The Great North Wood

Woodland management toolkit

London Wildlife Trust

sunrise over Norwood © Frits van Gansewinkel

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1. Introduction

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The Great North Wood in south London once covered the high ridge of land that rises southwards from what is now New Cross to Crystal Palace and then south-east towards Elmers End, and west towards Norbury. The rapid growth of London from the 1830s led to most of this wooded landscape disappearing under suburban neighbourhoods. However, remnants of the Great North Wood survive as woodlands, as well as many trees standing in parks, gardens, natural greenspaces, and streets. This part of south London still retains a wooded feel. However, despite the place names of Brockley, Forest Hill, Penge and Norwood[1], the general public's awareness of this ecological heritage is probably limited.

London Wildlife Trust have championed the Great North Wood since the 1980s through work at Sydenham Hill Wood and designated the area as a 'Living Landscape,' a national Wildlife Trust initiative that seeks to protect, conserve, enhance and reconnect wildlife. The Great North Wood Living Landscape is loosely aligned with the Great North Wood's 17th century boundary, within which the Trust are working to protect, restore and connect fragmented greenspaces to benefit wildlife and people.

Being spread over parts of five London boroughs and with multiple landowners, there has been a loss of cohesion in the management approaches of these woodlands and greenspaces that remain within what was the Great North Wood area. This has unfortunately led to a loss in the special quality and appreciation of the ecological and landscape heritage of these sites.

In order to address this, we have created the Great North Wood woodland management toolkit. This is aimed at landowners, land managers, community groups and local residents that either manage or have an aspiration to manage woodlands and greenspaces within the Great North Wood area. The toolkit promotes a collaborative approach to managing sites within the Great North Wood and sets out principles and practises that, if adopted across sites, will lead to benefits for the wildlife and people that use them.

[1] Brockley *(brocca lea;* Old English 'open space where badgers live'), Penge (panceat; Celtic 'edge of wood'), Forest Hill and Norwood ('Northwood') are both of 19th century origin

2. History of the Great North Wood

For centuries the Great North Wood stretched, more or less unbroken, from Deptford in the north to Selhurst in the south and at its widest point spanned from Streatham in the west to what is now Woodside in the east. The area has been known as Norwood or North Wood since at least the 16th century, a name that is thought to distinguish it from the Weald that lies to the south of Croydon. Great North Wood is a more recent name first appearing in J. Corbet Anderson's book about the area published in 1898[2].

By the 16th Century the Great North Wood was a working woodland, at the centre of a bustling woodland economy that provided vital resources for London and Croydon including coppice products for charcoal-burning, firewood and tools; timber for the construction of ships and buildings; and oak bark for the leather making industry in Bermondsey. It also served as grazing land.

The flourishing woodland economy of the Great North Wood began to break down in the 18th century as a result of the technological changes brought about by the Industrial Revolution. By the 19th century, steel replaced timber, coal replaced charcoal, and industrial chemicals replaced oak bark in the tanning industry which meant that the economic value of the Great North Wood quickly collapsed. In the 18th and 19th centuries, a series of Inclosure Acts[3] resulted in woodland being parcelled-up and sold-off and many of the ancient coppices were cleared for agriculture or pasture. The relocation of the Crystal Palace to Penge Place (formerly enclosed from Penge Common) in 1852, resulted in new development on the remaining woodlands on the ridge's steeper slopes and high plateau which until then were protected by their topography and the London clay on which they stood. By the 1890s much of the Great North Wood had been lost.

Today the Great North Wood consists of several ancient woodland fragments, including Dulwich & Sydenham Hill Woods and Biggin Wood, as well as recent woodland that has developed on cleared land such as on One Tree Hill and New Cross Gate Cutting. The woodland habitat of the Great North Wood stands within a wider network of greenspaces including allotments, cemeteries, gardens, parks, nature reserves, and playing fields.

[2] J. Corbet Anderson (1898). *The Great North Wood*
[3] Inclosure acts created a law that enabled the enclosure of land, and at the same time removed the right of commoners to access that land.

3. Habitats and species in the Great North Wood

Across the Great North Wood there are a variety of habitats that support a range of species:

3.1 Woodland

Sessile oak and hornbeam are dominant tree species of the Great North Wood, in particular in woodlands that are ancient in character. Sessile oak was favoured by generations of woodland managers for its excellent timber and valuable bark, while hornbeam was coppiced to make charcoal. Sessile oak is one of Britain's two native oaks, alongside pedunculate oak, also common in the area. Oaks can support many invertebrate species, as well as a rich community of mosses, lichens, fungi, bats and birds. Hornbeam doesn't have as rich an associated fauna but supports a biomass of small insects which are an important food source for birds.

Ash, holly, hazel, elder, wild cherry, sycamore, beech, yew, rowan, willow and field maple are all common in the Great North Wood together with non-native trees and shrubs including Norway maple, hybrid black poplar, horse chestnut, sweet chestnut, cherry laurel, spotted laurel and snowberry. The shrub layer stands between the canopy and the ground layer and consists of young trees and shrubs. Climbing plants such as honeysuckle, traveller's-joy and ivy form connections between all three layers.

Each spring, species including English bluebell, wild garlic and wood anemone can be seen. These plants are known as Ancient Woodland Indicators; their presence indicates that the site has been a woodland since at least 1600AD. Plants less closely associated with ancient woodland but important components

cow parsley at One Tree Hill

of the ground flora nonetheless, include wood avens, cow parsley and a variety of grasses, ferns and mosses.

A rich birdlife is associated with the Great North Wood. Robin, blackbird, wren, blackcap and chiffchaff nest in dense vegetation, while great spotted woodpecker, green woodpecker, tits, nuthatch, treecreeper and ring-necked parakeet nest in holes in trees. Raptors including sparrowhawk, kestrel, hobby and tawny owl, hunt in the woods. Jay, particularly important as a planter of acorns, is common, and jackdaw have returned in recent years.

Butterflies such as speckled wood, silver-washed fritillary, holly blue and purple hairstreak rely on woodland. The latter is rarely seen as it flies for a short period in summer, during the evening and high up in the canopy of oak trees where it feeds on honeydew secreted by aphids. Females deposit their eggs near leaf buds, which hatch the following year, the caterpillars feeding on the newly burst leaves. The Great North Wood is home to a host of saproxylic insects – those that eat deadwood. Amongst them is the impressive stag beetle which spends up to seven years as a larva feeding on rotting wood, before emerging as an adult, only to live for a few weeks to start the next generation.

Fungi such as sulphur tuft break down deadwood, while others, such as parasol mushroom, help decompose leaf litter, both returning nutrients to the soil so that trees and other plants can reabsorb them. Mycorrhizal fungi, such as fly agaric, interact with tree roots, helping trees absorb water and nutrients and receiving sugars that the trees produce through photosynthesis in return.

fly agaric in Dulwich Wood

Red fox and grey squirrel are familiar inhabitants. Less visible mammals include bank vole, wood mouse, common shrew and hedgehog, and bats such as pipistrelles, noctule, Leisler's and brown long-eared. Occasional sightings of badger and evidence of their setts suggest that a small population may now be present in the area, after an absence of some decades.

3.2 Woodland edge and scrub

The boundary where woodland meets more open habitat such as grassland can be particularly diverse and support species characteristic of both habitats. Typical scrub in the Great North Wood consists of bramble, hawthorn, blackthorn, elm and immature tree species such as oak, ash, wild cherry, willow and sycamore. Bramble, hawthorn and blackthorn provide nesting opportunities and berries for birds and a source of nectar and pollen for insects.

3.3 Deadwood

Deadwood is a vital component of woodland ecosystems. It provides habitat for nesting birds and roosting bats as well as invertebrates, fungi, lichen, mosses and the animals that feed on them. Deadwood on standing trees (standing deadwood) and deadwood on the ground (as logs and stumps) have different ecological roles and a different suite of species are associated with them.

3.4 Veteran trees

The Great North Wood is home to several veteran trees[4], most significantly large English oaks that are generally found along remnant hedges and roads where they once served as boundary trees, usually to demark parishes. Several veteran oaks can be found standing along Wood Vale near Horniman Museum & Gardens, and along Streatham Common North.

3.5 Gardens

Gardens cover approximately a quarter of Greater London and are of strategic importance for wildlife.[5] In the Great North Wood area gardens act as vital stepping stones and corridors between woodlands and other greenspaces, as well as being an important resource for wildlife in their own right.

willow at Crystal Palace Park

common knapweed

3.6 Grassland

Amenity grassland is prevalent throughout the Great North Wood in parks and open spaces, gardens and along verges, and is mostly species-poor. However, small areas of acid, wet and neutral grassland (many of historic origin) are also present. Each type has a set of characteristic species, although their diversity varies widely according to the grasslands' condition. Examples of grassland plants include common knapweed and bird's-foot trefoil, which provide forage for pollinating insects, the latter is the larval food plant of common blue butterfly.

3.7 Wetlands and waterbodies

Several small streams flow through the Great North Wood including the Norbury Brook (flowing west into the River Wandle), the Chaffinch Brook in Elmers End (flowing north into the Pool River), and the Ambrook in Sydenham Hill Wood (flowing north into the underground River Effra). There are also several ponds, including Beulah Hill Pond, Dewy Pond, Dulwich Mill Pond, and Dacres Wood Pond, and the stretch of the old Croydon Canal in Betts Park which provide habitat for aquatic and marginal plants, amphibians and aquatic invertebrates such as the nymphs of dragonflies and damselflies. Larger waterbodies such as those at Crystal Palace Park, Dulwich Park, South Norwood Lake and South Norwood Country Park provide habitat for waterfowl and attract bats such as Daubenton's that hunt insects at their surface.

[4] Natural England define a veteran tree as a tree that is of interest biologically, culturally or aesthetically because of its age, size or condition (*Veteran Trees: A guide to good management*).

[5] live-twt-d8-london.pantheonsite.io/sites/default/files/2019-05/London%20Garden%20City%20-%20full%20report%281%29.pdf

Trees and shrubs of the Great North Wood

boundary oak at One Tree Hill

hazel catkins

field maple

hawthorn berries

wild service-tree © Brian Eversham

hornbeam samaras (winged fruits)

Ancient Woodland Indicators of the Great North Wood


wild garlic


common dog violet


wood melick


greater stitchwort © Brian Eversham


wood anemone © Sam Bentley-Toon


English bluebells © Mathew Frith

Insects of the Great North Wood


speckled wood butterfly © Penny Metal


purple hairstreak butterfly © Full Moon Images


click beetle © Ian Alexander


stag beetle © Steven Falk


migrant hawker dragonfly © John Walsh


strangalia long-horn beetle

Birds of the Great North Wood


treecreeper © Full Moon Images


chiffchaff © Full Moon Images


hobby © Full Moon Images


jay at Spa Wood © Andrew Lewis


tawny owl © Full Moon Images


green woodpecker © Michael Sanders

Mammals of the Great North Wood


hedgehog © Full Moon Images


brown long-eared bat © Hugh Clark


wood mouse © Phil Winter


fox © Margaret Holland


common shrew © Steven Falk

4. Management of the Great North Wood

There is a common perception that woodlands manage themselves or are wild and don't require our intervention. Whilst this is true in many parts of the world, in urban areas woodlands find themselves in an artificial and challenging context. In London, uncontrolled invasive species, trampling & compaction, litter & vandalism, together with their relatively small size and fragmentation, impose pressures that require interventions if woodlands are to retain their ecological and amenity interests. While most urban woodland habitats require some management, the levels of intervention differ between and within sites and careful consideration must be given to any works before they are undertaken.

One way to get involved with managing woodland, or improving greenspaces for wildlife within the Great North Wood is to volunteer with organisations active in the area. London Wildlife Trust, Streatham Common Co-operative (SCOOP), Nature's Gym in Lewisham, TCV in Croydon and Southwark, and a number of 'Friends of' groups in Bromley, Croydon, Lambeth, Lewisham and Southwark run activities, often throughout the year. The easiest way to find these groups and organisations is to search for them online.

If you have an interest in a site where there are no organised activities taking place, you should still contact these organisations and groups to see if they have any plans for the site. If not, you may want to consider starting your own group. To do so, contact the landowner and see what opportunities and support are available for starting a group.

volunteer at New Cross Gate Cutting

4.1 Management plans

Management plans are documents that describe why, when, what and how to manage a site. They contain a set of aims for the site and describe how they can be achieved through specific management interventions. Management plans must take account of the existing ecological value of a site before changes are proposed as well as the needs of various site users. Works must be prioritised and the resources found to carry them out.

Management plans should have a degree of flexibility and must adapt to new discoveries made on a site, environmental conditions (e.g prolonged drought, saturation), or to changes in legislation, policy, resources or capacity. Plans are often written to cover a period of five years (sometimes ten) and should be reviewed regularly and revised after this time (see section 6.5).

