QUEEN ELIZABETH OLYMPIC PARK

BIODIVERSITY ACTION PLAN 2025-2030

LONDON LEGACY DEVELOPMENT CORPORATION

QUEEN ELIZABETH OLYMPIC PARK

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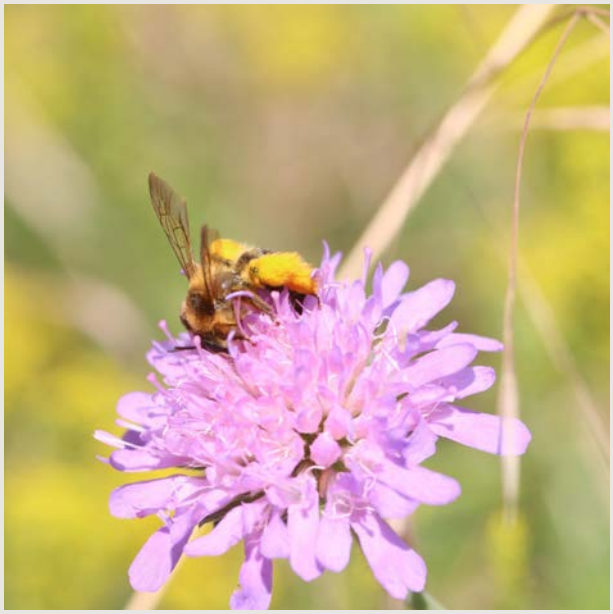
PREFACE



Pantaloon Bee on Field Scabious on Sidings Street

This is Queen Elizabeth Olympic Park's Biodiversity Action Plan (BAP) for the period 2025-2030. The BAP will focus on evidence-based management, using ecological data to inform management decisions for the benefit of nature. This follows the approval of the BAP for 2019–2024 pursuant to Schedule 10 of the Legacy Communities Scheme (LCS) section 106 agreement.

Queen Elizabeth Olympic Park (the Park) was created to host the London 2012 Olympic and Paralympic Games in Stratford, east London. Development of the site provided the opportunity to rectify the negative environmental conditions that were present in the area including heavily polluted waterways, widespread invasive species, highly contaminated soils and large amounts of fly-tipped waste. This BAP covers the 102 hectares of parklands set within the wider estate (the Park) setting the direction for long-term habitat management to maintain and enhance biodiversity across the Park as neighbourhoods and an estate with parklands at their centre.

The site is the largest urban park in the UK created in over a century and was designed as a park where people and nature could co-exist. Sustainability was at the heart of construction and is a continuing theme in the Park today. London Legacy Development Corporation (LLDC) "has a vision to deliver a pioneering model of urban regeneration, including providing sustainable infrastructure that allows people to live low carbon, resource efficient and healthy lifestyles. Placemaking at Queen Elizabeth Olympic Park involves people and nature with the backdrop of a changing climate" (LLDC Online[1]).

The parklands were designed as a green corridor that follows the River Lea, combining green infrastructure such as woodlands and tree planting, grasslands and meadows, wetlands and rain gardens with the ecosystem services provided by biodiversity and flood water storage. The specific habitats and species present in the landscape before the 2012 Olympic and Paralympic Games were used as inspiration for the design of the parklands and wider Park.

Many of the priority habitats and species found at the Park today were featured in the original BAP (2008). This document, the first for an Olympic Park (LLDC Online[2]), has been a guideline for every BAP since. The original BAP highlighted that as the Park develops, new species will establish themselves and may need to be protected under any new versions.

[1] https://www.queenelizabetholympicpark.co.uk/our-story/how-we-work/environmental-sustainability
[2] https://www.queenelizabetholympicpark.co.uk/our-story/how-we-work/environmental-sustainability

Importance of biodiversity

"Biodiversity is essential for the processes that support all life on Earth, including humans. Without a wide range of animals, plants and microorganisms, we cannot have the healthy ecosystems that we rely on to provide us with the air we breathe and the food we eat" (Royal Society Online[3]).

The Economics of Biodiversity: The Dasgupta Review (2021) describes Nature as "our most precious asset" and acknowledges that "truly sustainable economic growth and development means recognising that our long-term prosperity relies on rebalancing our demand of Nature's goods and services with its capacity to supply them"[4].

The recent publication of the State of Nature report (2023) highlights the serious condition of UK biodiversity and the need for landscape-scale improvements to reverse the loss of species. Inspired by the positive results conservation projects can have for British wildlife, this BAP aims to build on previous versions and will prioritise achieving good ecological condition in all of the Park's habitats.

The objectives of the BAP are:

- To promote evidence-based management where data is used to inform management decisions
- To adopt a quality over quantity approach, where each habitat is managed with the aim of achieving good ecological condition
- To connect people to nature through community engagement and outreach
- To promote collaborative working with stakeholders to bring about ecological improvement on a landscape scale

The overarching actions of the BAP are:

1. Set out how the data collection will go forward with an evidence-based approach to management
2. Good ecological monitoring and citizen science to be designed and delivered.
3. Prepare and align to BNG requirements
4. Provide a baseline for the different habitats and monitor progress and report for decision making
5. Run a Bioblitz every year
6. Collect UCL East bat monitoring and base management on data

Structure of the BAP

The BAP works in conjunction with the Park Management Plan and Park Design Guide as a roadmap for how to achieve good quality habitats for people and nature. There are also related publications such as the LLDC Green Infrastructure Guide. The creation of a BAP is recommended in Policy G6 of The London Plan, published in 2021.

The BAP will contain the following sections:

- Introduction
- State of Nature
- Habitat and Species Action Plans
- Community Action Plan
- Appendices

The introduction will detail the history of the site, and how the parklands are today. The importance of parks for both people and urban nature will be discussed along with the need for the promotion of habitat quality and evidence-based management.

The State of Nature report (2023) gives the most comprehensive overview of British habitats and species to date. This section was included to highlight the plight of British nature and the need to conserve it.

The Habitat and Species Action Plans provide information on the varying ecosystems and species found at Queen Elizabeth Olympic Park. These sections detail the management techniques for achieving good habitat quality, which will hopefully result in an increase in priority and non-priority species using the parklands.

The Community Action Plan details how local residents, park visitors, volunteers and operational staff can connect with nature and help the habitats at the Park reach good condition.

[3] https://royalsociety.org/news-resources/projects/biodiversity/why-is-biodiversity-important/#:~:text=Biodiversity%20is%20essential%20for%20the,also%20value%20nature%20of%20itself
[4] https://assets.publishing.service.gov.uk/media/602e92b2e90e07660f807b47/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf

Successes of the Queen Elizabeth Olympic Park BAP 2019-2024

The BAP 2019-2024 set targets and standards for each of the habitat types found across the Park. By achieving good condition in each of these habitats it was the hope that the 28 BAP priority species would thrive. Considering the young age of the Park, the ecological results are positive, with new and exciting records being submitted each year as the landscape continues to mature.

The Biodiversity Manager has recorded 82 bird species and the site has a total of 113 species recorded by independent contributors (eBird Online 2024[5]). A variety of these species have been confirmed as breeding in the parklands, including BAP priority species such as Song Thrush (Turdus philomelos), Eurasian Linnet (Linaria cannabina), House Sparrow (Passer domesticus), Sand Martin (Riparia riparia) and Black Redstart (Phoenicurus ochruros). Two BAP priority bird species, the Grey Heron (Ardea cinerea) and Kingfisher (Alcedo atthis), are regular sightings on the Park, although are not confirmed as breeding on site.

The Park's waterways, heavily polluted before development of the site, have become productive ecosystems. European Eel (Anguilla anguilla), the BAP priority fish species, has been recorded along the City Mill River in three of its developmental stages (Elver, Yellow and Silver). This is one of 11 fish species recorded to date. The aquatic habitats are equally productive for invertebrates, with 17 species of Odonata (dragonflies and damselflies) having been recorded on site to date, with many being confirmed as breeding, including Willow Emerald Damselfly (Chalcolestes viridis) and Lesser Emperor Dragonfly (Anax parthenope). Smooth Newt (Lissitriton vulgaris), one of the three BAP priority amphibian species, is widespread across the Park and breeding has been confirmed.

The wide variety of plant life on site attracts pollinating species and 23 species of butterfly have been recorded to date including the notable Green Hairstreak (Callophrys rubi) (anecdotal record iRecord 2023). Toadflax Brocade Moth (Calophasia lunula), a BAP priority invertebrate species, has been recorded on the Here East green roof where the caterpillars feed well on Purple Toadflax. The roof is a hotspot for this plant species. To date 65 species of bee have been recorded on site, with BAP priority species the Brown-Banded Carder Bee (Bombus humilis) being regularly seen across the Park. Stictopleurus abutilon, a BAP priority invertebrate species, has been recorded in the North Park meadows.

Regarding mammals, a European Otter (Lutra lutra), a priority aquatic mammal, has been resident in the parklands since 2022. Bats continue to be recorded across the Park and will hopefully increase in number of species as the parklands continue to mature.

New species are constantly being discovered as the Park landscape develops and this BAP will add five new priority species deemed worthy of celebration and conservation.

River Lea

[5] https://ebird.org/hotspot/L3444730

INTRODUCTION

City Mill River and London Stadium in Queen Elizabeth Olympic Park

Queen Elizabeth Olympic Park

Queen Elizabeth Olympic Park is situated in Stratford, east London and comprises an area of 560 acres (226 hectares), with 102 hectares of parkland, shared by four host boroughs: Hackney, Tower Hamlets, Newham and Waltham Forest. Immediately north of the Park is Hackney Marshes which forms part of the Lea Valley Regional Park, extending as far as Hertfordshire. This forms a continuous corridor of green and blue space following the course of the River Lea.

London Legacy Development Corporation

The London Legacy Development Corporation (LLDC) was the planning authority for the Park and surrounding area until December 2024, when these powers were handed back to the host boroughs. It was set up to deliver the legacy of the 2012 Olympic and Paralympic Games and oversees the ongoing maintenance, development and planning for the site. LLDC continues to manage the Park and parklands and this Biodiversity Action Plan.

Planning Context

Much of the Park is within Flood Zone 3 and Metropolitan Open Land and is therefore subject to stringent planning protections. While this is the case, some areas of the Park are planned for development, and these developments will need to meet at Urban Greening Factor (UGF) and Biodiversity Net Gain (BNG) statutory requirements as relevant for the project. There is also the opportunity for offsite developments that are unable to meet their BNG requirements to purchase BNG credits derived from improving the Park from LLDC. These improvements would be required to be registered in a national database and maintained for 30 years.

History of the Park

Before development for the 2012 Games, the site had a long history of industrial use which had contaminated much of the soils. The waterways that run through the site were heavily polluted and invasive species were widespread. Despite these negative environmental conditions, the site was home to specialised species and habitats; surveys


Hackney Marshes
Railway
Lee Valley Hockey & Tennis Centre
A12
Drapers Field
Lee Valley Velopark
Wick Woodland
CHOBHAM MANOR
EAST WICK
Queen Elizabeth Olympic Park
River Lea
Victory Park
Here East
Eastway
Mossbourne Riverside Academy
Ravens Walk
EAST VILLAGE
Chobham Farm
Waterglades
Stratford International Station
Copper Box Arena
Hackney Wick Station
HACKNEY WICK
Westfield Stratford City
STRATFORD WATERFRONT
SWEET WATER
EAST BANK
Stratford Station
Waterworks River
London Stadium
UCL
Stratford High Street DLR
City Mill River
Greenway
BRIDGEWATER TRIANGLE
RICK ROBERTS WAY
Pudding Mill DLR Station
PUDDING MILL LANE
Bow Back River
SUGARHOUSE ISLAND

carried out in 2008 identified a number of species which have been included as priority species in every BAP since. The site was largely brownfield habitat, 4.2ha of which were reinstated as part of the Park's design. Bully Point Nature Reserve, formally on the site of the Velodrome, had particular value for local wildlife, and many amphibians and reptiles were translocated from there prior to development. The Waterglades, which is part of East Village, contributes in a similar way being integrated into the parklands. Allotments were also a significant part of the landscape, giving local communities spaces to grow their own food. There are now 50 allotments on site at Bridgewater close to Pudding Mill Lane DLR as part of the legacy of the 2012 Games.

In total, 45 hectares of habitat were lost in the development of the site. "Planning permission placed an obligation on the Olympic Delivery Authority to create at least 45 hectares of habitat as compensation, and to produce a Biodiversity Action Plan that detailed habitat specifications, target species, and the overall aspirations for biodiversity on the Park" (BAP 2019-2024).

Provision of BAP Habitat

A quantum target of 49.09 hectares of habitat was set out in the 2014 BAP which was broadly consistent with the target of 49.1 hectares stated in clause 1.1.1 of Schedule 10 of the section 106 (the minimum BAP provision as stated in clause 1.1.2 is for the provision of 45 hectares). This clause also states that this figure assumes that 4.4 hectares of BAP habitat would be provided as part of the Stadium Island provision, and that any reduction in this figure should reduce the site-wide figure accordingly. In 2016, a variation to this figure was approved to the Stadium consent (16/00062/VAR) from 4.4 to 3.44 hectares, reducing the site-wide BAP target to 48.14 hectares.

Permanent BAP habitat of 48.97 hectares has already been provided with 6.17 hectares of habitat provided on a temporary basis, taking the current provision to 55.14 hectares. Whilst these temporary habitats will be removed eventually, there is currently a balance of 7.86 hectares which will be provided as part of the Legacy Communities Scheme (LCS), UCL East (planning reference 17/00235/OUT) and Stratford Waterfront

South Park

(planning reference 18/00470/OUT) permissions. These totals are secured by conditions and exclude the 1.24 hectares of Canal Park already delivered and included within the species rich grassland typology (a total of 9.1 hectares across the three permissions). Once this future provision is added (and the temporary removed) to the existing permanent provision, this will provide a site wide total of 56.83 hectares of BAP habitat.

We have also taken into consideration areas of the BAP which were not included in the baseline of the Post-Games Transformation BAP. These areas fall outside of the LCS red line, but within the red line of the Olympic Park plan as defined by Appendix 2 of the Unilateral Undertaking. This includes 11.5 hectares of rivers and canals, and 3.4 hectares of trees and shrubs surrounding Hackney Marshes. This adds an additional 14.9 hectares to the totals set out above as BAP habitat that has been provided within the parklands.

A number of BAP monitoring reports for the 2014-2019 period have already been submitted and approved pursuant to paragraph 1.3 of Schedule 10 (see

planning references 15/00255/106 and 18/00237/106). The BAP monitoring reports present the results of ecological surveys carried out on the site since 2014. As well as demonstrating that the Park is fulfilling its original biodiversity ambitions, the data has had a practical application, informing the management of the various habitats found on the Park and highlighting species worthy of inclusion in the new plan.

The Park Today

The Park is now well established and attracts over 20 million visits a year and has welcomed two new universities to the site, with the University of Arts London (UAL) London College of Fashion and University College London (UCL) opening in 2023 and 2022, respectively. Loughborough University London has been located in the Park since 2015. Sadler's Wells East opened in 2025 and will be followed by the V&A East Storehouse at Here East, the V&A East Museum in 2026 and the BBC Music Studios in 2026/27. These venues will increase the cultural offering of the Park, making it a destination for Londoners and tourists alike.

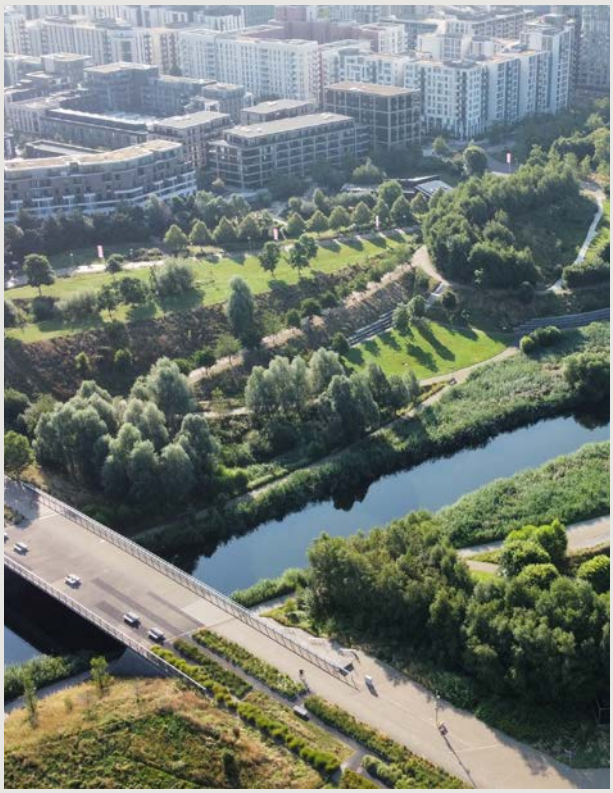
The Park is divided into four character zones as set out in the Park Design Guide - North Park, South Park, Park Centre and Canal Park, which differ significantly in their design and function. This is further broken down into prescription areas in the Park Management Plan.

North Park was designed to be a "varied and ecologically rich landscape" and features wildflower meadows, reedbeds, woodland and wetlands. This landscape provides an opportunity for the public to immerse themselves in nature whilst still in a heavily urbanised setting. The design principles of the North Park are for a landscape that has been designed for nature while accommodating people with wide accessible paths that guide people through valuable habitat.

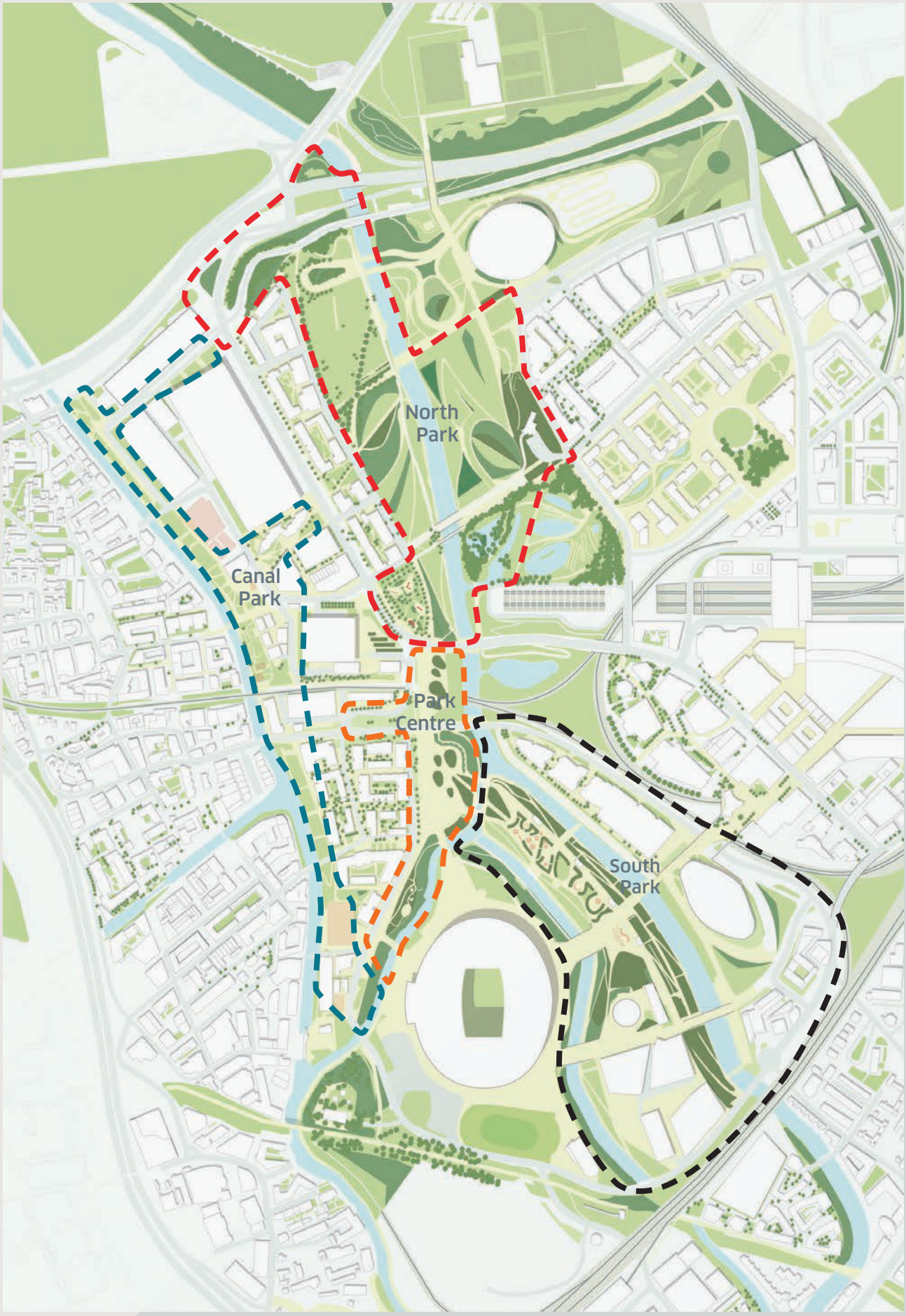
South Park has a more traditional park aesthetic, with gardens, fountains and lawns. Considerations for nature were still a major consideration, especially in the planting scheme for the 2012 Gardens, designed by Nigel Dunnett, James Hitchmough, Sarah Price, with the South Park Pleasure Gardens planting designed by Piet Oudolf. The plants found in the 2012 Gardens were designed to not only be aesthetically impressive, but to also be a place for wildlife to thrive with the 'future nature' approach which uses 'non-native' planting designs to deliver for biodiversity in a changing climate.

Park Centre includes the Belvedere and Mandeville Place which were originally allocated for residential development, commanding a broad view south. It is an important connecting space for people and wildlife, linking the north and south parts of the park. This area is now planned to be improved, as a central part of the Park, with enhancements for biodiversity incorporated in the design.

Canal Park forms a linear biodiverse open space with a unifying identity derived from the canal and towpath and creates a continuous green corridor to the west side of the Park. It is designed to provide an effective transition from the rustic canal landscape and the wider industrial context, with wildflower meadows, fruiting trees and dense patches of scrub.



North Park



Park Character Areas, Park Design Guide

Benefits of Parks for People

The Covid 19 pandemic brought into focus the importance of green spaces to human wellbeing. A survey carried out by the RSPB found that "89% of participants agreed increasing the amount of accessible nature-rich green space will help to improve people's general health, well-being and happiness". "Only 34% of people living in households without any outdoor space reported being within a 10-minute walk of publicly accessible nature" (RSPB Recovering Together Report[6]). Queen Elizabeth Olympic Park and the parklands are publicly accessible 24 hours a day, all year round, offering local residents access to nature on their doorstep.

Importance of Urban Greenspaces for Nature

In addition to their role in human wellbeing, urban green spaces can provide important refuges for nature and can be surprisingly biodiverse. With the expansion of urban areas, the design of our greenspaces is essential to give space to support biodiversity and can also integrate nature-based solutions to address problems such as flooding, urban heating, and air pollution. These often include features such as ponds, swales, green roofs, and wildflower meadows which provide even greater habitat enrichment and allow colonisation of a wide variety of species.

Park Management Plan and the BAP

The Park Management Plan "sets out the framework for all aspects of the management, maintenance and operation of Queen Elizabeth Olympic Park" (Park Management Plan). The Park Management Plan, BAP and the Park Design Guide set out the standards for management of each habitat for both Park users and nature.

Considerations for nature that are detailed in the BAP are noted in the Park Management Plan, and much of the management that could potentially disturb nature is scheduled for the winter months, outside of nesting seasons. The BAP influences the day-to-day management of the Park and operational staff are trained on environmental awareness and ways to avoid unnecessary disturbance. The habitat management plans in this BAP differ to previous versions and the Park Management Plan will adjust to accommodate these updates.

Flexibility of the Park Management Plan allows the adoption of national biodiversity schemes such as Plantlife's No Mow May, which has been carried out on the Park since 2021 on a selection of lawns across the Park that would normally be cut short.

The guidelines set forth in the Park Management Plan are integral to receipt of the Green Flag Award. The Park has been awarded this achievement, which is an international designation for the quality of publicly accessible green space, for the last 12 years. The BAP is reviewed during judgement of the award, where habitats are considered according to their value for both people and nature.

Delivering Legacy Communities Scheme (LCS)

The LCS is a document that sets out the plans for the delivery of five new neighbourhoods across the Park. These include Stratford Waterfront and UCL East, Chobham Manor, East Wick, Sweetwater, Pudding Mill and Bridgewater. The development of these neighbourhoods will offer opportunity to add considerations for nature as part of Urban Greening Factor targets. Guidelines for the creation of quality habitat installations such as green roofs will be included in the Habitat Action Plans. Any habitat created as part the new developments must consider the wider Park landscape and place priority on habitat quality and connectivity to existing Park habitats.

