Camden Tree Planting Strategy

2020-2025

Contents
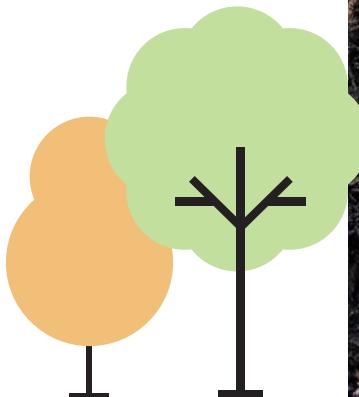
Use these buttons to jump to relevant sections

Foreword

"Camden Council has been a leader in responding to the climate and ecological emergency we are currently witnessing."

We were the first council in the UK to hold a Citizens' Assembly on the Climate Emergency, and in summer 2020 we published our ambitious five-year Climate Action Plan. **In 2019 and 2020, Camden was recognised as one of only 120 Tree Cities of the World**[1]; in 2020 independent analysis recognised the borough as having one of the 20 highest canopy covers in the country[2].

The UK is already 1.2[3] degrees centigrade above pre-industrial temperatures. Without everybody taking action, including at local level, the impacts of climate change will be devastating. At the same time, major cities like London are set to continue growing, potentially bringing greater pollution and placing more demand on limited space.

The benefits that trees bring has long been known, but only now have they been recognised as being essential to making urban areas liveable. They lower summer temperatures, provide food and homes for wildlife, and help improve air quality. A street tree can provide a connection to nature for adults and children as they watch it change with the seasons.

Camden Council's Tree planting Strategy sets out how we will meet our ambition to plant more trees in the borough, increasing our commitment by 50%, to at least 600 trees per year. Alongside increasing the canopy cover, we will also work to increase the quality and diversity of the urban forest to support a resilient urban forest throughout the borough. Greening our cities so we can keep living in them is one of the major challenges of our time – this strategy is an important contribution to making that happen.

Adam Harrison

Cabinet Member for a sustainable Camden

[1] https://treecitiesoftheworld.org/directory.cfm

[2] https://www.bbc.co.uk/news/science-environment-54311593

[3] https://www.theccc.org.uk/2020/04/21/how-much-more-climate-change-is-inevitable-for-the-uk/
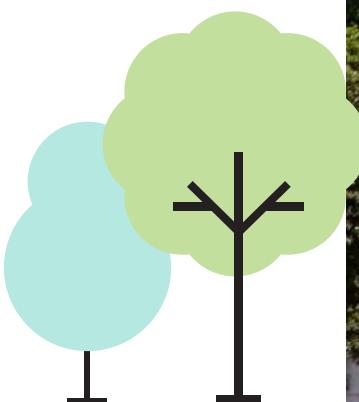
Introduction

This strategy sets out Camden Council's ambition for tree planting, which aims to help meet the needs of present and future generations.
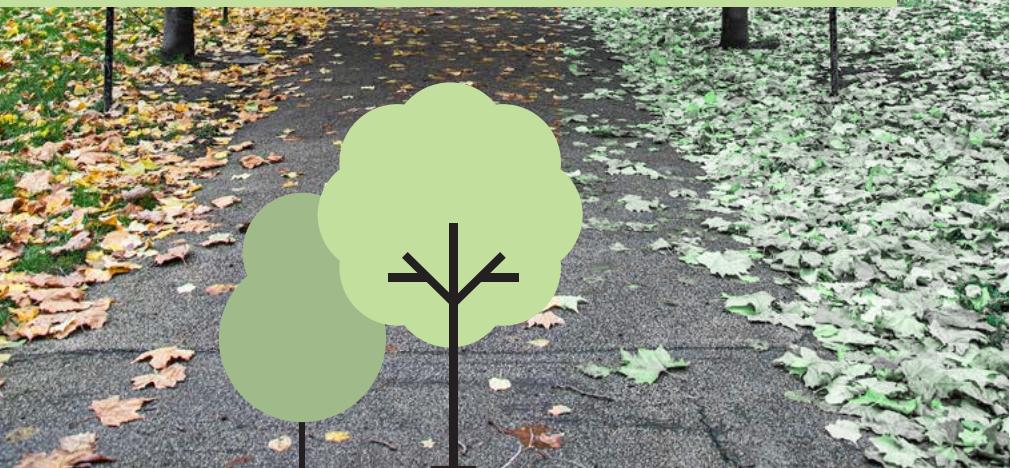
Camden Council views trees as vital, constituting critical infrastructure that helps make the urban environment liveable and provides part of the response to the climate emergency.