Further information on creating a woodland management plan can be found on the Forestry Commission's website *www.gov.uk/guidance/create-a-woodland-management-plan*. Alternatively, the Sylva Foundation has developed the myForest service as an online platform to support sustainable forest management in Britain. For further information please see *myforest.sylva.org.uk*.

4.2 Considerations when writing or updating management plans

If you're working to or updating an existing management plan, or creating a new one then you may want to consider how the following applies to you:

1. **Obtain landowner permission:** If you are not the landowner then make sure that you have their permission before planning any work.

2. **Consider a Living Landscape approach:** Conservation of the Great North Wood should take the whole landscape into consideration rather than just focussing on individual sites. The parks, gardens, other green spaces and woodland remnants of the Great North Wood are an integral part of the landscape and should be managed with this in mind. To find out more about Living Landscape principles see London Wildlife Trusts website *www.wildlondon.org.uk/londons-living-landscapes.*

3. **Engaging with local stakeholders:** Effective management works better where strong partnerships are formed between different councils, landowners, community groups and volunteers. Their views are important when considering issues (see section 5) and when developing / updating a management plan for a site. The needs of site users should be considered when making decisions about site management. They are also a good source of potential volunteers.

4. **Regularly survey the site:** We suggest starting with a phase 1 Habitat Survey to help gain a better understanding of the habitats, species and features that are (or should be) present on the site; what environmental conditions inform its character, and what constraints and opportunities require consideration. If the resources are not available for a phase 1 Habitat Survey then start with a woodland condition survey[6]. As well as habitat surveys site managers should also develop a suitable form for site infrastructure checks so that the condition of these assets can be checked regularly and any issues dealt with. Also as set out in section 6.4 species and visitor surveys can be undertaken throughout the year.

5. **Alignment with policy and best practice:** Management and changes to a site should aim to align with or help towards strategic priorities set out in for example, Local Biodiversity Action Plans, green infrastructure, open space and tree strategies, All London Green Grid, London Environment Strategy, the London Urban Forest Plan, and Local Plans.

6 **Constraints:** Responsibility for management of a site will require due consideration of legalities, consents, ecological designations, and the needs of third parties with an interest in or whom might be working on or by the site. One of the key reasons for finding out what habitats and species are present on a site is to ensure legal wildlife and environmental protections are met. The presence of protected, principal and priority species and habitats can affect when and how certain management activities are undertaken.

Considerations must include:

- **Consents and permissions:** Several may be required to undertake works on a given site, the most likely being tree felling consents, or planning permission for works within a Conservation Area or trees covered by Tree Preservation Orders (TPOs).

- **Legal obligations:** There are several legal obligations that must be considered before undertaking works on a given site. These may include ensuring Public Rights of Way and highways are not obstructed. As well as licenses and requirements regarding protected species such as bats, badger etc and/or licences for the removal of listed invasive species such as Japanese knotweed.

- **Protected species and habitats:** Several species and habitats are protected in the UK through various Acts of legislation. Principally the Wildlife and Countryside Act 1981 (as amended). These Acts forbid or restrict certain activities under UK law when they may impact upon legally protected species. For example avoiding woodland management works during bird nesting season (February – August).

[6] Download a woodland condition survey form at *www.wildlondon.org.uk*

- **Species and habitats of Principal Importance:** There is a list of species and habitats of Principal Importance, largely devised from the UK Biodiversity Action Plan (UK BAP) and the Natural Environment & Rural Communities (NERC) Act 2006. NERC, requires local authorities and government departments to have regard to the purposes of conserving biodiversity in a manner that is consistent with the exercise of their normal functions[7].

- **Site designations:** Designations are not limited to but could include Sites of Importance for Nature Conservation (SINCS); Local Nature Reserves; Metropolitan Open Land; ancient woodland in Natural England's Ancient Woodland Inventory (2011).

7. **Use of herbicides and pesticides:** There are a few native and non-native species that in certain conditions, localities or times, cause problems to habitats and/or populations of other plants and animals, and if unmanaged can lead to irreversible and/or costly damage to these. In addition, a small number of plants are listed on legislative schedules for which the landowner is under duty to control.

   As a rule, the use of herbicides and pesticides should be avoided, although there are situations where their use may be necessary. Herbicides and pesticides should only be used with the landowner's permission by appropriately trained people to control plants and animals that have a detrimental impact on the conservation objectives trying to be achieved, where appropriate for reasons of human health which cannot be effectively addressed by other means, and where they are considered the most beneficial and cost effective methods of management with minimal impact on the environment.

8. **Health and safety:** All work has to be undertaken safely, for which the individual, group or organisation is responsible. It is important to understand how health & safety regulations apply to each of the activities proposed and undertaken. This requires assessing the risks and the means to minimise them[8], and disseminating this information to all involved. Consideration should be given to the following:
   - Adequate insurance cover is obtained for the task to be undertaken[9];
   - Works are planned and undertaken by competent, appropriately trained people;
   - All tools and equipment are properly maintained and in good working order;
   - All participants undertaking an activity are familiar with the risk assessment, tools and equipment to be used, safe lifting techniques, and general site safety;
   - First aid equipment is made available with trained first aider(s) present;
   - Records (training, insurance, health and safety procedures, risk assessments[10] etc) are maintained and regularly updated.

[7] http://downloads.gigl.org.uk/website/NERC%20Duty%20London%20Boroughs.pdf
[8] *www.conservationhandbooks.com/health-and-safety/ and www.hse.gov.uk/simple-health-safety/risk/risk-assessment-template-and-examples.htm*
[9] *www.tcv.org.uk/communities/join-community-network/community-group-insurance*
[10] *www.conservationhandbooks.com/health-and-safety and www.hse.gov.uk/simple-health-safety/risk/risk-assessment-template-and-examples.htm*


© Penny Dixie

5. Common management issues

The information in this section sets out some of the common management issues that managers may need to address on sites within the Great North Wood.

Management issue	Measures to manage the issue
Trampling and compaction caused by high visitor numbers can leave areas of bare ground where plants are unable to grow, contributing to the loss of ground flora and ultimately the loss of the shrub layer and the failure of trees to regenerate. Managing this issue should lead to regeneration within the ground and field layers, thereby enhancing structural diversity of the woodland.	• Controlling access and improving paths (section 6.1). • Signage and interpretation (section 6.2).
Littering, fly-tipping and the dumping of garden waste can smother delicate plants, add unnecessary nutrients and non-native garden plants / seeds to the soil, and contribute to a sense that a site is not cared for.	• General tasks (section 6.1). • Signage and interpretation (section 6.2).
A lack of deadwood habitats. Deadwood habitats are important for the lifecycles of many plants, animals, and fungi. Leaving standing and fallen deadwood of different sizes will have positive benefits for wildlife.	• Deadwood habitats (section 6.3.2).
Trees of the same species and a similar age/size dominating a woodland (or part of it) can be an issue because trees become susceptible to different pressures at different times in their lifecycle. For example, older trees are more susceptible to being uprooted by wind than younger trees, whereas young trees are more susceptible to drought. Having trees of varying ages will make the population more robust. This will enhance the biodiversity of a woodland because trees of differing ages benefit different species.	• Selective felling, coppicing and pruning (section 6.3.6).
A closed tree canopy reduces the amount of sunlight getting to the woodland floor which can result in areas of bare ground with little regeneration of ground flora or shrubs. Tree species, such as ash, sycamore, holly, yew and cherry laurel, can establish themselves from seed under a closed canopy. Oak saplings on the other hand are intolerant of shade and do not do well. Management can prevent shade tolerant tree species dominating at the expense of oak, and create light conditions to encourage regenerating the ground, field and shrub layers.	• Selective felling, coppicing and pruning (section 6.3.6).

Management issue	Measures to manage the issue
Non-native invasive species such as cherry laurel, spotted laurel and rhododendron are evergreens and cast a dense permanent shade preventing other plants from growing beneath them. Cherry laurel releases cyanide into the soil to poison surrounding plants to further increase its competitive advantage. Spanish bluebell, three-cornered leek, Japanese knotweed, honesty, buddleia and variegated yellow archangel have become widespread. Spanish bluebell has an ability to hybridise with native bluebell leaving the latter now vulnerable to extinction, especially in London. Trees such as false acacia, holm oak and Turkey oak have also been introduced. Until recently, holm and Turkey oaks did not regenerate naturally in Britain because their seeds are susceptible to frost damage. This susceptibility has been reduced, particularly in London, where the urban heat island effect means much fewer days of frost are now recorded each winter. Sycamore can be fairly contentious in that some woodland managers regard it as naturalised whereas others regard it as a non-native invasive. It was introduced into Britain many hundreds of years ago and can spread rapidly and in some conditions outcompete native trees like oak. It does provide value for some species of wildlife and its timber has a variety of uses, and in the Great North Wood it provides a good woodland canopy on disturbed soils.	• Selective felling and invasive species control (section 6.3.6).
Some native species can become invasive in certain situations. Yew and holly are valuable components of the woodland ecosystem, but where they become dominant, they block so much light that other plant species are unable to grow. Bramble is another native plant that can become invasive. In more open areas it can dominate, encroaching onto grassland or filling woodland glades at the expense of other vegetation. However, bramble is hugely valuable as a source of pollen and nectar for pollinating insects, a source of berries for birds and mammals, and as protective cover for some nesting birds.	• Selective felling and invasive species control (section 6.3.6). • Managing scrub (section 6.3.5).


Spanish bluebell © Steven Falk


Japanese knotweed © Penny Frith


cherry laurel © Steven Falk


furrow bee on bramble flower © Penny Frith

Management issue	Measures to manage the issue
Anti-social behaviour in urban woodlands has a negative impact on most visitors' enjoyment of a site and can be damaging to wildlife. Examples include littering, fly-tipping, graffiti, lighting fires, vandalism, overnight camping, motorbiking, illegal gatherings (e.g. raves), and abusive behaviour. Dogs that are not kept on a lead can cause disturbance to wildlife and visitors. Dog faeces that aren't disposed of or taken home are unpleasant and potentially dangerous as on rare occasions can cause toxocariasis. For advice: *www.keepbritaintidy.org/faqs/advice/dog-fouling-and-law.* Crime, actual or perceived, is a serious matter. Managers should be looking to create safe and welcoming sites by designing out areas where criminal activity could take place. Opening up sight-lines, cutting back vegetation from paths and entrances, as well as having contact details on notice boards in case of an emergency can make a real difference to how safe visitors feel on a site.	• Signage and interpretation (section 6.2) to set out what visitors should and shouldn't do, as well as who to contact in an emergency. • Opening up site lines and cutting back vegetation from paths and entrances. • Reporting incidents of anti-social behaviour and crime to the police and Councils community safety team. As well as working with these organisations to manage the issue.
Grey squirrel and deer can cause significant problems to flora and fauna in many woodlands. Grey squirrel will strip the bark from trees which can kill or leave them vulnerable to disease. They can also limit native tree regeneration by feeding on their nuts and seeds, and will also predate on eggs and nestlings of some birds. Despite this grey squirrel is not considered a serious problem in the Great North Wood. Deer can browse on regenerating young trees, woodland plants and shrubs which not only damages or kills the plants but also has an impact on the wildlife that are associated with them.	• Surveying and monitoring for signs of grey squirrel or deer activity in order to adjust management practises to mitigate the impact. • Report to the appropriate authority.
There are several **pests and diseases** in Britain that may pose a threat to woodland habitat or individual species. Examples include: • oak processionary moth *(Thaumetopoea processionea)*; • acute and chronic oak decline (caused by multiple environmental stresses); • Dutch elm disease *(*a fungus, *Ophiostoma novo-ulmi)*; • ash dieback *(*a fungus, *Hymenoscyphus fraxineus)*; • horse chestnut leaf miner *(*a moth, *Cameraria ohridella).* A more comprehensive list of pests and pathogens grouped by tree species, with their symptoms and treatments can be found here: *www.gov.uk/guidance/identify-a-tree-pest-or-disease-overview.*	• Surveying and monitoring. • Report to the appropriate authority.


horse chestnut leaf miner © Penny Frith

6. Management practices

This section provides information on various management practices that have been undertaken on Great North Wood sites. It can be read in conjunction with the management briefs. The information within this section is by no means comprehensive and where necessary there are referenced documents that give a greater level of detail.

hedge laying © Penny Dixie

clearing a fallen tree at Sydenham Hill Wood

6.1 General site and infrastructure management

General tasks:
Throughout the year there will be general tasks that need to be undertaken. Tasks may include:

- Checking information in the noticeboards is up to date;
- Cleaning signage;
- General maintenance and repair of site infrastructure (i.e. fencing, paths);
- Litter picking and removal of fly-tipped rubbish and green waste;
- Keeping paths clear of vegetation;
- Observing and recording changes in habitats, wildlife (including the presence of animal tracks & deposits), and visitor numbers;
- Surveying site infrastructure (i.e. fences, seating, boardwalks, paths etc).

