encourage appropriate mitigation for existing wasteland site attributes/ incorporate habitats with similar characteristics in new developments on wasteland sites of significant biodiversity value.

Status and protection of Wasteland

The current distribution of wasteland sites in London that are of biodiversity interest is not adequately known. The London Wildlife Trust estimates that about a quarter of London's 1200 wildlife sites are wholly or partly wasteland in character. Concentrations of wasteland sites can be found in the Thames Gateway. Wasteland is listed in the London BAP.

A report for English Nature[1] recommended priority status for a group of habitats called 'post industrial sites of high ecological quality' covering both rural and urban areas. The sort of sites that could be included in this priority habitat would be 'unmanaged flower-rich grasslands with patches of bare ground and little scrub'.

Factors affecting the biodiversity value of Wasteland

- Greenwich is undergoing a period of significant regeneration. Wasteland sites in particular are a target for development. There are a number of measures that can be put in place to mitigate biodiversity loss on wasteland sites. For example, wasteland habitat lost through development can be partially recreated on the roofs of new developments. On 'brown roofs', vegetation is allowed to self-colonise a low fertility substrate, such as the rubble of a demolished building.
- Wasteland substrates are characteristically nutrient-poor and free-draining and as a result, the vegetation on wasteland contains species adapted to harsh physical and chemical conditions. Remediation of contaminated land can remove these characteristics.

[1] *English Nature Research Report 651 Review of the coverage of urban habitats and species within the UK Biodiversity Action Plan (2005) Dr Graham Tucker, Dr Hilary Ash and Colin Plant.*

- Wasteland is often fenced off, inaccessible and has the appearance of having been forgotten, which can encourage activities such as fly-tipping. This has in part resulted in the evaluation of wasteland sites lagging behind that of other habitats. Wasteland sites of high biodiversity value that have been set aside for public access need appropriate management.

Other benefits for biodiversity

The black redstart, one of Britain's rarest birds, is associated with wasteland sites and is likely to benefit from the conservation of this habitat type in Greenwich. Brown-banded carder bee *(Bombus humilis)* has a stronghold in the flower rich wasteland habitat found in the Thames Gateway. Teasel *(Dipsacus fullonum)* is found in rough grassland areas of some wasteland sites and seed eating birds such as House Sparrow *(Passer domesticus)* - a red status species, Linnet *(Carduelis cannabina)* - a priority London BAP species and goldfinches *(Carduelis carduelis)*, can be seen feeding on the seedheads in winter. The small copper *(Lycaena phlaeas)* is a butterfly that can be found in a variety of wasteland habitats, larval foodplants are common sorrel and sheep's sorrel. Common lizard *(Lacerta vivipara)* and slow-worm *(Anguis fragilis)* and are often associated with wasteland sites. The hedgehog *(Erinaceus europaeus)* may also benefit from the provision of wasteland habitat. Thames Terrace invertebrates are often discovered on wasteland sites, indicating the similarity between soil conditions of former industrial sites and the region's original grasslands.

Ways for residents in Greenwich to contribute

- Report wasteland sites that may be of biodiversity value to the Council.

Relevant habitats/ species in the Greenwich Biodiversity Action Plan

Black Redstart, Hedgehog, Parks and Green Spaces

Waters Edge, Rivers, Ponds and Wetlands

Rivers, ponds and wetlands are an important habitat in London. They establish connectivity between large areas and in doing so they provide wildlife corridors for the passage of mobile species such as bats and birds as well as riparian (river margin dwelling) mammal species. Rivers, ponds and wetlands provide the habitats required by many plant and animal species that are not afforded by other habitat types and therefore can contribute greatly to the biodiversity of an area. Many of the species associated with these habitats have suffered declines in recent decades and ensuring the continuation of these habitats will play a part in securing the future of aquatic species in Greenwich.

These habitats are not just important for their biodiversity – they also provide social, economic and environmental benefits. Rivers provide recreational and tourism benefits and resources such as fisheries are being re-established by re-stocking rivers. Wetlands can also act as water storage areas, alleviating some of the risk of flooding. Wetlands containing reed beds also act to intercept and cleanse polluted water. In 2003 Sutcliffe Park, which the River Quaggy flows through, was re-landscaped as a wetland area. The park was designated a Local Nature Reserve in 2006 as the site contains a variety of flora and fauna.

The water's edge and wetlands habitat includes ponds, lakes, streams, marshes and the wet areas around ponds, lakes and streams.

Aims

- To better understand the distribution of ponds and wetlands in the Borough.
- To conserve and enhance existing pond, river and wetland habitats in Greenwich for biodiversity.
- To raise local awareness of the value of pond and wetland habitats for biodiversity, education, amenity and flood prevention.