Biodiversity Net Gain

On 12th February 2024, Biodiversity Net Gain (BNG) became a statutory requirement for developers under Schedule 7A of the Town and Country Planning Act 1990. BNG requires developers "to leave biodiversity in a better state than before" (CIEEM Online[7]). Developments must achieve a net 10% (or higher if required by the local authority) improvement in their BNG score either through creation onsite, offsetting elsewhere or buying BNG credits. Whilst the requirement to offset (if habitat creation on site is not

[6] https://community.rspb.org.uk/cfs-file/__key/communityserver-blogs-components-weblogfiles/00-00-01-39-93/6038.2234.7357.8508.8540.5355.Recovering-together-report_5F00_nature-and-green-recovery_5F00_RSPB-YouGov_5F00_June-2020.pdf

[7] https://cieem.net/i-am/biodiversity-enhancement-approaches/biodiversity-net-gain/

Pond dipping in the Great British Garden, Park Bioblitz 2024

possible) is welcome, BNG requirements may result in offsetting on land deemed poor quality, such as brownfield, which can in fact be incredibly biodiverse. Any BNG offsetting on the Park must be carefully considered before approval.

A Move to Evidence-Based Management

The BAP 2019-2024 set targets for the parkland habitats and species over five years. During this time, the parklands were still relatively new, with many of the habitats yet to be fully established. The parklands are now more than a decade old, and many of the habitats have reached sufficient maturity to host a wide range of species.

This BAP will not set targets for habitats or species, transitioning from a proactive to reactive management style. Habitats will not be managed in the hope of encouraging ecological improvement, but rather when the ecological data suggests management is required. This change places a high dependency on good quality ecological data to inform management decisions, known as 'evidence-based management'. Collaboration with stakeholders including universities, conservation NGOs and community groups will be essential to maximise the amount of data available with which management decisions are made.

Quality over Quantity

The parklands are a constantly changing landscape, with developments altering the form of the Park and offering new areas in which urban wildlife can thrive. The developments will undoubtedly increase pressure on the parklands' existing habitats which will need to be well managed to maintain their value for wildlife. Whilst new BNG legislation offers the opportunity to offset development with the creation of new habitats, the priority for this BAP is to achieve good quality in the parklands' existing habitats, rather than add more. If new habitat can be added, it should not be to the detriment of those currently present and should only seek to enhance the quality of existing areas.

Park Bioblitz 2024

Protecting Wildlife at the Park

In order for wildlife to thrive at the Park, it has to be protected. The Countryside and Wildlife Act 1981 offers a level of protection to birds and endangered species and protects all wild birds, their nests and eggs, making it an offence to intentionally disturb a nesting bird. A number of birds are designated Schedule 1, giving them an even higher level of protection and severe fines or custodial sentences can be given for disturbing them during breeding season. The Park has recorded 7 species with this designation: Black Redstart (Phoenicurus ochruros), Cetti's Warbler (Cettia cetti), Fieldfare (Turdus pilaris), Kingfisher (Alcedo atthis), Peregrine Falcon (Falco peregrinus), Red Kite (Milvus milvus) and Redwing (Turdus iliacus). A licence granted by the British Trust for Ornithology (BTO) is needed to approach a nest of these species.

All bats and their roosts are protected by UK law under the Countryside and Wildlife Act 1981 and the Conservation of Habitats and Species Regulation 2017. This makes it an offence to kill, injure or disturb a bat, and disturb or destroy their roost. As the parklands continue to mature, habitat for bats will become more viable, particularly trees. Habitat management should take this into account, and a licensed ecologist may be needed to inspect features with the potential to host bats before any works are carried out.

There have been 3 species of plants found on the Park which are designated as Schedule 8, making it an offence to intentionally disturb or uproot these plants. These species are Jersey Cudweed (Gnaphalium luteoalbum), Meadow Clary (Salvia pratensis) and Round-Headed Leek (Allium sphaerocephalon). A licence from Natural England is needed to permit the uprooting of these species.

The Countryside and Wildlife Act 1981 also covers invasive and non-native species (INNS). A list of species, including Japanese Knotweed (Reynoutria japonica) and Himalayan Balsam (Impatiens glandulifera) are covered under Section 14 of the Act, which prevents the "release into the wild of certain plants and animals which may cause ecological, environmental, or socio-economic harm" (Gov Online[8]). Invasive species have the potential to degrade habitats and outcompete native wildlife on the Park. A number of INNS are present on the Park, and their management is detailed in the Invasive

[8] https://www.gov.uk/government/publications/preventing-the-release-into-the-wild-of-certain-plants-and-animals-guidance

and Non-native Species Action Plan.

Biodiversity Policy

The Park's Section 106 agreement states that the BAP should "identify strategic directions that take account of the international, national, regional and local conservation scene" (BAP 2014-2019, BAP 2019-2024). Policy is an important factor for biodiversity conservation; it can help protect species from harm, promote the sharing of best practices and inspire people to take action.

There have been several recent policy changes relating to biodiversity in the UK, including the introduction of Biodiversity Net Gain legislation in 2024 (previously mentioned) and the Great Britain Invasive Non-native Species Strategy 2023 which sets out a framework for the management and prevention of invasive species across the UK.

The Biodiversity 2020 strategy, produced by DEFRA (Department for Environment, Food and Rural Affairs), aimed "to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people" (DEFRA[9]).

This BAP takes into account national and local policies in the form of UK BAP (published 1994), London BAP and host borough BAPs. Many of the priority habitats included in these documents are present in the parklands, and Species Action Plans share priority species.

London's Biodiversity Strategy

The Mayor of London published the London Environment Strategy in 2018 with the aim to make London a zero-carbon city by 2050. With this, the strategy aimed to improve the city for residents by making it greener and to ultimately make London the first National Park City for people and wildlife to coexist in. The strategy prioritises green infrastructure such as parks and gardens to help capture carbon and reduce air and water pollution. The Biodiversity Strategy outlined that all boroughs in London are to share their ecological data with GiGL (Greenspace information for Greater London), which is a stipulation in the Park's BAP.

London has 1500 Sites of Importance for Nature Conservation (SINC) which cover nearly 20% of London (London.Gov Online). These non-statutory designations can be graded into the following criteria: (GiGL Online[10]).

- Sites of Metropolitan Importance – selected on a London-wide basis
- Sites of Borough Importance (grade 1 and 2) – selected from within each borough
- Sites of Local Importance – selected to redress any remaining local deficiencies

Policy G6 of The London Plan, published in 2021, states that all SINCs should be protected, and boroughs should "support the protection and conservation of priority species and habitats that sit outside the SINC network, and promote opportunities for enhancing them using Biodiversity Action Plans" (London.Gov online[11]). "Achieving a SINC designation (Site of Metropolitan Importance, Grade 1 status) is a long-term ambition of the Park" (BAP 2019-2024).

Nearest Designated Areas

There are 3 non-statutory designated Sites of Importance for Nature Conservation (SINC) within the Park's boundary: the River Lea SINC (Metropolitan Importance); the Bow Back Rivers SINC (Borough Importance Grade I); and the Greenway and Old Ford Nature Reserve SINC (Borough Importance Grade II). This designation is awarded to sites which are seen to have important habitats for wildlife. SINC designation prohibits any development on the land that would negatively impact wildlife.

The closest statutory designated site to the Park (1.4km to the south-west) is Tower Hamlets Local Nature Reserve (LNR). Local Nature Reserves (LNRs) are a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949 by principal local authorities (Natural England 2023). The site is listed as a Site of Metropolitan Importance for Nature Conservation.

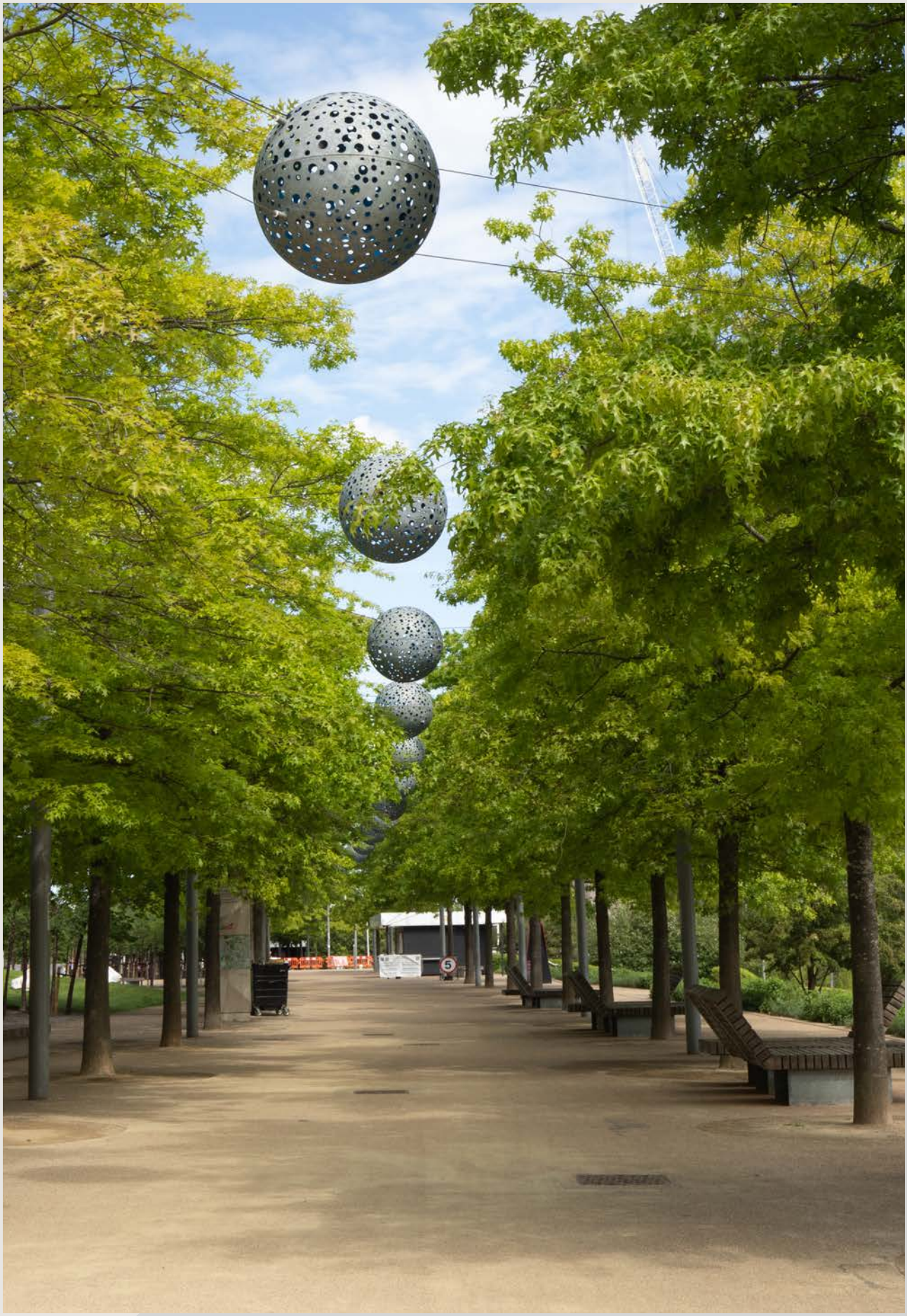
[9] https://assets.publishing.service.gov.uk/media/5a78c263ed915d04220651ea/pb13583-biodiversity-strategy-2020-111111.pdf
[10] https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/parks-green-spaces-and-biodiversity/biodiversity?ac-188077=188074#londons-sites-of-importance-for-nature-conservation-25775-title
[11] https://www.london.gov.uk/programmes-strategies/planning/london-plan/the-london-plan-2021-online/chapter-8-green-infrastructure#policy-g6-biodiversity-and-access-to-nature-171020-title/

London Legacy Development Corporation Local Plan (2020-2036)

The LLDC Local Plan, last reviewed and adopted in July 2020, is the Statutory Local Plan for the LLDC area, encompassing areas beyond the Park, including Hackney Wick and Fish Island, Three Mills and Bromley-by-Bow. It has designated a large area of Metropolitan Open Land (MOL) and a series of Local Open Spaces which are identified on the Local Plan Policies Map, along with areas designated as Sites of Importance for Nature Conservation (SINCs). Local Plan policies BN.3 Maximising Biodiversity, BN.7 Protecting Metropolitan Open Land and BN.8 Improving Local Open Space are the most relevant policies, with Policy BN.3 requiring development to provide a net gain in good quality habitat.

Planning powers returned to the four local boroughs on 1st December 2024. However, the LLDC Local Plan and its associated Supplementary Planning Documents will remain the relevant statutory planning policy in the former LLDC planning authority area until such time as each borough has separately adopted an updated Local Plan that includes their part of it. It should be noted that as each borough goes through this process it may change designated areas or policies, for example, by increasing the amount of Biodiversity Net Gain (BNG) required beyond the national statutory minimum of 10%. The LLDC Green Infrastructure Guide helps to inform the approach to BNG and other London Plan Policy such as the Urban Greening Factor[12].

[12] https://live-qeop.pantheonsite.io/sites/default/files/attachments/LLDC%20Green%20Infrastructure%20Guide%20FINAL.pdf



Tessa Jowell Boulevard, South Park

STATE OF NATURE

UK nature is in crisis. The UK is one of the most nature-depleted nations on the planet following decades of agricultural intensification, development and overfishing. The quality of habitats across the UK is declining and now 16.1% of total number of species (where sufficient data is available), including 21.5% of plant species and 39.2% of vertebrates, are threatened with extinction.

In England alone, the average abundance of 682 terrestrial and freshwater species have declined by 32% since the 1970s. Agricultural intensification is largely attributed to the decline, with impacts evident across the landscape. Water quality scores are affected, with 40% of watercourses failing to achieve "good" status under the Water Environment (Water Framework Directive) (England & Wales) Regulations 2017.

In England from 1970 to 2018, species designated as priority under Section 41 of the Natural Environment and Rural Communities Act 2006 (of which there are 946), declined by 82%. Despite the worrying state of UK nature, it has been found that conservation action can have positive impacts and help to improve the environment of UK wildlife. Case studies include the Cairngorms Connect project in Scotland, the biggest habitat restoration project in Britain, which has helped improve habitat across 60,000 hectares including the first Beaver kits to be born in the wild in the Cairngorms National Park in 400 years. The RSPB's Hope Farm demonstrates that food production can be achieved profitably whilst also farming with considerations for nature. Breeding birds have increased 117% at this site over the last 12 years.

Nature in the UK can be saved, and it is imperative that we halt this decline.

We are dependent on nature for our wellbeing. The Mental Health Foundation reports that "nature is an important need for many and vital in keeping us emotionally, psychologically and physically healthy". Urban areas are growing in the UK, potentially limiting human interaction with nature. Parks such as Queen Elizabeth Olympic Park can be essential refuges for urban wildlife and considerations for nature in urban design, will not only help with the protection and recovery of species but will improve the connection of people to nature. Urbanisation does not have to reduce access to nature, and it is essential that green spaces are maintained as shared spaces for both people and nature.

Facts and figures from State of Nature report 2023[13].

Pyramidal Orchid on railway embankment in the Park

[13] https://stateofnature.org.uk/wp-content/uploads/2023/09/TP25999-State-of-Nature-main-report_2023_FULL-DOC-v12.pdf

HABITAT ACTION PLANS

The Park has replaced the 45 hectares of BAP habitat which were lost during construction. These habitats form the basis of the BAP and provide homes to a wide variety of species. The habitats can be broadly separated into 4 groups and each group is represented in different amounts across the parklands, collectively forming a rich and diverse greenspace.

Group	BAP habitat	Area (hectares)	Description
Built environment	Built environment	0.76	Wildlife features incorporated into buildings and structures, including bat and bird boxes in bridges, green roofs and living walls
	Parks, Squares and Amenity Space	6.58	Habitat that forms the fabric of the Park including trees, flower-rich and ornamental plantings, amenity lawns and shrub beds
	Allotments	0.88	Plots that will include hedgerows, grassy areas, compost heaps and other features to attract wildlife
	Brownfield	5.9	Bare and stony ground with patches of pioneer and ruderal vegetation and scrub. Much of the Park's brownfield habitat is found around Lee Valley VeloPark
Grasslands	Meadows Lawns Roadside Verges	19.65	Grasslands on low fertility soils, supporting native wildflowers. Found throughout the Park
Trees and Scrub	Woodland Scrub Hedgerows	12.34	Native trees and shrubs including hazel, hawthorn, blackthorn, oak, ash and birch
Wetlands	Rivers and Canals	0.25	All waterways and rivers on the Park, including the River Lee, Old River Lea, City Mill River, Waterworks River and Lea Navigation
	Reedbeds	1.99	Wetlands that are dominated by common reed. Reed beds are present along many of the Park's waterways, with the largest stands found in the North Park (River Lee)
	Ponds	0.075	Ponds with shallow margins surrounded by native wetland plants. The majority of the ponds are found in the North Park with another pond in the Great British Garden
	Wet Woodland	0.55	Woodland on poorly drained and seasonally wet soils. Willow, alder, black poplar and birch are the main tree species present in the wet woodlands

Aims of the Habitat Action Plans

Whilst the BAP 2019-2024 set targets for the management of each habitat with the aim of encouraging an increase in habitat quality and subsequent species assemblages, the transition to an evidence-based approach in this BAP means no such targets will be stated. Prescriptive management will be stopped and instead, the principles of good management for each habitat is provided for when the ecological data suggests management is required. Baseline conditions for each habitat type will be recorded, allowing the tracking of annual progress. Opportunities to further improve the habitats are listed, as well as chances to benefit individual priority species.

Landscape scale

The aim of the Action Plans is to promote the idea of management on a landscape scale. By identifying best practices, the influence of management will hopefully be seen in the parklands and beyond. The Mayor's plan to create a National Park City will require this landscape scale approach beyond the Park as well, connecting habitats across London and creating a mosaic for species to move freely across the city.

Actions	
Change the management prescriptions or introduce features that enhance the habitat	Review each time the management plan is updated for written prescription change
Set out how we monitor to achieve good quality	Monitor annually to understand how enhancement or change in prescription is impacting habitat and biodiversity

BUILT ENVIRONMENT ACTION PLAN

Overview

This Habitat Action Plan covers the Park's built environment (buildings and venues), parks, squares and amenity space, allotments and brownfield land. Whilst primarily a hardscape in the public realm, these areas can be surprisingly biodiverse. The original planting scheme incorporated considerations for wildlife, and these areas now support BAP Priority Species including Black Redstart (Phoenicurus ochruros), Starling (Sturnus vulgaris), Kestrel (Falco tinnunculus), Song Thrush (Turdus philomelos), Linnet (Linaria cannabina), House Martin (Delichon urbica), Streaked Bombardier Beetle (Brachinus sclopeta), Toadflax Brocade Moth (Calophasia lunula) and Brown-Banded Carder Bee (Bombus humilis).

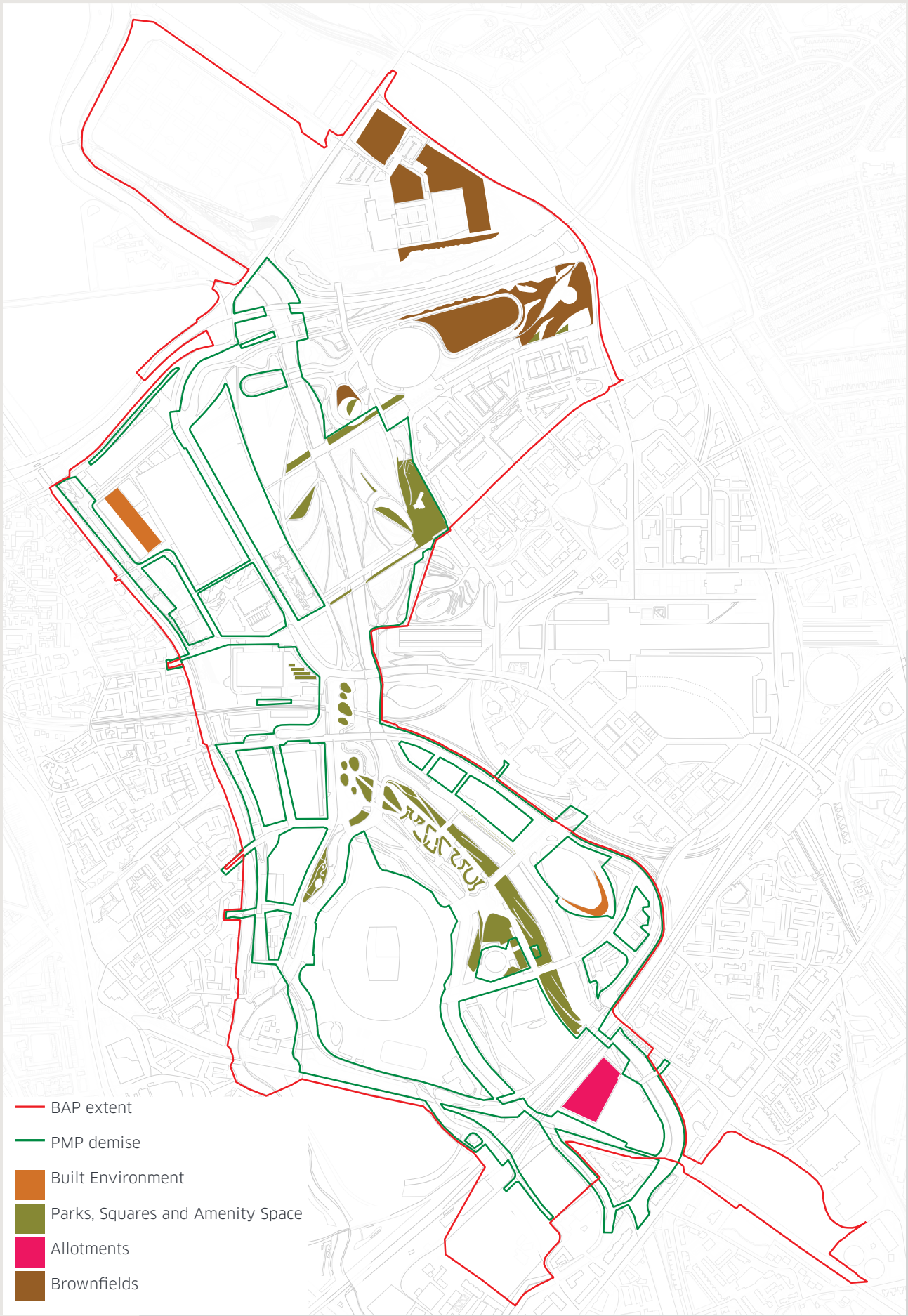
Opportunities

Celebrating nature within the public realm is at the forefront of the Park's ethos, and seasonal signage and digital content will help the public understand management practices and how they can help wildlife.

New developments in the Park provide the opportunity to increase specialised habitats such as green roofs, rain gardens and green walls. Soft landscape planting within developments through planning policies and permission are designed to maximise their value for wildlife. Ecological enhancements such as nesting bricks can provide crucial breeding spaces for BAP priority species such as Swift (Apus apus).

Smart Park

Being a high profile greenspace within London, the Park has the potential to collect a wide variety of data that can be used to inform management decisions to benefit wildlife. A long-term study (10+ years) of bats in the parklands has been carried out by University College London (UCL) in partnership with Intel's Collaborative Research Unit. Remote sensors have been monitoring bats across the Park, identifying roosts and tracking movement. This data can help improve understanding of areas



Built Environment Action Plan

North Park meadow

preferred by bats which can then be replicated elsewhere.

Monitoring of species such as mosquitos across the Park ties into climate change research and camera trapping for hedgehogs (Erinaceus europaeus), as part of Zoological Society of London (ZSL) Hogwatch project, hopes to find these threatened mammals at the Park.

Environmental DNA (eDNA) sampling was carried out in May 2024 in 10 locations across the Park to investigate terrestrial invertebrate assemblages in different habitat types. This survey type, which employs generalist survey types such as sweep netting or pitfall trapping, analyses the DNA of any invertebrate captured, allowing accurate identification to species level from a wide range of organisms. eDNA surveys will be used going forward to supplement ecological survey data for informing management decisions.

Challenges for Urban Wildlife

Urban wildlife must coexist with humans and be incredibly adaptive to thrive in dense and pressured habitats. Plans to limit the pressure of land availability and intensity of use in urban areas, will undoubtedly improve the urban environment for wildlife.