Controlling access:
Trampling and compaction from high visitor numbers are major issues that negatively impact on soil health, tree health, ground flora and tree regeneration. It may sometimes be necessary to divert people from certain areas of a woodland to address these issues by controlling access.

When deciding where and how to control access, consideration should be given to:

- Where the trampling and compaction are particularly apparent;
- Whether there are plants of conservation concern which need protecting;
- Signage to communicate the benefits for wildlife of excluding people from an area;
- How visitors will move through the site once the control is installed.

Two possible options for controlling access are fencing and deadhedging as described below:

Fencing:
Sweet chestnut pale fencing is costlier than deadhedging but it is quicker to install over long distances, is generally more robust, and once *in situ* will require very little maintenance. Fenced regeneration areas are an example of where fencing has been used effectively in the Great North Wood.

Fenced regeneration areas:
Before fencing an area, consideration should be given to whether it is necessary to selectively fell any trees within the area in order to increase light levels to promote regeneration. The following steps should be taken:

- Install fencing around the perimeter of the area;
- Annually survey for regenerating trees, vegetation, amount of bare ground;
- Annually control problematic species through selective removal so that they do not become dominant (i.e bramble, holly);
- Once vegetation has established consider removing the fencing;
- If required repeat the process in another area of the woodland.

Deadhedging:
If cut material is left from vegetation clearance then deadhedging is a way to recycle this to create barriers that shield particular areas of a wood or block off new paths or desire lines. However, deadhedging is easier to climb over than a fence and may be dismantled, particularly if it blocks a favourite path. Deadhedges also naturally decay with time and need to be maintained regularly and topped up with new material to be effective.

Path improvements:
Path improvements can be expensive and labour intensive and sections that are particularly steep, muddy or uneven should be prioritised. Paths should, as far as possible, fit with the aesthetic of the site; tarmac paths are not appropriate in woodland, can be slippery in icy weather, as well as become cracked and broken by the action of tree roots. For major routes wood-edged paths are preferred, laid with a sub-base of Type 1 hardcore, and surfaced with self-binding gravels or hoggin. These paths quickly blend into the woodland environment, are unlikely to affect soil chemistry, and are accessible to wheelchair users and buggies. If installed correctly they create a durable and long-lasting surface[11].

When improving paths it may also be necessary to install a drainage channel on sections that are particularly muddy. A narrow ditch either on one or both sides of the path can intercept water and allow it to drain away. The ditch should be large enough for a perforated pipe, wrapped in geotextile and covered with pea shingle. The position of the ditch and it's elevation should be chosen to maximise interception of water and allow it to drain away to a suitably located soakaway.

Steps:
Steps built from oak sleepers and supported with wooden stakes can improve access along steep paths and in conjunction with surfacing material can improve drainage and reduce muddiness. For flights of steps, particularly steep ones, a handrail should be installed on one side to provide support. Before deciding to install steps consideration should be given as to whether there is another option that resolves the issues but provides better access for visitors (i.e. visitors with buggies or using wheelchairs).

Boardwalks:
Where paths cross streams or go through areas of the site that stay wet and cannot be improved by drainage then boardwalks should be considered. These structures can become slippery in wet or icy conditions so suitable materials, such as grip strips, should be used to mitigate this. Steel scaffold poles, in very wet areas, can be driven into the ground as these will last longer than timber. The rest of the boardwalk can then be made of timber to blend in with the site.

Access for wheelchair and buggy users:
Many Great North Wood sites are steeply sloped which make it difficult to provide access for wheelchair users. However, it may be possible to plan a wheelchair accessible route though part of the site. The Sensory Trust provide guidance on considerations when planning, designing and modifying paths and routes[12].

6.2 Signage and interpretation

Signage and interpretation boards can be installed for a number of reasons. For example to help guide people around the site; provide information on it's history and wildlife; who manages it and who to contact in an emergency; and to set out some rules and behaviours. For example, "please take your rubbish home" or "please avoid this area whilst vegetation regenerates". It is a good idea to work with a site manager and designer to create signage that is accessible, visually appealing and clearly legible.

6.3 Habitat management

6.3.1 Ancient and veteran trees:
Ancient and veteran trees are an important resource for wildlife and part of the living heritage of the Great North Wood. They should be protected, surveyed regularly and if necessary carefully managed to ensure they remain healthy. Issues which may affect the health of ancient and veteran trees include:

- **Excessive shade cast by surrounding trees:** Halo clearance is the term used to describe clearing trees to reduce the shade on ancient and veteran trees. It may be necessary to carry this out gradually over several years to avoid drastic changes in light, temperature and humidity.

- **Damage to and compaction of the rooting area:** Tree roots can extend well beyond a tree's canopy. The 'root protection zone' can be defined as 15 times the diameter of the trunk or 5m beyond the edge of the canopy, whichever is greater[13]. Any damage or compaction within this area could have an effect on a tree's health. Consideration may need to be given to restricting access to the area under the canopy to minimise compaction.

[11] See *TCV Handbook: Footpaths* for it's detailed information on creating and improving paths.
[12] Sensory Trust advise on paths and routes www.sensorytrust.org.uk/resources/guidance/paths-and-routes
[13] Ancient Tree Forum guidance on managing ancient and other veteran trees.

- **Risk of structural failure of trees**
  Potential failure of large regrowth on lapsed pollards or the root plate can be avoided by reducing the crown of the tree. Large limbs may also be propped to prevent failure also. Prior to any works going ahead a survey should be undertaken to ascertain whether the works are necessary, and if so how they should be phased to minimise negative impacts on the tree.

Detailed information about how to manage veteran trees can be found in *Veteran Trees: A guide to good management*[14] or *Ancient and other veteran trees: further guidance on management*[15].

6.3.2 Deadwood habitats

Tree works and vegetation clearance can create large amounts of cut material or 'arisings'. Larger woody material should be cut into logs and stacked up to create deadwood habitat or used to make stag beetle loggeries. Large quantities of twiggy, leafy material (brash) left from vegetation clearance can be extremely bulky, but can mostly be dealt with by:

- **Creating piles:** piles will slowly rot away and create habitat for small mammals, invertebrates and fungi in the meantime. However, consideration should be given to where piles are located so that they do not create an eyesore; smother delicate plants such as bluebell; or cover up cut stumps which will then regrow through the pile and become difficult to deal with should they need to be cut again.
- **Deadhedging** can be a productive way of using large amounts of brash and also utilises some of the larger woody material.

Deadwood habitats can be created out of non-native invasive species like cherry laurel, spotted laurel and rhododendron but where possible this brash should be removed from site or left to rot in an area unlikely to affect other habitats.

Creating stag beetle loggeries
Logs of deciduous tree species should be stood upright and buried so that at least a third of their length is underground to provide habitat for stag beetle larvae and other saproxylic invertebrates. When creating a stag beetle loggery make sure that the logs are not tightly packed together as the larvae need to have space between the logs. And make sure that the portion of the log that is underground isn't subject to wet conditions as the larvae need air to breath.

6.3.3 Gardens

Across the Great North Wood area gardens act as vital stepping stones and corridors between woodlands and other greenspaces, as well as providing an important resource for wildlife in their own right. Gardens can be improved for wildlife by:

- Growing plants which flower and fruit in different seasons to provide forage for pollinating insects and birds throughout the year;
- Planting wildflowers, shrubs & trees that are characteristic of the Great North Wood;
- Avoiding planting non-native invasive species;
- Allowing some areas of grassland to grow taller, flower and seed;
- Allowing wilder areas with species such as nettles, thistles and brambles;
- Creating a compost heap, log pile, stag beetle loggery or pile of dead leaves;
- Creating a wildlife pond;
- Installing bird and/or bat boxes;
- Avoiding pesticides.

London Wildlife Trust provides more detailed information on activities that can be undertaken to improve gardens for wildlife[16].

6.3.4 Grassland management

Grasslands can support a huge variety of species with insect and wildflower diversity being particularly important. Good wildlife-rich grasslands (often referred to as meadows) have declined considerably across Britain in the last 50 years with some associated wildflower and insect species becoming exceptionally rare or extinct. Grasslands can be divided into five broad types. These are chalk, acid, neutral, wet and amenity grassland. Amenity grassland is the commonest in the Great North Wood but small areas of acid, wet and neutral grassland are present.

Each grassland type has a set of characteristic species, although the species richness of individual grasslands varies widely according to their condition. In the absence of management, through either grazing or mowing, grassland quickly reverts to scrub, and then woodland, in a process known as succession. Although grazing tends to be a more effective way of managing grassland for wildlife, it is difficult to undertake in an urban context so is not addressed here. Usually fields and large grassland areas are best managed by machinery. However, for smaller areas power tools (i.e. strimmers and brushcutters), or hand tools should be used.

[14] Read, H., 2000. *Veteran Trees: A guide to good management*, English Nature.
[15] Lonsdale, D. (Ed), 2013. *Ancient and other veteran trees: further guidance on management*, The Tree Council.
[16] www.wildlondon.org.uk/campaigns/garden-living-london.

Mowing regimes
For wildlife conservation purposes, grasslands are best cut no more than three times a year with one or two cuts being preferable. Grassland that is cut less than annually will become dominated by coarse grasses, tall herbaceous plants and in time, scrub. It is of utmost importance, when maintaining grassland for wildlife, that the cuttings are removed as it will gradually reduce the nutrient content of the soil. Higher nutrient levels favour coarse grasses, tall herbaceous plants and scrub whereas low nutrient levels allow a greater diversity of less competitive species such as fine grasses and grassland herbaceous plants to become established. Over time, favourable management will result in an increase in floral diversity and a corresponding increase in insect diversity. The following are recommended for maintaining acid and neutral grassland:

Late March:	Mow, collect arisings and remove from site
April:	Sow wildflower seed mix if necessary
May:	Remove problem species (i.e. tree saplings) if necessary
September:	Mow, collect arisings and remove from site

For further information on wildflower meadow creation and management see Forest Research BGP note 15[17].

6.3.5 Hedgerow and scrub

Stands of shrubs either scattered or in clumps (scrub) or as planted linear features (hedgerows) are valuable for wildlife. As previously mentioned, grassland can be lost through succession to scrub so some control of scrub may be necessary. However, a combination of grassland with scrub and/or hedgerows is likely to support more species than grassland or scrub alone.

Managing hedgerows
Hedgerows may simply be trimmed as required to maintain their shape and size. This should be undertaken in January to avoid the destruction of birds' nests and to allow berries to be used by wintering birds. Over time, trimming the hedgerow may result in the appearance of gaps at the base of the hedge where the lower parts are shaded and fail to put forth new shoots. Historically, hedgerows were often 'laid' to encourage new growth and create thick stock-proof hedges. Laid hedges may also provide more suitable habitat for nesting birds and small mammals. Traditional hedgerows often contained standard trees which were sometimes pollarded. These trees can be important features for wildlife[18].

Planting hedgerows
Hedges can be planted using whips. Generally, hedges that are to be laid consist of 80% hawthorn and/or blackthorn and 20% other species which may include dog rose, guelder-rose, hazel, hornbeam, field maple, holly, willow, spindle, wild cherry, and wych elm. They should be planted in a double staggered row with 30cm between the two rows and 45cm between plants in each row. If the hedge is to be placed against an existing boundary, the nearest row should be at least 90cm away from the boundary to allow for growth and prevent overhang onto or over the boundary. Mulching the hedge will help suppress weeds and increase water retention. Re-mulching and/or weeding may be necessary. The hedge should be ready for laying eight to nine years after planting if growing conditions are good[19].

Managing scrub
Scrub is an important successional habitat consisting of shrubby species and small trees, which if left unmanaged will develop into woodland. Scrub habitat may be maintained by cutting it close to the ground in a rotational pattern. The length of the rotation will depend on the nature of the scrub and the desired average height and density. One possible rotation would be to cut one quarter of the area each year to maintain a good level of structural diversity while ensuring that each area is cut once every four years.

It may also be necessary to control scrub if it is encroaching into an area of grassland or other habitat. Bramble scrub is an example of this. Where bramble scrub occurs at the edge of woodland and is encroaching on to grassland, or where it grows up to the edge of a path it can be reduced by cutting 'scallops' or bays into it using loppers and slashers. This increases the amount of valuable edge habitat and means that some areas of bramble scrub are retained. To avoid impacts on nesting birds, butterflies and other taxa, scrub management should be undertaken between late September and mid-January.

[17] *www.forestresearch.gov.uk/documents/2446/BPG_15.pdf*.
[18] See *TCV Handbook: Hedging* for a guide to hedge-laying.
[19] See *TCV Handbook: Hedging* for a guide to planting hedges.