This strategy sets out how the council will increase canopy cover in Camden, maintain species diversity, and ensure a healthy population of trees in the borough.

Vision

Camden Council aims to create a resilient urban forest throughout the borough, seizing all opportunities available to maintain and expand canopy cover provided by a diverse population of trees.

The council will do this through taking evidence-based decisions, **increasing canopy cover** in the borough by planting "the right tree for the right site", while maintaining and promoting **species diversity**, in areas where the council can **maximise the benefits** that trees give to the community. This is not something the council can do alone and the council will need **community involvement, private landowners** and other public bodies to work with us.

To ensure the council's trees are protected and leave a lasting legacy through its tree planting. The council will maintain **biosecurity** and continually review its practices for **better tree planting and aftercare**.

The council will measure progress and build the evidence base for future decision making by **maintaining its detailed recording** of tree planting in the borough and improving on this wherever possible.

Community involvement

Increase tree canopy cover

Private land

Increase diversity

Camden tree planting Strategy

Biosecurity

Maximise benefits

Better tree planting & aftercare

Better recording

Benefits of the urban forest

The urban forest provides a wide range of ecosystem services, the level of which has been linked to the size and area covered by its canopy[4]. Essentially, on a human scale a large tree will provide more benefits to a population than a small one[5] and contribute more to the urban forest's canopy cover.

Ecosystem services are benefits that trees can provide to humans, and these can be broken down into environmental, social[6] and economic benefits[7]. These are summarised below.

Environmental benefits

Trees:

- Conserve energy by reducing the heating and cooling needs of properties, helping mitigate climate change.
- Sequester carbon dioxide and reduce its production by lowering energy needs (such as increased demand for air conditioning).
- Remove pollution via foliage and their stomata.
- Intercept rain and reduce the volume of run-off in storm conditions, which can alleviate pressure on drainage systems.
- Can reduce noise.
- Provide an important ecological habitat for wildlife in urban areas.

Social

Trees:

- Create desirable environments and increase amenity value.
- Reduce recovery times after illness and operations for patients living in areas that have large numbers of trees; they can also reduce stress levels[8].
- Psychologically, provide an important connection between city dwellers and the natural environment, which can reduce stress levels.
- Provide an identity to an area that can foster sense of community and civic pride.

Economic

Trees:

- Reduce heating and cooling costs around a property by providing shelter and shade[9].
- Improve the health of the population by reducing health care cost and reduce recovery times after illness or operation.
- Can raise property values, up to 7-15% higher in areas with high canopy cover than those in areas of low canopy cover[10].

[4] Nowak, D. J., Rowntree, R. A., McPherson, G. E., Sisinni, S. M., Kerkmann, E. R., & Stevens, J. C. (1996). Measuring and analyzing urban tree cover. Landscape and Urban Planning, 36, 49-57.

[5] Gregory, E. M. (2003, January). A Benefit-Cost Analysis Of Ten Street Tree Species In Modesto, California, U.S. Journal of Arboriculture, 29(1), 1-8.

[6] Dwyer, J. F., McPherson, E. G., Schroeder, H. W., & Rowntree, R. A. (1992). Assessing the benefits and costs of the urban forest. Journal of Arboriculture, 18((5)), 227-234.

[7] TDAG. (2010). No Trees, No Future. Tree and Design Action Group.