Status and protection

Nationally, there has been a tremendous loss of wetland habitat due to agricultural intensification, drainage, pollution, over-abstraction of water, development and peat extraction. Wetlands have become isolated, often cut off from the rivers that nurtured them. There are now great efforts underway to restore degraded wetlands and to create new ones. The restoration of worked-out gravel pits, the installation of Sustainable Urban Drainage Systems (SUDS) and the planting of floodplain woodlands all provide opportunities to create new wetlands.

Reed beds are a nationally scarce habitat and priority habitat for conservation in the UK Biodiversity Action Plan. They are an important habitat for several nationally rare breeding birds in the UK, some of which breed in London. Rivers, streams and ponds are listed in the London BAP.

The Thames and other London waterways are known as the Blue Ribbon Network and in the Mayor's Biodiversity Strategy are described as habitats that should be protected and enhanced. Measures to protect the network include designing new developments in a way to increase habitat value, to resist installing impounding features and where possible remove impounding structures, to ensure that brooks, rivers and streams are protected, improved and respected, and to protect and improve water quality by ensuring that runoff is managed on site, preferably using SUDS.

The Greenwich UDP states that the ecological and wildlife value of the Borough's rivers, canals and lakes are to be protected and enhanced. The network of rivers in Greenwich forms an important corridor for aquatic species and migrating birds. The River Thames and tidal tributaries are Sites of Metropolitan Importance for Nature Conservation. Appendix 1 lists some of the main Sites of Nature Conservation Importance in Greenwich of relevance to the BAP. River restoration projects in Greenwich are fed into the London River Restoration Centre, and this contributes to meeting targets in the London Plan and London Rivers and Streams HAP.

Factors affecting the biodiversity value of Waters Edge, Rivers, Ponds and Wetlands

- Projected rises in temperature and sea level caused by climate change may affect the magnitude and frequency of extreme weather events and will cause unpredictable losses or gains of certain habitats and species which is likely to change the composition of plant and animal communities. Improving river corridor floodplains through the restoration of habitat is likely to help offset the loss of habitats and plant communities that would otherwise be vulnerable to change.
- Fragmentation of the river corridor caused by obstructions in the water channel such as weirs and modification of channels can restrict the movement of both marine and terrestrial fauna along the waterway which isolates less mobile and/or sensitive populations rendering them more vulnerable to extreme events. Buffer zones and soft engineering methods, channel restoration and installation of mammal passes would all contribute to alleviating these pressures on riparian communities.
- Loss of floodplains can constrain river flow within channels which offer no potential for wetland wildlife and lead to greater extremes in water levels and reduced water quality. Floodplain restoration, incorporation of SUDS and habitat features within channels to alleviate impacts, and the protection of floodplains can mitigate these extreme events.
- Water quality: Pollution of freshwater affects habitat suitability and can result in amphibian and fish kills, the accumulation of toxins in the food chain and eutrophication (nutrient enrichment). Storm-water run off from non-absorptive surfaces of the built environment is an additional source of pollutant particularly associated with the urban situation.
- Water quantity: Many London watercourses experience low freshwater flows in summer due to over-abstraction upstream. This can raise salinity levels further upstream and damage freshwater plant communities. Low flows can also dry out marginal vegetation, increasing the speed of natural succession with the onset of scrub and woodland colonisation.
- British waterways have been colonised by a variety of alien plant and animal species that are causing problems for native wildlife. American mink predate on the water vole population; the American signal crayfish out-competes the native white clawed crayfish and spreads disease amongst the native population. Chinese mitten crabs and signal crayfish destabilise river banks. Japanese knotweed, floating pennywort, giant hogweed and Himalayan balsalm are all plant species that multiply prolifically and take over large areas of river bank habitat.

Excessive feeding of birds with bread can cause rat problems.

Ways for residents in Greenwich to contribute

- Creating pond areas in gardens to enhance the network of aquatic habitats in Greenwich.
- Establish or join a local river/ pond interest group.
- Volunteer some time to improve local riverine habitats for wildlife, for example, planting gravel reed beds to improve water quality or clearing up litter.
- Use of biodegradable detergents for washing.
- Conserve water. Placing 'Hippo' or 'Save-a-flush' bags into a toilet cistern reduces the amount of water used when flushing the toilet and is available upon request, free of charge from Thames Water. A significant amount of water is wasted by leaving the tap running whilst brushing teeth or washing fruit and vegetables, the use of grey water or rain water for watering the garden can also increase water efficiency.

Other benefits for biodiversity

Species associated with wetland habitats that are likely to benefit as a result of their presence are the common frog *(Rana temporaria)*, great crested newt *(Triturus cristatus)*, common darter dragonfly *(Sympetrum striolatum)* azure damselfly *(Coenagrion puella)*, reed warbler *(Acrocephalus scirpaceus)*, reed bunting *(Emberiza schoeniclus)*, kingfisher *(Alcedo atthis)*, grey wagtail *(Motacilla cinerea)* and water vole *(Arvicola terrestris)*.