- Development – a constantly changing environment means wildlife is often displaced or disturbed by development. Making sure the proper surveys, including (but not limited to) for bats, nesting birds or aquatic mammals are carried out can help prevent unnecessary and potentially illegal disturbance.
- Recreational disturbance – members of the public are often unaware of the disturbance they are causing and the impact of this disturbance though this, on a small scale, replicates the activity of large herbivores. Seasonal signage can help inform the public of potential damage and educate them on the need to share the space with wildlife.
- Dogs – dogs are seen as predatory to many species and can cause birds to abandon nests. When allowed to pass through habitats such as meadows they can trample insect nests and potentially disturb basking reptiles. Dog fouling also adds nutrients to the soil, negatively impacting a variety of ecosystems.
- Use of chemicals – herbicides, pesticides and fungicides are often widely used in urban environments. These chemicals are often not specific to the 'problem' species and can impact other organisms within the same ecosystem.
- Lack of offsetting and mitigation – wildlife is often an afterthought to development and habitat can be lost without being offset or can be replaced by lower quality habitat than it was originally present. Biodiversity Net Gain requires the removal of habitat to be offset and replaced by higher quality habitat of the same broad type with the aim to keep any net gain within the Park.
- Pests, diseases and non-native species – urban areas often have a wide variety of plant species designed to maximise aesthetic value to members of the public. Many of these plants are non-native and can host invasive pests such as Oak Processionary Moth.
- Antisocial behaviour – damage to nest boxes, destruction of insect hotels and log piles can all negatively impact wildlife.
- Lighting – artificial light is a considerable problem to urban nature. Lighting can prevent nesting or roosting of birds and bats, and can interfere with the diurnal range of insects, reducing their breeding effectiveness and may increase their predation. Lighting in watercourses can be a barrier to fish movement and light pollution on plants can reduce fruit production and limit pollination by insects.

Built Environment

The built environment comprises the buildings and venues across the Park; the site has changed considerably since the previous BAP with the development of East Bank, UCL East Campus and ongoing development of Phases 2 and 3 of East Wick + Sweetwater. The developments provide exciting opportunities to not only build for people, but also for nature. All developments are required through national, regional and local policy to design for nature including green roofs, green walls, nature-friendly soft landscape and nesting provision.

Development Guidelines

- All new developments should include nesting bricks designed for Swifts where height allows. These need to be at least 10m high with a clear flight path to the opening. They ideally need to be north-east facing and should not be installed on south facing walls. Swift calling devices may be required to help the birds find these boxes.
- Other incorporated nesting boxes should be installed in accordance with current guidance.
- All new soft landscaping should include plants with evidenced value for wildlife.
- Plants with high irrigation need or those grown in peat must not be permitted.
- Any developments with planting should contain plant species with evidenced value for wildlife with reference made to the RHS guidance or other reputable information sources.
- New soils should be designed by a soil scientist to create substrates similar to the rest of the Park or best suited to the proposed planting and use.
- Developments should incorporate ponds, swales and rain gardens as part of their Sustainable Drainage System (SuDS) where possible.
- Green walls should be designed following the standards set in the GWG UK Guide to Green Walls[14].
- Lighting design for all new developments should aim to be of low environmental and ecological impact whilst not compromising public safety.
- No artificial grass product should be used on new developments. Any existing artificial grass should be replaced with natural turf.
- All statutory BNG and UGF requirements must be met.

Management Guidelines

- Problem species such as Buddleja should be removed as they can outcompete native species.
- Wildflowers should be cut annually and cuttings collected to keep substrates nutrient poor and prevent colonisation of coarse grasses.
- Bare soil patches should be recreated by selective thinning of vegetation.
- Supplemental seeding/plug planting should be introduced in areas where plants have failed to establish.
- Solitary bee hotels should be cleaned out if the bees have emerged to prevent spread of disease.

Heart Longhorn Beetle on Sidings Street

[14] https://greenroofslivingwalls.wordpress.com/wp-content/uploads/2014/07/living-wall-guide-uk.pdf

Here East building green roof

Green Roofs

Green roofs are included in developments to provide habitat for humans and non-humans as well as to offset habitat loss during development. Whilst a well-designed and maintained green roof can be very biodiverse, if certain design standards are not met and management not followed, they can easily become monocultures of coarse grasses and other less favourable species. A good example of a green roof in the Park is on the Here East building in North Park, which has many of the features detailed below and hosts BAP Priority Species including Black Redstart, Linnet and Toadflax Brocade Moth.

Green roofs can be split between two classifications: 'intensive', where management is ongoing and plants are often irrigated, soil depths are deeper and more intensively maintained, or 'extensive' where management is sparing, soil depths are shallower, and the plants are often not irrigated. Intensive green roofs are normally used on areas of accessible roof whereas extensive biodiverse green roof installations are normally where there is only maintenance access.

Development Guidelines

- Any green roof proposals in the Park should be in accordance with the 'Buglife Creating Green Roofs for Invertebrates Guide'[15] with consideration given to fire, loading, drainage and waterproofing requirements.
- A minimum substrate depth of 80mm is required to give plants sufficient depth to establish and allow ground nesting species such as Mining Bees (Andrena sp.) sufficient depth to burrow. A variety of substrate depths is preferred to add habitat complexity and mounds up to 300mm should be considered.
- Irrigation may be required for plant establishment, particularly on intensive roofs. Following establishment, irrigation can be used sparingly during drought conditions. Hand watering as part of ongoing maintenance should be with rainwater not potable water.
- Planting should include a mixture of wildflowers with evidenced value for wildlife.

[15] https://cdn.buglife.org.uk/2019/07/Creating-Green-Roofs-for-Invertebrates_Best-practice-guidance.pdf

- High water demand plant species and those grown on peat should not be used.
- Sedum 'mats' should only be used in challenging situations where alternatives are not possible. More biodiverse mat products are available though they should be carefully selected.
- A mixture of substrates with varying nutrient content should be used to maximise the complexity of the roof ecosystem. If only one substrate is proposed, it should be of low nutrient content to replicate brownfield conditions.
- Supplementary habitat features such as log piles, solitary bee hotels, bare exposed soils, rock or gravel piles should be considered to increase habitat complexity and offer refuge and breeding sites for a host of invertebrate species. The load bearing capacity of the structure must be considered.
- Beehives should not be installed on green roofs on the Park as they often outcompete wild solitary bees. See beehive section for further guidance.

Solar Panels and Biosolar Roofs

Solar panels are fantastic additions to roofs as they utilise the space to capture renewable energy to power the building. Traditional solar panels are mounted at an angle to capture sunlight, but this leaves very little space underneath for plants to grow. This limits the habitat viability of the green roof by reducing the number of wildflowers and brownfield features that can exist there.

Biosolar roofs have panels with wider spacing or varying heights to allow more sun on the roof and provide greater biodiversity. A biosolar roof has been installed locally at the Here East building, which has a bank of solar panels along its western edge above a biodiverse green roof.

Vertical solar panels are a relatively new technology which greatly improve the space available for habitat on green roofs. A good example of this is the Vertical Bifazial Biosolar Green Roof in Switzerland[16] which should be the standard for new developments at the Park to achieve.

Development Guidelines

- Solar panel installations on roofs should be designed to incorporate green roof wherever possible, with the extent of planting maximised.

Beehives

Beehives are popular addition to green roofs and are often installed with the best intentions of creating an immediate benefit for biodiversity. This practice, commonly known as 'Beewashing', mistakenly assumes that Honeybees (Apis mellifera) are threatened in the UK and can be helped by installing hives.

Honeybees are very adaptable and can interact with a wide variety of flowers. Solitary Bees, however, often coevolve with only a few select species and will not interact with other species of flower. A hive of Honeybees "will consume 2.6% - 4.5% of the floral resources within a 1km radius of the hive" (Apicultural Online[17]). They will fly further away when the food resources are depleted and can range up to 12km from their hive (Apicultural Online, University of Sussex). Honeybees can therefore easily outcompete native solitary bees and can cause a decline if stocked at too high a density. As well as outcompeting solitary bees, honeybees stocked at too high a density for an area can spread disease to other hives.

There are both privately managed and community run hives present at Queen Elizabeth Olympic Park. Whilst the wide variety of planting and wildflower habitat can support a lot of pollinating insects, encouraging more hives would certainly impact wild pollinators in the Park. Applications to install further beehives should not be considered.

Development Guidelines

- Additional beehives should not be installed in the Park.

[16] https://efb-greenroof.eu/work/biosolar-roof-winterthur/
[17] https://www.apicultural.co.uk/do-managed-honey-bees-compete-with-wild-bees-for-floral-resources

Parks, Squares and Amenity Space

This habitat area forms the basis for the southern half of the parklands and covers all amenity grassland (lawns), ornamental trees and horticultural beds. These areas attract large numbers of visitors to the Park, with the horticultural beds (the 2012 Gardens) being an iconic display for the 2012 Olympic and Paralympic Games. These areas are biodiverse with gardens able to support large pollinator communities as demonstrated by an audit at Great Dixter in East Sussex[18].

The horticultural beds host some species with notable value for wildlife including Culver's Root (Veronicastrum alba), Large Coneflower (Rudbeckia maxima) and Purpletop Vervain (Verbena bonariensis). In the summer the gardens, particularly North America and Europe, are alive with pollinators including Red Admiral Butterfly (Vanessa atalanta), Red Tailed Bumblebee (Bombus lapidarius) and Hummingbird Hawk Moth (Macroglossum stellatarum).

The lawns, despite their manicured appearance, are particularly attractive to species such as Starlings and Carrion Crows (Corvus corone) which feed upon Leatherjackets, the larvae of Craneflies (Tipuloidia sp.). The ornamental trees are particularly favoured by charms of Goldfinch (Carduelis carduelis) during the winter, feeding upon their berries across the 2012 Gardens.

Management Guidelines

- Any new plant species added to the gardens should have evidenced value for wildlife based on local knowledge and monitoring.
- No chemicals should be used on the gardens or lawns except in pre-approved situations.
- Species such as Box (Buxus sempervirens) should be replaced with species not susceptible to Box Moth Caterpillar to prevent the need for pesticide use.
- Winter cut-down should be left as long as possible to allow species that have overwintered in plant stems to emerge before being disturbed.
- Lawns should not be treated with nematodes (to control Leatherjackets).

Allotments

The Pudding Mill Allotments, situated on South Park next to the new UCL East Campus, are leased to Manor Garden Society by LLDC (BAP 2019-2024). Before the Park was developed for the 2012 Olympic and Paralympic Games, allotments were widespread across the site, and these Pudding Mill Allotments were created to allow the local community to continue to grow produce in the same way as before the Games. The allotment compound is split into 52 individual allotments, making it the smallest habitat type on the Park at 2.1ha.

Whilst normally used to grow consumable produce, allotments can be incredibly biodiverse spaces. Fruit trees such as Apples (Malus sp.) and Cherries (Prunus sp.) along with berry-producing trees such as Hawthorn (Crataegus monogyna) and Blackthorn (Prunus spinosa) produce blossoms that are very attractive to insects, and the fruits that are not picked are valuable food sources for birds. Many culinary herbs are fantastic for wildlife, including Chives (Allium schoenoprasum), Rosemary (Salvia rosmarinus), Thyme (Thymus vulgaris) and Mint (Mentha spicata) which attract a wide variety of pollinating insects.

The Pudding Mill Allotments have been regularly monitored by the Biodiversity Manager and are wonderfully biodiverse, and a wide variety of plants are grown there that benefit nature.

Management Guidelines

- The use of chemicals such as fertilisers and pesticides should be avoided.
- Where possible, unused plant material should be composted. If commercially available compost is used, ensure it is peat-free.
- Species that are deemed invasive and can easily spread such as Buddleja should not be planted.
- If space is available, habitat features such as ponds should be considered as a welcome addition to an allotment.

[18] https://www.greatdixter.co.uk/wp-content/uploads/2024/01/great-dixter-biodiversity-audit-report-2017-20191.pdf

North America 2012 Garden

- Piles of deadwood or deadwood monoliths should be left insitu as valuable nesting areas for a host of species.
- Solitary bee hotels, pallet bug hotels and bird boxes should be encouraged as they provide shelter for a wide variety of species.
- Companion planting (the close planting of different plants that enhance each other's growth or protect each other from pests) of nature friendly plants should be planted to help the health of an allotment.
- Cover cropping with Blue Tansy (Phacelia tanacetifolia) should be considered as it is beneficial by suppressing weeds, holding nitrogen and attracting a wide variety of insects.
- Beehives, already present at the allotments, should be responsibly maintained by trained apiarists to prevent the spread of disease to other hives on the Park. The installation of further hives should be thoroughly reviewed to prevent over saturation of honeybees on the Park (see beehive guidance).
- Any new allotments should be added to BAP totals.

Community Gardens

There are two community gardens on the Park: Mobile Garden and Copper Garden. These gardens were created to engage with residents and allow members of the local community to learn gardening skills, grow their own food and engage with nature. These spaces, whilst small, can be important refuges for wildlife. Copper Garden has been planted with nature-friendly plants including herbs, trees and wildflowers. These help to create a 'stepping stone' for nature across an otherwise sterile area, connecting the meadows at Copper Box to the meadow of North Park.

Brownfield habitat in the Lee Valley VeloPark

Brownfield

Brownfield habitats are described as "land that has been altered by human activity (not including farmland or commercial forestry) (Buglife Online 2024[19]). They are characterised by open mosaic areas of bare soil, sparse and specialised vegetation, along with periods of disturbance. Brownfields can be incredibly biodiverse, supporting at least 12-15% of nationally rare or scarce invertebrate species in the UK (Buglife). Some of the most biodiverse areas of the UK are brownfield sites, including Dungeness National Nature Reserve which is the 2nd most biodiverse site in the UK.

Prior to development for the London 2012 Games, the site was largely classed as brownfield habitat after centuries of industrial land use. Following the Games 4.2ha of brownfield habitat was created, and now well-established, supports large stands of Vipers Bugloss (Echium vulgare), Hawkweeds (Hieracium sp.) and Black Medick (Medicago lupulina). The brownfield habitat at the Park is primarily located in the North Park Lee Valley VeloPark BMX and mountain bike tracks, with a small area being found in the South Park along the Greenway.

The North Park brownfield area forms the southern extent of the Lea Valley Regional Park and is managed by the Lea Valley Regional Park Authority.

The brownfield habitats across the Park support Queen Elizabeth Olympic Park BAP priority species including Linnet (Carduelis cannabina), Brown Banded Carder Bee (Bombus humilis), Streaked Bombardier Beetle (Brachinus sclopeta) and Black Redstart (Phoenicurus ochruros). This species, often called the 'bomb site bird', owing to it often being seen in areas damaged following the Blitz, is a brownfield specialist, favouring the open mosaic habitat found there. The bare earth conditions, relatively low public disturbance and wide variety of invertebrates found there make the brownfield area ideal for reptiles. Lack of connectivity to the surrounding area may be limiting the establishment of these species.

Threats

Despite their evidenced value for wildlife, brownfield sites are declining across the UK. Often targeted as development platforms, these habitats are often deemed

[19] https://cdn.buglife.org.uk/2020/01/Introduction-to-brownfields.pdf

unsightly and in need of regeneration. The UK Government's 2017 Brownfield Land Regulations requires local planning authorities to publish a brownfield land register, noting brownfield habitats deemed suitable for development. Whilst areas comprising entirely hard standing offer little biodiversity value, open mosaic brownfield sites are designated a priority habitat type under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and must not be developed (Buglife).

Management Guidelines

- All management should be evidence based, following guidance provided by Buglife.
- Areas of ground should be kept bare through rotational management. Vegetation should be selectively thinned to leave exposed substrates.
- Additional habitat should be added through the creation of aggregate piles and deadwood installations.
- The area should be maintained as an open mosaic habitat.
- Non-native species Buddleja (Buddleja davidii) and Goats Rue (Galega officinalis) should be removed from the habitat.
- Standing deadwood should be retained. Where deemed a risk to public safety standing deadwood can be fixed to live trees with cabling to retain their habitat value.
- The ground should be routinely disturbed to allow colonisation of new species.
- No chemicals should be used in the management of this habitat.

Opportunities

Whilst the scope to increase the brownfield habitat offering at the Park is limited, there are ways in which brownfield-inspired features can be added. Areas where planting have failed around the Velodrome can be improved with brownfield features such as gabion cages (to prevent the movement of larger aggregates) and a variety of substrates to create habitat for solitary bees.

The bridges on the Park represent significant barriers to movement due to their unvegetated state. Bridges can host brownfield-inspired planters that can help wildlife move across the site. These planters could have space underneath for reptiles and amphibians to move with cover between spaces on the Park.

F02 bridge, in the North Park, represents an area that would benefit from reprofiling as it is wide and could host brownfield habitat within existing planting areas.

Improving the connectivity of the existing brownfield habitat to the Hackney Marshes area may improve the viability for reptile species.

Built Environment Actions

- Ecological data will be used to inform management decisions and identify any areas of formal horticulture that do not offer benefits for nature. Butterflies have been monitored on the Park for at least five years, and the transects cover much of the formal planting. Additional transects for monitoring bees (Bee Walks) will be established to cover these areas, increasing the amount of data available with which to make management decisions
- Bird and bat coxes currently placed in unfavourable location will be moved to more suitable locations.
- Coordination with LVRPA BAP will continue throughout the life of the BAP.

GRASSLANDS ACTION PLAN

Overview

The grassland habitats at the Park can be split between meadows, lawns (species rich lawns and amenity lawns) and roadside verges. These habitats are a major component of the Park's food web, supporting a wide variety of plant species including Field Scabious (Knautia arvensis), Birds Foot Trefoil (Lotus corniculatus), Oxeye Daisy (Leucanthemum vulgare) and Meadow Saxifrage (Saxifraga granulata). These plants, amongst many other species, attract a great range of pollinating insects including bees, wasps, hoverflies, beetles, butterflies and moths.

The wildflower habitats were one of the most iconic landscapes of the original planting design at the Park e.g. Fantasticology. The original planting included species that offered long flowering periods and vivid colours to maximise the aesthetic value of the habitats. Many of the species were annuals and the habitats were designed to transition to a more traditional meadow with the colonisation of long grasses and where native perennial wildflower species could thrive. Today, the meadows are an important ecosystem for a wealth of pollinating species and provide the base for further food webs to establish.

Many of the Park's priority species are supported by the species rich grasslands, including priority invertebrates such as Large Scabious Mining Bee (Andrena hattorfiana), Brown Banded Carder Bee (Bombus humilis), Black Mining Bee (Andrena palipes), Tumbling Flower Beetle (Mordellistina neuwaldeggiana) and Toadflax Brocade Moth (Calophasia lunula). The grasslands are also foraged by priority species such as bats, House Martins (Delichon urbicum), Swifts (Apus apus) and Starlings (Sturnus vulgaris) which feed on invertebrates attracted to the meadows.

Effective management of these habitats is imperative to ensure the priority species can continue to thrive. As noted in the BAP 2019-2024, the grasslands provide hunting grounds for the Common Kestrel (Falco tinnunculus) which predates Bank Voles (Myodes glareolus), Field Voles (Microtus agrestis) and Field Mice (Apodemus sylvaticus) that live amongst the meadows.

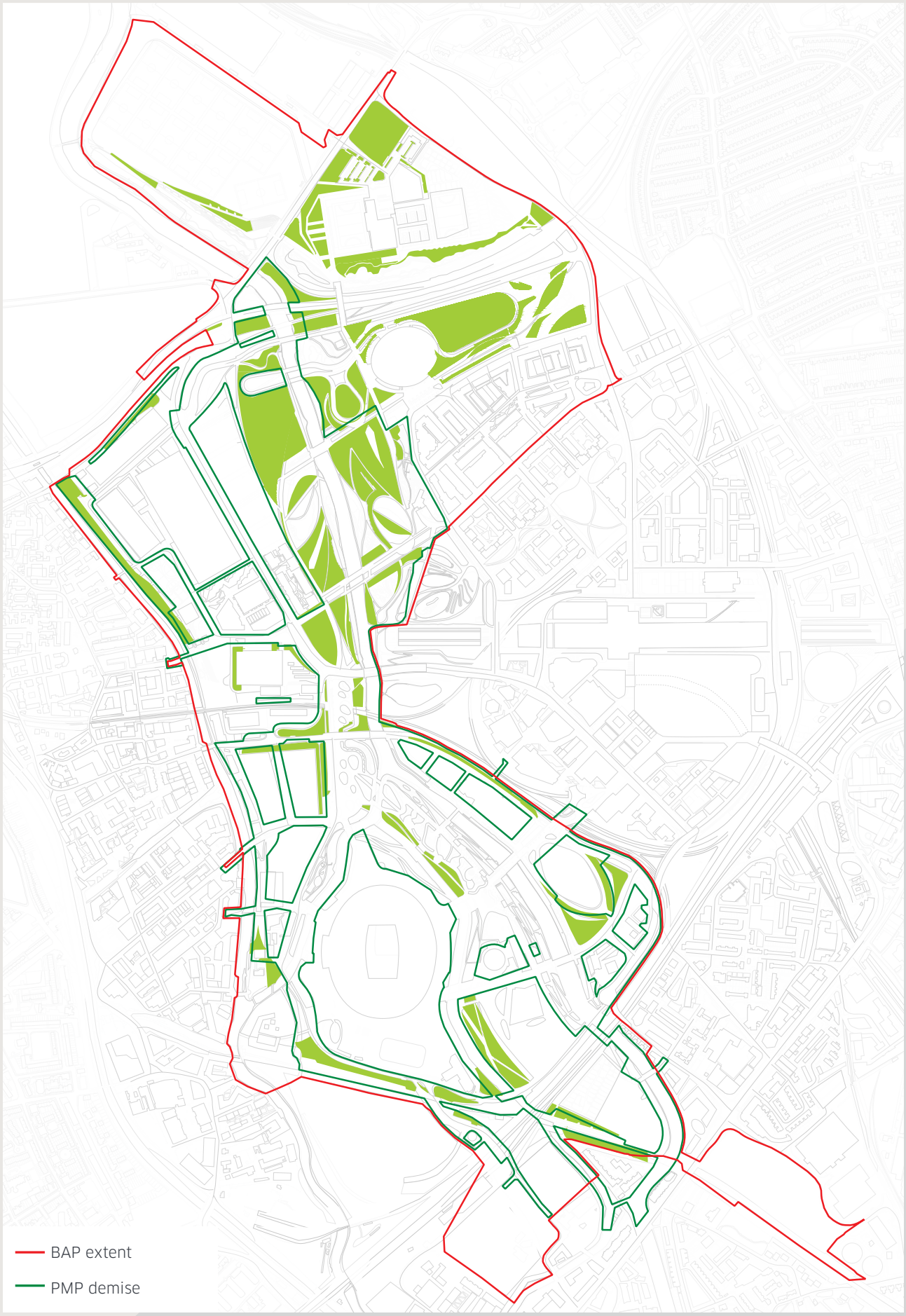
The grasslands help to create a continuous corridor across the Park, linking different habitats and allowing wildlife to move throughout the site.

Meadows

Having transitioned from the Pictorial Meadows at the time of the 2012 Games, the meadows in the Park are now of a more traditional perennial composition. Long grasses, the defining feature of a meadow, provide shelter for specialised species including the Wasp Spider (Argiope bruennichi), a recent colonist to the UK. A wide variety of native plants bloom within the meadows, including early flowering species such as Primrose (Primula vulgaris), Cowslip (Primula veris) and Meadow Buttercup (Ranunculus acris). At the height of summer, species such as Common Knapweed (Centaurea nigra), Ribwort Plantain (Plantago lanceolata) and Wild Carrot (Daucus carota) attract a wide variety of wildlife and provide

Bee Orchid in South Park

Californian Poppy with Nobilis Beetles



Grassland Action Plan

corridors of colour across the Park.

Since the 1930s 97% of meadows have been lost across the UK (Plantlife Online[20])and effective management of these habitats is required to maintain them in good condition and prevent further loss. To this aim, 2,500 native plugs were added to Alfred's Meadow in 2023, and 18,000 native plugs were planted in the North Park by staff and Park Champions in spring 2024.

Management Guidelines

- A management plan should be devised to determine whether meadows get cut once, twice, or every other year. This helps create a mosaic of varying habitats and ensures there are always areas of forage available for pollinators. The times at which the meadows are cut should rotate to ensure they don't get dominated by coarse grasses.
- Management should be evidence-based and meadows only cut when they have gone to seed and are not still in flower. Meadows are to be assessed seasonally, in early spring and autumn prior to cutting to determine when the cuts should be carried out.
- The health of each meadow should be assessed according to the standards set out in guidance from Natural England.
- Where possible, meadows should be cut by hand using scythes. This provides opportunities for community groups to be involved and can connect more people to nature. The inconsistency in sward height created by scythes is also beneficial to wildlife.
- If machines are used for cutting, the cut height should be varied between 100 and 120mm across the meadow to replicate the mixed-height sward created by hand cutting.
- All arisings should be thoroughly raked off to prevent nutrients returning to the soil following each cutting. Arisings should be composted where possible.
- Hemiparasitic species such as Yellow Rattle (Rhinanthus minor) and Red Bartsia (Odontites vernus) should be planted as plugs to thin out coarse grasses. Grasses should be cut as short as possible prior to planting to enable successful establishment.
- Only 75% of each meadow should be cut at once. This ensures that any wildlife living in the meadow still has refuge. The area to be left should be identified before works commence and the cutting should 'drive' the wildlife towards this area. The next cut should start in the area previously left.
- Prior to any cuts in autumn, wildflower seed should be collected. This can then be hand sown into suitable areas during the winter. If a meadow is chosen to be left to overwinter, seed should be collected from it in spring.
- Arisings from meadow areas with high diversity of wildflowers can be used as 'Green Hay' donor sites. Arisings can be translocated to less diverse meadows to set seed. These areas should be cut short, and the ground scarified to allow the seeds to have contact with the soil.
- Any wildflower plugs that are planted in

Colourful annuals in North Park

Vipers Bugloss in Alfreds Meadow

[20] https://www.plantlife.org.uk/learning-resource/managing-meadows/


Vipers Bugloss in the Fantasticology meadow


Field Scabious in North Park meadows

the meadows should be native perennial species with evidenced value for wildlife, with species selected according to the mixes specified in the Park Design Guide. The original Pictorial Meadows mix should not be used.