[8] https://nhsforest.org/evidence-benefits

[9] Gill, S. E., Handley, J. F., Ennos, A. R., & Pauleit, S. (2007). Adaptin Cities For Climate Change: The Role Of Green Infrastructure. Built Environment, 33(1), 115-133.

[10] CABE Space. (2005). Does Money Grow On Trees. CABE space.
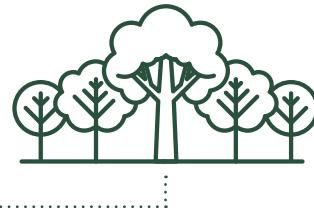
What the council knows about Camden's urban forest

The London Borough of Camden Council is responsible for the management of approximately **28,000 trees**

and a further **10-15,000 in woodland sites.**

These trees together with those in private ownership help make up Camden's urban forest, which covers **22.9%**[11] of the borough.

This is **2.9% above the suggested 20% canopy cover aspiration** recommended by the Urban Forestry and Woodland Advisory Committee Network for inland towns and cities[12]

and 1% higher than the London iTree eco study carried out in 2015[13].

To put Camden's canopy cover value into perspective, one study to measure canopy cover for 283 of England's towns and cities found that:

60% of them had canopy cover of between 10-20%

and the average was 16.4%

Camden therefore has much better canopy cover compared to some larger towns and cities[14].

11 https://opendata.camden.gov.uk/stories/s/ad58-u6q7

12 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/709464/FR_FC_TreeCanopyData_leaflet.pdf

13 https://www.treeconomics.co.uk/wp-content/uploads/2018/08/London-i-Tree-Report.pdf

14 https://www.researchgate.net/publication/322337570_The_Canopy_Cover_of_England%27s_Towns_and_Cities_baselining_and_setting_targets_to_improve_human_health_and_well-being

In 2017 an i-Tree Eco inventory study was carried out on the trees Camden is responsible for. It sought to calculate the benefits they provide, including pollution removal, carbon storage, carbon sequestration and avoided run-off.

The results of the study found that council managed trees provide £234,202[15] worth of benefits annually.

A further study conducted by UCL found that parts of Camden had the potential to store as much carbon as a tropical forest[16].

Benefit	Amount	Value
Pollution Removal	5 tonnes per annum	£175,500.00 per annum
Carbon Storage	10,800 tonnes	£691,300.00
Carbon Sequestration	207 tonnes per annum	£48,483.00 per annum
Avoided Runoff	6,739 metres cubed per annum	£10,219.00 per annum

Table 1 Total value of benefits from i-Tree Eco inventory study of council managed trees in 2017.
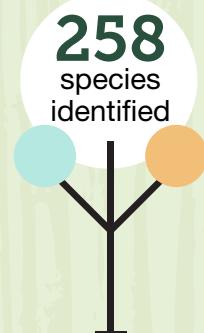
The amenity value of council managed trees as calculated by Capital Asset Valuation of Amenity Trees (CAVAT) is **£343,190,025** (calculated in 2019).

This figure represents the replacement cost of the trees, taking into consideration health, function and human population density that benefits from the trees.

The council's tree population is diverse given the small geographical size of Camden as a borough, with...

258 species identified

However, there is an overreliance on plane (Platanus sp.), which is the dominant species and has the largest trees in terms of 'diameter at breast height' and leaf area. Leaf area is directly linked to the benefits a tree provides, so the more leaves a tree has the greater the benefits compared to a tree with fewer leaves. Our overreliance on plane trees is a risk as any disease that affects them would see a reduction in the benefits they provide. For example should Ceratocystis platani (Canker stain on plane) arrive in the UK this would threaten our population of London plane trees along with the benefits they provide as trees can die within a short time period.

[15] The calculation was applied to 25,890 tree records as trees in woodlands and records with insufficient data were removed.

[16] https://www.ucl.ac.uk/news/2018/jun/uk-urban-forest-can-store-much-carbon-tropical-rainforests

Why the council needs a tree planting strategy

Camden formally declared a climate and ecological emergency in October 2019.