Bats can often be observed feeding on the wealth of insect prey that swarms over water bodies at dusk; these include pipistrelles *(Pipistrellus spp)* and Daubenton's *(Myotis daubentonii)* bat species. Stag beetles are commonly found along river corridors as are grey wagtails, which frequently nest and forage along rivers in Greenwich.'

Relevant habitats/ species in the Greenwich Biodiversity Action Plan

Water Vole, Bat, Gardens, Black Poplar.

Woodlands

Woodland and scrub make a vital contribution to biodiversity in London. Many woods allow the public access and afford London's residents a retreat from the urban environment. The term woodland encompasses assemblages that comprise mainly of mature scrub and trees. No lower limit has been put on the number of trees that constitutes a wood, but excludes areas covered by other audits.

Woodland is greatly enjoyed by both adults and children, especially for walking, playing and for education. Woodland also possesses immense cultural, historical and landscape value, and its popularity with the public is evident whenever trees and woodlands are threatened.

Aims

- Manage existing woodlands to conserve and enhance biodiversity.
- Maintain, improve and promote the enjoyment and use of Greenwich's woodlands.

Status and protection

Woodland (this includes all types) covers about 7,300 hectares or 4.5% of London together with around 1,600 hectares of scrub. About 3,700 hectares of woodland lie within Sites of Metropolitan Importance for Nature Conservation (see Appendix 1 for a list of Sites of Importance to Nature Conservation).

Woodland is listed in the London BAP and is generally better protected, particularly ancient woodland, by the planning system than most other habitats. Protection for many of London's woodlands is afforded through the London Plan. The majority of London's woodlands, including those established alongside the city's railways, have been classified as Sites of Importance for Nature Conservation, and/or Green Corridor, although it should be noted that Oxleas Wood is a Site of Special Scientific Interest.

Key species closely associated with London's woodland that receive special national protection include common dormouse *(Muscardinus avellanarius),* badger, all species of bat, hobby *(Falco subbuteo)* and firecrest *(Regulus ignicapillus)*. These may pose legal restraints on management, for example affecting the time of year that operations may be carried out.

Factors affecting the biodiversity value of woodland

- A decline in traditional management regimes, such as the regime known as 'coppice, with standards'. Coppicing allowed a selection of trees in the woodland to mature surrounded by trees cut on rotation that provided thinner wood. Without management, succession occurred and all of the trees became mature. Shading has led to the loss of understory layers of vegetation, reduced forest regeneration and reduced the age structure in woodlands. As a result, diversity of habitats available to woodland dwelling fauna has declined.
- Woodlands are frequently used by the public. This can result in erosion, damage to vegetation and disturbance to wildlife. Measures may have to be taken to mitigate damage while still allowing the public to enjoy the woodland.
- Although the full effect of climate change is unknown, there is a general consensus that London and the south of England will experience longer drier summers, milder wetter winters and an increase in disruptive weather patterns, such as storms and droughts. Woodland, particularly ancient woodland, is especially vulnerable to rapid change, as many characteristic species are unable to migrate in response, due to their poor powers of dispersal.

- Some tree species, such as sycamore, are coming into leaf progressively earlier than others, such as ash and beech which may affect community compositions. Mismatches in the timing of leafing and flowering of plants, and the insects that rely on them for a habitat or food source may occur.
- Species like rhododendron and holly can become abundant, forming an almost uninterrupted sub-canopy, shading out ground flora and limiting tree regeneration.
- Grey squirrels strip the bark of many tree species, including beech, sycamore, hornbeam and oak, causing stunting and sometimes death of the tree. Browsing by rabbits and by deer, principally roe and muntjac, can also damage trees and ground flora.

Ways for residents in Greenwich to contribute

- Do not dispose of garden refuse, motorbikes, cars or other refuse in woodland.
- Report antisocial behaviour and vandalism to Greenwich Council; report fires to the fire services immediately.
- Do not drive motorbikes or mopeds in woodland.

Other benefits for biodiversity

Bluebell *(Hyacinthoides non-scripta)*, which is a well loved national flower species under threat from hybridisation with the spanish bluebell, wild service tree *(Sorbus torminalis),* which is a rare species and hornbeam *(Carpinus betulus)*. Both wild service tree and hornbeam have important populations in London. Badger *(Meles meles)*, stag beetle *(Lucanus cervus)* - London has a stronghold of these species, great spotted woodpecker *(Dendrocopos*

major), speckled wood butterfly *(Pararge aegeria)*, common dormouse *(Muscardinus avellanarius)* and bat species such as the noctule *(Nyctalus noctula)* and natterers *(Myotis nattereri)* roost in trees.

Relevant habitats/ species in the Greenwich Biodiversity Action Plan

Bats, Hedgehog, Stag Beetle, Parks and Green Spaces.