6.3.6 Selective felling, coppicing and pruning

Most deciduous trees (including oak) do not die after felling; they generate new growth from the stump, which if left to grow can be periodically cut ('coppiced'). In a few years new growth from coppiced stumps (stools) creates an understorey which effectively diversifies the age structure of the trees in the woodland. However, felling may not always result in stool re-growth. The ability of trees to survive coppicing declines with age with one study finding that 75% of 100-year-old oaks (diameter ~ 1.5m) sprouted after felling while only 40% of 160-year-old oaks (diameter ~ 2.4m) produced sprouts.[20]

When selecting which trees to fell it is advisable to examine the canopy when it is in leaf and determine which trees, if felled, would create a sizeable gap. It is better to fell several trees in a group to create a significant hole in the canopy rather than felling every fifth tree (for example), which may not allow sufficient light to reach the woodland floor. To best increase the age diversity of the trees in a woodland it is best to fell trees which belong to a size class that is well represented in the wood; in other words, avoid felling very small or very large trees, which may be rarer than middle-sized trees. If coppicing is the aim, then it is best to avoid felling trees with a diameter greater than 1.5m to ensure that a good proportion of trees result in coppice stools. When felling it is best to avoid trees with veteran features such as rot holes that are particularly valuable for wildlife.

Coppicing on rotation

In traditional coppice management, trees are coppiced on rotation with the length of the rotation dependent on the species of tree and the diameter of wood required. For the purposes of diversifying the age structure of a wood and promoting tree regeneration it may be sufficient to coppice a particular area as a one-off intervention, observe how the wood responds, and then potentially coppice different areas in subsequent years. Alternatively, it may be beneficial to put different areas of the wood under a coppice rotation so that adjacent areas are at different stages of the coppice cycle at any given time[21].

Pollarding

Pollarding is similar to coppicing but differs in that trees are cut higher up, typically in woodland at around 2-3 metres above ground, where new growth is out of the reach of browsing animals. Traditionally, pollarding was carried out to produce a sustainable supply of wood, but is now more likely to be used as a way to reduce the size of trees that are prone to breakage, such as poplar and willow. Pollard trees can often reach a very great age and develop many veteran features, making them especially valuable for wildlife.

Invasive tree species control

Between September and January larger woody specimens should be felled[22], while smaller woody plants may be cut using loppers or slashers. Very large individuals, particularly canopy trees such as Turkey and holm oaks or false acacia may be too large to fell with hand tools and may need to be removed by trained arborists.

Felling will rarely kill these plants so the following techniques are suggested to ensure their long-term removal:

- Repeated cutting of the regrowth that results after felling to eventually weaken and kill the plant. Only cut regrowth in summer if it is below waist height and not suffiently dense to support nesting birds;
- Following felling grub out the entire stump, including as many of the roots as possible. Roots may be dug out of the ground using a mattock;
- Drilling holes into the stump or exposed roots and applying Epsom salts which will dry out and kill the plant;
- Although the use of herbicides isn't advocated, should it be necessary to use them then they must be applied by a trained and certificated person with the landowner's permission.

For non-native invasive shrubs such as cherry laurel it is likely that the management objective will be to clear it all from the site. Whereas for native trees that can become invasive, like holly and yew, the management objective maybe to create a patchwork effect with some areas where these species are completely removed and other areas where they are allowed to remain. It is also worth considering the distribution of plants that may be adversely affected by evergreen shade such as English bluebell, wild garlic and wood anemone.

Japanese knotweed and giant hogweed are listed under Schedule 9 of the Wildlife & Countryside Act 1981 and there is a legal obligation for landowners to prevent their spread. If they are discovered on a site, the landowner should be informed since they have responsibility for their removal and/or treatment. Giant hogweed has toxic sap that can be dangerous when it comes into contact with skin. No attempt should be made to remove this plant without taking proper precautions.

Dealing with arisings from tree works

Tree felling and pruning works result in arisings; ways to deal with these are covered in 6.3.2.

Other options include:

- Chipping and recycling arisings at a green waste depot, or using them on site for surfacing paths (depending on how accessible the path is required to be) or mulching (cherry laurel contains cyanide and is not suitable for use as mulch);
- Burning is an efficient way of dealing with large amounts of brash. Prior to burning consideration should be given to the harmful effects that bonfires have on the environment and whether there are alternative ways of dealing with the arisings (i.e recycling, creating habitat piles, deadhedging). When burning, a single or limited number of fire sites should be set to reduce damage to the ground. Before setting fires ensure that they are permitted and not going to cause a nuisance. If setting fire to existing brash piles then check them first to ensure nothing is living in them (i.e. hedgehogs, foxes etc).

N.B. All tree felling and tree work requires specific Health & Safety procedures to be put in place and chainsaws should only be used by certified operators. Any tree work whether felling or not will require permission from the landowner. Should trees be protected by a Tree Preservation Order (TPOs can be placed on trees within private land) or located within a Conservation Area, then prior permission will be required from the council whether they are the landowner or not. A felling licence will be required from the Forestry Commission to fell over 5 cubic metres (roughly equal to two large trees) per calendar quarter (this does not apply to trees in inner London boroughs)[23].

6.3.7 Tree and shrub planting

Where trees and shrubs of a particular species are either absent or failing to regenerate in a woodland it is worth examining the possible reasons why this may be so before resorting to planting. For example:

- oak does not regenerate well under a closed canopy;
- trampling may be responsible for a failure of trees to regenerate;
- grey squirrel may be feeding on young saplings or seeds;
- a lack of suitable mature native trees to regenerate from.

If it is unlikely that regeneration will occur then planting may be advisable. Trees and shrubs are best obtained as bare-rooted saplings (whips), typically 30-100cm in height and around 1-3 years old. Saplings should be surrounded by mulch to reduce the impact of weeds and help moisture retention. Planting should be carried out between October and February when trees are dormant, avoiding periods of drought and hard frost.[24]

Larger container-grown trees, ('standards'), may be more suitable when a small number of trees are being planted in an area of amenity grassland, for example in a park. Their large size will mean they have an immediate impact but they will require additional maintenance in order to establish.

6.3.8 Wetlands:

Streams and brooks

The watercourses within the Great North Wood area include the Chaffinch Brook, Norbury Brook, and Ambrook. The larger two streams are partly culverted and in places run underground, beneath roads and properties, and are largely unmanaged. The Ambrook, a tributary of the River Effra, flows seasonally through Sydenham Hill Wood but requires little management beyond the occasional vegetation clearance work.

The Manual of River Restoration Techniques[25] provides more details on a variety of river management techniques, both to enhance them for wildlife, and for other purposes like flood management.

Ponds and lakes

Ponds and lakes are often successional habitats that accumulate silt over time through run-off of soil from the surrounding area and the build-up of dead plant material, which can eventually lead to them becoming dry. Vegetation removal and de-silting may be necessary to maintain water depth. This management should take place in late autumn to minimise disturbance to wildlife. Extra care should be taken for ponds with butyl liners to avoid creating a leak.

Ponds may be ephemeral and dry up each summer. This is not necessarily a problem and ponds may retain water for long enough to support breeding amphibians while other organisms may survive desiccation or recolonise when ponds fill up again.

[20] Harmer, R., 1995, *Management of coppice stools*, Forestry Commission.
[21] See *TCV Handbook: Woodland* for detailed information on coppicing.
[22] See *TCV handbook: Woodlands* for a guide to safe felling techniques.
[23] Forestry Commission: Getting permission for tree felling.
[24] For a detailed guide to planting whips see *TCV handbook: Tree planting and aftercare.*
[25] www.therrc.co.uk/manual-river-restoration-techniques.

Topping up ponds with tap water should be avoided because it can add quantities of minerals and gases which may cause algal blooms, lowering water quality.

The Freshwater Trust provides information on open water management and pond creation[26]. The Wildlife Trusts have also produced a Wildlife Pond Pack[27].

Reedbeds
Reedbeds are riparian[28] habitats dominated by common reed. They support a wide range of species including many wetland invertebrates, moths, amphibians and specialised birds like reed warbler. They tend to grow in damp soils that are regularly inundated with water, or along the edges of lakes and ponds standing in shallow water (up to c50 cm deep)[29]. Like ponds and lakes, reedbeds are prone to the accumulation of silt, resulting in succession to terrestrial habitats. As reedbeds become drier species such as bramble, common nettle, bittersweet and bindweeds can become prevalent and start to compete with the reeds themselves.

To reduce the build-up of dead plant material and the encroachment of terrestrial plants, reedbeds can be cut on a 4-7 year rotation. As with grassland management described above, cuttings must be removed. Smaller reedbeds may require more frequent cutting if they are prone to being lost through scrub encroachment. For further information Sussex Wildlife Trust have produced a document on creating and managing reedbeds[30].

[26] freshwaterhabitats.org.uk/projects/flagship/pond-management-info/
[27] www.lincstrust.org.uk/sites/default/files/2018-04/A3WildlifePondPack.pdf
[28] Adjoining and interconnected with wetland habitats.
[29] www.lbp.org.uk/downloads/Publications/HabitatInfo/Reed bed%20HAP.pdf
[30] assets.sussexwildlifetrust.org.uk/create-and-manage-reedbeds-2.pdf

6.4 Surveying

As well as habitat surveys, species and visitor surveys are important activities that can be undertaken at various times of the year and may influence how a site is managed. The table below gives examples of the types of habitat and species surveys that can be undertaken throughout the year.

Survey results should be submitted to Greenspace Information for Greater London (GiGL) at www.gigl.org.uk

Surveys	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
Habitat:												
Phase 1 habitat (by trained ecologist)				■	■	■	■	■	■			
Woodland condition			■	■								
Fauna:												
Bat detector surveys						■	■	■	■			
Bat roosts*	■	■	■	■	■	■	■	■	■	■	■	■
Bird (Big Garden Birdwatch)	■											
Breeding bird survey[31]				■	■	■						
Butterfly[32]				■	■	■	■	■	■			
Dormice*				■	■	■	■	■	■	■	■	■
Hedgehog					■	■	■	■	■			
Stag beetle					■	■	■	■				
Flora:												
Ancient Woodland Indicators			■	■	■	■		■	■			
Regenerating trees							■	■	■			
Fungi:												
Fungi			■	■	■			■	■	■		

*licence required to handle fauna.

[31] Bird breeding surveys see the BTO website *www.bto.org/our-science/projects/bbs.*
[32] UK Butterfly Monitoring Scheme - Butterfly Conservation *www.ukbms.org.*

Visitor surveys
When undertaking visitor surveys it is useful to use quantitative, qualitative and observational methods to collect data.

Quantitative data through the use of electronic counting devices placed at every entranceway will provide data on how many people are using a site at any given hour throughout a 24-hour period. However, funds are required to buy, install and maintain counting devices. Alternatively having people at the entranceways counting the number of people that are coming into the site will give an indication of how many people are using it, however this will require time and human resource. For this method it is important to vary the days and times that surveyors are undertaking a count. And that when future counts take place the same days and times are used so that comparisons can be drawn.

Whilst quantitative data is useful, where possible it should be augmented with qualitative data because it will tell you something about the people that are visiting the site. Face-to-face or online questionnaires are a useful way to collect data on visitor demographics; how often a visitor uses the site and why; what they would like to see; and whether they are interested in becoming involved with the management of the site. It is important to carefully consider what questions will be asked and why. Any personal information collected will need to be treated in accordance with the relevant data protection regulations.

Observational methods include recording the amount of litter found on the site, whether visitors are keeping to the paths or not, the amount of compaction, trampling, damage to vegetation, and disturbance to species. These are all useful indicators of visitor numbers and behaviours, which may lead to changes to the way a site is managed.

6.5 Monitoring for change and success

Monitoring is essential for recording and evaluating changes in a woodland over time, whether it is undertaken as part of a management plan or anecdotal evidence picked up when on site. Unfortunately, monitoring is sometimes seen as an afterthought and isn't always undertaken because other activities take priority. Some examples of why it is essential to have a monitoring plan in place include:

- Updating management plans with what has and hasn't been achieved;
- Deciding on whether a particular course of action has had the desired outcome and if it hasn't then what should be done;
- Observing what changes are taking place in the woodland and reflecting on whether there is a requirement to do something about it.