After Camden carried out the UK's first Citizens' Assembly on climate change, the council adopted the Climate Action Plan 2020-2025, which incorporated the assembly's 17 recommendations. Two of the recommendations involve tree planting[17].

Policy 5 of the tree policy for council managed trees covers tree planting, but the strategy set out in this document expands significantly on this policy[18].

The Camden Transport Strategy 2019-2041 sets out an ambition to increase urban greening to reduce and mitigate the effects of transport (objective 5). Trees are uniquely placed as they can help absorb pollution, slow traffic and provide shade. Incorporating trees into road traffic schemes can create more attractive spaces for walking and cycling[19].

Camden's Clean Air Action Plan highlights the role appropriately chosen and planted trees can play in reducing air pollution and aims to maintain and increase the amount of green infrastructure in the borough[20].

There is a clear desire from the community for more tree planting as a way to help address the climate and ecological emergency the world faces. To make the best use of the resources the council has, the strategy seeks to target tree planting in areas where an increase in canopy cover will provide the greatest benefits to residents. The council cannot increase canopy cover on public land alone and will need private homeowners, businesses and developments to plant trees on their land as well.

17 http://democracy.camden.gov.uk/documents/s89494/Climate%20Action%20Plan%20Appendix%201%20_%20Camden%20climate%20action%20plan.pdf

18 https://www.camden.gov.uk/documents/20142/5268201/Camden+trees+policy.pdf/ac911622-85ff-1d4c-a622-53e7ae71bcc2

19 https://www.camden.gov.uk/documents/20142/18708392/1925.7+Camden+Transport+Strategy_Main+Document_FV.pdf/d7b19f62-b88e-31d4-0606-5a78ea47ff30

20 https://www.camden.gov.uk/documents/20142/0/Clean+air+action+plan+2019-2022_final2.pdf/f7cd1a68-e707-0755-528a-59388adf0995

Goals and actions

Goals and actions

Increasing tree canopy cover

Canopy cover is defined as the percentage of the ground covered by a tree's crown when viewed from above.

As the benefits trees provide are proportionally linked to canopy size it is desirable to increase canopy cover. To develop a canopy cover target the council needs to consider what the carrying capacity of the borough is (i.e. how many trees can be supported and achieve their full potential while balancing current and future use). This is difficult to do as there are a number of variables that are hard to measure: tree mortality rates; the effect of climate change; the effect of invasive pests and diseases; current and future land use; privately owned trees; quality and availability of planting space[21].

To takes some of the above factors into consideration the council has looked at how canopy cover changed over a nine-year period in Camden: 2007 to 2016[22].

Over that 9 year period: Camden saw a canopy increase of 1.2%

from **21.7%** in 2009 → from **22.9%** in 2016

Using that figure, the council has predicted 3.7% as minimum canopy cover increase over 25 years. To achieve this the council needs to increase its planting commitment from 400 to 600 trees per year. We will also aim to plant 250 of these trees in new locations to spread the benefit of trees even further.

Subject to the future funding outlook, this will give a predicted canopy cover of 26.6%.

3.7% → **26.6%**

Planting will take place both on streets and on publicly owned green spaces.

Planting more trees is not the only way to increase canopy cover. The existing population also needs to be properly cared for so all publicly owned trees stay healthy and can maximise current and future benefits. The council will maintain its cyclical inspection and maintenance regime to make sure this is achieved. For trees in public ownership, but not managed by Camden, please see the section on better recording.

[21] Kenney, W.A., van Wassenaer, P.J.E., Satel, A. L.: Criteria and Indicators for Strategic Urban Forest Planning and Management. Arboriculture & Urban Forestry 2011. 37(3): 108–117

[22] https://opendata.camden.gov.uk/stories/s/Camden-Tree-Statistics/ad58-u6q7/

**Increasing tree canopy cover in Camden**
ACTIONS
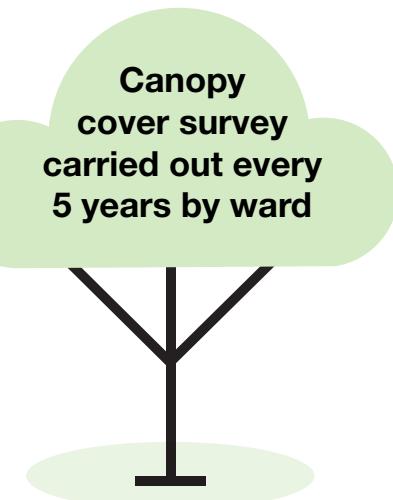
Aim Increase the canopy cover by a minimum of 3.7% by 2045.