- Less favourable species such as Nettle (Urtica dioica), Bramble (Rubus fruitcosus), Common Reed (Phragmites australis), Thistles (Cirsium sp.), Docks (Rumex sp.), Common Mugwort (Artemisia vulgaris), Bindweed (Convolvulus sp.), Cleavers (Galium aparine) and Hemlock (Conium maculatum) should be removed from the meadows.
- A one metre edge should be mown to ensure the areas look cared for and to fostering a better perception of safety for all visitors and in particular women and girls.

Lawns

The lawns at the Park are split between the species rich lawns in North Park and South Park's amenity lawns. This mix of lawns gives the public areas to rest, relax and connect with wildlife. Many of the lawns, including the Mound Lawn, Boulder Lawn and Timber Lodge Lawns, are maintained formally, being regularly cut and striped in accordance with the Park's management specifications. These grasslands have limited value for wildlife but do support BAP priority bird species Starling (Sturnus vulgaris) and Song Thrush (Turdus philomelus) that feed on the Leatherjackets (Crane Fly larvae) beneath the turf.

Other lawns across the Park have further benefit for wildlife and are classified as 'species rich'. These lawns, including the Half Moon, Run Plaza and Paralympic Lawns host a wide variety of wildflower species including Black Medick (Medicago lupulina), Birdsfoot Trefoil (Lotus corniculatus) and Red Clover (Trifolium pratense). These species create a carpet of wildflowers over the lawns, attracting pollinating insects and birds to forage.

Management Guidelines

- Lawns designated as species rich should be allowed to flower to maximise their value for wildlife.
- Minimum cut height for species rich lawns should be 50mm to prevent scalping of flowers in accordance with the Park Management Plan. Ideally lawns should be left longer than 50mm.
- Minimum cut height for amenity lawns should be 50mm to protect underlying soils and species such as Earthworms and ground-dwelling insect larvae.
- A one metre edge should be mown to ensure the areas look cared for and to fostering a better perception of safety for all visitors and in particular women and girls.
- Chemicals should not be used on the lawns.
- Biological control of pest species such as Leatherjackets should be carried out sparingly and at times of year when birds are not rearing young.
- Community projects such as 'No Mow May' are adopted in selective quieter areas of lawn across the Park where lawns should be allowed to grow throughout the month of May without cutting.

Roadside Verges

Verges, whilst not a significant grassland offering at the Park, can still be managed well for nature. The verges help continue the green corridor throughout the Park, often bridging gaps between more significant habitat offerings. Whilst some verges are more traditional grasslands, many of the original verges, including those on Marshgate Lane and Pool Street, feature stitch planting designed to 'stitch' the habitats together. This stitch planting features species such as Red Hot Pokers (Kniphofia sp.), Fern-leaved Yarrow (Achillea filipendulina), Holly Hocks (Alcea sp.) and Russian Sage (Perovskia atriplicifolia). The verges should be managed depending on whether they are native wildflower or stitch planted grasslands.

Management Guidelines

- All verges should be assessed seasonally to determine if and when a cut is needed.
- Verges should be allowed to flower where the increased vegetation height does not impact pedestrian or driver safety.
- Wildflower verges should be cut exclusively with machinery to minimise safety risk.
- A one metre edge should be mown to ensure the areas look cared for and to fostering a better perception of safety for all visitors and in particular women and girls.
- Following cuts of wildflower verges, all arisings should be collected.
- If needed, native perennial plugs or seed should be added to the verges to maximise their biodiversity value.
- Stitch planted verges should only be cut down in late winter (if at all) in accordance with the Park Management Plan.

Pressures

- Events - The Park hosts a wide variety of events across the year including fun runs, festivals and sporting fixtures, often hosted on the grassland habitats. These events bring large numbers of visitors to the Park and represent an exciting opportunity to connect these people to nature. However, the increased number of visitors attracted by these events also have negative impacts on the grasslands. Soil compaction, trampling of plants and wildlife disturbance will all lead to a decrease in biodiversity in these habitats. Rapid Meadow Assessments should be carried out before events to identify habitat quality. Following events, the habitat should be restored to better condition than it was previously. Efforts should be made to limit disturbance to wildlife as much as possible.
- Habitat Fragmentation - Habitat fragmentation can significantly impact movement of wildlife across the Park. Whilst many organisms such as winged insects and birds can easily move between individual grasslands, terrestrial invertebrates, reptiles, amphibians and small mammals will struggle. Any new developments should aim to provide continuous habitat and link to adjacent sites, to help create viable wildlife corridors.

Knapweed in Fantasticology meadow

No Mow May in South Park

Meadow Saxifrage on the Greenway

New plug planting to meadows

- Nutrient loading - Wildflowers thrive in nutrient poor soil; the Park's soil was designed to have low nutrient content which allowed the famous annual mixes and perennial beds to thrive. Over time, the soils can accumulate nutrients, allowing less favourable species such as Nettle, Thistle and Docks to colonise. Effective raking of cut arisings, planting of hemiparasitic species such as Yellow Rattle and not using any fertilising chemicals within proximity of the meadows will help keep nutrient loading to a minimum. Leaf litter that falls on the meadows should be removed from the meadows but retained in areas such as the woodlands to offer habitat to detritivores.
- Development - As part of the legacy of the Park, development is ongoing as per the Legacy Communities Scheme outline planning permission. Areas such as UCL East Campus, and East Wick + Sweet Water Phase 2 and Phase 3 have been or are due to be built upon areas that were previously designated as species rich grassland. This has resulted in a net reduction of meadows across the Park. New developments should, where possible, include areas of grassland that can be retained as species rich. Any additions should be recorded and added to the BAP total hectarage.

Grassland Actions

- Baseline condition assessments collected in 2024 will be used to track progress, and reassessed in 5 years.
- The presence or absence of key indicator species such as Birds Foot Trefoil, Field Scabious and Meadow Saxifrage will be used to indicate meadow condition.
- The results of the meadow condition assessments will be used to inform the annual management of the grasslands, including prioritising any areas that need improvement.
- Annual ecological surveys for pollinators such as butterflies and bees will be used to compliment the condition assessments and aid in quantifying habitat quality.
- The target is 70% wildflower coverage in meadows by 2030.

TREES AND SCRUB ACTION PLAN

Overview

This Habitat Action Plan covers the Park's woodland, scrub and hedgerow habitats. Each habitat type requires specific management in order to deliver for nature. The Park has a wide variety of tree species represented in these habitats such as English Oak (Quercus robur), London Plane (Platanus x acerifolia), Rowan (Sorbus aucuparia) and Sycamore (Acer pseudoplatanus) that provide a wealth of ecosystem services to members of the public and the Park's wildlife. As the Park matures, the habitats created by these trees will continue to support priority BAP species including bats, Fungus Beetle (Cicones undatus), Tumbling Flower Beetle (Mordellistina nuewaldeggiana) and House Sparrow (Passer domesticus).

Woodland

Woodland is defined as a habitat where the dominant vegetation type is trees. There are many examples of woodland across the Park, from the ornamental Birch Stem Woodland (W2) comprising a monoculture of Silver Birch (Betula pendula), to the Native Woodland Hillock (W1) with much higher species diversity.

The understory of woodlands are important habitat components, comprising species such as Lesser Celandine (Ficaria verna), Wood Anemone (Anemonoides nemorosa) and Ramsons (Allium ursinum). The density of trees can strongly impact the development of the understory and should be managed in a way that maintains this lower layer of growth. Selective thinning through coppicing and creating deadwood through bark ringing allows light through to the woodland floor, stimulating the growth of these specialised species.

The cover provided by woodland in a park as popular as Queen Elizabeth Olympic Park offers wildlife a key refuge and can help them move between different areas of the Park without being disturbed. As there is limited scope to increase the woodland offering on the Park, the focus of management should be on habitat quality rather than quantity.

Management Guidelines

- Woodland management should be evidence based, calling upon data from the annual monitoring report.
- Management of woodland should be carried out in winter. The woodland should be assessed for the potential of roosting or hibernating bats by a licenced ecologist before management is carried out to prevent disturbance.
- Climbing species such as Common Ivy (Hedera helix), often mistakenly deemed parasitic of trees, should not be removed unless completely dominating the habitat. Under no circumstances should the Ivy be completely removed.
- Tree density should be assessed and if deemed too dense (more than 1 tree every 2.5m), can be selectively thinned through coppicing.
- Any dead or dying tree selected for removal should be considered for potential as standing deadwood. Ornamental trees such as Tibetan Cherries (Prunus serrula) located close to the Water Labyrinth in the South Park Plaza area are exempt from this management.
- Deadwood should not be removed from woodlands. If standing deadwood is deemed a risk to public safety, it should be secured to another standing tree with steel cabling. Where this is not possible, the deadwood should be laid within the woodland.
- Fallen deadwood should be left where it falls unless a threat to the public or infrastructure. Any deadwood generated from elsewhere on the Park should be committed to woodlands as fallen deadwood. These pieces can be stacked to make small piles for species such as Stag Beetles (Lucanus cervus).
- Wind fallen trees that cannot be retained as fallen deadwood should be repurposed as deadwood monoliths, and example of which can be seen along Siding Street.
- Leaf litter should not be removed from woodland areas in order to allow the return of nutrients to the soil which is vital for tree health.

Trees and Scrub Action Plan

Scrub

Scrub is classed as a successional habitat, being a transitional phase between areas such as grassland and woodland. Scrub habitat is diverse and can be an open scattering of species such as Hawthorn (Crataegus monogyna) or much denser thickets comprising many species (Wildlife Trusts Online[21]). It can be very important habitat for nesting birds, breeding insects, basking reptiles and amphibians. Whilst the extent of scrub habitat at the Park is fairly limited, Northwall Road in North Park has a long stretch of scrub along its northern border. The value of scrub for wildlife is often overlooked and if opportunity arises, more should be added to the Park. BAP priority species supported by scrub include Linnet (Carduelis cannabina), Song Thrush (Turdus philomelos), Kestrel (Falco tinnunculus), bats, Grass Snake (Natrix helvetica), Common Lizard (Zootoc vivipara) and Slow Worm (Anguis fragilis).

Management Guidelines

- Scrub management should be evidence based through ecological monitoring including species and visual surveys.
- Scrub areas should be assessed annually.
- Management of scrub should be carried out between September and February to avoid the bird breeding season. If a plant is fruit bearing, management should be held off until at least December.
- Surveys should be carried out to identify egg laying areas of butterflies and moths. This should be part of the Park Champions conservation volunteering program.
- Areas of scrub that are encroaching on grasslands should be selectively thinned.
- Scrub takes roughly 15 years to reach maturity and therefore should be cut on a 15 year rotation (Wildlife Trusts Online[22]). Scrub should not be allowed to age beyond this point to avoid transitioning into woodland.
- Bramble scrub should be cut on a shorter rotation, every 5 years.
- Areas to be cut should be randomised to increase habitat complexity at approximately one fifteenth of the total scrub area.
- Arisings from management can be used to create features such as dead hedges.

Volunteers working in the Park

Hedgerows

There are roughly 500,000 miles of hedgerows in the UK (Woodland Trust Online[23]). These are linear plantations of trees that often border our roads or fields, and many have a mix of species, but can also be comprised of a single species. Hedges can be classed as managed, where trees are cut and shaped so that they no longer grow to their normal forms, or relict, where trees are planted linearly but are not managed thereafter (Woodland Trust Online). All the hedgerows at the Park are managed, being maintained according to the Park Management Plan. Some are single species hedges such as the W6 Beech Hedge in North Park and Box hedges in the 2012 Gardens in South Park and Stadium Island, whereas others have a variety of native species such as the mixed (edible) hedgerow of the Great British Garden. The blossom and fruits of the Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Field Maple (Acer campestre), Hazel (Corylus avellana) and Spindle (Euonymus europaeus) in these hedges attract a wide variety of insects and birds.

[21] https://www.kentwildlifetrust.org.uk/sites/default/files/2024-01/KWT%20Land%20Mgt%20Advice_Sheet%207%20-%20Scrub%20-value%20for%20wildlife%26mgt.pdf
[22] https://www.suffolkwildlifetrust.org/conservationadvice/meadows-and-grassland/grassland-and-scrub
[23] https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/habitats/hedgerows/#:~:text=What%20is%20a%20hedge-row%3F,ancient%20and%20or%20species%20rich

Hedge planting in the Great British Garden

Management Guidelines

- Hedgerows should be assessed each summer to determine the need for management.
- Any management should be carried out in winter once the berries have been eaten to prevent scalping of a valuable food resource for wildlife.
- Hedgerows should not be cut between March and August (inclusive) to protect nesting birds. If urgent management is required, the area should be checked by a trained ecologist for the presence of nesting birds.
- Prior to cutting, the outer edges of the hedgerow should be checked for the eggs of butterflies and moths. If found, the vegetation with eggs should not be cut.
- Leaf litter at the base of the hedgerow should not be removed as they are valuable pupation areas for butterflies and moths.
- Hedgerows should be cut 2cm less each year to prevent the formation of a hard knuckle at the trim line. Gaps at the bottom of the hedgerow should be filled with native tree whips.
- Ornamental hedges comprising Box (Buxus sempervirens) should ideally be replaced with species that are not susceptible to damage from the Box Moth Caterpillar (Cydalima perspectalis). Treatment of this invasive pest species with insecticide spraying is not allowed as it will kill other invertebrates.
- Non-formal hedgerows at least five years old should be layed if the base of the hedgerow is sparse or without leaves. This will promote growth and increased density and improves the viability of nesting habitat. Following laying, the hedge should be only lightly managed for the first three years to allow density to develop.
- Hedges that have become too sparse to be viable habitat should be coppiced and supplemented with native whips to fill gaps.
- New developments featuring hedgerows should be required to have a mixed native hedgerow to maximise value for wildlife.

Threats

Trees and scrub face a wide variety of threats that can affect their habitat quality. Pests and diseases such as Oak Processionary Moth (OPM) (Thaumetopoea processionea) and Ash Dieback (Hymenoscyphus fraxineus) can cause defoliation and death of host trees, leading to a major decline in habitat quality if widespread. Annual inspections of these trees, in accordance with the Park Management Plan, is useful for assessing potential pest or disease outbreaks across the Park. A trial to control OPM by attracting birds such as Great Tit (Parus major) rather than using pesticides was started in 2024.

Species homogeneity, or lack of biodiversity, can have negative effects by limiting the amount of wildlife attracted to the habitat. Woodland, scrub and hedgerows comprising only a single botanical species (monoculture) will be more susceptible to pests and diseases. Habitats with a wide variety of native species will be more resilient and offer the best value to wildlife.

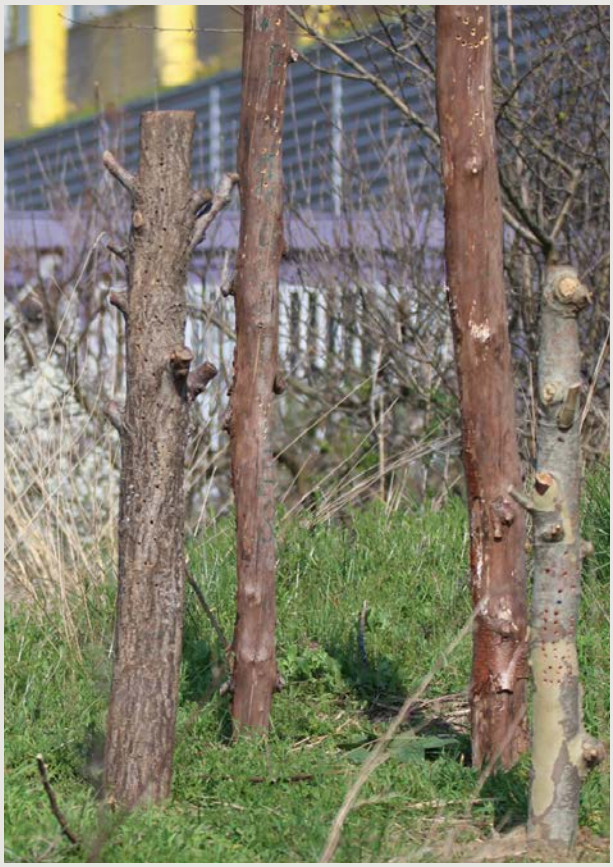
Deadwood

Deadwood is "a fundamental base to the woodland ecosystem" (Symes and Currie 2005[24]), providing niches for a wealth of specialist invertebrates and fungi, and allowing the return of nutrients to the soil. Over-management of woodland can lead to the removal of deadwood which is often mistakenly seen as unsightly or a risk to public safety. In the context of Queen Elizabeth Olympic Park, where many trees are still immature, deadwood can dramatically improve the viability of the woodland habitats.

Deadwood habitat

Species that rely upon deadwood are known as 'saproxylic' and are often incredibly specialised. It is thought around 650 species of UK beetle alone are reliant upon deadwood during their lifecycle, and a total of 2000 UK invertebrates are deemed saproxylic. These specialised invertebrates in turn provide food for birds such as the Green Woodpecker (Picus viridis), which is often found in North Park, and Brown Long-Eared Bats (Plecotus auritus) which are woodland specialists.

Deadwood can be separated into four categories: standing, fallen, rotting stumps and rotting heartwood (Woodland Trust online 2024). While the parkland trees are not mature enough to have rotting heartwood, where the interior of mature trees rots leaving gaps for species such as bats to roost in, the other classes are all important to the health of, and should be present in, the parkland woodland habitats. Good examples of deadwood on the Park can be found along the River Lea in North Park and on Stadium Island.



Standing deadwood in Canal Park

[24] Symes N and Currie F (2005) Woodland Management for Birds: A Guide to Managing for Declining Woodland Birds in England. RSPB Management Guides. Sandy.

Trees and Scrub Actions

Woodland

- Carry out baseline assessments for woodlands to determine the quality of the habitats at present, and update the assessment annually. Aim to improve habitat quality through annual management programme.
- Initiate coppicing programme and plant native understory species if necessary.
- Indicators of good quality woodland include good native species diversity, presence of both standing and fallen deadwood, diversity of understory and trees of varying ages and heights including veteran trees.

Scrub

- Carry out baseline assessment to determine current habitat quality, and update the assessment biannually. Adjust management to improve habitat if necessary.
- Where possible, aim to incorporate scrub into new developments and designs.
- Indicators of good quality scrub include a variety of native species including Hawthorn, Blackthorn and Hazel. A range of plant ages and heights is preferable, with open areas helping to create a mosaic where native wildflowers can grow.

Hedgerows

- Hedgerows should be assessed annually, in late spring or summer.
- The presence of nesting birds and breeding invertebrates should be used in addition to plant health as indicators of hedgerow health.
- Look for opportunities to add new hedgerows, which should aim to incorporate positive hedgerow features such as varying heights, diverse species compositions and larger 'standard' trees growing among them.
- Leaf litter should always be retained at the base of a hedgerow, allowing moths and butterfly larvae to overwinter and pupate successfully.

Great Spotted Woodpecker

Lesser Stag Beetle on deadwood ©Paulius Skukauskas

WETLANDS ACTION PLAN

Overview

Wetland habitats are defined as "land areas that are saturated or flooded with water either permanently or seasonally" (World Wetland Day Online[25]). These habitats form one of the most significant ecosystems at the Park. Lying within the River Lea catchment and following the course of the river, the Park's design has been heavily influenced by the flow of water through the site. The parkland is bordered and dissected by four linear water courses: the River Lea, the City Mill River, the Waterworks River and the River Lee Navigation.

Alongside these watercourses the parklands have nine purpose-built ponds (eight in North Park, one in South). An overflow pond, owned by Network Rail, is present in North Park but is not considered within the BAP's pond totals. The North Park ponds form part of the Park's flood mitigation plan, protecting over 5,000 homes downstream. Furthermore, they are ephemeral (seasonal), being filled with water from the River Lea when it is in flood and largely drying out in the summer. South Park pond, located in the Great British Garden, is the only pond with permanent standing water and is fed by runoff. The parklands also have a wet woodland habitat that forms part of the flood mitigation plan. This habitat type, commonly referred to as Carr, is increasingly rare in the UK due to drainage for agriculture and development.

The Importance of Wetlands

Since 1970, 35% of global wetlands have disappeared at a rate three times faster than the world's forests. These incredibly specialised habitats are important for the world's health, trapping twice as much carbon as the world's forests and filtering the water of pollutants (Wildfowl and Wetlands Trust Online[26]).

Rivers can support a wide variety of wildlife and are a vital part of the Park's ecosystems. Many of the parkland's priority species are supported by the River Lea and its channels, including Sand Martins, Swifts and bats which all forage on insects rising from the river.

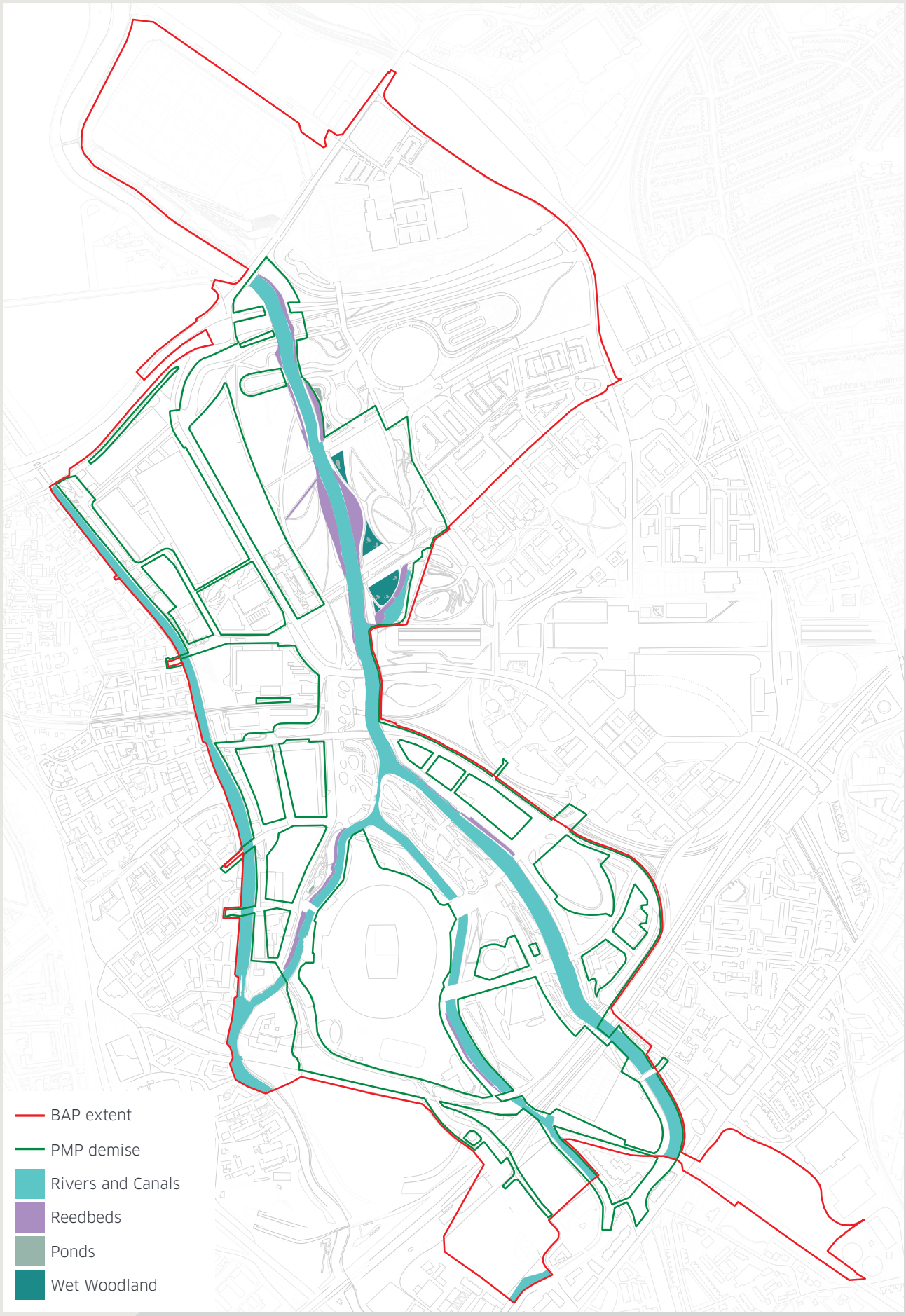
The European Eel (Anguilla Anguilla) travels upstream through the Park to continue its life cycle and European Otter (Lutra lutra) have been recorded feeding on fish within the River Lea.