Tidal Thames: habitat statement

Habitat description

Greenwich Borough has the longest river frontage of any Borough in London. The Borough borders the Thames, a 'wildlife superhighway', which is a vital link and migration route for many species.

Good practice in Greenwich

Recent development on the Greenwich Peninsula has highlighted a good practice example. As part of their planning permission the developers have developed a landscape master plan, which they linked to their ecological master plan. The Council will encourage any new developments bordering the tidal Thames to follow this example.

SECTION 4
SPECIES ACTION PLANS

Bats

Bats are nocturnal and Britain's only flying mammal. Bats hunt for insects at night using echolocation. They emit very high frequency calls that echo off their surroundings which provide them with a picture of their environment and aids in the location and pursuit of insect prey.

We are still learning about bat biology and ecology. Only in 1997 the pipistrelle genus was divided into two species, the common pipistrelle *(Pipistrellus pipistrellus*) and the soprano pipistrelle *(Pipistrellus pygmaeus)*.

British bats are social animals and roost in groups. Females form nursery roosts in spring where they give birth and nurse their young. Juvenile bats depend on their mothers' milk and females only give birth to one baby per year. Hibernation occurs between late autumn and early spring. Some bats hibernate in groups, others in solitary.

Many bat species roost in loft spaces in houses and this sometimes causes people concern, as there are many misconceptions about bats:

- Bats are not rodents, and do not gnaw at wood, wires or insulation.
- All British bats consume insects and therefore their droppings are dry and crumbly, they do not putrify like mouse droppings.
- Bats do not nest and therefore do not bring bedding material or insect prey into roost spaces.
- Bats are clean, and spend many hours grooming.
- No species of British bat feed on blood.

Aims for Greenwich:

- To protect and enhance the present population through increasing the provision of roost sites in Greenwich.
- To protect and enhance linear landscape features and wildlife corridors for bats to commute between roost and feeding sites.
- To increase the abundance of insect prey available for bats.

Status and Protection

All of Britain's bat species are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). London plays host to a number of bat species, notably the common pipistrelle bat which is listed as a UKBAP species due to the declines in population in recent decades. All bats are listed on the London BAP and some are also priorities on the UKBAP.

Factors affecting the abundance of bats

- Intensive farming practices and loss of habitat are thought to be responsible for a reduction in prey species which is thought to have contributed to declines in bat populations.
- Bats have lost much of their roosting space as a result of the development of roof space, barns and the loss of old trees. Unfortunately disturbance and destruction of maternity roosts has also occurred.
- Light pollution has important effects on bats, and may force bats to use suboptimal flight routes and potentially causes isolation of preferred foraging sites. This can make them vulnerable to predation. Mitigation could include directing light away from important flight routes or shielding light in some way.

Ways for residents in Greenwich to contribute

- Bat boxes (similar to bird boxes) can be attached to trees or houses and provide roosting space for small colonies of bats.
- Enhance the insect habitat in your garden. By leaving a small area in your garden to go a little wild, for example by mowing less frequently, you can easily enhance the insect diversity in your garden. If this doesn't appeal, planting vegetation that attracts insects, especially moths could also help to attract bats into the garden.
- Report sightings of bats in your area to GiGL and/or to your local Bat group.

Other benefits for biodiversity

Enhancing insect abundance by planting native plant species indigenous to the area will enhance plant biodiversity and also create a more diverse plant habitat for invertebrate species. Whilst invertebrates such as moths are to be specifically targeted, the diversity of other invertebrates such as butterflies is likely to benefit. Insectivorous bird species are also likely to benefit from a higher abundance of insect prey.

Relevant habitats in the Greenwich Biodiversity Action Plan

Waters Edge, Ponds, Rivers and Wetlands, Woodland, Parks and Green Spaces, Gardens, Acid Grassland and Heathland.

Black Redstart *(Phoenicurus ochruros)*

The black redstart is an attractive, robin-sized bird of the thrush family with a distinctive orange/brown tail. In London, the black redstart is concentrated on both industrial sites and post-industrial wasteland sites along the River Thames, east of the River Wandle and along the River Lee. A combination of stony bare ground, sparsely vegetated areas and a complexity of structures, whether they are cranes, old jetties, piles of scrap metal cars or disused building complexes, appear to be its preferred habitat and make the conservation requirements of this species quite unique.

Greenwich is one of the Greater London Boroughs that hosts breeding pairs of Black Redstart; one breeding pair in London equates to 3% of the national population.

Aims

- To protect and enhance the present population by conserving suitable habitat range to facilitate the colonisation of previously uninhabited areas. This may be through the provision of biodiverse brown roofs designed for black redstarts.
- To raise awareness of the species amongst planning authorities, architects, landscapers and developers.
- To establish partnerships with local developers to implement mitigation where development on wasteland sites occurs.
- To take opportunities to liaise with other Borough's to conserve and link habitats as much as is practically possible.