Objective

- Prioritise tree planting in locations where the greatest gains can be made.

- Replace all trees removed through programme maintenance, unless the location is unsuitable.

- 'Greening as we go': Liaise with Highways, the council's Community Investment Programme, Green Space Investment Programme and planning department on tree planting projects to encourage more tree planting in any redesign project.

- Liaise with schools to avoid loss of trees and propose new tree planting.

- Encourage residents to plant in their own back gardens or in public spaces.

Measure

Canopy cover survey carried out every 5 years by ward

New tree planting should be proposed by August for it to be included in the planting programme for that year[23].

Promoting species diversity

**Species selection is based upon the right tree for the right site.**

Species selection is based upon "the right tree for the right site" and takes into consideration any services (improve air quality, biodiversity and amenity) or disservices of trees (excessive fruit fall, subsidence and lifting of pavements/walls) may cause.

An i-Tree Eco inventory report carried out in 2017 found the council had a good diversity of tree species: 258.

This provides a resilient tree population that is better equipped to manage the effects of climate change and the risks of introduced pest and diseases.

A recent study commissioned to look at Camden's tree stock flagged up potential areas where species diversity could be improved[24]. It highlighted an over-reliance on London plane trees, which make up over 10% of the council's tree inventory, but provide 40% of the total leaf area and are Camden's largest and oldest trees. Therefore a lot of the public benefits provided by Camden's trees can be attributed to London planes.

The report sets out 5 measures of diversity and goals for us to improve (see appendix B). These will inform the council's aims and objectives set out on the following page.

London plane trees provide 40% of the total leaf area
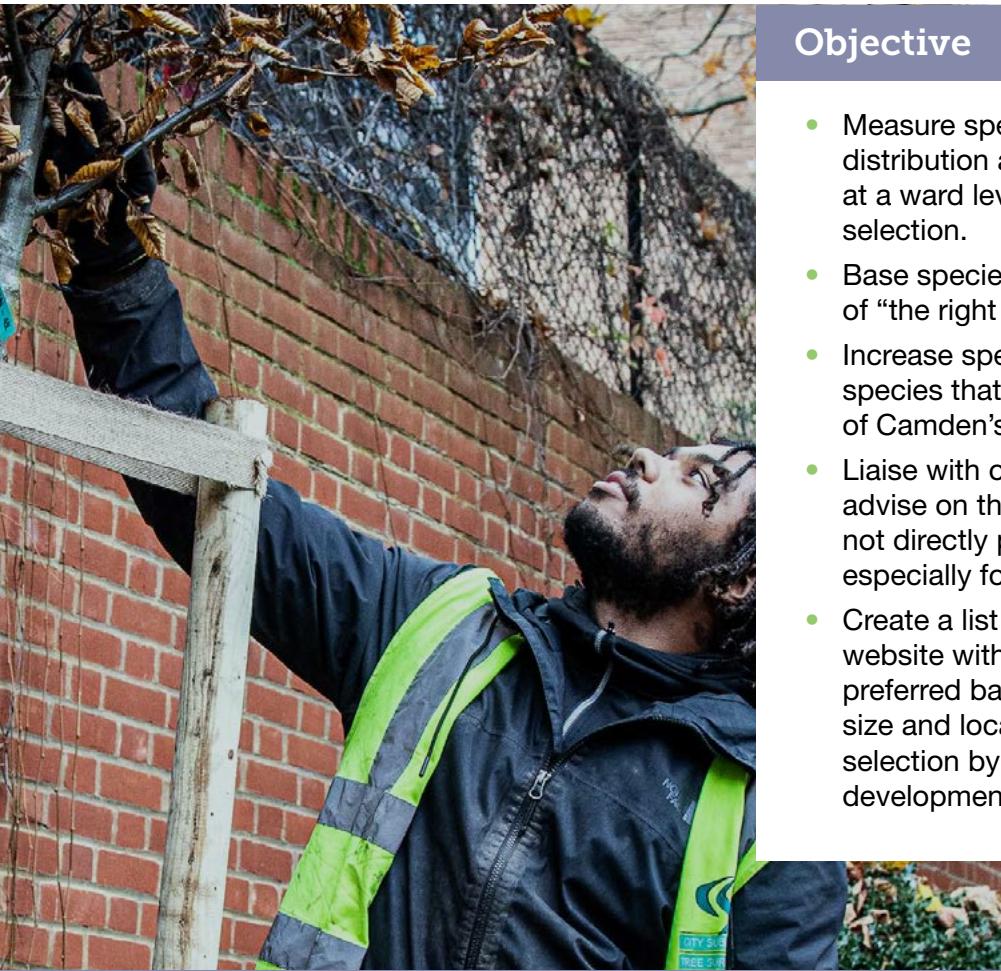
258 species identified