The River Lea Navigation (also known as the Hackney Cut), creates the western border of the Park and is an important cultural landmark which was historically used to transport goods from London up to Hertfordshire. Canals are a unique habitat where humans and nature can coexist; however, 95% of canals have impacted water quality (Freshwater Habitats Trust) and intense management is required to maintain them as biodiverse habitats.

Ponds, when managed correctly, can be incredibly biodiverse and indeed support two thirds of all freshwater aquatic life (Freshwater Habitats Trust). They play an important role in floodwater retention and carbon storage, and even temporary ponds can be important sources of standing water for the wider ecosystem. Ponds often suffer from problems such as pollution, silt build-up and nutrient accumulation which can all negatively impact their value for wildlife.

Reedbeds in North Park

[25] https://www.worldwetlandsday.org/).
[26] https://www.wwt.org.uk/our-work/threats-to-wetlands/



Wetlands Action Plan

Rivers and Canals

Rivers are classed as water channels with a width more than 8.25m (Freshwater Habitats Trust Online[27]). The River Lea flows for 46 miles from rural Bedfordshire, across Hertfordshire and northeast London, before joining the River Thames at Bow Creek. The Lea helps comprise the 600km of rivers that flow across London, forming the city's Blue-Ribbon Network. As reported in the previous BAP, the Lea has historically suffered from poor water quality following industrial use, runoff and outfall discharge. This influenced the Park's design, with SuDS features such as rain gardens and swales created to limit runoff and a large reedbed to help filter pollutants from the water. Positively, a report commissioned by Thames Water in 2023 found that water sampled from Abbey Mills Pumping Station immediately to the south of the Park, achieved good/excellent according to the Water Framework Directive classifications (James Cooper 2023). Fish sampling in the area recorded 14 species, and the parklands have healthy fish stocks of species including Perch (Perca fluviatilis), Bronze Bream (Abramis brama) and Roach (Rutilus rutilus).

Management Guidelines

- Localised pollution events including sewage or chemical spills should be reported to the Canal & River Trust and the relevant authority. Keep a record of incidents and if there are any actions that could prevent reocurrence.
- All areas of the Park's waterways (including margins, water surface and channel bed) should be kept free of litter and debris.
- Invasive species should be routinely removed from the Park as they enter from upstream.
- Where safe to do so, fallen trees in the watercourse should be retained on the margins to improve habitat complexity. These should be fixed in place to prevent them being carried downstream where they could cause damage to infrastructure. Approval from Canal & River Trust should be sought for any such bank work.
- Carpenters Lock is a major obstacle to fish movement throughout the Park. The lock should be opened at least once a week allows fish to move through and consideration given to the installation of a 'fish doorbell' with remote camera.

Opportunities

Eco-booms or bubble barriers can be used to prevent spread of litter in the watercourses if they are not deemed a barrier to wildlife with Canal & River Trust approval.

Reedbeds

Reedbeds are a UK and London BAP priority wetland habitat dominated by a single species of plant, the Common Reed (Phragmites australis). They form on the edge of wetland habitats such as rivers or estuaries and form a buffer between water and land. There are roughly 5000ha of reedbed in the UK, of which 125ha are in London, 1.6ha of which are present at Queen Elizabeth Olympic Park (UK BAP 2016, London BAP 2007). They


Reedbed in summer


Reedbed in winter

[27] https://freshwaterhabitats.org.uk/habitats/rivers/

Common Tern on Carpenters Bridge

Cormorant on Waterworks River

can be seasonally dry during the summer but will tolerate inundation with floodwater during the winter and provide habitat to an abundance of specialist species. The reedbeds at the Park are a significant component of the overall wetland habitat and follows the course of the River Lea from North Park all the way to Carpenters Lock. In South Park, a smaller section of reedbed follows part of the City Mill River. BAP priority species such as Reed Bunting (Emberiza schoeniclus), Kingfisher (Alcedo atthis), Grey Heron (Ardea cinerea) and European Eel (Anguilla anguilla) are supported by reedbed habitats. As a transitional habitat between water and land, reedbeds that are not managed correctly are at risk of being dominated by scrub which will cause them to completely dry out. Therefore, a cutting regime for the reeds and periodic thinning of scrub, is required to maintain the habitat in favourable condition.

Management Guidelines

- Reedbeds should be assessed annually in summer. All management should be evidence based.
- Reeds should be cut in the winter (December–February) after birds such as Reed Warblers have finished breeding.
- 25% of the total reedbed offering on the Park should be cut each year, ensuring all reeds are cut on a 4-year rotation. Different age classes of plant help to create habitat complexity that will benefit the specialist wildlife that live amongst the reeds.
- Corridors of reed up to 15m wide should be cut on rotation all the way from the bank to the river, creating a series of wide cut areas interspersed with standing reeds. This is important for species such as Reed Bunting to allow them cover as they move through the reedbed.
- The reedbed should not be allowed to scrub over, and selective thinning and coppicing of trees within the reedbed should be undertaken in combination with cutting. Less favourable species such as Silver Birch (Betula pendula) should be completely removed.
- Where possible, reeds should be cut down with hand tools (brashers) to limit disturbance to overwintering birds such as Reed Bunting and Common Snipe (Gallinago gallinago).
- All arisings should be thoroughly raked off and removed from the reedbed. All litter should also be removed.
- All backwater and channel features within the reedbed should be kept clear of vegetation to retain their value for fish, birds and aquatic invertebrates.
- All invasive species should be removed. This removal should be undertaken in a manner to prevent seeds or cuttings traveling downstream and inadvertently spreading invasive species.
- The presence of breeding birds should be checked before any works within the reedbed are carried out.

Ponds

Ponds are a UK BAP priority habitat described as “permanent and seasonal standing water bodies up to 2ha in extent”. They are a highly variable habitat type, ranging from very small depressions only a few centimetres deep, to cut off river meanders and deep glacial pools. This variability can lead to specialisations and two-thirds of freshwater species are found in ponds. The parklands BAP priority species specifically supported by ponds are Common Toad (Bufo bufo), Common Frog (Rana temoraria) and Smooth Newt (Lissitriton vulgaris).

Ponds are a declining habitat, and the UK has lost over 50% of its ponds in the 20th century, with 80% of the remaining ponds being in a poor state (Freshwater Habitats Trust Online 2024[28]). The Park has nine purpose-built ponds which support a wide variety of wildlife including Smooth Newt, Three-spined Stickleback (Gasterosteus aculeatus) and specialised invertebrates such as Diving Beetles (Dytiscidae sp.) and Pond Olive Mayflies (Cloeon dipterum).

Seasonal management must be undertaken to maintain their habitat value for these specialised species. The value of these ponds can be assessed using the Predictive System for Multimetrics (PSYM) format, which gives numerical scores to ponds based on their species composition. Good ecological quality is achieved with a score equal to or greater than 75.

Management Guidelines

- Ponds should be assessed annually using the PSYM method to determine their habitat score. Those with low scores should be prioritised for improvement works. All management should be evidence based.
- Management should take place in late autumn (October/November) after the amphibians have left the pond to enter brumation (a form of hibernation) and the adult insects have completed their life cycles. Checks should be carried out prior to works to ensure amphibians are not present.
- Winter management should be avoided to limit disturbance to any hibernating amphibians.
- Dominant marginal plants that spread across the ponds such as Greater Reed Mace (Typha latifolia), Common Reed (Phragmites australis), and Reed Sweet Grass (Glyceria maxima) should be thinned to prevent the pond scrubbing over.
- Lilly pads (Nymphea alba), only present in the Great British Garden Pond, should be thinned and maintained at 30% surface coverage. This species is best suited to large ponds or lakes and ideally should be removed entirely and replaced with less dominant species such as Broad-Leafed Pond Weed (Potamogeton natans).
- Any plant species added to ponds should be native and appropriate to the size of pond in question. As the Park’s ponds are small, species chosen to be added should not be those that rapidly spread, to prevent them dominating the pond.
- Water quality seriously effects the habitat quality of the ponds. Oxygenating

Reed Warbler ©Ian Monteath

Mallards in the reedbeds

[28] https://freshwaterhabitats.org.uk/habitats/ponds/

Pied Wagtail by City Mill River

Pochard on City Mill River

species such as Spiked Water Milfoil (Myriophyllum spicatum), Hornwort (Cerotaphyllum demursum) and Curly Leaved Pond Weed (Potamogeton crispus) should be added to help filter low-quality water and provide valuable habitat for aquatic invertebrates.

- Deadwood is an important component of ponds and should be retained on the borders or within the ponds themselves. These features are important egg-laying sites for species such as Southern Hawker Dragonfly (Aeshna cyanea) and help trapped wildlife exit the ponds.
- Ponds should never be completely shaded by tree growth around the margins. Less favourable species such as Duckweeds (Lemna sp.) thrive in lower light conditions and can completely dominate the surface of the pond. Therefore, selective pruning or removal is advised to ensure at least 75% of the surface is not shaded. Prior to removal, trees should be checked for the gall scars of Willow Emerald Damselfly (Chalcolestes viridis) and retained if these scars are found.
- Silt can build up over time in ponds and reduce the depth of the pond. This build up should be assessed and any pond with more than 30cm depth of silt should be dug out to prevent the creation of anoxic conditions as the silt breaks down.
- Disturbance, turbidity, and spot-treatment insecticides can all negatively impact ponds and should be prevented/avoided.
- Signs should be located at each pond requesting dog walkers to keep their dogs out of the ponds. Flea treatments can leach into the water, often killing aquatic invertebrates.
- The feeding of water birds adds unwanted nutrients to the water and should also be discouraged with signage located at each pond.

Wet Woodland

Wet woodland is a UK BAP priority habitat. The habitat is dominated by tree species such as Alder (Alnus glutinosa), Willow (Salix sp.) and Black Poplar (Populus nigra) and can support nationally scarce invertebrates such as Cranefly species (Lipsothrix errans and Lipsothrix nervosa) (UK BAP 2008). The ground is seasonally wet, supporting large stands of Sedges (Carex sp.), Greater Reedmace and Purple Loosestrife. The only example of this habitat is in North Park, where a relatively small (0.9ha) area makes up part of the wider flood mitigation scheme. The BAP priority species Black Poplar is present here, having grown on from “cuttings taken from the site prior to construction” (Queen Elizabeth Olympic Park BAP 2019-2024).

Management Guidelines

- Wet woodland should be assessed annually. All management should be evidence based.
- Deadwood, particularly standing deadwood, is very important in wet woodlands. All deadwood should be retained in the woodland and standing deadwood can be added by securing dead trees to live trees with cabling to prevent risk to public safety. Deadwood from the surrounding North Park can be retained in this area.
- Living trees can be veteranized by

partially cutting into them, creating areas of rot that can be colonised by species such as bats.

- Supplementary planting should be added to improve species composition. All wetland plants chosen should be native species with evidenced value for wildlife.
- Sedges should be selectively thinned to make room for a wider variety of plant species.
- Non-native species such as Orange Balsam (Impatiens capensis) should be removed.
- Care must be taken not to disturb breeding birds in this area; works should be carried out in late autumn and winter to minimise disturbance.
- Any live trees or deadwood features that could support bats should be surveyed by a licenced ecologist before works are carried out.

Opportunities

There are a number of opportunities to improve on the wetland habitats found at the Park. Many of the waterways have unvegetated, canalised banks. These channels, such as the Waterworks River and City Mill River could host 'floating reedbeds'. These rafts, tethered to the riverbank or anchored to the riverbed, allow marginal plants to be added, improving the habitat and creating refuge for a host of wildlife. Although called reedbeds, these rafts are often planted with species such as Sedges, Purple Loosestrife and Water Mint. The rafts require careful maintenance but could significantly improve the viability of these waterways as habitat.

The amount of development occurring at the Park may potentially allow for ponds to be added as part of their landscaping. This will be a welcome addition, attracting wildlife into the developments. Any pond installed should be fed by rainwater, not runoff (unless part of SuDS), which will significantly improve the habitat quality.

The local community can be involved in the removal of species such as Himalayan Balsam with 'Balsam bashing' sessions. These should be carried out before the plants have gone to seed to avoid further distribution of plants. Checks should be carried out to avoid the disturbance of breeding birds such as Reed Warblers and Sedge Warblers before these sessions occur and should not go ahead if the birds will be disturbed whilst nesting.

Tufted Duck on the River Lea

Swans on City Mill River

Teal in Henniker's Ditch

Wetlands Actions

Rivers and Canals

- Duckweed will be managed so it is not allowed to cover entire stretches of river to avoid shading the watercourse.
- Where and when possible, marginal habitats will be planted with additional native riparian species such as Purple Loosestrife (Lythrum salicaria), Common Reed (Phragmites australis), Greater Reed Mace (Typha latifolia), Reed Sweet Grass (Glyceria maxima) or Common Club Rush (Schoenoplectus lacustris).

Reedbeds

- The health of the reedbed habitat will be primarily informed by the breeding bird survey (BBS) which covers the entirety of the habitat and indicates the species using the reedbed in which to breed. The results of the Odonata surveys will be used to inform management decisions.
- 25% of the Park's total reedbeds are to be cut each year, ensuring all reeds are cut on a 4-year rotation.
- Mapping the reedbeds by drone will be used to identify areas to be cut, as part of the 4-year rotation.

Ponds

- Ponds will continue to be assessed annually using the PSYM (Predictive System for Multimetrics) method, building on previous baseline data. The scores from these surveys will be used to inform management needs.
- The data collected during ad hoc pond dipping by students and staff will also be used to monitor the quality of the pond ecosystem.

Wet Woodland

- Water quality data collected by UCL students will be used to inform management decisions in the wet woodland.
- Reduction of invasive Himalayan Balsam will be tracked and reported back to LLDC

Willow Emerald Damselfly in wet woodland

Blue Tailed Damselfly in the GBG pond

Common Darters in Great British Garden pond

SPECIES ACTION PLANS

The Species Action Plans section highlights notable species that were found on site in 2008, as well as species found in the surrounding area. The plans outline their current status on the Park and any opportunities there are to improve habitat for them.

The parklands have matured significantly since those species were originally found, providing improved habitat and more diverse ecosystem for them to thrive in. Despite this, species including Slow Worm, Common Lizard, and Water Vole are still not present on the Park.

The previous BAP set management targets for each of the species however, with this BAP prioritising evidence-based management, proactive management targets have not been included. Relying on good quality ecological data will help react to any management requirements the species have.

Aims of the Species Action Plans

- To raise awareness of notable species on the Park.
- To promote correct management practices to benefit nature on the Park.
- To increase protection of species.
- To improve community engagement with nature.

New Species Action Plans

The BAP 2008 recognised that as the Park matured, new notable species would colonise and could be included as priority species in the BAP (BAP 2019-2024). “Indeed, as the Park matures, monitoring will reveal new arrivals, some of which may be rare or exciting and which may merit inclusion in future versions of the Olympic Park BAP” (BAP 2008, BAP 2019-2024).

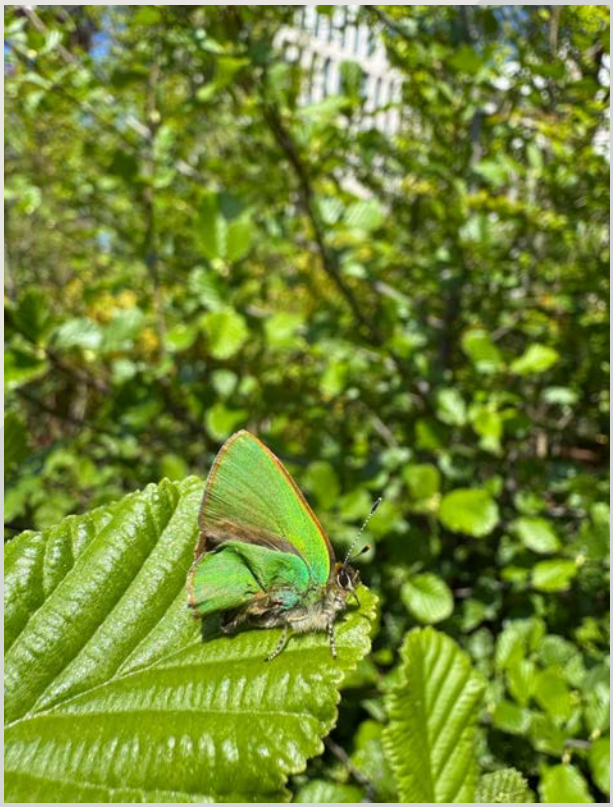
The BAP 2019-2024 introduced two new species, the Streaked Bombardier Beetle, found on the Park in 2014 and a species of Picture Wing Fly which was found in North Park.

Five new species will be added in this BAP:

- Kestrel (Falco tinnunculus)
- House Martin (Delichon urbicum)
- Black Mining Bee (Andrena pilipes)
- Large Scabious Mining Bee (Andrena hattorfiana
- Soft-winged Flower Beetle (Axinotarsus pulicarius)

These species were selected due to scarcity, recent decline and being priority species in other local BAP documents. The inclusion of these species takes the number of priority species to 32 (although bats are counted as one group collectively) which demonstrates the high value placed on nature at the Park.

Bronze Beetle in Mandeville meadows



Green Hairstreak Butterfly at UCL East

BIRD ACTION PLANS

Black Redstart

Overview

The Black Redstart (Phoenicurus ochruros) is a Robin-sized bird with distinctive red tail feathers. There are only 58 breeding pairs confirmed in the UK (although that number has ranged up to 120 pairs) (BTO Online[29]). An influx of migratory visitors bolsters winter numbers to 400, however these are largely confined to coastal regions.

The species occupies urban areas and favours rooftops and brownfield sites. They are nicknamed the 'bombsite bird' owing to being regularly seen on sites destroyed during the Blitz of World War II.

Threats

Development of brownfield sites threatens their favoured habitat and poor-quality green roofs are not a sufficient habitat offering.

Legal Status

The species is amber listed due to the limited number of breeding pairs. It is listed as a Schedule 1 bird species in the Countryside and Wildlife Act 1981. This makes it an offence to disturb the nest, eggs or young of this species. A licence granted by the British Trust for Ornithology (BTO) is required to approach areas thought to be occupied by Black Redstart.

Black Redstart are also a priority species in the Tower Hamlets BAP.

Habitat Requirements

- An opportunistic species that favours brownfields sites. Regular disturbance of brownfield areas to create exposed substrate will benefit foraging viability.
- Good prey availability of insects, spiders, berries and seeds.
- Prefers to call from high locations. Good quality green roofs (see green roof section) will provide habitat.

Original BAP (2008) Targets

"To establish suitable conditions with the potential to support a breeding population of Black Redstart within the Park."

Progress to Date

Confirmed breeding at UCL East in April 2024. Other territories in the area include Hackney Wick and the Westfield Stratford City green roof. Sightings have been recorded in East Village and Chobham Manor areas of the Park and a single male was seen on Hopkins Field in January 2023.

Opportunities

Being a particularly rare species, it is likely that only one pair will establish on the Park. Boxes placed around the Park for the species can be moved to more favourable locations. A trained ecologist should be present when the UCL East roof is accessed during breeding season to prevent accidental disturbance. As a pre-dawn caller it may be being missed from breeding bird surveys. Placement of audio recording devices across the Park may help identify territories.

Black Restart Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Linnet

Overview

Linnet (Linaria cannabina) is a small bird in the Finch family. They are widely distributed across the UK with 560,00 territories reported but have seen large declines in population numbers in recent years. They are largely associated with farmland habitat but are also widespread in urban areas, heathlands and grasslands.

[29] https://www.bto.org/understanding-birds/birdfacts/black-redstart

Black Restart ©Ben Andrews (rspb-images.com)

Linnet on the London Aquatics Centre green wall

Linnets have a streaky brown appearance, with male birds having distinctive red chest plumage. They form large flocks in winter, often with other birds such as Gold Finches (Carduelis carduelis) (BTO Online[31]).

Threats

The species declined by 20% between 1995 and 2020. Chemical use on seed-bearing food plants is thought to have caused decline along with nesting failures (BTO Online[32]).

Legal Status

The species is red listed and all birds, their eggs and nests are protected under Countryside and Wildlife Act 1981.

Habitat Requirements

- Require year-round supply of seed from a variety of plants including Oilseed Rape (Brassica napus) and Sorrel (Rumex sp.)
- Nest in dense scrub, hedgerows and thickets. Managing these habitats well will benefit the Linnet.
- Wildflower areas are needed throughout the year for seed provision. Areas left long in the winter will benefit the species.

Original BAP (2008) Targets

"For linnet to be regularly observed in the Olympic Park and to create conditions with the potential to attract a breeding population."

Progress to Date

A single pair were confirmed to be breeding on the living wall of the London Aquatics Centre (LAC) in 2023. More birds returned to this location in 2024 and are thought to be nesting there. A small flock of eight birds were noted around the Lee Valley VeloPark in March 2024 and an individual bird was recorded on the Here East building green roof in March 2024.

The previous BAP noted that Linnet had bred on the Park in 2018, but no evidence was found of breeding between 2018-2023. A flock of 28 birds were recorded on Hopkins Field in the winter of 2022.

[30] https://www.bto.org/understanding-birds/birdfacts/linnet

[31] https://www.bto.org/understanding-birds/birdfacts/linnet

Opportunities

The Linnet favours the LAC green wall and therefore, where appropriate, new developments should feature green walls. Whilst previously dominated by species such as Californian Poppy (Eschscholzia californica), the LAC living wall is now populated with native wildflowers. Any green wall installed should prioritise native species and follow the guidance set out in the Built Environment Habitat Action Plan.

Oilseed Rape (Brassica napus) was once present on the Park and could be reintroduced to benefit Linnet. This could be planted in areas such as the allotments or community gardens including the Copper Street Gardens and Mobile Gardens.

Linnet Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

House Sparrow

Overview

The House Sparrow (Passer domesticus) is a noisy and social species which has an important cultural heritage in London. The 'cockney sparrer' was once a widespread species that frequented gardens, parks and squares, but has undergone a major decline in recent decades.

In the parklands, the House Sparrow is very localised, being primarily seen on the western edge of Canal Park.

Threats

The species has declined rapidly over the last 25 years due to a decline in food sources through agricultural intensification. In urban environments, the removal or improper management of hedgerows has caused decline, and predation by cats has impacted local populations.

Legal Status

The species is red listed and protected under the Countryside and Wildlife Act 1981. Listed as a priority bird species in the UK and London BAPs.

Habitat Requirements

- Nest communally in dense hedgerows or scrub.
- Need foraging areas in close proximity to their nest sites and will not venture far for their food.
- Long grass and wildflower areas provide seeds and insects for food.

Original BAP (2008) Targets

"To establish conditions with the potential to support a breeding population of house sparrow within the Olympic Park."

Progress to Date

The BAP 2019-2024 confirms the species bred successfully on the Park in 2018. This was confirmed by BBS from 2021 to present day, with breeding occurring in Canal Park hedgerows and immediately across the River Lea Navigation in derelict buildings. Breeding was confirmed in a patch of bramble scrub in Otter Close, at the southern extent of the Park in 2023.

75 house sparrow boxes were placed on the Park, but these remain unused by the species and the box types, and their locations should be evaluated and moved to more favourable locations or replaced with more appropriate boxes.

Opportunities

House Sparrow boxes can be moved to Canal Park to offer nesting spaces in the areas already favoured by the species. Existing hedgerows should be supplemented with further planting of whips to increase habitat.

An increase in domestic cats was noted in Canal Park in 2023 and 2024. Local cat owners should be encouraged to either keep their cats indoors or wear bells to reduce their predation efficiency.

House Sparrow Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Reed Bunting

Overview

Reed Bunting (Emberiza schoeniclus) are Sparrow-sized birds with a heavily notched tail (RSPB Online[32]). The males have distinctive black plumage on their heads, whereas the females have brown. Both have a distinctive white moustache marking that helps distinguish the species from other birds. Despite their name, Reed Buntings are not limited to reedbed habitats and can occupy coastal, scrub and arable habitats, amongst others.

The species is fairly widespread across the UK, with 275,000 territories.

Threats

Decline is attributed to reduction in winter food availability due to poor management practices (BTO Online[33]).

Legal Status

The species is amber listed and all birds, their eggs and nests are protected under Countryside and Wildlife Act 1981. Listed as a priority bird species on the UK and London BAPs.

Habitat Requirements

- Well managed reedbed habitats with varying age classes of plants.
- Exposed reedbed floor following cutting provides foraging areas.

House Sparrow in Canal Park

[32] https://www.rspb.org.uk/birds-and-wildlife/reed-bunting
[33] https://www.bto.org/understanding-birds/birdfacts/reed-bunting

Reed Bunting in North Park reedbeds

- Well managed scrub is also a viable habitat for the species.
- Feed on the seeds of 'weed' species and will include insects during the breeding season. Effective grassland habitat management will ensure good food availability.