A monitoring plan should be created as part of the management plan. The monitoring plan should be clear and easy to follow and set out:

- What will be monitored, when and why;
- What baseline data is available and what data will be collected whilst monitoring;
- What data will be required to show whether a management intervention has been a success or that it requires changing;
- Who will be responsible for monitoring and updating the management plan.


hedgehog monitoring at Sydenham Hill Wood

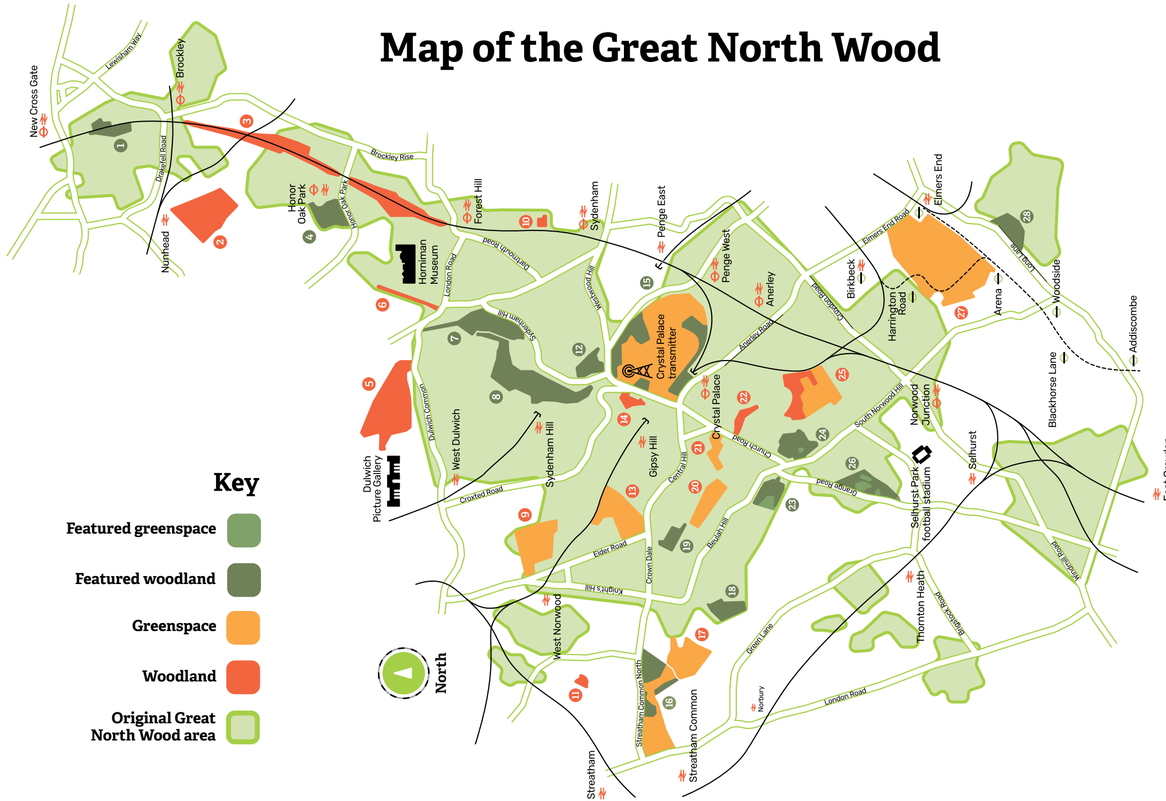

setting up a camera trap © Penny Dixie

cock's-foot grass in flower at Sydenham Hill Wood © Amanda Tuke

Management briefs in **green**

1. **New Cross Gate Cutting** (limited access)
2. Nunhead Cemetery
3. Buckthorne Cutting Nature Reserve, Devonshire Road Nature Reserve, Garthorne Road Nature Reserve (limited access)
4. **One Tree Hill**
5. Dulwich Park
6. Horniman Nature Trail
7. **Sydenham Hill Wood & Cox's Walk**
8. **Dulwich Wood**
9. West Norwood Cemetery
10. Dacres Wood (limited access)
11. Unigate Wood
12. **Hillcrest Estate Wood**
13. Norwood Park
14. Dulwich Upper Wood
15. **Crystal Palace Park woodland**
16. **Streatham Common woodland**
17. Norwood Grove
18. **Biggin Wood**
19. **Convent Wood (closed)**
20. Upper Norwood Recreation Ground
21. Westow Park
22. Stambourne Woodland Walk
23. **Spa Wood**
24. **Beaulieu Heights**
25. South Norwood Lakes
26. **Grangewood Park**
27. South Norwood Country Park
28. **Long Lane Wood**

Map of the Great North Wood



Beaulieu Heights

© Sam Bentley-Toon

Description

Situated on the steep eastern flank of the summit of South Norwood Hill, south of Crystal Palace, Beaulieu Heights covers 7.2 hectares and is one of the largest remaining Great North Wood sites. Designated a Site of Borough (II) Importance for Nature Conservation, it consists predominantly of sessile oak woodland, with amenity grassland, and a small ornamental western entrance. Several large veteran oaks stand in the grassland, and an orchard has been recently planted at the far southern end of the Heights. A number of ornamental conifers, a row of common limes and several false acacias in the northern part are a legacy of landscaping when the land was previously within the gardens of two large Victorian villas. In some areas hazel dominates the shrub layer, in others dense stands of holly and cherry laurel are present. Patches of English bluebell, wild garlic, and wood anemone indicate the Heights' ancient character. A seasonal pond lies in the northern part of the woodland.

History

Once part of Windalls Coppice on land owned by the church, the site was mostly developed in the 19th century as grounds for two large houses; Hazelwood and Beaulieu Lodge. The land was acquired by Croydon Council from the Church Commissioners in 1938 and opened to the public after World War II. In the exceptionally hot and dry summer of 1976 over 0.5 hectacre of the woodland was destroyed by fire.

Conservation work

Specific works to benefit biodiversity in Beaulieu Heights didn't start until the late 1990s, with input from what is now TCV and Croydon Council. The Friends of Beaulieu Heights were established in 2009 working in partnership with Croydon Council to open up paths, install waymarkers and notice boards, build steps and plant the orchard. One hectare of holly was removed with the help of TCV in 2012. Two hectares of evergreen shrubs were removed by the Council over 2015-17, and under-planted with hazel. Over 2017-20 London Wildlife Trust and TCV removed large stands of cherry laurel and cleared more holly. Steps were installed in the northern part of the site in 2019.

Ongoing conservation work should include continued removal of cherry laurel and reduction in holly as well as controlling regrowth from previously felled invasive species. Bramble control should be considered where it is dominant. Consideration should be given to enhance the diversity of the grassland, through top-soil stripping, and seeding, or plug-planting.

Beaulieu Heights

Habitat / Feature:

- Amenity grassland
- Meadow
- Woodland
- Orchard
- Pond
- Path
- Hard surface path

Management activity:

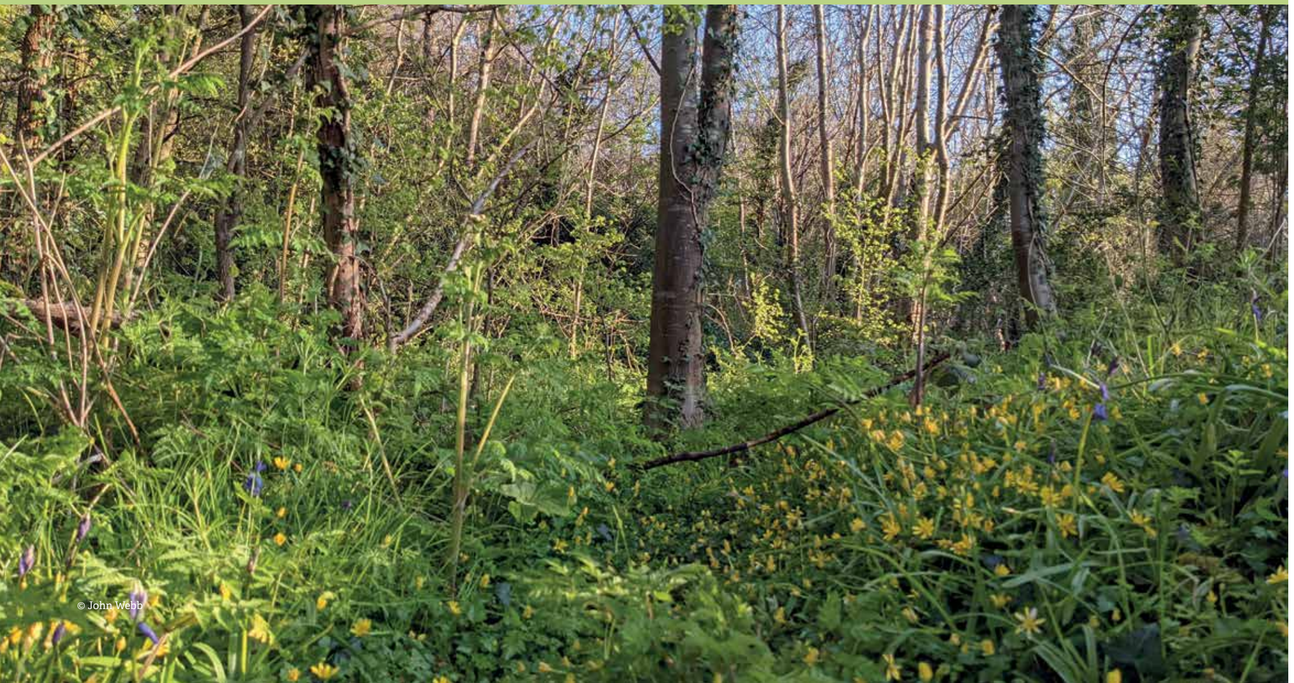
- Meadow restoration
- Invasive species control
- Vegetation thinning required
- Pond maintenance

Beaulieu Heights workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.5	Managing scrub	On rotation cut up to one quarter of bramble in any given winter period.	1	■										■	■
6.3.6	Coppicing on rotation	Cut hazel on a 7-12 year coppice rotation.	1	■	■									■	■
6.3.6	Invasive species control	Selectively thin 30% of holly.	2	■										■	■
6.3.8	Ponds and lakes	Clear encroaching vegetation to maintain between 10 – 30% open water.	3									■			
6.3.6	Invasive species control	Cut laurel (area 4) and snowberry (area 5) to ground level in winter. Cut regrowth / dig out roots and stumps in summer.	4 / 5	■					■	■	■			■	■
6.3.4	Grassland management*	Mowing and restoration of neutral grassland meadow. **Restore larger area if possible.**	6			M	S	R				M			
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

*Grassland management: M = Mow, collect and remove arisings, S = Sow wildflower seed mix if necessary, R = Remove problem species if necessary.

Biggin Wood


© John Webb

Description

A predominantly sessile oak woodland of 5.2 hectares Biggin Wood stands on the southern slopes of Beulah Hill, north-east of Norbury. It is designated a Site of Borough (I) Importance for Nature Conservation and is listed on the Ancient Woodland Inventory. A row of veteran pedunculate (English) oaks stand along the western boundary, with ash, sycamore and suckering English elm dominating the eastern side. A seasonal rivulet flows down part of the eastern boundary.

Several multi-stemmed sessile oaks provide evidence of historical coppicing. The shrub layer consists of field maple, elder, wild cherry, hawthorn and holly (which dominates in some areas). In the southern part of the Wood much of the ground is bare with little flora or shrub layer, due to heavy shading and trampling. The sessile oaks here are closely spaced and even aged, as a result of planting in the early 20th century. Elsewhere in the Wood remnant patches of wood anemone, English bluebell and lesser celandine are joined by garden escapes such as three-cornered leek, hybrid bluebell and variegated yellow archangel.


St Mark's flies


lesser celandines

History

Part of Biggin Hill Coppice the site later became part of the grounds of Bigginwood House. By the 1920s the house had fallen into disrepair and in 1934 it burnt down. In 1928 a local campaign began to dedicate the 'wild woodland' for public use, concerned that the development of new housing in the area that grew apace in the 1930s would destroy it. Croydon Council eventually purchased Biggin Wood in 1938 on the condition that it was managed as a bird sanctuary and public open space.

Conservation work

Specific works to benefit biodiversity in Biggin Wood didn't really take off until the late 1990s, with input from what is now TCV and Croydon Council. London Wildlife Trust removed several stands of cherry laurel, snowberry and thinned further holly, as well as felling some holm oaks and false acacia over 2017-19. Three mature oaks were coppiced in the southern trampled area, and fenced to encourage regeneration of oak, ground flora and a shrub layer. Loggeries to benefit stag beetle and other invertebrates were created from the felled timber.


stag beetle loggery © Penny Dixie

Future work should continue to control invasive species, including holly and bramble, through regular cutting and treatment. Further coppicing of oaks, with fencing to encourage regeneration should be considered in the southern part of the Wood.