Aim Increase tree diversity in Camden to have a tree stock resilient to pests, disease and climate change.
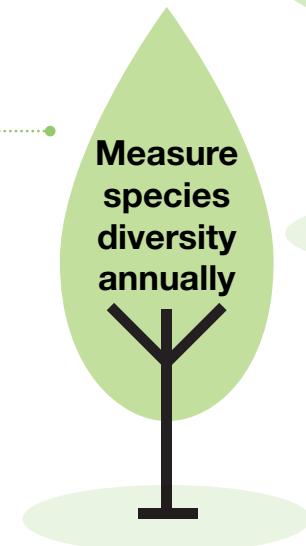
Objective

- Measure species, size and age, distribution and dominance diversity at a ward level to help guide species selection.

- Base species selection on the principle of "the right tree for the right site".

- Increase species distribution by planting species that make up less than 10% of Camden's tree population.

- Liaise with other council departments to advise on the best species to plant when not directly planted by the Tree team, especially for private development

- Create a list of species to put on the website with advice on which species is preferred based on species distribution, size and location. To aid species selection by residents, business and developments.

Measure

Repeat measurement every 5 years.

Measure species diversity annually

Maximising the benefits of trees

Trees are multi-functional and provide a range of benefits for people and wildlife (see benefits of the urban forest). Therefore it is important that they are planted in locations where the benefits they provide are of most use and they are kept healthy so they can do this to the best of their ability.

To maximise a tree's benefits the council also needs to acknowledge they have drawbacks if planted in the wrong place. Trees can cause damage to property, trap pollutants at ground level, trigger allergies or release biological volatile organic compounds (BVOCs) that can transform into ozone on sunny days, and block light. These disservices can be avoided and benefits maximised through smart design and species selection.

Trees can help to improve air quality, and this depends on planting the "right tree for the right site".

Through smart designing, tree planting can help reduce emissions by creating a more pleasant environment to walk or cycle in, or protecting those most vulnerable by creating a barrier or distance between people and pollutants[25]. The council will use pollution maps to help target tree planting and choose species known to improve air quality.

Due to the borough's soil types and the significant numbers of old buildings, the risk of tree-related subsidence is an important part of tree management. The past planting of large species in close proximity to buildings is a problem, especially as a significant area of Camden is on shrinkable clay soil. Damage may result from the presence of trees, so a cyclical pruning regime is in place for a minority of trees to reduce the potential risk to the council. However, tree management does not always prevent subsidence and removal is necessary in some cases. The risk of subsidence will be taken in to consideration when selecting species for replacement or new trees in these areas[26].