Original BAP (2008) Targets

"To regularly observe reed buntings on the Park. To establish suitable conditions with the potential to support a breeding population of reed bunting within the Park."

Progress to Date

Reed Buntings were previously confirmed as breeding on the Park every year between 2011 and 2018. They have not been confirmed as breeding in any of the breeding bird surveys carried out since 2021. The species overwinters at the Park, with six individuals recorded in February 2023 and eight in February 2024. Following winter, the birds are not recorded in the reedbed habitat.

Reed Buntings were recorded during an ad hoc survey of scrub habitat along the Greenway in April 2024. It is possible that as this area is not on the BBS survey transect, breeding individuals are being missed from official surveys.

Opportunities

Increasing the coverage of reedbed at the Park in areas such as the City Mill River could benefit the Reed Bunting amongst other species such as Reed Warbler (Acrocephalus scirpaceus), Cetti's Warbler (Cettia cetti) and Sedge Warbler (Acrocephalus schoenobaenus).

Reed Bunting Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Starling

Overview

Starlings (Sturnus vulgaris) are best known for forming particularly large flocks, sometimes up to tens of thousands strong, called a murmuration. Whilst these displays may give the impression that the birds are still numerous, Starling numbers have declined significantly in recent decades.

Starlings are very social birds and can still be found in large numbers in urban areas. They are often one of the most widely reported bird species in the RSPB's annual Big Garden Bird Watch survey. They are often seen in fairly large flocks at the Park, with sometimes over 100 birds reported.

Threats

The species declined by 53% between 1995 and 2020 (BTO Online[34]). The cause of the decline is not fully known but is potentially attributed to changes in agricultural practices leading to a decrease in food availability.

Legal Status

The species is red listed and protected under the Countryside and Wildlife Act 1981. Listed as a priority bird species in the UK and London BAPs.

Habitat Requirements

- Will nest in tree cavities, nest boxes or under roof tiles (Woodland Trust Online[35]).
- Require good prey availability which includes spiders, beetles, Leatherjackets and worms. Fruiting trees are favoured in autumn and winter.

Original BAP (2008) Targets

"To be regularly observed and to create conditions with the potential to attract a breeding population."

Starlings at Pudding Mill Lane

[34] https://www.bto.org/understanding-birds/birdfacts/starling).
[35] https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/animals/birds/starling/#:~:text=Where%20do%20starlings%20live%3F,for%20the%20Highlands%20of%20Scotland

Song Thrush on Sidings Street

Swift ©Ben Andrews (rspb-images.com)

Progress to Date

The BAP 2019-2024 reports that Starlings bred on site in 2018. Whilst many juveniles are often seen on the Park, breeding has not been confirmed since 2021 and it is thought that breeding is probable. Adult birds are regularly seen flying with nesting materials towards uninhabited buildings in Hackney Wick and towards developments in Stratford. Observation of nest boxes has not confirmed any occupancy.

South Park appears to be favoured by the species, which feed on Leatherjackets under the lawns.

Opportunities

200 nest boxes have been placed across the Park for Starlings. These boxes are not ideally placed, for example in the woodland bordering Great British Garden (GBG). Relocating these boxes to areas the Starlings are known to use will be beneficial for the species in the parklands.

Starling Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Song Thrush

Overview

The Song Thrush (Turdus philomelos) is a species that inhabits gardens, woodlands, scrub and parkland. It has distinctive song that it often sings from tall perches, starting in early spring but sometimes as early as January (Woodland Trust Online[36]).

Song Thrushes are becoming more widespread in the parklands and can even be seen on South Park lawns foraging for Leatherjackets and worms.

[36] https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/animals/birds/song-thrush/

Threats

Song Thrush populations declined 49% between 1967 and 2020. This decline is attributed to loss of hedgerows, scrub and permanent grasslands (Peach et al 2004[37]). Furthermore, the removal of woodland understory through poor management or grazing by deer has been contributed to Song Thrush decline.

Legal Status

The species is amber listed and protected under the Countryside and Wildlife Act 1981. Listed as a priority bird species in the UK and London BAPs.

Habitat Requirements

- Feeds upon invertebrates including caterpillars, worms and snails, which it is famed for breaking against rocks. It will also eat berries in autumn and winter.
- Favours dense trees, shrubs or ivy to build its nest in, which can be quite close to the ground if the understory is dense enough.
- Good management of trees, woodland and scrub is required for this species.

Original BAP (2008) Targets

"To encourage growth in population of song thrush on the Olympic Park."

Progress to Date

The 2019-2024 BAP stated that Song Thrush possibly bred on the Park in 2018, with sightings in the previous year's being intermittent. The 2023 BBS confirmed the Song Thrush as breeding in the wet woodland habitat, with territories recorded at the Greenway and Old Ford Nature Reserve.

Opportunities

Areas where scrub can be created or enhanced such as Northwall Road will benefit this species.

The ongoing design and upgrades planned for the new Park HQ at Old Ford should incorporate enhancements to scrub and understory for Song Thrush habitat.

Song Thrush Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Swifts

Overview

Swifts (Apus apus) are superb flyers, feeding, mating and even sleeping whilst flying. They are a migratory species, overwintering in Africa before returning to Europe in late spring to breed. They are the highest flying bird species in the world, spending the majority of their lives in the air, only landing to build nests and rear young[38].

Threats

There has been a significant decline in Swifts in the UK, with populations decreasing 60% between 1995-2020 (BTO Online)[39]. Modern building design does not offer nesting areas for the birds which is thought to have contributed to their decline. The birds are also recorded to be arriving earlier and leaving earlier, perhaps as a response to weather conditions. Prey availability may also be leading to decline (BTO Online[37]).

Legal Status

The species is red listed and protected under the Countryside and Wildlife Act 1981. Listed as a priority bird species in the Tower Hamlets BAP.

Habitat Requirements

- Nest in cracks and crevices high up on buildings.

[37] https://besjournals.onlinelibrary.wiley.com/doi/epdf/10.1111/j.0021-8790.2004.00841.x
[38] https://www.rspb.org.uk/birds-and-wildlife/swift
[39] https://www.bto.org/understanding-birds/birdfacts/swift

- New developments don't normally have nesting features so should be fitted with Swift Bricks.
- Hunt on the wing and require well maintained habitats to generate abundant flying insect prey.

Original BAP (2008) Targets

"To create conditions which have the potential to attract a breeding population of swift in the Olympic Park, particularly by creating wetland and terrestrial habitats that generate flying insects."

Progress to Date

Swifts are now regularly seen at the Park during the summer months where they forage for insects over the River Lea. They exclusively favour North Park but have not been confirmed breeding on the Park.

Opportunities

The Park's buildings lack the cavities required by Swift for nesting. The amount of development occurring at the Park presents a great opportunity to provide nesting areas for the birds. All new developments over 10m tall should be fitted with Swift bricks. The Manthorpe Swift Brick is a good example of the type of product that should be used. Bricks should be mounted to face north to prevent overheating.

The Park has a Swift tower adjacent to the Information Point however, this is placed in an area not used by the Swifts. A Swift tower would be a valuable addition to North Park, particularly if placed near favoured foraging sites such as Hopkins Field.

Swifts Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix (). These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

House Martin

Overview

The House Martin (Delichon urbicum) is a small bird with glossy blue feathers with a completely white underside. They are a migratory species, overwintering in Africa before returning to Europe to breed. They have a strong affinity for man-made structures and build a nest of mud and saliva under the eaves of buildings. The birds are known to return to the same nesting sites each year, where they will have two broods if not disturbed[40].

Threats

House Martin populations declined by 37% from 1995 to 2020. The causes of this decline are unclear, but is thought to be influenced by invertebrate decline, weather conditions and decrease in available nesting sites.

Legal Status

The species is red listed and protected under the Countryside and Wildlife Act 1981. Listed as a priority bird species in the Tower Hamlets BAP.

Habitat Requirements

- Require overhanging structure such as the eves of buildings to build their nests.
- Need areas of exposed soil to collect mud with which to build their nest.
- Forage on the wing and need a good supply of flying insects to predate.

Original BAP (2008) Targets

A new species for the 2025-2030 BAP. Target should be to establish conditions to support a breeding population of House Martins on the Park.

Progress to Date

House Martins are confirmed breeding under the eaves of houses at Leabank Square, to the immediate west of Canal Park. The birds forage exclusively in North Park and can be seen taking insects over Hopkins Field and the River Lea.

[40] https://www.bto.org/understanding-birds/birdfacts/house-martin

Opportunities

A nesting tower for House Martins would greatly improve the availability of nesting areas in North Park. The houses at Leabank Square are the only ones in the area with eaves, limiting nesting sites. These towers should be above 5m high to prevent disturbance of nests and could be located in Canal Park or on Hopkins Field.

House Martin Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

House Martin ©Ben Andrews (rspb-images.com)

Sand Martin

Overview

Sand Martins (Riparia riparia) are the smallest of the European Hirundines with brown feathers with white underside and a diagnostic chin strap of brown. They are a migratory species, overwintering in Africa before returning to Europe to breed[41].

The species return to the Park in early spring and can be seen perching on railings on Stadium Island, their raspy call a familiar sound of spring.

Threats

Populations in the UK are stable but have previously crashed following drought conditions in Africa, where the birds overwinter.

Legal Status

The species is protected under the Countryside and Wildlife Act 1981. Listed as a priority bird species in the London BAP.

Sand Martins in City Mill

[41] https://www.rspb.org.uk/birds-and-wildlife/sand-martin

Habitat Requirements

- A bank-nesting species that requires sandy substrate in which to excavate its nest.
- Requires flying insect prey items which are caught on the wing.
- Purpose built nesting-banks can be used but must be kept free of vegetation which could be used as predator perches. Entrance tunnels must also be flush with the face of the bank and packed with sand for the birds to tunnel through.

Original BAP (2008) Targets

"To create conditions suitable to attract a breeding colony for sand martins".

Progress to Date

Sand Martins are confirmed as breeding on the Park in two different locations along the City Mill River. The drainage holes of Stadium Island are used in South Park near Carpenters Lock, with birds also using nesting holes further along Stadium Loop. The second nesting site is further south along the City Mill River, opposite the development platforms of Pudding Mill Lane. Sand Martins are rarely seen in North Park.

Opportunities

There are two purpose-built Sand Martin nesting banks at the Park. In 2022, the bank in South Park was refurbished, packing the nesting chambers with Thames sand and trimming the entrance tubes. The North Park nesting bank should also be refurbished to offer nesting habitat elsewhere on the Park.

The City Mill River must be kept free of duckweed to prevent young birds mistaking it for grass and trying to land on it. Several juvenile Sand Martins drowned in 2023, following a carpet of duckweed forming on the river.

Sand Martin Actions

Breeding bird surveys (BBS) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out in accordance with the BTO methodology, with at least 2 surveys to identify territories and confirm breeding. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Grey Heron

Overview

The Grey Heron (Ardea cinerea) is a large bird with grey plumage which is often associated with wetland habitats, where they primarily predate fish, amphibians and insects. The birds are largely solitary but nest communally in groups called heronries. There are 11,000 pairs currently reported (BTO Online[42]).

Threats

Poor wetland habitat management can lead to a decrease in prey availability and water quality issues and pollution can limit wetland habitat viability.

Legal Status

All birds, their eggs and nests are protected under Countryside and Wildlife Act 1981.

Habitat Requirements

- Require good quality wetland habitats with a wide variety of prey items including fish, amphibians, rodents and insects.
- Nest in aggregations called heronries, often on islands or atop large, mature trees.

Original BAP (2008) Targets

"To regularly observe grey heron within the Olympic Park."

[42] https://www.bto.org/understanding-birds/birdfacts/grey-heron

Grey Heron in North Park reedbeds

Progress to Date

Grey Herons are seen on the Park on a weekly, and often daily, basis. They are found at the Park throughout the year. The species can be regularly seen in the wetlands of North Park, hunting in the backwaters of the reedbed, and among the reedbeds along South Park's City Mill River. The Grey Heron does not breed at the Park due to lack of mature, veteran trees on which to create nests. The largest heronry in North London is situated at Walthamstow Wetlands, only three miles upstream. The proximity of this heronry will limit formation of one at the Park.

Opportunities

The Grey Heron is a common sighting on the Park but is unlikely to ever breed there. Improving wetland habitats through supplemental planting will improve prey availability for the species.

Grey Heron Actions

Breeding bird surveys (BBS) and Wetland Bird Surveys (WEBs) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out to the relevant BTO methodology. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Kingfisher

Overview

Kingfishers (Alcedo atthis) are a distinctive yet elusive bird of wetland habitats. Often heard with a distinctive call before they are seen, they tend to fly low over the water before waiting intently for their prey from a favoured perch. Whilst the birds appear blue to our eyes, their feathers contain no blue pigmentation and are in fact brown. An adaptation of their feathers maximises the

[43] https://www.bto.org/understanding-birds/birdfacts/kingfisher

reflection of blue light, making them appear blue[43].

The Kingfisher may struggle to establish nests at the Park due to the canalisation of many of the watercourses or lack of natural, steep riverbanks. Two purpose-built nesting banks were installed following construction of the Park.

Threats

The species is susceptible to harsh winters, and this is attributed to occasional annual declines in numbers (BTO Online[44]). Water quality issues may limit prey availability, and fluctuating water levels in Henniker's Ditch could have negative impacts.

Legal Status

Listed as a Schedule 1 Bird Species under the Countryside and Wildlife Act 1981.

Habitat Requirements

- Nests in exposed banks along riparian corridors.
- Will often maintain two nests at the same time.
- Requires perches from which to observe prey and will return to the perch following predation attempts.
- Healthy fish stocks are required to maintain local population. Kingfishers can have broods of up to 6 chicks which require reliable prey availability to sustain them.
- Artificial nesting banks must be packed with substrates such as sand to allow the bird to excavate their own nest tunnel and chamber. The tunnel must be mounted on an angle of roughly eight degrees to allow faecal matter to drain from the nest.

Original BAP (2008) Targets

"To establish conditions with the potential to support a breeding population of kingfisher within the Olympic Park."

Progress to Date

The previous BAP confirmed intermittent

Kingfisher in Henniker's Ditch

[44] https://www.bto.org/understanding-birds/birdfacts/kingfisher

sightings of Kingfishers on the Park between 2012 and 2017, but they were not thought to be breeding. The birds are still thought to not be breeding at the Park.

Kingfishers are currently a regular sighting on the Park. A pair are regularly seen in Henniker's Ditch in North Park, predating fish in the outfall there. The birds are also seen hunting in the City Mill River opposite the Fantasticology meadow and along Stadium Loop, but they do not currently use the nesting bank there.

A breeding pair is confirmed in the Hackney Marshes area, which due to their territorial nature, may limit establishment of a pair at the Park.

Opportunities

The Kingfisher does not currently breed on the Park, and the two purpose-built Kingfisher nesting banks are not in areas that the bird favours. A nest box in Henniker's Ditch would be ideally placed, as it is the area favoured most by the birds on the Park.

Kingfisher Actions

Breeding bird surveys (BBS) and Wetland Bird Surveys (WEBs) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out to the relevant BTO methodology. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

Kestrel

Overview

The Kestrel (Falco tinnunculus) is a small raptor that inhabits farmland, grasslands and urban environments. They can be easily distinguished by their habit of hovering high up above their hunting grounds, watching for the movement of their prey. They hunt rodents and rely upon well managed grassland habitats to support their prey.

Kestrel is a new priority species for the BAP 2025-2030.

Kestrel in South Park

Kestrel hovering over the Park HQ meadows

Threats

The species declined by 40% between 1995 and 2020. This decline is thought to be caused by agricultural intensification which negatively impacts their prey availability. Loss of suitable habitat for prey will reduce the viability of the Park for Kestrels.

Legal Status

The species is amber listed and protected under the Countryside and Wildlife Act 1981.

Habitat Requirements

- Need a variety of rodent prey including Voles, Mice and Rats.
- Long grass areas are favoured hunting grounds.
- Require cavities for nesting which can be limited by modern buildings.

Original BAP (2008) Targets

A new species for the BAP 2025-2030. Target should be to establish conditions to support a breeding population of Kestrels on the Park.

Progress to Date

Kestrels are thought to have bred on the Park in 2023, although it is unclear where the nest was. Juvenile birds were photographed roosting behind a CCTV camera on the London Aquatics Centre (LAC). An adult and two juvenile birds were sighted in March 2024 roosting on the new Sadler's Wells East building and Kestrels are regularly sighted perching on top of the Energy Centre.

The meadows adjacent to Sweetwater Place are a favoured hunting ground for the birds, along with North Park meadow areas.

Opportunities

Kestrels are a cavity nesting species and would benefit from the provision of additional nesting sites. Specific Kestrel nest boxes can be mounted on poles or attached to the sides of buildings to provide nesting opportunities. Nest boxes must be mounted at a minimum height of 5m to prevent disturbance.

Kestrel Actions

Breeding bird surveys (BBS) and Wetland Bird Surveys (WEBs) carried out by the Biodiversity Manager will be used to monitor populations across the Park, as detailed in Appendix 1. These will be carried out to the relevant BTO methodology. Ad hoc sightings from staff and members of the public will add to understanding of local populations.

BAT ACTION PLAN

Overview

Bats (Chiroptera) are the UK's only flying mammal species. There are 18 species in the UK, 17 of which are known to be breeding. Twelve of these are present in London, occupying a wide range of habitats including parks, gardens, woodlands and wetlands.

Bats are nocturnal, emerging at dusk from day roosts to forage on flying insects. Many insects are needed to support bats, with a Common Pipistrelle (Pipistrellus pipistrellus) being able to consume up to 3,000 insects a night. Prey are detected by echolocation, allowing the bats to find flying insects in the dark. During the winter when prey becomes scarce, bats hibernate, often in large roosts. As habitat works are often carried out in winter months, it is important that hibernating bats are not disturbed.

Threats

Four bat species are at imminent risk of becoming extinct in the UK, with a further two species classed as near threatened. Factors attributed to their decline across the UK include habitat loss, such as through deforestation, disturbance from building works, impacts from artificial lighting and decline of invertebrate prey availability.

Legal Status

Four bat species are red listed, and all bats and their roosts are protected by UK law under the Countryside and Wildlife Act 1981 and the Conservation of Habitats and Species Regulation 2017. This makes it an offence to kill, injure or disturb a bat, and disturb or destroy their roost.

A licence is required to inspect bat boxes, or any features suspected of being a bat roost. As the parklands mature, features that can support roosting bats such as cracks in trees will become more common and management should consider potential for bat disturbance prior to any works being carried out.

Habitat Requirements

- Linear features such as rivers, hedgerows and woodland rides allow bats to move across the landscape with relative cover. These features also attract their invertebrate prey and are therefore good foraging areas.

Bat boxes in Old Ford

- Areas for day roosting and hibernation roosting such as cracks and crevices within trees and buildings.
- Darkness corridors allow bats to forage without disturbance from artificial light.
- Night scented flowers such as Stocks (Mattholia sp.) and Tobacco plant (Nicotiana sp.) increase the number of pollinating insects, for example moths, that are active at night.

Bat Boxes

Owing to the immaturity of the Park, many of the trees do not offer viable roosting habitat for bats. The buildings are also modern and without spaces in which the bats can roost. As such, 150 bat boxes were installed across the Park following construction. Further installation of bat boxes should follow the following guidance from Bat Conservation Trust:

- Buildings can have integrated bat boxes in their exterior walls. These should be a minimum of 4m high. External boxes mounted on trees and posts should also be at least this height.
- Both external and internal boxes should not be put up in areas where direct artificial light will be on the box.
- Boxes should be placed where they are sheltered from the wind and orientated towards the southeast or southwest.
- Boxes should be placed near preferred habitat features such as hedges or woodland.
- Once placed, only a licenced ecologist can look inside the box or move them.

Lighting

Artificial lighting can be widely detrimental to bats in the following ways:

- Lighting can cause bats to abandon roosts or even become entombed in them, refusing to leave.
- Lighting increases the likelihood of bats being predated by species such as owls.
- Lighting disrupts the behaviour of prey species such as moths, preventing prey from flying entirely or causing them to congregate in one area. This can cause bats to modify their own behaviour and target these areas, leaving themselves open to predation in turn.
- Slower flying species such as Long-eared (Plecotus sp.) and Myotis species will actively avoid lit areas, potentially reducing the diversity of species present.

Darkness corridors are factored into the design of the Park to benefit bats. It is imperative that new developments do not impact this corridor. Areas of darkness should be increased across the Park wherever possible, and features such as LED screens should not be lit at night.

Original (2008) BAP Targets

“To continue to have bats regularly recorded within the Olympic Park.”

Progress to Date

Seven species of bats have previously been recorded on the Park using the UCL Remote Sensors. Supplementary surveys by licenced ecologists followed existing transects and recorded Common and Soprano Pipistrelle (Pipistrellus pygmaeus). Surveys that were required for planning regarding the U07 Bridge in 2021 found three species including both Common and Soprano Pipistrelle along with Common Noctule (Nyctalus noctula).

The UCL monitoring data is scheduled for publication in 2024 and will give an insight into how bats are using the parklands.

Opportunities

New developments should consider the impact of lighting on bats and their prey and should incorporate corridors without lighting into their designs. The new buildings can also have integrated bat boxes, offering roosting areas in lieu of foraging habitat.

Bat Actions

Bats should be monitored by licenced ecologists, with a population survey carried out annually. Remote monitoring carried out by UCL can be used to supplement findings of professional surveys.

AMPHIBIAN ACTION PLAN

Overview

There are three amphibian species included in this Species Action Plan:

- Smooth Newt (Lissotriton vulgaris)
- Common Frog (Rana temporaria)
- Common Toad (Bufo bufo)

These three species breed in still water but spend much of their adult lives away from the water feeding on invertebrates. Common Frogs can roam up to 500m from their breeding ponds (ARC Trust Online[45]). They brumate (a form of hibernation) over winter under leaf litter or log piles before returning to ponds to breed in the spring (although Common Frogs start breeding in the UK as early as January).

Threats

The loss of ponds in the UK is a serious threat to amphibians. Half a million ponds have been lost in the last 100 years (Wildlife Trusts Online[46]) and those that are still present are often disconnected from viable habitat or suffer from poor quality. Isolation of ponds make the amphibians that use them more susceptible to diseases, such as Ranavirus (in Common Frogs), and leads to competition for space which in turn reduces breeding success. Destruction of ponds is particularly harmful to Common Toads which often return to the ponds in which they were born.

Juvenile Smooth Newts in the GBG ©David Ostle

Water quality issues can be particularly harmful to amphibians as they have permeable skin. Polluted water is more likely to have lower dissolved oxygen which can affect the breeding successes of all amphibian species. Although ephemeral (seasonal) ponds can be incredibly biodiverse, they can have negative effects and lead to the death of amphibians when they dry out if the juveniles have not developed sufficiently.

Legal Status

All amphibians have legal protection under the Countryside and Wildlife Act 1981. They are protected from trade or sale (including their spawn) under Section 9 of this act. Common Toad is a priority species in both the UK and London BAPs.

Habitat Requirements

- Ponds with good water quality for breeding and development of young. Ponds must have sufficient water levels for duration of juvenile development.
- Smooth Newt require leafed aquatic

Common Frog in North Park meadow ©John Everett

[45] https://www.arc-trust.org/common-frog
[46] https://www.wildlifetrusts.org/habitats/freshwater/ponds

Toad in the Blossom Garden ©Adam Jones

vegetation on which to lay their eggs. The leaves are folded around a single egg. Species such as Aquatic Mint (Mentha aquatic), Water Forget-Me-Not (Myosotis scorpioides) and Water Cress (Nasturtium officinale) are favourable species.

- Common Frogs must have moist skin and therefore have sufficient foraging areas within 500m of a pond. Prey (invertebrates) availability is crucial for all amphibian species.
- Log piles or dense, undisturbed vegetation is required to brumate in over winter.
- Amphibians are sensitive to disturbance and any pond management deemed necessary should be carried out in late autumn. School pond dipping activities should not be permitted until June to allow Smooth Newts to breed.
- Dogs should not be allowed to enter ponds.

Original BAP (2008) Targets

"To establish breeding populations of all the BAP amphibians in ponds."

Progress to Date

The previous BAP (2019-2024) stated that Smooth Newts had been recorded in all 9 ponds on site. Recent monitoring (since 2021) has found Smooth Newts to be present in only 2 of the ponds, with breeding confirmed in the GBG pond and both adults and juveniles have been caught during pond netting. Whilst only adults have been recorded in pond 6 of North Park, both adults and juveniles have been recorded away from the wetlands all across North Park. The presence of juveniles suggest they are successfully breeding in North Park but this location remains unknown. Anecdotal records suggest newts are present in ponds not included in the BAP totals including in Old Ford Nature Reserve and in the allotments.

The spawn of Common Frog had been previously recorded in North Park but has not been recorded since before 2019. Two adult Common Frogs were recorded in North Park meadows in 2023 and another was found in London Blossom Garden in December 2024. No evidence of breeding has been found in the weekly spawn surveys.