Status & protection

In the UK the black redstart is afforded full protection as a Schedule 1 breeding species under the Wildlife and Countryside Act, 1981 (as amended). It is also listed as a Red Data Book species and is on Appendix II of the Berne Convention on the Conservation of European Wildlife and Natural Habitats, 1979 and is a species listed on the London BAP.

The black redstart population in the UK is concentrated in London, the West Midlands and the coast of Norfolk and Suffolk, but there are clusters in a number of other conurbations such as Nottingham, Liverpool and Manchester. The population is presently thought to fluctuate between 80 and 120 pairs. The black redstart is a rarer British breeding bird than the osprey or golden eagle.

On average there are between 8 and 12 pairs breeding in Greater London each year with a further 6-10 singing males present. This means that their population in London constitutes between 10 & 30% of the national breeding population.

Factors affecting the abundance of black redstarts

- Loss of sparsely vegetated ground for foraging as a result of the re-development and tidying of sites along the Thames corridor and an incomplete knowledge of the distribution of the black redstart may contribute to this.
- There is a misconception that the conservation of the black redstart is not compatible within the culture of regeneration and that as an opportunist species, that they can find suitable habitat elsewhere.
- Replacement of flood defences used for nesting and foraging without checking for black redstarts and adopting appropriate mitigation.
- Pressure from loss of habitat is likely to increase since a high target has been set for the development of wasteland sites in London.

Ways for residents in Greenwich to contribute

- Report sightings of Black Redstarts in your local area to the London Wildlife Trust and/or the Royal Society of the Protection of Birds.

Other benefits for Biodiversity

By conserving areas of wasteland with the conditions required by black redstarts, other species that require this habitat will benefit. Species such as the linnet and goldfinch that feed on the seedheads of wasteland plants together with the plant and invertebrate species that favour wasteland habitats are likely to benefit from the provision of this habitat.

There is a specific design of brown roof recommended to mitigate for the loss of black redstart habitat. This may also mitigate against loss of wasteland habitat for plant, invertebrate and bird species with high powers of dispersal that inhabit wasteland sites. However, brown roofs do not mitigate the loss of habitat for reptile species.

Relevant habitats in the Greenwich Biodiversity Action Plan

Wasteland.

Hedgehog *(Erinaceus europaeus)*

Hedgehogs are a UKBAP species and are regularly found at the top of polls for Britain's favourite UK animal; they were recently voted the UK's favourite garden creature in a survey by the Royal Horticultural Society and the wildlife trusts. The hedgehog is Britain's only spiny mammal. They are nocturnal and generally solitary so sometimes go unnoticed, but provide an effective form of pest control for gardeners. Hedgehogs are often affiliated with urban areas and are a frequent visitor to gardens.

Hedgehogs favour woodland edges, hedgerows and suburban habitats where there is plenty of food for them and sufficient cover. They consume a range of invertebrates including earthworms, caterpillars, beetles, slugs and snails. Some of these are garden pests and consumption of them allows hedgehogs to build up their fat reserves during the summer in preparation for hibernation during the winter.

During the day, hedgehogs usually rest in a nest of leaves. Each night they traverse considerable distances (typically 1 – 3km) to find food and mates. Therefore, it is important to avoid the fragmentation of habitat that will restrict access to foraging and nesting areas.

Aims

- To reduce mortality arising from slug pellet poisons by educating the public and ceasing the use of these chemicals in public areas.
- To increase habitat provision in parks and encourage the public to leave wild areas in their gardens.

Status and Protection

Hedgehogs receive a basic level of protection against cruel behaviour under the Wild Mammals (Protection) Act (1996) and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).

The hedgehog is a recent addition to the priority list of the UKBAP. Hedgehogs have experienced a significant decline in population over recent years.

Factors affecting the abundance of hedgehogs

- The paving over and clearing of gardens together with development on wasteland sites has resulted in a decline and fragmentation of habitat.
- Consumption of garden chemicals such as slug pellets, and slugs that have been poisoned by slug pellets kill hedgehogs. The use of these chemicals has been widespread in gardens.

- Ponds, open drains and netting can all trap and kill hedgehogs.
- The use of strimmers at ground level in overgrown grass or underneath hedges destroys nests and causes mortality.