[25] http://epapers.bham.ac.uk/3069/1/Ferranti_etal_2019_FirstStepsAQ.pdf

[26] https://www.forestresearch.gov.uk/tools-and-resources/urban-tree-manual/

Aim

Maximise benefits of trees.
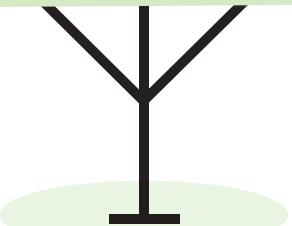
Objective

- Use pollution maps to help prioritise new tree surveys in the priority wards.

- Prioritise species known to improve air quality in areas with high pollution, while still trying to increase the species diversity

- Indicate in species list if species is known to improve air quality (see species diversity)

- Select planting sites and species to help avoid pollutants being trapped at street level.

- Select planting sites and species to reduce the risk of damage to infrastructure and property.

- Biodiversity will be a consideration when selecting species

- The allergenic nature of the tree will be a consideration when selecting species

Measure

Canopy cover survey carried out every 5 years by ward

Measure species distribution

Goals and actions

Increasing the recording of tree planting

The council is not the only organisation carrying out tree planting in the borough.

- The Royal Parks, conservation groups, the City of London, private developments, community groups and homeowners (see: 'increasing planting on private land' page 23 and 'involving the community page 25')

All contribute to planting trees in the borough, but their contribution is not fully recorded.

To address this the council aims to collect tree planting data annually from the Royal Parks, conservation groups, City of London and community groups such as Camden Forest. This will help us measure tree planting in the borough. These numbers will be published, with Camden's own, through the council's opendata website[27].

Private development is more difficult as there is no requirement to report back on tree planting numbers when landscaping works are complete. However, the council will work with colleagues in the planning department to explore ways to check tree planting numbers.

Measuring canopy cover is the best way of monitoring how successful tree planting and tree maintenance have been and will include trees not owned by the council. Repeating surveys every five years will show whether canopy cover is increasing or decreasing. The council will aim to repeat canopy cover surveys every five years.

[27] https://opendata.camden.gov.uk/stories/s/Camden-Tree-Statistics/ad58-u6q7/

Aim

Better recording system of tree planting in the borough.

Objective

- Include recording for trees planted by conservation groups
- Include recording for trees planted through other council projects
- Include recording for trees planted by Royal Parks, TFL, City of London and community groups in Camden
- Explore opportunities to record trees planted by internal and external developments

Measure

Publish yearly planting information on the website

Better tree planting and aftercare

Tree planting by the council is carried out in line with industry best practice.

All trees planted by the council are monitored to check they have been planted to the council's specification. Any that do not meet the specification are replanted by the contractor at no extra cost to the council.

The size of trees the council prefers to plant are heavy or extra heavy standards, which are approximately 3.5 to 4 metres tall, because they have smaller root systems and are easier to accommodate into the pavement. They require less water than a larger tree would and become independent in the landscape quicker.

All trees receive three years of aftercare which consists of watering and young tree maintenance[28]; after this time they should be independent in the landscape.

The public can help the council to nurture these trees in the first three years of planting. To aid residents helping to water the trees in times of drought, watering-bags are installed on all new trees. Trees without bags are established and should not need any additional water. A short animation on how to use the watering bags can be found on the council's website **here**.

To help the trees, residents should refrain from planting flowers in tree pits for the first three years after planting. Planting flowers before this increases the competition the tree faces for water and nutrients it needs to gain independence. Information on planting flowers in tree pits can be found on the website[29].