A single Common Toad was found in the Blossom Garden in December 2024, the first recorded on site since they were moved off site circa 2010. Reintroduction of further Toads could be successful, but only if water quality issues within the ponds are solved.

Water quality issues and habitat fragmentation are almost certainly affecting the establishment of breeding populations of amphibians across the Park. Disconnection from the wider landscape will limit the movement of amphibians, which find it hard to move across roads and canalised rivers.

Opportunities

Adding planters with cavities underneath will help amphibians move across the normally impassable areas of hardstanding and improve the connectivity of habitats across the Park.

Amphibian Actions

Amphibians will be monitored by the Biodiversity Manager using torching surveys and visual checks for spawn. These surveys will be undertaken seasonally. Ad hoc sightings by staff members will benefit the understanding of populations across the Park.

REPTILE ACTION PLAN

Overview

There are three reptile species included in this Species Action Plan:

- Grass Snake (Natrix helvetica)
- Common Lizard (Zootoca vivipara)
- Slow Worm (Anguis fragilis)

Grass Snakes are widespread across England and Wales where they favour aquatic habitats, often seen hunting fish and frogs in garden ponds and along river edges. They are neither venomous, nor use constriction to subdue their prey, and often play dead when disturbed. They are the only snake species in the UK to lay eggs (ARC Trust Online[47]).

Common Lizard are widespread across the UK and favour habitats such as commons, heathlands and moorlands. The species is sometimes referred to as Viviparous Lizard as the females do not lay eggs, and instead incubate the eggs internally before giving birth to live young. They can often be seen basking in sunny and sheltered areas and feed predominantly on spiders and insects (ARC Trust Online[48]).

Slow Worm, a legless species of lizard, is widespread in the UK and is often found in gardens where they favour compost heaps. The heat generated by the decomposing material and the invertebrate prey it attracts make them ideal habitat for this species. They do not bask out in the open, preferring to shelter under cover and target slow moving prey such as slugs (ARC Trust Online[49]).

Grass Snake ©Ben Andrews (rspb-images.com)

Common Lizard ©Ben Andrews (rspb-images.com)

[47] https://www.arc-trust.org/grass-snake
[48] https://www.arc-trust.org/common-lizard
[49] https://www.arc-trust.org/slow-worm

Threats

The UK's reptiles are primarily threatened by habitat loss and fragmentation caused by development. Populations are becoming increasingly isolated, increasing the risk of disturbance, and weakening genetic diversity.

Legal Status

All reptiles are protected in the UK under Schedule 5 of the Countryside and Wildlife Act 1981 making it an offence to intentionally kill, injure or sell/trade a reptile. All three species are priority species in the UK and London BAPs.

Habitat Requirements

- Grass Snakes thrive in aquatic environments. Ensuring ponds are in good condition to attract Frogs will benefit Grass Snakes. Water quality issues should be tackled to maintain fish stocks.
- Reptiles are very sensitive to disturbance so areas where they can find refuge is critical. Log and aggregate piles along with well-maintained scrub and grasslands benefit reptiles.
- Slow Worms thrive in compost heaps, dead-hedges and piles of arisings, particularly grass cuttings.
- Insect prey availability is crucial for the success of reptiles (excluding Grass Snakes). Habitats must be managed in a way that promotes good diversity of invertebrates.

Original BAP (2008) Targets

"To establish breeding populations of all BAP reptiles. To establish a complex of lightly managed grassland, woodland and wetland habitat. To monitor the development of the habitats with the view to suitable areas being used as receptor sites."

Progress to Date

Reptile surveying using felts was carried out with Park Champion volunteers in 2022 but recorded no reptiles across the site. In the same year a single Grass Snake was seen swimming down the River Lea and a juvenile was found in a dead hedge in North Park. No Common Lizards or Slow Worms have been recorded on site to date. Whilst the habitats at the Park may be viable for reptiles, the fragmentation between them may limit the establishment of these species.

Opportunities

Adding planters with cavities underneath will help reptiles move across the normally impassable areas of hardstanding and improve the connectivity of habitats across the Park. This is particularly important on bridges connecting the Park to surrounding areas.

Reptile Actions

Reptiles will be monitored by the Biodiversity Manager and Park Champion Volunteers using reptile mats that are placed in suitable locations across the Park. This monitoring will ideally be undertaken seasonally, and annually at a minimum. Ad hoc sightings by staff members will benefit the understanding of populations across the Park.

Slow Worm ©Ben Andrews (rspb-images.com)

EUROPEAN EEL ACTION PLAN

Overview

The European Eel (Anguilla anguilla) is the only freshwater eel (Anguillidae) species in the UK. They have an important cultural heritage in the East End of London, with jellied eels being a staple dish since the 18th century. Once widespread within the Thames, and even listed as being used as currency in the 1086 Domesday Book (Thames River Trust Online[50]), the species has suffered a major decline in the 21st century.

It has a complicated life cycle, spawning in the Sargasso Sea before drifting across to Europe on the North Atlantic Current. It develops from larval form (Leptocephalus) into glass eels and begins to swim upstream where it transitions into an elver, then to yellow eel and finally to a silver eel. The silver eels then return to the sea and swim back to the Sargasso Sea to breed. This complex life cycle makes it susceptible to several threats, and the populations in Europe have declined by 97% in the last 40 years[51].

Threats

Overfishing of glass eels, a delicacy in Asia, severely depletes the number of eels that can swim upstream to reach maturity. This is compounded by obstructions in the water courses, such as weirs and dams. Water quality issues can severely deplete prey availability (aquatic invertebrates) in water courses, and disconnection of still waters to the river courses often leaves the adult eels unable to return to the Sargasso Sea to spawn. Old Ford Lock is one of the last locks in London to not have an eel pass (BAP 2019-2024). This represents a major threat to free movement of eels across the site.

Legal Status

Listed as critically endangered on the IUCN Red List of Endangered Species. Listed as a Priority Fish Species in both the UK and London BAPs.

Habitat Requirements

- Prefers slow flowing water with good prey availability.
- Vegetated riparian borders provide cover from predators such as Cormorant (Phalacrocorax carbo).
- Back water channels and pools provide areas of respite and refuge.
- Requires clear, unimpeded passage upriver. Weirs and dams should have fish passes to prevent blocking their movement upstream.

Original BAP (2008) Targets

“To regularly observe common eel in the waterways that flow through the Olympic Park.”

Progress to Date

Eels have been recorded in all 4 of the Park’s waterways but only in low numbers, as was found in the previous BAP. The majority of the records are from the City Mill River, where adult silver eels and juvenile yellow eels have been recorded. Elvers have been observed climbing the walls of Carpenters Lock, which presents a major threat to their movement across the Park and further up the Lea Valley. Cormorants are regularly observed eating juvenile eels in the City Mill and Waterworks Rivers. The remains of 2 adult eels were found in 2023 in the Stadium Loop of the River Lea, and along the River Lea Navigation, with the cause of death thought to be Otter predation.

Opportunities

Installation of floating reedbeds in the City Mill River will increase the refuge available to Eels migrating upstream, reducing the chance of being predated. The reedbed also provides hunting grounds for the Eels themselves. This would require collaboration with CRT.

European Eel Actions

Eels will be monitored by professional ecologists as detailed in Appendix 1. Ad hoc sightings will improve understanding of local populations.

[50] https://www.thamesriverstrust.org.uk/thames-catchment-community-eels-project/did-you-know/#:~:text=The%201086%20Domesday%20Book%20records,eels%20in%20the%20Thames%20catchment
[51] https://nc.iucnredlist.org/redlist/species-of-the-day/anguilla-anguilla/pdfs/original/anguilla-anguilla.pdf

BLACK POPLAR ACTION PLAN

Overview

The Black Poplar (Populus nigra) is a large species of tree capable of growing up to 30m in height. The trees favour damp conditions, growing within floodplains and riparian habitat. They are a rare and declining species, ranked by the Forestry Commission as the most endangered native timber tree in the UK. The wood is favoured for its heat resistance and durability and was used in mill making and for rifle-butts during World War I.

The species is particularly important to certain species of moth including Hornet (Sesia apiformis), Wood Leopard (Zeuzera pyrina) and Poplar Hawk Moth (Laothoe populi) (Woodland Trust Online[52]).

On hundred cuttings from mature UK Black Poplars were planted in the wet woodland, Canal Park and Wetland Bowl areas of the Park.

Threats

Canalisation and bank reprofiling disconnect Black Poplar from watercourses. Drainage of floodplains also led to a sharp decline in the species. Due to its rarity, most young trees, and indeed the ones planted at the Park, are taken from cuttings of mature trees. This can lead to genetic weakening as the young trees are clones and not new genetic stock. Hybridisation from other Poplar species also weakens the genetic strength of the species.

Over management of the trees, such as over-pollarding, can damage the trees and lead to diseases and parasites. Cleaning up fallen trees also prevents regrowth and can prematurely kill the tree.

Legal Status

Black Poplars are protected under the Countryside and Wildlife Act 1981 which prevents uprooting without permission from the landowner. They are a priority species in the London BAP.

Habitat Requirements

- Damp soil and connection to riparian habitat.
- Not a woodland species so will not tolerate being planted in close proximity to other trees.
- Grows in full light and will struggle in shaded conditions.

Original BAP (2008) Targets

“To create a viable population of Black Poplars on site.”

Progress to Date

The species is now well established on the Park and the planted trees are gaining maturity.

Opportunities

Any Black Poplars that fall down during high winds can be replaced by younger trees, whilst retaining the fallen deadwood as a habitat feature.

Black Poplar Actions
Tree health will be monitored during annual tree inspection. This will be carried out by trained arborists.

[52] https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/a-z-of-british-trees/black-poplar/

Brown-banded Carder Bee on the Greenway

INVERTEBRATE ACTION PLANS

Brown-banded Carder Bumble Bee

Overview

The Brown-banded Carder Bee (Bombus humilis) is a scarce species of Carder Bee which is normally associated with coastal habitats, but can also be found in brownfield habitats. As the name suggests, the species has a distinctive brown band on its abdomen. They are normally on the wing from April until September, with the queens building a nest in the ground beneath long grass.

Threats

Poor management of grasslands can destroy nesting sites if areas are not left to grow long. Development of brownfield land removes specialised habitats.

Legal Status

The species is a priority invertebrate species in both the UK and London BAPs.

Habitat Requirements

- Require long grass habitats with wide variety of perennial wildflowers.
- The species favours plants in the Pea (Fabaceae), Mint (Lamiaceae) and Figwort (Schrophulariaceae) families.
- Spring meadow cuts can disturb nests and areas to be cut should be searched before works commence. Areas of long grass should be retained across the Park during the spring to provide suitable nesting habitats.
- Allowing species such as Clovers (Trifolium) and Daisies (Asteraceae) to grow on lawns will benefit the species.

Original BAP (2008) Targets

“To create a range of conditions to enable a breeding population to become established.”

Progress to Date

The species is now widely recorded across the Park. Hotspots for the species include the F03 Bridge meadows, Carpenters Lock and Northwall Road. The species was thought to be breeding on the Thames Water Marshgate Lane bank before development.

Brown-banded Carder Bee Actions

Brown-banded Carder Bees will be monitored using Bee Walk surveys carried out by the Biodiversity Manager and Park Champion Volunteers. These surveys will be undertaken annually at a minimum. Ad hoc sightings from staff will improve understanding of local populations.

Black Mining Bee

Overview

The Black Mining Bee (Andrena pilipes) is a nationally scarce solitary bee species that is strongly associated with coastal cliff habitats. There is, however, a population within the Thames Gateway and the species is now found on the Park. The species is bivoltine, meaning it has two flight periods, April to May and June to August[53].

Threats

Localised to certain sites with a strong bias towards the south of England. Untimely management of scrub removes food sources for spring flying generation.

Legal Status

Included as a priority species in the Tower Hamlets BAP.

Habitat Requirements

- Typically nests on cliffs and south facing slopes.
- Visits a variety of flowers including Blackthorn (Prunus spinosa), Willows (Salix sp.), Bramble (Rubus fruticosus) and Hogweed (Heracleum sphondylium).
- “Blossoming scrub is crucial for spring generation”[54].

Black Mining Bee on Sidings Street aggregate pile

Large Scabious Mining Bee ©Tony Madgwick

[53] https://bwars.com/bee/andrenidae/andrena-pilipes
[54] https://bwars.com/bee/andrenidae/andrena-pilipes

Original BAP (2008) Targets

Not included in 2008 BAP as is a new species in the 2025-2030 version. New target is to create conditions for a stable breeding population of the species to establish on the Park.

Progress to Date

The species has been recorded, albeit sparsely, along the Greenway and Siding Street Loop Road and in the Fantasticology meadow. The bee seemed to favour the piles of aggregate placed among the Loop Road meadows.

Opportunities

A bee bank made of sandy substrate could be installed to increase the availability of nest sites for the species.

Black Mining Bee Actions

Bee surveys carried out by entomologists and the Biodiversity Manager will be used to monitor populations at the Park. These surveys will be undertaken annually at a minimum.

Large Scabious Mining Bee

Overview

The Large Scabious Mining Bee (Andrena hattorfiana) is a solitary species of mining bee. The species is scarce in the UK, being primarily found in the south of England and favours areas of sandy or calcareous soils. Open grassland, roadside verges and woodland edges are favoured habitats. The bee has a strong affinity to Field Scabious (Knautia arvensis) and flies between June and mid-August (BWARS Online[55]). The species has been recorded in nearby Tower Hamlets Cemetery Park Local Nature Reserve.

Threats

As the species is locally scarce and dependant on Field Scabious, improper management of grassland habitats can have severe effects on local populations.

Legal Status

Included as a priority species in the Tower Hamlets BAP.

Habitat Requirements

- Nesting occurs in bare soil or short turf.
- Field Scabious is used as a pollen source but will also nectar on species such as Wild Parsnip (Pastinaca sativa), Clover (Trifolium sp.) and Smooth Hawk's Beard (Crepis capillaris)[56].

Original BAP (2008) Targets

A new species for the BAP 2025-2030. Target is to create conditions for a stable breeding population of the species to establish on the Park.

Progress to Date

The Large Scabious Mining Bee has only been found on the Greenway/Siding Street Loop Road where it is supported by large blooms of Field Scabious.

Opportunities

Field Scabious can be spread across the site by seeding, plug planting and green hay production to improve habitats for the Large Scabious Mining Bee. Areas that have become dominated by coarse grasses will be scalped and scarified to create bare earth habitat for ground nesting.

Large Scabious Mining Bee Actions

Bee surveys carried out by entomologists and the Biodiversity Manager will be used to monitor populations at the Park. These surveys will be undertaken annually at a minimum.

[55] https://bwars.com/bee/andrenidae/andrena-hattorfiana
[56] https://bwars.com/bee/andrenidae/andrena-hattorfiana

Toadflax Brocade Moth caterpillar in Marshgate Lane stitch planting

Toadflax Brocade Moth

Overview

The Toadflax Brocade Moth (Calophasia lunula) is resident and probable rare immigrant (Atlas of Britain & Ireland's Larger Moths). The species is restricted to the southeast and central southern coast of the UK (UK Moths Online[57]) but started being recorded in London in the early 2000s. As an adult moth it has a wingspan of 26-32mm and is of mottled brown coloration, however in its larval form (caterpillar) it is a striking mix of yellow, pale blue and black. As its name suggests, the larvae feed upon Toadflax (Linaria sp.), being well camouflaged among the flowers.

Threats

The moth needs healthy populations of Toadflax plants on which it's larvae feed. It pupates amongst the seed heads of the host plant and therefore winter clearance/ cut down can have detrimental effects to its survival.

Legal Status

No legal protection.

Habitat Requirements

- Larvae feed upon either Common Toadflax (Linaria vulgaris) or Purple Toadflax (Linaria purpurea).
- Normally found on vegetated shingle beaches, the moth will inhabit gardens, verges, brownfield and waste ground.

Original BAP (2008) Targets

"To create a range of conditions to enable a breeding population to become established."

Progress to Date

The moth has been widely recorded across the Park, particularly on the Here East green roof where Purple Toadflax still grows. Moth trapping on site was officially started in October 2023 but so far has not recorded any moths. Caterpillars were widely recorded in 2024 on Purple Toadflax in the Marshgate Lane stitch planting and on Common Toadflax

[57] https://www.ukmoths.org.uk/species/calophasia-lunula/

Picture Wing Fly ©Malcolm Storey

on the Knights Bridge in North Park. The caterpillars of the species have been found on Verbena bonariensis in the North America Garden and amongst long grasses in the GBG.

Common Toadflax is widespread across the Park, but Purple Toadflax is sparse. Anecdotal evidence suggests the species prefers Purple Toadflax to Common Toadflax.

Opportunities

The CEDEC-filled tree pits were seeded with Purple Toadflax (amongst other species). Other areas of the Park can be seeded with this species to improve offerings of the favoured food plant.

Toadflax Brocade Moth Actions

Surveys with be carried out by the Biodiversity Manager using Moth Trapping. These surveys will be undertaken annually at a minimum. Park Champions can be recruited to carry out caterpillar surveys. Sightings by staff will also help improve understanding of populations on the Park.

Picture Wing Fly

Overview

Acinia corniculata is a rare (formally Red Listed Endangered 1987) species of Picture Fly (a form of fruit fly). They have distinctive patterning on their wings and uses Common Knapweed (Centaurea nigra) as a host plant to overwinter and pupate in. The fly has been previously recorded in North Park.

Threats

Dependant on Common Knapweed to complete life cycle. Improper management of species rich grasslands leading to a decline in knapweed availability will have detrimental effects on this species.

Legal Status

No legal protection.

Habitat Requirements

- Requires healthy stands of Common Knapweed in which to complete its life cycle.

- Knapweeds should not be cut down in winter to allow for the fly to emerge following overwintering.

Original BAP (2008) Targets

"To create a range of conditions to enable the species to become established."

Progress to Date

Picture Wing Fly has not been recorded on site during ad hoc searches for the species from 2021-2024. The species was found amongst knapweeds in nearby East Village in 2022, suggesting it might be present but unrecorded on the Park.

Opportunities

Common Knapweed plants can be planted into meadows across the Park. In spring 2024, 1500 Common Knapweed plugs were planted into the North Park meadows.

Picture Wing Fly Actions

Specialist entomologists will be needed to survey for the species. The Biodiversity Manager will check the seedheads of Common Knapweed in winter to identify potential populations.

Streaked Bombardier Beetle

Overview

The Streaked Bombardier Beetle (Brachinus sclopeta) is one of the UK's scarcest invertebrates, being only found in a few sites in east London. The species was previously thought to be extinct until rediscovered in 2006 and has since been found on brownfield sites in Newham and Tower Hamlets (Buglife[58]). In 2014, scientists from the University of East London (UEL) discovered the species at Queen Elizabeth Olympic Park, along the Greenway.

Threats

The scarcity of the species makes it susceptible to localised extinction. Development of brownfield sites limit the extent to which the species can spread. Localised use of chemicals will negatively affect the species.

Legal Status

The species is listed as a priority species in the UK, London and Tower Hamlets BAPs.

Habitat Requirements[59]

- Strongly associated with brownfield habitat and require a mosaic of dry open ground, ruderal vegetation and large debris.
- Ruderal vegetation species should include Knapweeds (Centaurea sp.), Hawkweeds (Hieracium and Hypochoeris sp.) and Wild Carrots (Daucus carota).
- Beetles are often found embedded between soil and debris.
- Amara and Harpalus ground beetle species are prey of the Streaked Bombardier Beetle.

Streaked Bombardier Beetle ©Stuart Connop

[58] https://cdn.buglife.org.uk/2019/07/Streaked-bombardier-management-sheet.pdf

Original BAP (2008) Targets

The target was to encourage the establishment of a breeding population of the species on site.

Progress to Date

The beetle was recorded on the Greenway in 2014. Specific habitat was built in 2022 on the Greenway following guidance from Buglife and UEL. The species has not been recorded in any recent entomological surveys.

Opportunities

New developments can have stylised brownfield habitat as part of their soft landscaping to help encourage further colonisation from the Streaked Bombardier Beetle.

Streaked Bombardier Beetle Actions

Specific surveys will be carried out by the Biodiversity Manager to try and locate populations on the Park. Park Champion volunteers will be recruited to carry out specific surveys for the species. Further surveys using eDNA can be used to cover a wider area. These surveys will be undertaken annually at a minimum.

Flower Beetle

Overview

Olibrus flavicornus is a species of Shining Flower Beetle of the family Phalacridae. The species has an affinity for the plants of the family Astericeae, and adult beetles feed on pollen and the larvae develop within the flower-heads (UK Beetles Online). It is reported that the species favours Autumn Hawkbit (Scorzoneroides autumnalis) as its host plant (Essex Field Club Online[60]), which is widespread across the Park in the grasslands and brownfield habitats.

Threats

Poor management of grassland and brownfield habitats could lead to a decline in the host plant, Autumn Hawkbit. This would lead to a reduction in beetle abundance.

Flower Beetle ©Erwin Holzer

Legal Status

No legal protection.

Habitat Requirements

- The species is regarded as reliant on Autumn Hawkbit for its life cycle.

Original BAP (2008) Targets

“To create a range of conditions to enable a breeding population to become established.”

Progress to Date

The species was recorded on the Here East building green roof in 2018. It was also recorded in the nearby East Village meadows in 2022.

Opportunities

Autumn Hawkbit can be planted into the meadow and brownfield habitats. FIve hundred Autumn Hawkbit plugs were planted in the North Park meadows in spring 2024.

Flower Beetle Actions

Monitoring of these beetles will be carried out by the Biodiversity Manager and Park Champion volunteers as the species is dependent on a single host flower. These surveys will be undertaken annually at a minimum.

[59] https://cdn.buglife.org.uk/2019/07/Streaked-bombardier-management-sheet.pdf
[60] https://www.essexfieldclub.org.uk/portal.php/p/Species+Account/s/Olibrus+flavicornis

Tumbling Flower Beetle and Fungus Beetle

Overview

The Tumbling Flower Beetle (Mordellistina neuwaldeggiana) and Fungus Beetle (Cicones undatus) are paired in this Species Action Plan as they both have very similar habitat requirements.

The Tumbling Flower Beetle is a distinctive reddish-brown insect and as an adult, frequents the flowers of species such as Yarrow (Achillea millefolium), Heracleum sp. and Daucus sp. (UK Beetles Online). The Fungus Beetle's mottling helps it blend in with its preferred host tree, the Sycamore (Acer pseudoplatanus). It is thought to be associated with the fungal sooty bark disease Cryptostroma corticale (NatureSpot Online[61]).

Threats

Untimely management of flower rich habitats could negatively impact the Tumbling Flower Beetle. The use of chemicals, particularly fungicides and insecticides could negatively impact both species.

Legal Status

No legal protection.

Habitat Requirements

- Both species need well-rotted deadwood for their larval phase.
- The Tumbling Flower Beetle needs hedgerows and flower-rich habitats to thrive in.
- The Fungus Beetle requires Sycamore trees in order to complete its life cycle.

Original BAP (2008) Targets

"To provide suitable habitat in order to encourage the spread of the beetles and allow them to become established on the Olympic Park."

Progress to Date

Neither species have been recorded on site either through eDNA sampling, specialist entomological surveys or ad hoc sightings. Due to the Park's relative immaturity, the availability of well-rotted deadwood is limited.

Fungus Beetle ©Trevor and Dilys Pendleton

Opportunities

New developments should incorporate Sycamore trees and flower-rich areas in their planting schemes.

Well-rotted deadwood could be sourced from donor sites (provided this does not negatively impact the host site).

Tumbling Flower and Fungus Beetle Actions

Checks of Sycamore trees for the Fungus Beetle will be carried out by the Biodiversity Manager and Park Champion Volunteers. These surveys will be undertaken annually at a minimum.

Hedgerows and grasslands will be surveyed by the Biodiversity Manager prior to any cuts to identify populations of Tumbling Flower Beetle.

[61] https://www.naturespot.org/species/synchita-undata#:~:text=It's%20a%20fairly%20recent%20discovery,Rare%20in%20Leicestershire%20and%20Rutland

Scentless Plant Bugs

Overview

Stictopleurus abutilon and Stictopleurus punctatonervosus are two species of Scentless Plant Bugs from the family Rhopalidae. They were once isolated to the Thames Gateway, Kent and Essex but have now spread, colonising the dry-grassland habitats of Southern England (British Bugs Online[62]).

Threats

Poor management of grassland habitats reduces the availability of food plants such as Knapweeds (Centaurea nigra), Yarrow (Achillea millefolium) and Ragwort (Senecio jacobaea).

Legal Status

No legal protection.

Habitat Requirements

- Favour dry grassland habitats but also found on Brownfield sites.

Original BAP (2008) Targets

“To create a range of conditions to enable the species to become established”.

Progress to Date

Stictopleurus abutilon was recorded on North Park in 2023 and a single individual was submitted to iRecord, recorded in North Park.