Biggin Wood

Habitat / Feature:

- Woodland
- Regeneration area
- Stream
- Path
- Hard surface path

Management activity:

- Fenced area regeneration management
- Invasive species control
- Vegetation thinning required
- Stream maintenance

Biggin Wood workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.1	Controlling access	Monitor and manage fenced regeneration area.	1	■	■	■	■	■	■	■	■	■	■	■	■
6.1	Controlling access	Create additional fenced regeneration areas.	2	■									■	■	■
6.3.6	Invasive species control	Cut cherry laurel, false acacia, snowberry to ground level in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	3 / 5	■					■	■	■			■	■
6.3.6	Invasive species control	Selectively thin 30% of holly.	4	■										■	■
6.3.8	Ponds and lakes	Vegetation management along stream to maintain stream habitat.	6	■								■		■	■
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

Convent Wood

© Daniel Greenwood

Description

Convent Wood comprises 3.4 hectares of ancient sessile oak and hornbeam woodland, designated as a Site of Borough (I) Importance for Nature Conservation and listed on the Ancient Woodland Inventory. It stands in the grounds of Virgo Fidelis Convent School in Upper Norwood; it is not publicly accessible. In the eastern part of the Wood the shrub layer is dominated by stands of holly and with sparse ground flora. The western part of the site has a more open structure, with wood anemone and English bluebell being present.

wood anemone

History

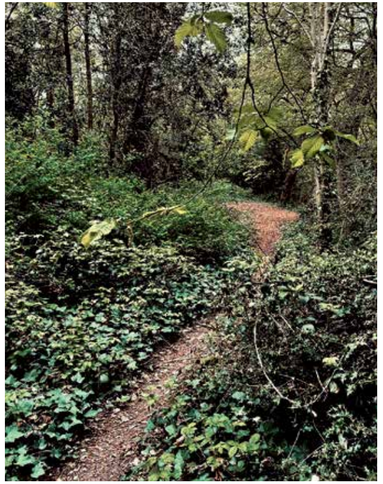
Once part of the Great Stake Pit Coppice the wood was incorporated into the grounds of the school when it was established in 1857 (on the site of an older building dating from 1588).

The other woods nearby, including Little Stake Pit Coppice had been grubbed up by then as Norwood New Town developed after the establishment of the Crystal Palace. Timbers for Francis Drake's ship 'The Golden Hinde' reputedly were taken from Great Stake Pit Coppice, but as the ship was built in Aldeburgh, Suffolk, this seems doubtful.

Conservation work

Much of the Wood has been left untouched for many years. London Wildlife Trust re-established a circular path and thinned out holly over 2017-19. Further holly removal is advised to prevent shading of ground flora.

English bluebell



Convent Wood

Habitat / Feature:

- Amenity grassland (playing field)
- Woodland
- Path

Management activity:

- Vegetation thinning required

Convent Wood workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.6	Invasive species control	Selectively thin holly and cut regrowth on a four-year rotation so each area is cut every four years.	1 / 2 / 3 / 4	■										■	■
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

Crystal Palace Park woodlands

© Sam Bentley-Toon

Description

Located high on the southern end of the Sydenham Hill ridge, between Anerley, Penge and Upper Sydenham, Crystal Palace Park is an iconic site with a rich cultural heritage. The Park covers 49.2 hectares, and along with the remnants of the derelict Great Exhibition site, it contains expanses of grassland, woodland, scrub, shrubberies, lakes and gardens. Small areas of oak woodland are present along some of the park edges, and the 'secret garden' contains native broadleaf woodland, a meadow and pond. At its highest point stands an inaccessible stand of naturalised woodland and scrub important for nesting birds.

History

Formerly part of Penge Common, the area now known as Crystal Palace Park was enclosed in the early 19th century and became part of the grounds of a house called Penge Place. In 1852 the Crystal Palace was relocated here from Hyde Park and much expanded in scale within the grand new grounds designed by William Paxton, opening in 1854. In 1936, after a long period of decline, the Crystal Palace was destroyed by fire. The Park became the home of the National Sports Centre from 1966, and since 1986 has been owned and managed by Bromley Council. Plans to transform the Park have been underway since the 1980s, but the most recent have received general consensus, and the Crystal Palace Park Trust, working with other local stakeholders, are likely to take a lead on the Park's management in the future.

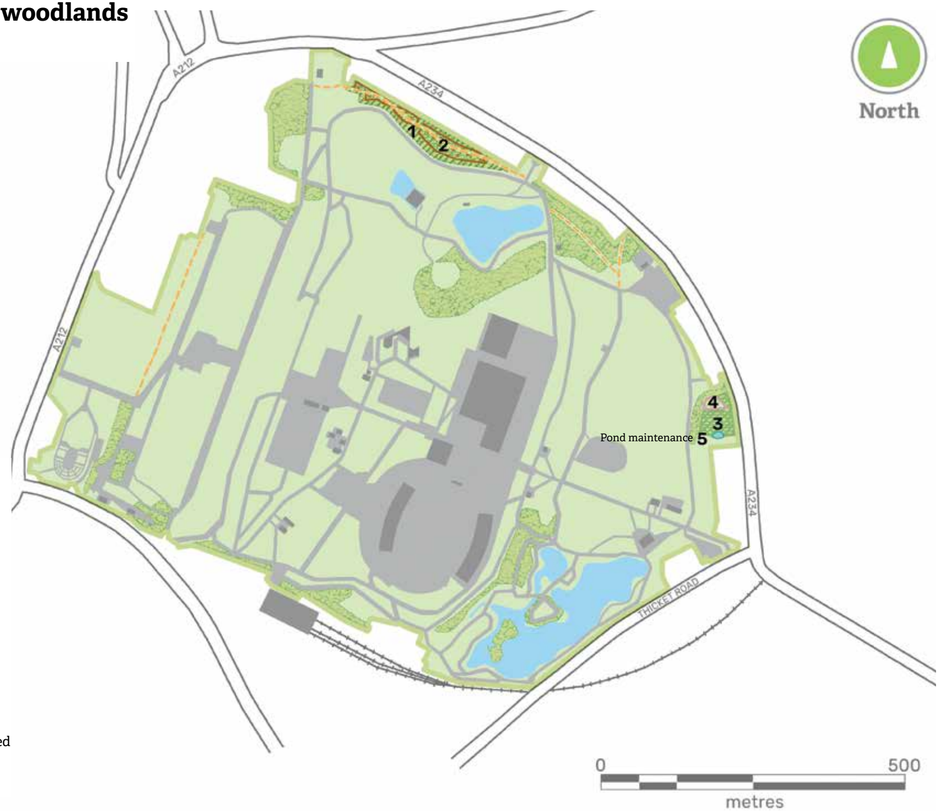
Conservation work

Much conservation work has taken place by various groups, such as the Friends of Crystal Palace Park, and in conjunction with idverde, the contractors working on behalf of Bromley Council. London Wildlife Trust's work over 2017-21 has focused on the woodland walk on the Park's northern boundary and in the 'secret garden', removing invasive shrubs.

At the time of writing largescale restoration and enhancement proposals for the Park have been approved in principle by Bromley Council, although will take time before they take shape. This restoration has the potential to both safeguard parts of the site with existing ecological value, such as the scrub and woodland on the western ridge, and enhance other areas of the park. Further invasive species removal is advised for the area known as the woodland walk.

© Trish Anderson

Crystal Palace Park woodlands



Habitat / Feature:

- Amenity grassland
- Meadow
- Woodland
- Pond / Lake
- Path
- Hard surface path

Management activity:

- Meadow restoration
- Invasive species control
- Vegetation thinning required
- Pond maintenance

Crystal Palace Park woodlands workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.5	Managing scrub	On rotation cut up to one quarter of bramble in area in any given winter period.	1 / 3	■										■	■
6.3.6	Invasive species control	Cut cherry laurel to ground level in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	2	■					■	■	■			■	■
6.3.4	Grassland management*	Mowing and restoration of neutral grassland meadow.	4			M	S	R				M			
6.3.5	Managing scrub	Cut back encroaching bramble from grassland area.	4	■					■	■	■			■	■
6.3.8	Ponds and lakes	Clear encroaching vegetation to maintain between 10 – 30% open water.	5	■					■	■	■			■	■
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

*Grassland management: M = Mow, collect and remove arisings, S = Sow wildflower seed mix if necessary, R = Remove problem species if necessary.

N.B. Crystal Palace Park is subject to potential regeneration works including landscaping which may allow other areas to be managed for wildlife in the future.

Dulwich Wood

Description

Standing in south Dulwich on the western flanks of the Sydenham Hill ridge, Dulwich Wood comprises 16.4 hectares of mostly ancient oak and hornbeam woodland, owned and managed since 1619 by what is now The Dulwich Estate. Designated as Metropolitan Open Land and within a Conservation Area, it is also listed on the Ancient Woodland Inventory. Contiguous with Sydenham Hill Wood, together they make up the largest remaining fragment of the Great North Wood, and designated as a Site of Metropolitan Importance for Nature Conservation.

The publicly accessible part of the Wood suffers from trampling and compaction in some areas and there are numerous informal paths and desire lines. The shrub layer, where present, consists of holly, wild cherry, hazel and elder with occasional guelder rose. Cherry laurel and spotted laurel dominate the shrub layer in some areas. Populations of English bluebell, wood anemone and wild garlic are scattered throughout the site.

A pond with an island in the middle, known as Dewy Pond, is present in the northern part of the site.

clearing the Dewy Pond © Sam Bentley-Toon

History

Purchased in 1605 by Edward Alleyn as part of the Manor of Dulwich, the wood was split into several coppices. In the 1850s, large houses were established at the edge of the wood and parts of it were landscaped as part of their gardens.

Encroachment by the growth of suburbia in the 1920s led to further loss of woodland, and from the 1950s this accelerated as new estates (e.g. Kingswood, Peckarmans, Woodhall) were laid out on sites damaged by the war. Campaigns to help protect Sydenham Hill Wood helped to provide additional protections from the 1980s.

Conservation work

Work carried out by The Dulwich Estate in the 1980s & '90s focused on access and tree health. London Wildlife Trust undertook restoration of the Dewy Pond between 2010-12. More recently works have focused on the removal of invasive shrubs and thinning of holly in other parts of the Wood. Fencing has been installed in certain areas to prevent trampling and soil compaction, and some stretches of path have been improved with boardwalks.

Future works should focus on measures to encourage the regeneration of oak and hornbeam and ancient woodland ground flora. This would include removal and thinning of holly, laurels and bramble, and installing further exclusion areas (in consultation with users).

fencing at Dulwich Wood

Dulwich Wood

Habitat / Feature:

- Woodland
- Regeneration area
- Pond
- Path

Management activity:

- Fenced regeneration area management
- Invasive species control
- Vegetation thinning required
- Pond maintenance

Dulwich Wood workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.1	Controlling access	Create more fenced regeneration areas.	1 / 2	■	■	■	■	■	■	■	■	■	■	■	■
6.1	Controlling access	Monitor and manage fenced regeneration areas.	3 / 4	■	■	■	■	■	■	■	■	■	■	■	■
6.3.8	Ponds and lakes	Clear encroaching vegetation to maintain between 10 – 30% open water.	5									■			
6.3.6	Invasive species control	Selectively thin 30% of holly in winter and cut regrowth from sumps in summer.	6 / 9	■					■	■	■			■	■
6.3.6	Invasive species control	Cut cherry/spotted laurel & rhododendron to ground level in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	7 / 8 10 / 11	■					■	■	■			■	■
6.3.6	Invasive species control	Monitor Japanese knotweed and report to landowner so that it can be treated.	Whole site				■	■	■	■	■				
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

Grangewood Park

© Karen Steadman

Description

Standing to the north of Thornton Heath, on the south-west facing slope of Norwood Hill, Grangewood Park covers 10.9 hectares. Designated a Site of Local Importance for Nature Conservation, it consists of sessile oak woodland with some areas of amenity grassland and contains several buildings, formally landscaped gardens, a children's play area and sports pitches. A shrub layer is absent from across most of the Park, and ground cover is mostly species-poor grassland. There are some areas around the perimeter of the site where trees and shrubs are regenerating, including ash and oak. A fenced area along the Park's western boundary at the lower end of the site contains remnant populations of woodland flora including wood anemone and bitter vetch. The large grassy area in the southern half of the site has a patch with acid characteristics.

History

The site was once part of the Manor of Whitehorse and known as Whitehorse Wood. Enclosed in the 1700s, the site was purchased by John Davidson Smith along with the land now known as Spa Wood, and became a private estate surrounding a mansion at the centre. It was purchased by the Corporation of Croydon in 1900 and opened as a public park, laid out with ornamental gardens and a woodland walk. The mansion became a museum and an old nursery was used to grow chrysanthemums. The mansion was demolished in 1960. Today the park is managed by Croydon Council, with input from the Friends of Grangewood Park.

Conservation work

London Wildlife Trust thinned scrub and removed cherry laurel to encourage oak regeneration between 2017 and 2021. An area of grassland in the south eastern part of the site was fenced to encourage regeneration of a shrub layer.

Ongoing conservation work could focus on allowing further areas of the site to develop a shrub layer and creating the conditions for oak to regenerate. Underplanting with hazel, hornbeam and other species characteristic of the Great North Wood will help to diversify the structure of the wood. There are opportunities for grassland restoration in the amenity grassland areas, particularly focusing on the area with acid characteristics.