Ways for residents in Greenwich to contribute

- Avoid using slug pellets in the garden. Slug pellets are a source of mortality for hedgehogs both indirectly, if hedgehogs eat a poisoned slug or snail and directly, as hedgehogs sometimes eat slug pellets. Use alternative methods to catch slugs such as beer/milk traps, collection at night by torchlight or biological control using a slug parasite. This parasite is specific to slugs, so will not affect people or wildlife but stops infected slugs eating with immediate effect. Natural predators remain to prevent slugs from reinvading. The control is easy to apply, lasts for six weeks and comes in a dissolvable powder that can be sprayed over the treatment area.
- If there is a hedgehog that passes through the garden, providing a small amount of food and water would be of great help to it, especially during mild winters when it is too warm to hibernate and there are few insect prey around. Neighbours could even create a rota for feeding the local hedgehog. Hedgehogs eat non fish based cat foods (avoid foods with high jelly and gravy content). It is a common misconception that hedgehogs should be given milk and bread, milk is very bad for their digestive system.
- Leave an area at the end of the garden or under a bush/hedge stacked with garden waste e.g. grass cuttings, branches and leaves for hedgehogs to nest in. Before burning any garden material check that hedgehogs are not using the stack for nesting in.
- Allow areas to become slightly overgrown to enhance the insect habitat in the garden
- Check overgrown grass for nests before mowing.
- Place chicken wire or create a sloping edge to the side of bodies of water in the garden so that hedgehogs that fall in can climb out.
- Report sightings to the London Wildlife Trust and/or the British Hedgehog Preservation Society.

See: http://www.britishhedgehogs.org.uk/FAQS/faqhome.htm for further details.

Other species likely to benefit

The song thrush *(Turdus philomelos)*, a UK and London priority BAP species consumes worms, slugs, snails and insects and is found in the same habitats as hedgehogs. Reductions in the use of garden pesticides are likely to benefit the song thrush (UKBAP species) and also other garden bird species. There are also biodiversity gains to be had in invertebrate and plant species if areas of the garden are allowed to go 'wild'.

Relevant habitats in the Greenwich Biodiversity Action Plan

Gardens, Parks and Green Spaces, Woodland, Wasteland.

Stag Beetle *(Lucanus cervus)*

The male stag beetle is Britain's largest terrestrial (ground living) beetle. Adult males reach lengths of up to 7 cm and are characterised by possessing large mandibles (jaws) which are shaped like antlers, giving them their common name. Despite their threatening appearance male beetles cannot inflict any damage with their mandibles, as the muscles that move them are weak. They are used for wrestling other males, like a stag's antlers. Female's jaws are smaller, but stronger.

Eggs are laid underground by logs or stumps of dead tree species such as oak, ash, elm, apple and cherry. Larvae are found in rotting stumps, where they consume large amounts of decaying wood and take up to five years to develop into adults. Larvae do not eat the wood of live trees and are therefore not a pest. The beetles aid decomposition by breaking down coarse plant material and recycling nutrients back into the soil.

Adults emerge from the soil between mid May and late July. Males can often be spotted flying on warm summer afternoons one or two hours before dusk searching for females to mate. Adults live on fat reserves developed during the larval stage and generally die after mating, though occasionally individuals die over-winter in places such as compost bins.

Aims

- Maintain and increase the number of stag beetles in Greenwich by providing additional habitat in parks identified as possessing populations of stag beetles.
- To raise public awareness about stag beetles and their habitat and to encourage schools and residents to 'bury a bucket'.
- To take a 'leave alone' policy on fallen trees/standing deadwood in parks unless they pose a safety risk or compromise public use of an area.
- Take opportunities to liaise with neighbouring Boroughs to link habitats as much as is practically possible.

Status and Protection

Stag beetles are globally threatened and protected under schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The beetles are listed as priority species by the UKBAP and are also listed in the London BAP. Its distribution has reduced in the last 40 years, and stag beetles are only found in the south of England, but London remains one of a number of hotspots for the stag beetle population and as such is an important stronghold to maintain.

Factors affecting the abundance of stag beetles

- Destruction of the beetles' key habitat deadwood through the tidying up of woodlands, parks and gardens and stump grinding.
- In densely populated areas, high mortality arises from assaults by cats, feet and traffic.

Ways for residents in Greenwich to contribute

- Try to leave rotting stumps in situ.
- Create a loggery in your garden by burying logs vertically in the soil. If you have limited space, see below:
- Bury a bucket in your garden. Burying a bucket with holes around the sides, containing untreated non coniferous wood chippings and soil is an easy and cheap way to create artificial stag beetle habitat. See Peoples Trust for Endangered Species. For more information: http://www.speciesdata.co.uk/cgi-bin/stagproj/BB4bIntro.htm visit the Buglife website (www.buglife.org.uk) or Trust for Urban Ecology website (www.urbanecology.org.uk).
- If you do not have a garden, see what conservation volunteer opportunities are available on the Greenwich website.
- Report sightings of stag beetles in your area to the London Wildlife Trust.
- If you see a beetle on the pavement or somewhere it can be trodden on, use a leaf/branch to pick it up and move it out of harms way.