Stictopleurus abutilon ©Tristan Bantock

Stictopleurus punctatonervosus ©Tristan Bantock

Stictopleurus punctatonervosus “has been recorded on the Greenway and in East Marsh and also along the City Mill River. In 2013, the beetle was recorded in City Mill and North Park wetlands” (BAP 2019-2024).

Scentless Plant Bug Actions

Specialist entomologists and the Biodiversity Manager will carry out sweep net surveys of the grasslands across the Park. These surveys will be undertaken annually at a minimum. Volunteers recruited to search the grassland habitats for the beetles, and both staff and public sightings can improve the understanding of populations on the Park.

[62] https://www.britishbugs.org.uk/heteroptera/Rhopalidae/s_abutilon.html

Soft-winged Flower Beetle ©Jakub Siroky

Soft-winged Flower Beetle

Overview

Axinotarsus pulicarius is a species of soft-winged flower beetle that specialises in brownfield and flower-rich grassland habitats.

Threats

Poor management of grassland habitats reduces the availability of food plants. Loss of ruderal plants on brownfield sites may also threaten populations.

Legal Status

Listed as Vulnerable on the IUCN Red List of Endangered Species.

Habitat Requirements

"The larvae are believed to develop in the stems or at the roots of plants in areas of damp grassland and coastal shingle. The adults fly in rank herbage and visit flowers (Luff & Eyre, 2007); Harde (1984) associates the adult with flowering grasses" (Natural England 2014).

Original BAP (2008) Targets

Not included in 2008 BAP as is a new species in the 2025-2030 version. New target is to create conditions for a stable breeding population of the species to establish on the Park.

Progress to Date

The species was found on the green roofs in the East Village development during surveys by external consultants in 2022. So far not recorded on the Park.

Soft-winged Flower Beetle Actions

Monitoring of these beetles will be carried out by the Biodiversity Manager and Park Champion volunteers by searching the grassland and brownfield habitats. These surveys will be undertaken annually at a minimum.

AQUATIC MAMMALS ACTION PLAN

Overview

The Park has two aquatic mammals as BAP Priority Species, the Water Vole (Arvicola aquaticus) and the Otter (Lutra lutra). Both species are recorded as present within the Lea Valley and have been recorded within proximity of the Park.

Threats

Water Vole are the UK's fastest declining mammal species, having been lost from 94% of their previously recorded sites. Their decline is attributed to predation from the invasive American Mink (Neovison vison) and habitat degradation in the form of pollution, drainage of channels and encroachment of cultivated land into riparian habitat (Mammal Society Online[63]).

Otters severely declined during the 1970s, at one point being primarily limited to Scotland and its islands. This decline was thought to have been caused by pesticides and habitat degradation. Since then, the species has had a dramatic resurgence, and populations are improving across the UK.

Legal Status

Water Voles are classed as endangered in the UK and are protected under the Countryside and Wildlife Act 1981. They are also protected under Section 41 of the Natural Environment and Rural Communities Act 2006.

Otters are protected under the Countryside and Wildlife Act 1981.

Both species are listed as priority mammal species in the UK and London BAPs.

Habitat Requirements

- Both species need good quality riparian habitat.
- Water Vole feed on vegetation (up to 227 species) and prefer well vegetated banks of slow flowing rivers, ditches and lakes.

Water Vole ©Ben Andrews (rspb-images.com)

- They form extensive networks of burrows and require a bank gradient of roughly 40 degrees into which they tunnel.
- Otters require reliable prey availability in the form of fish, crustaceans and molluscs.
- They occupy a large range and can travel up to 20km along river systems.
- Otters require quiet areas in which to 'lie up' during daytime, often preferring to hunt at night.

Original (2008) BAP Targets

"To create suitable conditions for otters and water voles within the Olympic Park."

Progress to Date

A dedicated survey for Water Vole in the Lea Valley was carried out by consultants on behalf of Lea Valley Regional Park Authority. Whilst found elsewhere in the valley, no Water Vole were found on the Park and subsequent searches have not found any signs of their presence.

[63] https://mammal.org.uk/british-mammals/water-vole

Park camera trap image of Otter

During a camera trapping survey of aquatic mammals across the Park in 2022, a Eurasian Otter was recorded on site for the first time. Since this first sighting, a single individual has been regularly recorded, often on a weekly basis. The Otter was not seen between March and June 2023 but reappeared following this absence and has been recorded monthly ever since. Only a single Otter has ever been recorded, and the individual has only been recorded in South Park.

Opportunities

Signage should inform the public to keep dogs on leads to prevent potentially disturbing Water Voles.

The area in which the Otter has been recorded can be fenced off to provide it an area to 'lie up' or potentially establish a holt.

Aquatic Mammals Actions

Camera trapping surveys will be carried out by the Biodiversity Manager for both Water Vole and Otter.

INVASIVE AND NON-NATIVE SPECIES ACTION PLAN

Overview

Over 2,000 species have been introduced to the UK from all over the world. Most of these non-native species have no negative impacts however, roughly 10-15% have negative ecological impacts and are designated as invasive species (Non-Native Species Secretariat Online[64]). Species deemed invasive are designated under Schedule 9 of the Countryside and Wildlife Act 1981 and legally must not be allowed to establish in the wild.

It has been estimated that invasive and non-native species (INNS) covered by the GB Non-Native Species Strategy cost the UK £1.9 billion a year, with species including certain fungi that are not covered by the strategy taking the cost to £4 billion a year (CABI Online[65]).

There are a number of invasive species present on the Park. The species and their locations can be found in Appendix 2.

Threats

Invasive species can negatively impact the environment by outcompeting local flora and fauna. They can create monocultures, a community of one single species where native species are outcompeted and are unable to establish. Examples at the Park include species such as Himalayan Balsam, Floating Pennywort and Buddleja which can completely dominate habitats.

Some invasive species have human health concerns, such as Giant Hogweed which has caustic sap which causes blistering when exposed to sunlight. Oak Processionary Moth (OPM) can cause lung irritation when their long hairs are inhaled.

Species such as Signal Crayfish can carry and spread diseases such as the Crayfish Plague. This is widely attributed to the decline of the native White Clawed Crayfish, a now red listed species. Japanese Knotweed can grow through concrete and damage infrastructure if left unmanaged.

[64] https://www.nonnativespecies.org/about/gb-strategy/

[65] https://www.cabi.org/news-article/invasive-non-native-species-cost-uk-economy-an-estimated-4bn-a-year-new-cabi-led-study-reveals/

Legal Status

Species that are classified as Schedule 9 under the Countryside and Wildlife Act 1981 must not be allowed to establish in the wild. Although the invasive species present on the Park were not intentionally planted, it is a legal requirement to prevent them from spreading further.

Habitat Requirements

Invasive species are often problematic because they can establish in a wide range of habitats. Whilst most of the invasive species present on the Park are associated with aquatic habitats, they can establish elsewhere. An example of this is Himalayan Balsam, which has previously been found (and subsequently eradicated) in the South Park horticultural beds. Biosecurity is particularly important to prevent the spread of these species across the Park.

The invasive potential of any new species to the Park should be considered before their introduction. Species such as Rhododendron and Montbretia are widely used as ornamental plants but can have detrimental effects if allowed to establish in the wild.

Management of INNS

When INNS are recorded, either through dedicated INNS surveys or through ad hoc sightings, a plan to manage the species in question should be reviewed. Several considerations should be taken into account when planning management of INNS:

- Risks to human health – specialist personal protective equipment (PPE) may be required for the control of certain species which pose risk to human health such as Giant Hogweed and Oak Processionary Moth. Proximity to water is also a risk and should be considered when controlling INNS in wetland habitats. Lone working should not be allowed and PPE such as life jackets be worn at all times.
- Disturbance to wildlife – when managing INNS the potential disturbance of wildlife including breeding birds, spawning fish and amphibians should be considered. Where possible, management should take place outside of breeding season.
- Licencing – a license is required to legally trap and remove some species such as Signal Crayfish. Traps must conform to guidelines to avoid potentially catching non-target species such as Otter or Water Vole. If chemicals are being used, for example to treat Japanese Knotweed, a specific ticket is required from the Environment Agency.
- Proper disposal – considerations for the safe disposal of plants should be made. Many species, including Japanese Knotweed, cannot be composted with regular plants as they can persist and be spread elsewhere.

Progress to Date

Two species of invasive plants have been successfully removed from the Park. American Skunk Cabbage and Gunnera were both present in the GBG but were eradicated in 2021.

In spring 2024, a project inspired by the Life Oak Processionary Project in Belgium and the Netherlands was initiated on the Park. Ten nest boxes were placed in trees previously infested with OPM in order to attract tit species (Parus sp.) to nest. The birds will then predate the caterpillars, negating the need for pesticides or hand picking (which can be costly). Nature-based solutions such as this should be explored for other INNS across the Park to reduce the cost of management and potential use of chemicals for control[66]. Of the 10 nest boxes installed, 7 were occupied by Parus sp birds and OPM was not detected in any of the 10 previously infected trees. Only 2new trees were found to have OPM caterpillars in 2024 which will have bird boxes installed in 2025 to continue the trial.

INNS Actions

Park Champions will be recruited to take part in 'Balsam Bashing' sessions, where the plants are pulled by hand from the reedbed. This will take place when species such as Reed Warbler are not nesting in the reedbed, and the Balsam is yet to go to seed.

Park Staff will be trained to identify and treat INNS. Toolbox talks delivered in spring will raise awareness of the species and encourage reactive management of any species found.

[66] https://oakprocessionary.life/3-ecological-techniques/attracting-tits-as-predator/

COMMUNITY ACTION PLANS

Park Champion volunteers building bug hotels in the Great British Garden

BAP Community Plan

In order to halt the decline of wildlife, it is incredibly important to connect people to nature. The importance of greenspaces for our wellbeing was brought into clear view by the Covid 19 pandemic and this Community Plan outlines ways of connecting the community to the Park's wildlife.

The Park Management Plan stipulates "the local community will be informed and involved in park management. Opportunities for engagement and involvement in park management and maintenance will be provided through 'Our Parklife' and outreach seeking volunteers, potentially through the Community Anchors Network (CAN).

Involving volunteers is crucial to the management of the Park and gathering of ecological data. Working with communities allows children and students to become inspired by the work done at the Park, promoting environmental awareness.

Community Engagement and Social Impact

The BAP is founded on the legacy targets of the 2012 Olympic and Paralympic Games, and the LLDC Community Engagement Policy (2012). The LLDC Community Engagement programme has four main themes:

- Shaping the physical environment
- Inspiring the next generation
- Building social networks
- Bringing the place to life

The Community Engagement Policy recognises that "working with existing and emerging communities will be vital to ensuring that old and new communities feel a sense of ownership and responsibility for the Queen Elizabeth Olympic Park".

The 2012 Games promised to promote a lasting legacy for the people and communities framing the Park, offering jobs, voluntary opportunities, education and training for all. This legacy of social opportunity continues to underpin much of the work on the Park. The linkages between conservation

Plant propagation in the Mobile Garden

and community development are vital for urban parks; for example, the cooperation and support of local communities can help to address pressures such as anti-social behaviour, vandalism and littering/ pollution. The benefits that people derive from a healthy natural environment can be particularly apparent in urban areas where access to good quality green space can be limited – the so-called "nature deficit".

There are two primary linkages between biodiversity conservation and community development: the contribution that biodiversity makes towards health and happiness (social wellbeing) and the contribution that biodiversity can make towards a person's future prospects (economic wellbeing). In turn, it should be recognised that people can make a significant contribution to the conservation of biodiversity. Encouraging access to nature is at the forefront of many conservation strategies in London and the UK, including the 25 Year Environment Plan. The Park offers numerous opportunities linked to health, leisure and recreation, including a network of pathways for cycling and walking; many of these routes weave through the Park's habitats, helping to foster an engagement and awareness of nature. By encouraging people to take part in the BAP's delivery (e.g. volunteering with practical management or survey work) we hope to inspire individuals and families to spend more time outdoors and lead more active lifestyles.

Monitoring Community Engagement and Social Impact

Community engagement at Queen Elizabeth Olympic Park is delivered and recorded by Our Park Life (OPL), a community interest company founded in 2014 with the aim to continue the legacy of the 2012 Olympic and Paralympic Games. OPL was created as part of the Horticulture and Facilities Management (HFM) contract "with the specific task of involving local people in the Park through the management of parklands and venues" (OPL Online[61]).

OPL monitor Key Performance Indicators (KPIs) for a number of criteria including skills and training, volunteer hours delivering projects across the Park as well as conservation sessions, social legacy value and employment of local people.

[67] https://ourparklife.co.uk/about-us/

Some highlights from these KPIs include:

- Park Champions have recorded 110,000 volunteer hours since 2015.
- Local Employment – 40% of the staff who manage the Park are local residents.
- Social Legacy – the Park's community projects have generated a social value totalling £20 million since 2015.

Collaborating with Conservation Partners

The Park has a wide variety of stakeholders that allow the opportunity for collaborative working. A steering group comprising host boroughs, landowners, conservation agencies and industry experts helped inform this document. Quarterly meetings of this group are now a BAP target and promotes data sharing, collaborative working and highlighting best practices.

Conservation Volunteers

Working with volunteers is a lasting legacy from the 2012 Olympic and Paralympic Games and is crucial to the ongoing management of the Park. The volunteers, known as Park Champions, are involved with ecological monitoring on the Park through Butterfly surveys which feeds into the UK Butterfly Monitoring Scheme (UKBMS). Three transects are followed across the Park and these surveys, alongside ad hoc sightings, have discovered 22 species on the Park to date, including Marbled White (Melanargia galathea), Small Copper (Lycaena phlaeas) and the notable Green Hairstreak (Callophrys rubi).

Park Champions are also involved in habitat management on the Park including invasive species control through 'Balsam Bashing' and re-opening ponds following encroachment from reeds. The winter reedbed cut is carried out by a combination of grounds maintenance staff, Park Champions and RSPB volunteers.

Corporate volunteers, companies that pay to come and help with habitat management at Queen Elizabeth Olympic Park, represent a fantastic way of engaging large groups with nature. Groups of up to 250 people have been involved in meadow scything, meadow plug planting and swale rejuvenation. Groups of this size means widescale habitat improvements are achievable and is an opportunity for the public to physically connect to the landscape.

Engagement with Schools

Engaging with schools is a priority for the Park and is an important way of connecting children to nature. Educational sessions have been delivered to a number of local schools (primary and secondary), with subjects covering biodiversity, conservation and sustainability.

In 2023, eight education visits (six conservation and two sustainability) were delivered to a total of 299 attendees. 25 Tours were delivered for schools with a total of 956 attendees. This represents an impressive number of young people that have been connected to nature.

Ways in which schools can get involved in nature at the Park include:

- Pond dipping in the GBG pond which allows children to see a wide variety of aquatic organisms including Smooth Newts, Water Scorpions (Nepa cinerea) and Great Pond Snail (Lymnaea stagnalis).
- Wildlife walks, including bird walks and waterways walks.
- Bug Hunts which allow children to physically connect with nature by looking under logs and on the bark of trees.
- Bug Hotel construction helps inspire the children to give nature a home.

Engagement with Universities

The presence of universities on the Park offers exciting opportunities for collaborative working. UCL East opened on the Park in 2022, and their People and Nature Lab aims to use Queen Elizabeth Olympic Park as a 'living laboratory'. The use of cutting-edge techniques such as eDNA can complement existing ecological surveys which will improve how management decisions are informed.

Engagement with Park visitors

The Park now receives 20 million visits a year, representing a significant opportunity to connect people to nature. There are several ways to engage with and inspire these visitors:

- Signage – signage needs to be seasonal to inform the public what species are present at the time of year and how they can help them. Improved signage also helps protect nature by informing the public to stay on paths and keep dogs on leads.
- Nature trails and guided walks – the existing nature trail is free to use and starts from the Information Point (the trail is being updated). Guided walks can be delivered by Park Champion Volunteers and self-guided walks are offered by Our Park Life.
- Social media – increasingly important in the digital age. The Park's social media can be used to promote species present on the Park, national biodiversity awareness days and information on how to get involved through volunteering.
- Horticultural tours – should feature information on the need to consider biodiversity in planting schemes and focus on sustainability.

Engaging with Park Operational Staff

The operational staff at the Park play a crucial role in maintaining the landscapes for people and nature. Their work presents an opportunity to involve them in biodiversity monitoring across the Park. A WhatsApp group set up in 2023 allows staff to send in their sightings and report potential issues. Records of nesting birds and previously unrecorded species, including three new bee species for the Park, feed directly into the BAP Biodiversity Monitoring Programme.

BAP BIODIVERSITY MONITORING PROGRAMME

Overview

As stated in the BAP 2019-2024, and at present unchanged "the LCS BAP Section 106 agreement outlines the requirements for BAP monitoring on the Park: The monitoring pursuant to paragraphs 1.3. I (a) and 1.3.1 (b) shall take place annually on the anniversary of the Approval of the Biodiversity Action Plan for the first three years following Approval of the Biodiversity Action Plan and thereafter every two years up to Completion of the Development unless otherwise agreed in writing with the LPA".

The Biodiversity Monitoring Programme is a way to collect good quality ecological data with which to inform management decisions. Moving from a proactive to reactive style of management puts a greater need upon ecological data to inform these decisions. Relying on ecological data also increases the need to involve volunteers, visitors and Park staff, who can contribute either through dedicated surveys such as for butterflies, or through contribution of ad hoc sightings. All secondary data increases our knowledge of which species are using the Park.

The BAP Biodiversity Monitoring Programme is compiled into an annual report which is then submitted to LLDC for consideration. This report details the results from species surveys as well as habitat condition assessments and can include suggestions for habitat improvements.

As stated in the BAP 2019-2024, the consistent use of established survey transects allows monitoring to be standardised and trends to be analysed. Existing transects for breeding birds, bats, butterflies continue to be followed. Additional transects have been followed for Odonata (dragonflies and damselflies) and Wetland Bird Surveys (WEBS) since 2021, Bee Walks since 2023 and an extra butterfly transect began in 2024. Surveys for species groups such as amphibians and reptiles do not follow transects.

Examples of the surveys carried out for BAP priority species can be seen in Appendix 2.

BioBlitz

2024 saw the first a BioBlitz held at Queen Elizabeth Olympic Park. Delegates from a variety of conservation agencies came together to carry out an ecological audit of the Park. The local community was encouraged to get involved, too, further connecting people to nature. The results from the BioBlitz will feed directly into the annual monitoring report.

The 2024 BioBlitz recorded 3 new species of bee, a hyper-parasitic solitary Wasp (Hedychrum rutilans), the Ringlet Butterfly (Aphantopus hyperntus) and 23 species of Lichen (not previously surveyed for).

BAP Habitat Condition Monitoring

Habitat condition assessments are carried out as part of the annual monitoring programme. The condition assessments "monitor the Park's progress towards achieving Site of Metropolitan Importance (Grade 1) status" (BAP 2019-2024).

These habitat condition assessments are particularly important to identify stresses on the Park such as events, invasive species or extreme weather conditions.

Meadow Condition Assessments

These commenced in 2023 and will be a requirement going forward to inform which meadows are prioritised for the years management plan. A score is calculated based on meadow type and the abundance of positive and negative indicator species. Species such as Knapweeds and Scabious improve the score if in abundance, but species such as Nettle and Dock will reduce it.

The meadows come under a large amount of pressure from events and these assessments can inform if any notable species are present and should be protected and provides the baseline condition for restoration (following events meadows must be returned to better condition than they were prior to the event).

Pond Assessments

Pond health is calculated using the Predictive System for Multimetrics (PSYM) assessment, which was developed by the Freshwater Habitat Trust. This assessment takes into account a variety of variables, including pond location, underlying geology, size and depth. The pond is then scored by the composition of plant and invertebrate species present. The rarity and abundance of these species is taken into account before generating a score. These scores can help inform the need for management and have encouraged the addition of native water plants to the North Park ponds in 2023 and 2024.

Photo Monitoring

One of the main citizen science projects at the Park is the Park Champions Photo Monitoring scheme. Every month volunteers take photos from the same spot to show how the parklands changes with the seasons. Photos are taken in good conditions and have captured areas of the Park including the brownfield habitat, Great British Garden and London Blossom Garden.

The photos provided by the volunteers form part of the Annual Monitoring Report and have helped identify areas of the Park in need of management.

Citizen science on the Park, Bioblitz 2024

APPENDICES

APPENDIX 1

BAP Species	Methods and Timing	Surveyor
Black Poplar	Autumn survey to assess tree health	Specialist Arborist
Brown-Banded Carder Bee	Monthly Bee Surveys from April - October	Bee Specialists and Biodiversity Manager
Black Mining Bee		
Large Scabious Mining Bee		
Toadflax Brocade Moth	Moth Trapping	Biodiversity Manager. Park Champions for caterpillar searches
Streaked Bombardier Beetle	Specialist entomological surveys including pitfall trapping, eDNA, sweep netting and beating. May-October	Specialist Entomologists and Biodiversity Manager
Flower Beetle		
Tumbling Flower Beetle		
Fungus Beetle		
Scentless Plant Bugs		
Soft-winged Flower Beetle		
European Eel	Fyke Net Surveys April - October	Specialist Consultants
Otter	Year round camera trapping. Riparian inspections for signs of Water Voles	Biodiversity Manager
Water Vole		
Bats	Remote Annual Monitoring and dedicated surveys April - October	UCL and Licenced Ecologists
Black Redstart	Breeding Bird Surveys (BBS) carried out across 3 visits in accordance with BTO standards (April - June). Wetland Bird Survey (WEBs) on a monthly basis to monitor Grey Heron and Kingfisher	Biodiversity Manager
Linnet		
Reed Bunting		
House Sparrow		
Starling		
Song Thrush		
Swift		
Sand Martin		
House Martin		
Grey Heron		
Kingfisher		
Kestrel		
Smooth Newt	Torch Surveys and Egg Searches on monthly basis from March - August	Biodiversity Manager
Common Frog	Spawn checks of each pond on a weekly basis from January to June	Biodiversity Manager
Common Toad	Torch Surveys and Spawn checks from March to June	Biodiversity Manager
Common Lizard	Reptile mat surveys April - October	Biodiversity Manager and Park Champions
Slow Worm		
Grass Snake		

APPENDIX 2

Invasive and non-native Species	Effects and Location
Himlayan Balsam (Impatiens glandulifera)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Widespread across the Park but primarily in North Park reedbeds
Giant Hogweed (Heracleum mantegazzianum)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Has photo-caustic sap which is a human health hazard. Found in isolated stands on the Park, primarily at Bridgewater Road
Japanese Knotweed (Reynoutria japonica)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture and damage to infrastructure. Present in small area in the North Park on the eastern bank of the River Lea
Floating Pennywort (Hydrocotyle ranunculoides)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Present in every watercourse on the Park
Orange Balsam (Impatiens capensis)	Water Framework Directive UK TAG invasive species (Low Impact). Present in Wet Woodland habitat.
New Zealand Pygmyweed (Crassula helmsii)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Only present in Network Rail holding pond adjacent to Waterden Road
Canadian Waterweed (Elodea canadensis)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Present in East Village ponds and in City Mill River
Nuttall's Waterweed (Elodea nuttallii)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Present in River Lea
Large Flowered Waterweed (Egeria densa)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Present in Lea Navigation Canal at Barge East.
Buddleja (Buddleja davidii)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture and potential damage to infrastructure. Widespread across the Park
Cotoneaster (Cotoneaster sp.)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Present on southern side of Waterden Road adjacent to Network Rail holding pond.
American Signal Crayfish (Pacifastacus leniusculus)	Listed as Schedule 9 in Countryside and Wildlife Act 1981. Outcompetes native White Clawed Crayfish and spreads Crayfish Plague. Destabilises river banks with burrows. Present in every waterway in the Park.
Noble Crayfish (Orconectes virilis)	Water Framework Directive UK TAG invasive species (High Impact). Destabilises banks with burrows and outcompetes native White Clawed Crayfish. Present in River Lea.
Chinese Mitten Crab (Eriocheir sinensis)	Listed as Schedule 9 in Countryside and Wildlife Act 1981. Can destabilise banks with burrows. Only recorded in City Mill River.
Oak Processionary Moth (Thaumetopoea processionea)	A species of concern to the London Invasive Species Initiative. Previously present on 10 Oak trees. Trial started in 2024 to encourage nesting birds to eradicate the caterpillars.
Box Tree Moth (Cydalima perspectalis)	Listed as non-native species. Causes defoliation of Box Tree. Only present in South Park hortiultural beds where Box Tree is present.
Red Eared Terrapin (Trachemys scripta elegans)	Listed as invasive species in 2016. Present in Stadium Loop but only in small numbers.

American Skunk Cabbage (Lysichiton americanus)	A species of concern to the London Invasive Species Initiative. Previously present in GBG but was eradicated in 2021.
Giant Rhubarb (Gunnera sp.)	Listed as Schedule 9 Plant in Countryside and Wildlife Act 1981. Causes monoculture. Previously present in GBG but was eradicated in 2021.

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idverde

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QUEEN ELIZABETH OLYMPIC PARK