Grangewood Park

Habitat / Feature:

- Amenity grassland
- Meadow
- Wooded Park
- Regeneration area
- Hard surface path

Management activity:

- Fenced regeneration area management
- Invasive species control
- Meadow restoration

Grangewood Park workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.6	Invasive species control	Cut cherry laurel to ground level in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	1	■					■	■	■			■	■
6.3.7	Tree and shrub planting	Tree and shrub planting to encourage regeneration.	2	■	■									■	■
6.1	Controlling access	Create more fenced regeneration areas.	2	■	■	■	■	■	■	■	■	■	■	■	■
6.3.4	Grassland management*	Mowing and restoration of neutral grassland meadow.	3 / 4			M	S	R				M			
6.4/6.5	Survey and monitoring	Monitor important ground flora (wood anemone, wood speedwell, and bitter vetch) populations.	5	■					■	■	■			■	■
6.1	Controlling access	Monitor and manage fenced regeneration area.	6	■					■	■	■			■	■
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site			■	■	■				■			
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

*Grassland management: M = Mow, collect and remove arisings, S = Sow wildflower seed mix if necessary, R = Remove problem species if necessary.

Hillcrest Estate Wood

© Sam Bentley-Toon

Description

Standing in Upper Sydenham, close to Crystal Palace Park, the woodland that surrounds part of the Hillcrest Estate is a Site of Borough (I) Importance for Nature Conservation. It comprises of three stands covering an area of 2.6 hectares. The fragment to the north is predominately sycamore woodland, with elder and hawthorn in the shrub layer and a ground flora consisting mainly of bramble and ivy. The fragments to the south contain mature pedunculate oak, hornbeam, sweet chestnut and several ornamental conifers. A dense shrub layer of holly is present in some areas. The section of woodland to the south-east contains wild garlic, English bluebell, violet, snowdrop and Solomon's-seal appears to be ancient in character. Japanese knotweed is present throughout the woodland.

History

Remnants of ancient and recent woodland were incorporated into the landscaping of Hillcrest Estate, which was built in 1967 on the route of the demolished Crystal Palace High Level railway branch, close to the Paxton Tunnel, one of two on the line, which had closed in 1954. The part of the site adjacent to Bluebell Close contains many ornamental plant species and appears to have been part of the gardens of large houses on Sydenham Hill. The site is managed by Lewisham Homes on behalf of Lewisham Council.

Conservation work

Work undertaken by London Wildlife Trust and the Friends of Hillcrest Wood over 2017-21 included removing invasive species, such as cherry laurel, spotted laurel, garden privet and snowberry. Holly thinning was also undertaken, and large amounts of fly-tipped waste were removed from the site during this time. London Wildlife Trust began clearing a new path through the south east section of woodland from Hillcrest Close to The Gradient to improve access to the wood but were hampered by the presence of Japanese knotweed.

Ongoing conservation work should include continuing to remove fly-tipped waste, controlling regrowth of previously cut invasive species, continuing with holly thinning, treatment of Japanese knotweed and establishing a path through the south east section.

removing fly-tipped waste © Sam Bentley-Toon

Hillcrest Estate Wood

Habitat / Feature:

- Amenity grassland
- Woodland
- Hard surface path

Management activity:

- Invasive species control
- Vegetation thinning required
- Create new path

Hillcrest Estate Wood workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.6	Invasive species control	Cut cherry laurel to ground level in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	1 / 3	■					■	■	■			■	■
6.3.6	Invasive species control	Selectively thin 30% of holly.	2	■										■	■
6.3.6	Invasive species control	Monitor Japanese knotweed and report to landowner so that it can be treated.	4				■	■	■	■	■				
6.1	Path improvements	With landowner agreement create a new path from Hillcrest Close to The Gradient.	5	■	■	■						■	■	■	■
6.4/6.5	Surveying and monitoring	Monitor important ground flora (bluebell, wild garlic) populations.	4	■	■	■	■	■	■	■	■	■	■	■	■
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site				■	■						■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

Long Lane Wood

Description

Located between Monks Orchard and South Norwood Country Park, this site consists of 6.3 hectares of oak woodland with some amenity grassland and scattered trees to the south-west. Designated as a Site of Borough (II) Importance for Nature Conservation, it is also listed on the Ancient Woodland Inventory. The shrub layer across most of the site is thick bramble, probably due to the relatively well spaced trees and open canopy which allows light to reach the ground.

In some places tree regeneration is taking place with wild cherry and oak emerging through the bramble. Wood anemone, bluebell, bugle and greater stitchwort are scattered across the site and mostly evident at the side of paths and in the parts of the site that are mown which are adjacent to Long Lane. A patch of dog's mercury is present at the edge of the site that borders Long Lane and pignut is abundant, particularly along the south eastern boundary. A portion of the site, the 'bird sanctuary', is fenced off on the south-east side. Here a shrub layer of hazel and a dense carpet of English bluebell is in competition with a thick layer of bramble. There is a small patch of grassland in the middle of the site towards the bird sanctuary which has acidic characteristics, including the presence of yellow meadow ant hills.

History

Long Lane Wood is thought to have belonged to nearby Ham Farm, later being absorbed into the Monks Orchard estate. It was purchased by the County Borough of Croydon in 1924 for use as a public open space. In 1998 the mowing regime was discontinued with a view to establishing a shrub layer and allowing trees to regenerate.

pignut © Brian Eversham

Conservation work

London Wildlife Trust's work at Long Lane Wood over 2017-21 focused on bramble clearance to reduce competition on bluebells, largely in the bird sanctuary. An area of bramble was also cleared in the main part of the wood to encourage tree regeneration and reduce competition on some young oaks.

Ongoing conservation work should focus on controlling bramble to encourage tree regeneration and the formation of a more varied shrub layer. Bramble control in the bird sanctuary should be undertaken to reduce competition on bluebell.

bramble clearance

Long Lane Wood

Habitat / Feature:

Woodland

Path

Hard surface path

Management activity:

Vegetation thinning required

Long Lane Wood workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.5	Managing scrub	On rotation cut one eighth of bramble in area.	1	■										■	■
6.3.5	Managing scrub	Cut back bramble that encroaches on bluebells and wood anemone.	2	■										■	■
6.4/6.5	Surveying and monitoring	Every five years monitor ancient woodland indicator species.	Whole site			■	■	■							
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

New Cross Gate Cutting

Description

Located in north-east Lewisham, between Brockley and Telegraph Hill, bordering Vesta Road at its south, the Cutting stretches north towards New Cross Gate railway station. It comprises 3.9 hectares of young oak, sycamore and birch woodland, and is the northern part of a railway corridor running south to Forest Hill designated as a Site of Metropolitan Importance for Nature Conservation. The western flanks support several meadow areas, one of which has acidic characteristics supporting plants like sheep's sorrel. Elsewhere the ground flora is dominated by ivy, bramble and cow parsley and the shrub layer consists mainly of hawthorn, elder and hazel. A small stand of reedbed is present along the eastern boundary of the western part of the site.

History

Once part of Hatcham Wood, the area was cleared for agriculture by the 18th century. A cutting was first dug for the creation of the Croydon Canal in 1809; this was then widened and straightened in 1838-39 for the London & Croydon Railway. In the 1940s wartime allotments were established, but by the late 1970s woodland returned to its western slopes. Much of the cutting is covered with crushed brick that was dumped on the site from a nearby brickworks; this creates a free draining acid substrate that influences the flora of the site. London Wildlife Trust has managed the site as a nature reserve since 1987, now through a licence with Network Rail.

Conservation work

The Trust's management has continued to focus on regularly cutting the meadow areas, removing invasive Turkey and holm oaks, controlling bramble, and maintaining the path. A new entrance gate was installed in 2021.

New Cross Gate Cutting

Habitat / Feature:

- Woodland
- Grassland
- Meadow
- Reedbed
- Path
- Railway line

Management activity:

- Invasive species control
- Meadow restoration
- Grass cutting required
- Reedbed maintenance

New Cross Gate Cutting workplan

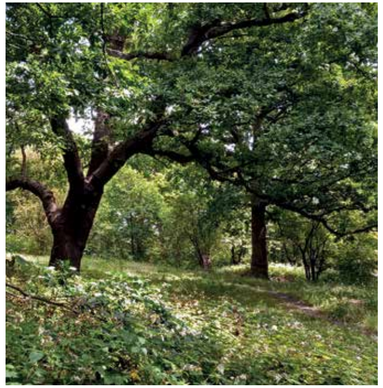
Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.6	Invasive species control	Annually remove stump regrowth of holm and Turkey oak. Also remove new saplings. Japanese knotweed should be monitored annually and if present reported to the landowner so that it can be treated.	1						■	■	■				
6.3.5	Managing scrub	Cut back encroaching scrub and tall herbaceous plants around the perimeter of the area.	2 / 3 / 4	■					■	■	■			■	■
6.3.4	Grassland management*	Grassland mowing.	2 / 3			M		R				M			
6.3.4	Grassland management*	Mowing and restoration of acid grassland area.	4			M		R				M			
6.3.5	Managing scrub	Cut back encroaching scrub to encourage development of woodland tall herbaceous plants. Cut mature scrub in winter. Cut annual regrowth in summer. Mow or cut all tall herbaceous plants in September.	5 / 6	■					■	■	■	■		■	■
6.3.6	Pollarding	Pollard poplars in area 7 every 5 - 7 years. Pollard willows in area 8 every 3 - 5 years.	7 / 8	■										■	■
6.3.8	Reedbeds	Cut one third of reeds per annum to encourage healthy population. Cut back bramble and remove any regenerating trees.	9	■	■									■	■
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

*Grassland management: M = Mow, collect and remove arisings, R = Remove problem species if necessary.

One Tree Hill

Description

Situated between Brenchley Gardens and Honor Oak Park, the Hill is designated a Site of Borough (I) Importance for Nature Conservation and a Local Nature Reserve, as well as a Public Open Space within Metropolitan Open Land. It comprises 6.8 hectares of predominantly sessile oak woodland on a steep-sided hill, and is owned and managed by Southwark Council. There are several veteran oaks throughout the site, as well as a few wild service-trees, indicators of ancient woodland. London plane, hybrid black poplar, false acacia, sycamore and pear are also present. Hawthorn, holly and elder form the shrub layer and bramble and ivy are dominant in the ground flora. There are several more open areas with amenity grassland, neutral grassland and acid grassland. Blackthorn, hawthorn and bramble scrub is present at the margin of the grassland areas and is in some places encroaching on to them.



History

Originally part of the Great North Wood, the area now known as One Tree Hill was cleared in the early 19th century for grazing livestock. In 1897 an attempt to enclose the site by a golf club, led to a noisy and successful campaign that eventually led to the site being saved and opened to the public in 1905. An oak tree was planted on the summit, at the same spot of the oak that Elizabeth I is said to have picnicked under, but which had been destroyed by lightning in 1888. London plane, pear, false acacia, cherry laurel and privet are a legacy of the Hill's formal planting. During the late-20th century management of the site lapsed, and woodland returned to its slopes. It was designated as a Local Nature Reserve in 2007.

Conservation work

Friends of One Tree Hill have been active on the site since 1996 and London Wildlife Trust became involved in 2017. Work has focused on removing invasive species (cherry laurel and garden privet), preventing scrub encroachment on to grassland areas, thinning trees around veteran oaks and blocking off desire lines with deadhedging to prevent trampling.

coppicing © Sam Bentley Toon

Ongoing conservation work could include grassland restoration, controlling scrub at the margin of grassland areas, continuing to thin trees around veteran oaks and controlling regrowth of invasive species.

One Tree Hill

Habitat / Feature:

- Woodland
- Grassland
- Hard surface path

Management activity:

- Invasive species control
- Grass cutting required
- Vegetation thinning required

One Tree Hill workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.4	Grassland management	Council to mow (M) grasslands & collect cuttings. Retain tree saplings in area 5.	1 / 2 / 3 4 / 5 / 7 10			M						M			
6.3.5	Managing scrub	Cut back encroaching scrub from the grassland areas. Includes removing regenerating blackthorn and Turkey oaks and grubbing out roots / stumps.	1 / 2 / 3 4 / 5 / 7												
6.3.5	Managing scrub	Maintain ash trees along path edge but remove from grassland. Cut back encroaching dogwood, bramble, blackthorn and ash.	7												
6.3.1	Ancient and veteran trees	Remove any young trees (not oaks) crowding veteran trees. At location 14 expand population of Wild Service tree.	6 / 14												
6.1	Path improvements	Monitor and maintain hard surface path (area 8) and steps up to area 2.	8												
6.3.6	Selective felling, coppicing and pruning	Cut overhanging vegetation below 2.5 metres on Brenchley Gardens.	9												
6.3.6	Selective felling, coppicing and pruning	Expand width of ride to either side of path by selectively felling trees (once) and then managing regrowth.	11												
6.3.6	Invasive species control	Cut cherry laurel & garden privet to ground level in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	12 / 13												
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site												
6.1	General tasks	A variety of general management tasks as required.	Whole site												

Spa Wood (The Lawns)

veteran oak © Sam Bentley-Toon

Description

Spa Wood, also known as The Lawns, is situated at the northern end of the London Borough of Croydon between Spa Hill, Beulah Hill, Grange Road and The Lawns. It is a crescent-shaped block of woodland that partially encircles an area of amenity grassland. The site is designated as a Site of Borough (II) Importance for Nature Conservation covering an area of 5.7 hectares, 4.1 of which is wooded. The woodland is predominately sessile oak with some pedunculate oak including a large and impressive veteran near the Grange Road entrance to the site. Hornbeam, ash, sycamore and beech are also present. Holly is dominant in some areas and along with young beech, (which is particularly common in the southern part of the site) casts a dense shade that limits the presence and diversity of ground flora and tree regeneration. There are remnant patches of ancient woodland indicator plants including wild garlic and wood anemone. Most of the bluebells on the site are hybrids. In the amenity grassland area, there is an increase in species diversity near the boundary with the woodland. Here species such as common bird's-foot trefoil and common knapweed are present. One area contains rush, indicating a wetter area, which is downhill from a spring that emerges in the woodland.