Other benefits for biodiversity

Dead wood is an important habitat for a host of invertebrate, fungi, bryophytes and lichen species some of which are specialists. Standing deadwood provides habitat for woodpecker and bat species. In supporting such a host in invertebrate species, deadwood provides a source of food for species such as the hedgehog that consume them.

Relevant habitats in the Greenwich Biodiversity Action Plan

Woodland, Parks and Green Spaces.

Water Vole *(Arvicola terrestris)*

The water vole is a small mammal that lives in the banks of rivers. They are characterised by a dark fur, a small blunt muzzle, small ears, hairy tail and rounded body. They are not particularly sensitive to the presence of people and can be seen or heard entering water in areas where populations still persist.

Water voles inhabit the banks of rivers and ditches and feed mainly on grasses and other plant material. Whilst water voles are very good swimmers, they are not specialised for life in the water. Water voles can have up to five litters of six young per year between April and September; juveniles leave their mother at around 22 days old.

Aim

- To conserve and increase Greenwich's current water vole population by improving and extending their habitat and enhancing connectivity.

Status and protection

The water vole is a fully protected species under the Wildlife and Countryside Act 1981 (as amended).

Water voles have undergone significant declines in population. A national survey in 1989-1990 failed to find evidence of water voles in 67% of sites where they had been previously recorded. The population has declined by 90% since 1990 (Environment Agency, 2008). This makes the water vole the most rapidly declining mammal in Britain.

In Greater London the water vole has disappeared from over 72% of the sites it occupied before 1997 (London Mammal Group, Greater London Water Vole Survey 1997). Although the species still retains a widespread distribution around much of London's periphery (especially in the Boroughs of Barking and Dagenham, Barnet, Bexley, Ealing, Enfield, Greenwich, Hackney, Havering, Hillingdon, Hounslow, Redbridge, Richmond, Waltham Forest), populations are highly localised and fragmented.

Water voles are listed as priority species in the UKBAP and are also listed in the London BAP.

Factors affecting the abundance of water voles

- A loss and fragmentation of wetland habitat has reduced and separated populations. Fragmented populations are more vulnerable to processes such as predation and chance events as isolated areas cannot be re-colonised from other areas. Development, land drainage, low water levels, hard river engineering techniques and changes in waterside management are all responsible for destroying habitat.
- The colonisation of British waterways by American mink has exacerbated other factors that have caused population declines. Mink prey upon water voles and so are a significant source of mortality and may further fragment existing populations. Therefore monitoring mink population numbers and distribution may provide useful information.
- Poisoning by rodenticides laid for the control of rat populations. Also, brown rats predate young and their presence may also have a deterrent effect on water voles.
- Pollution of watercourses by surface runoff.

Ways for residents in Greenwich to contribute

- Volunteer some time to wetland and river restoration projects.
- Do not dump rubbish or chemicals into waterways, report dumped waste to the Council.
- Take care that water voles are not present in areas that rodenticides are used.
- Report sightings of water voles to the London Wildlife Trust and/or the Mammal Society.

Other benefits for biodiversity

Water voles are a flagship species, which means that measures to conserve the species can fulfil other targets for riparian and wetland biodiversity. Enhancing aquatic environments for plant and invertebrate species will enhance biodiversity and species that feed on them such as birds and bats. Maintaining the quality of these habitats provide important links between different areas.

Relevant habitats in the Greenwich Biodiversity Action Plan

Waters Edge, Rivers, Ponds and Wetlands

Black Poplar *(Populus nigra ssp. betulifolia)*

The black poplar *(Populus. nigra ssp. betulifolia)* is Britain's rarest timber tree; there are now only a few thousand veteran trees in Britain. Precise London numbers of the sub-species are unknown, but London Natural History Society surveys indicate that they are rare. Such trees have been reported in 21 London Boroughs with concentrations along the River Thames and North East of the city. An action plan is now needed for black poplars because of their rarity, generally elderly age profile and likely inability to reproduce sexually due to genetic pollution from hybrid poplars. They will probably be reliant for some time on the planting of cuttings.

Black poplars are usually found in wet areas, typically alongside streams and rivers. They are characterised by their large, often leaning and ungainly appearance with massively arching, down-curved branches and heavily burred trunks. In the spring, the male and female trees produce red and green catkins respectively.

Apart from recently planted cuttings, most black poplars are thought to be in excess of 100 years old with perhaps the oldest reaching over 300 years in age. There are a few examples of seedlings (possibly hybrids) from sites where both male and female black poplars occur together.

Aims

- Identify which sex the black poplars are in Greenwich.
- Ensure that black poplars are covered by tree protection orders.
- Identify suitable planting sites and plant propagated black poplar trees.

Status & Protection

Black poplars receive the same protection as all other wild plants in the UK through the Wildlife and Countryside Act, 1981; they may

not be uprooted without the permission of the landowner. Tree Preservation Orders and the 1967 Forestry Act may prevent the felling of trees for Trees. The black poplar is listed on the London BAP.