History

The site was part of Bewley Coppice but in 1806 it was purchased by John Davidson Smith who developed it as Beulah Spa, a pleasure garden surrounding a mineral spring, which opened in 1831. Landscaping was designed by Decimus Burton and would have involved significant woodland clearance and modification, however it's likely that some areas of the site remained continuously wooded throughout this period and should be considered ancient. The Beulah Spa closed in 1856, two years after Crystal Palace opened nearby. The site was auctioned off, and a large mansion - 'The Lawns' - was constructed, with other parts of the land being separately developed. The mansion was demolished after fire damage in the 1960s, but the remaining wood and meadow had already been conveyed to the Croydon Corporation in 1939 to be managed as an open space in perpetuity.

Conservation work

Between 2017 and 2021 London Wildlife Trust worked with the Friends of Spa Woods to remove invasive species including cherry laurel, spotted laurel, box honeysuckle, garden privet, false acacia and snowberry. Holly was also removed from some areas. In cleared areas trees and shrubs were planted, including hazel, small-leaved lime, spindle and guelder-rose. Path improvements and removal of large amounts of fly-tipped waste were also carried out during this time. Additional vegetation clearance work was carried out by TCV Croydon. The Friends of Spa Woods fundraised for and commissioned a series of chainsaw sculptures which were carved and installed as a nature trail in 2019.

Ongoing work should include cutting back regrowth from previously cut invasive species, including false acacia which is suckering in cleared areas. There is a potential to remove several mature false acacia from the north western part of the site which are at risk of further encroaching into the wood. Further holly thinning and thinning of young beech should be considered to open up the canopy and promote regeneration of other tree species and a more diverse ground flora. There is potential for grassland restoration in the amenity grassland area with the adoption of a reduced mowing regime and collection of arisings.

cutting back invasive species © Rachel Dowse

Spa Wood (The Lawns)

Habitat / Feature:

- Amenity grassland
- Woodland
- Meadow
- Path

Management activity:

- Invasive species control
- Meadow restoration
- Vegetation thinning required

Spa Wood (The Lawns) workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.6	Invasive species control	Cut cherry/spotted laurel, box honeysuckle & snowberry to ground level in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	1 / 2 / 3												
6.3.6	Invasive species control	Selectively thin 30% of holly.	4			M	S	R				M			
6.3.4	Grassland management	Mowing and restoration of neutral grassland meadow. **Restore larger area if possible.**	5												
6.3.5	Managing scrub	Selectively thin 30% of bramble.	All of wood land												
6.3.6	Invasive species control	Remove regenerating false acacia trees.	All of wood land												
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site												
6.1	General tasks	A variety of general management tasks as required.	Whole site												

*Grassland management: M = Mow, collect and remove arisings, S = Sow wildflower seed mix if necessary, R = Remove problem species if necessary.

Streatham Common woodland

© Mathew Frith

Description

Lying on the west-facing flank of Crown Point, gently sloping towards Streatham Vale, the Common comprises 26.1 hectares including approximately 7 hectares of secondary oak woodland. Most of Streatham Common's eastern half is designated as a Local Nature Reserve (LNR), whilst the whole site is a Site of Borough (I) Importance for Nature Conservation. This area includes all the woodland, which is separated into five areas, as well as amenity grassland, neutral grassland, acid grassland and small areas of bramble scrub. The two areas of woodland in the western half of the LNR are young oak woodland which has regenerated on an area of acid grassland, a remnant of which survives immediately to the east. The ground flora here is mainly bramble and remnant acid grassland, although the shrub layer is mainly absent. Elsewhere the woodland is more mature, dominated by oak with various other species present including hornbeam, Turkey oak, ash and horse chestnut. The understory where present is mainly holly and young sycamore, with occasional gorse indicating the former heathland nature of the site. The ground flora mainly consists of ivy and bramble with bracken in some areas.

The area of woodland to the east of the Rookery Garden is the largest compartment. It has a large area of bare soil where ground flora and shrubs are almost entirely absent, while the southern part of this woodland is dominated by suckering elm and young yew. Along the eastern boundary of this compartment is an old ditch line with a row of veteran oaks that extends beyond the woodland along the boundary with Norwood Grove.

History

The site was once part of the Manor of South Streatham and tenants had rights to gather fuel and graze their livestock. Recorded in the Domesday Book of 1086 as Lime Common, it stretched from Norbury to Tulse Hill. By the 19th century the original heathland was replaced by hayfields, farms and small holdings. Unlike other areas of common land throughout the Great North Wood, Streatham Common escaped enclosure. In 1883 it was passed on to the Metropolitan Board of Works, which planted trees along the border, laid out paths and allowed the eastern end of the site to become wooded. Responsibility for Streatham Common was then passed to the original Wandsworth Borough Council, but following boundary changes in 1974, resulting in Clapham and Streatham incorporated within an expanded Lambeth Borough Council, it is now wholly within and owned by the London Borough of Lambeth. Finally, with input from the Friends of Streatham Common, who simultaneously installed a Nature Trail, approximately 40% of the site was designated as a LNR by Lambeth Council in 2013.

Conservation work

Although wholly owned by the borough council, the more naturalised parts of Streatham Common are co-managed through a partnership with Streatham Common Cooperative (SCCoop), who are currently responsible for the Rookery Garden, with additional support and assistance provided by the Friends of Streatham Common (FoSC). SCCoop have been undertaking conservation works in the LNR since 2016 which has focused on thinning out yew and elm, planting hazel and other trees in the woodland, planting a hedge along the boundary with Norwood Grove, removing cherry laurel and improving surface drainage. In 2018 London Wildlife Trust worked with SCCoop, with the support of Lambeth Council, to fence part of the trampled area and coppice some of the oaks inside it in order to promote tree regeneration and the recovery of the ground flora and shrub layer. In 2019 the drainage channel was improved, and steps installed on part of the woodland's path.

Ongoing and future conservation works include additional fencing and coppicing in the trampled area within the woodlands, and restoration of the acid and neutral grassland areas, as well as holly thinning along the eastern boundary of the main site.

Streatham Common woodland

Habitat / Feature:

- Amenity grassland
- Meadow
- Woodland
- Regeneration area
- Path
- Hard surface path

Management activity:

- Fenced regeneration area management
- Meadow restoration
- Vegetation thinning required

Streatham Common woodland workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.1	Controlling access	Monitor and manage fenced regeneration areas.	1	■	■	■	■	■	■	■	■	■	■	■	■
6.1	Controlling access	Create more fenced regeneration areas.	2	■	■	■	■	■	■	■	■	■	■	■	■
6.3.6	Invasive species control	Selectively thin 30% of holly.	3	■										■	■
6.3.5	Managing scrub	Remove tree and scrub encroachment onto grasslands.	4 / 5	■										■	■
6.3.4	Grassland management*	Mowing and restoration of neutral grassland meadow.	6			M	S	R				M			
6.3.4	Grassland management*	Mowing and restoration of acid grassland meadow.	7			M	S	R				M			
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

*Grassland management: M = Mow, collect and remove arisings, S = Sow wildflower seed mix if necessary, R = Remove problem species if necessary.

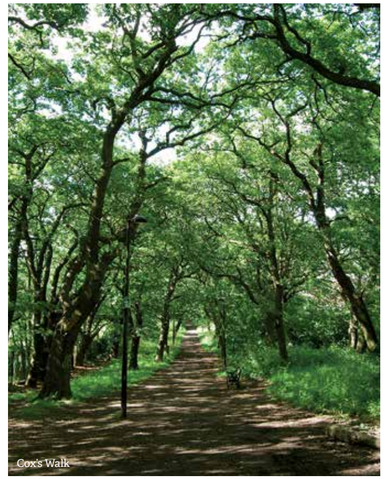
Sydenham Hill Wood and Cox's Walk

Description

Situated at the south-eastern boundary of the London Borough of Southwark between Sydenham Hill and Dulwich Common, the site consists of sessile oak and hornbeam woodland covering an area of 11.6 hectares. Designated as a Local Nature Reserve and Metropolitan Open Land, it is recorded on the national Ancient Woodland Inventory and falls within the Dulwich Wood Conservation Area. Along with Dulwich Wood it forms the largest remaining fragment of the Great North Wood. It is a mixture of ancient woodland and recent woodland on former railway land and Victorian gardens. The shrub layer consists of holly, yew, elder, hazel and hawthorn. Bramble and ivy dominate the ground flora and are supplemented by remnant populations of wild garlic, English bluebell and wood anemone. A small glade near the western boundary of the site supports grassland species and rosebay willowherb and a small pond is situated at its edge. Cox's Walk is a long avenue of mature pedunculate oak extending from the northern end of the wood.

History

Once part of the Dulwich Wood coppices, parts of the site were cleared in the 19th century to make way for Victorian villas and their gardens and for the Crystal Palace High Level railway branch which ran through the site. The railway closed in 1954, the villas became derelict and were all demolished by 1982, allowing woodland to re-establish itself in these areas. From 1981 London Wildlife Trust and local societies campaigned to defend the Wood from development; the Trust has managed the site since 1982 as a nature reserve. Cox's Walk was originally laid out in the 1740s by the publican Francis Cox to create a route between the Green Man Tavern and the Sydenham Wells.



Cox's Walk

clearing the glade © Sam Bentley-Toon

Conservation work

Management of the Woods has focused on the creation and maintenance of glades, a pond, and the path network, control of invasive species, and habitat enhancements. Fencing has been installed to protect some areas from trampling and prevent disturbance to wildlife such as hedgehogs.

Ongoing conservation work should focus on selective thinning and coppicing to introduce more structural diversity, and to reduce the dominance of holly and yew in certain areas. Path improvements would help improve accessibility while focusing footfall and allowing trampled areas to recover. Further fencing will be considered to protect areas of special interest (for example, populations of more sensitive woodland flora) and provide more space free from disturbance by people and dogs.

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Sydenham Hill Wood and Cox's Walk

Habitat / Feature:

- Woodland
- Grassland
- Pond
- Path
- Cox's Walk

Management activity:

- Invasive species control
- Grass cutting required
- Vegetation thinning required
- Pond maintenance

Sydenham Hill Wood and Cox's Walk workplan

Section	Management activity	Management task	Area on map	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.3.5	Managing scrub	Scalloping on rotation of vegetation to maintain path and prevent scrub encroachment.	1	■										■	■
6.3.6	Selective felling, coppicing and pruning	Selective coppicing and hand pulling of ash and other regenerating tree species to maintain ride.	2	■										■	■
6.3.5	Managing scrub	Rotational bramble cut in winter & summer (if no birds are nesting).	3 / 4	■					■	■				■	■
6.3.6	Invasive species control	Selectively thin 30% of holly.	3 / 4 / 5	■										■	■
6.3.6	Invasive species control	Remove invasive species in winter. Cut regrowth on stumps or dig out roots and stumps in summer.	6	■					■	■	■			■	■
6.3.6	Invasive species control	Treat Japanese knotweed.	7				■	■	■	■	■				
6.3.4	Grassland management*	Mow 75% of glade and collect cuttings.	8			M		R				M			
6.3.5	Managing scrub	Remove ivy around wild garlic & other ancient woodland indicator species to encourage them to spread.	9	■											
6.3.8	Ponds and lakes	Clear encroaching vegetation to maintain between 10 - 30% open water.	10									■			
6.3.5	Managing hedgerows	Hedge laying along frontage with Cox's Walk.	11	■					■	■				■	■
6.4/6.5	Surveying and monitoring	Habitat, species, infrastructure, and visitor survey programme as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■
6.1	General tasks	A variety of general management tasks as required.	Whole site	■	■	■	■	■	■	■	■	■	■	■	■

*Grassland management: M = Mow, collect and remove arisings, R = Remove problem species if necessary.

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