Sixty black poplars were planted in 2006 in 12 locations around the Borough. It is expected that most of these are healthy.

Factors affecting the abundance of black poplars

- Warmer and drier summers may contribute to the decline of the species. In London rising water tables and the creation of new wetlands may benefit black poplars.
- 'Tidying up' of fallen trees and branches prevents trees regenerating from them.
- The widespread planting of hybrid poplars makes the likelihood of cross-pollination with black poplar high and it reduces the chance for 'true' black poplar seed to be produced in the wild.
- Re-pollarding appears to be damaging to Black Poplars, it is thought to have killed a number of trees, often several years after it has taken place.
- The planting of black poplars is usually from nursery stock that may be from a single clone, or cuttings taken from a single tree. It is easier to obtain a great number of cuttings from a single tree rather than a few cuttings from several trees. If these saplings are planted in large numbers over wide areas, the genetic diversity of populations will be reduced significantly.
- Since the summer of 2000 a virulent disease (assumed to be a fungal disease *venturia populina* or *pollaccia elegans*) has hit the Manchester Poplar, which has been found to be a male clone of the native black poplar. The disease could spread to the rest of the population in England and Wales, and the only mitigation is to fell the affected trees to prevent the disease from spreading.

Other benefits for biodiversity

The hornet moth *(Sesia apiformis)* larval stage feeds in the lower trunk and upper root of black poplar. Increasing the number of trees will also provide habitat for generalist invertebrate and bird species.

Relevant habitats in the Greenwich Biodiversity Action Plan

Parks and Green Spaces, Woodland

Appendix 1: Summary of main sites of Nature Conservation Importance relevant to BAP habitats and species.

No Site	Site	Description	Designation	Greenwich action plans
NC1	River Thames and tidal tributaries	Important for wildfowl and wading birds. River walls provide feeding habitat for the black redstart, terraces created for saltmarsh communities to establish, river corridor	Site of Metropolitan Importance	Waters Edge, Rivers and Wetlands, Black redstart
NC2	Shooters Hill Woodlands	Oxleas, Jack and Sheperdleas woods, ancient woodland	Site of Metropolitan Importance, Local Nature Reserve, part SSSI	Woodlands, Parks and Green Spaces
NC3	Bostall Wood and Heath	Ancient and secondary woodland with heathland and acid grassland, only significant area of heathland surviving in Greenwich Borough	Site of Metropolitan Importance, part SSSI	Woodland, Acid Grassland and Heathland, Bat
NC4	Royal Blackheath Golf Course	Ancient and secondary woodland with heathland and acid grassland, only significant area of heathland surviving in Greenwich Borough	Site of Metropolitan Importance, part SSSI	Woodland, Acid Grassland and Heathland, Bat
NC4	Royal Blackheath Golf Course	Woodland, scrub, acidic grassland, pond	Site of Metropolitan Importance	Woodland, Waters edge, Rivers and Wetlands
NC6	Blackheath and Greenwich Park	Largest area of open green space in central southeast London, ancient parkland trees, small woodland, lake and several ponds	Site of Metropolitan Importance	Parks and Green Spaces, Acid Grassland and Heath, Waters edge, Rivers and Wetlands

No Site	Site	Description	Designation	Greenwich action plans
NC7	Kidbrooke Green and Birdbrooke Road Nature Reserve	London's most important assemblage of amphibians including the great crested newt	Site of Metropolitan Importance, under consideration for SSSI status	Waters edge, Rivers and Wetlands, Wasteland
NC8	Woolwich Common	Mostly acidic grassland, some neutral grassland and scrub	Site of Borough Importance, Grade 1	Acid Grassland and Heath, Parks and Green Spaces
NC15	Tump 53 Nature Park	Extensive reed beds. Open areas of water support diverse aquatic flora and invertebrates, water voles still present	Site of Borough Importance, Grade 1	Waters edge, Rivers & Wetlands, Water vole, Bat
NC17	Plumstead Common	Extensive areas of acid grassland and secondary woodland		Acid grassland and Heath
NC21	Thamesmead Historic Area & Wetlands	Wetland habitat from reed beds to deep water. Scrub on adjacent land	Site of Borough Importance, Grade 1	Waters edge, Rivers and Wetlands

Appendix 2: Glossary of abbreviations used in BAP

Abbreviation	Full Interpretation
BAP	Biodiversity Action Plan
UKBAP	United Kingdom Biodiversity Action Plan
LBAP	Local Biodiversity Action Plan
SUDS	Sustainable Urban Drainage Systems
UDP	Unitary Development Plan
GiGL	Greenspace information for Greater London
IEEM	Institute of Ecology and Environmental anagement
SINCs	Sites of Importance for Nature Conservation
SSSI	Site of Special Scientific Interest
LWT	London Wildlife Trust

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