To help reduce the amount of single use plastic in tree planting the council has identified two changes in Camden's tree planting practice. The first is the plastic irrigation tube, which the council has removed in favour of the reusable watering bags. The second is using hessian ties instead of rubber ones, which will naturally decompose overtime.
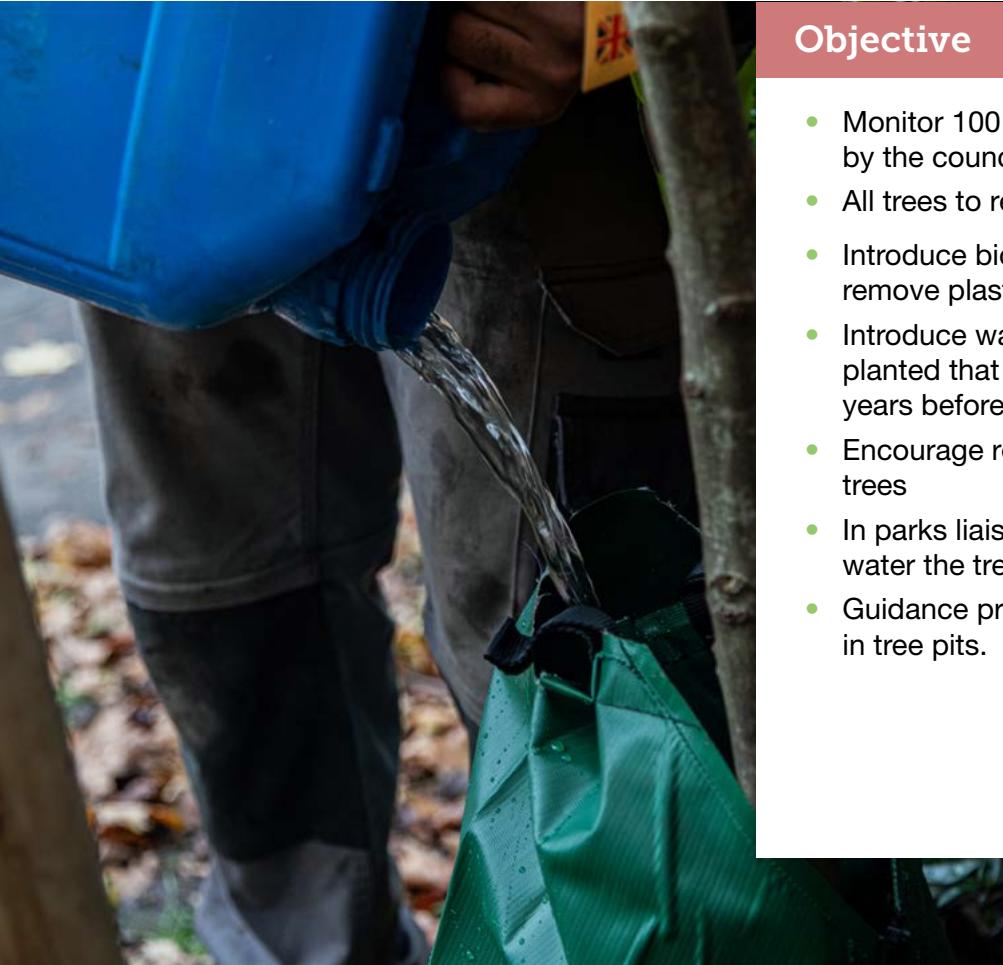
[28] See appendix A

[29] www.camden.gov.uk/trees

Aim

Improve tree planting process and aftercare.
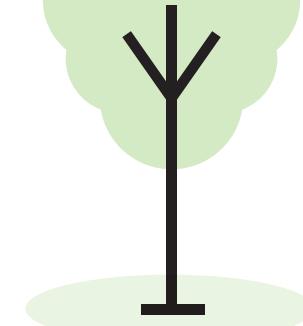
Objective
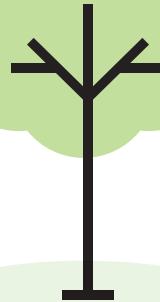
- Monitor 100% of the trees planted by the council's contractors
- All trees to receive three years aftercare
- Introduce biodegradable hessian ties to remove plastic and rubber ties
- Introduce watering bag for all trees planted that remain on the tree for three years before being collected and reused
- Encourage residents to help water new trees
- In parks liaise with static gardeners to water the trees
- Guidance provided on planting flowers in tree pits.

Measure

Monitored by Camden Tree Officers

Calculate annual survival rate for this period.

Biosecurity

Climate change, international travel and trade have increased the frequency of new pests and diseases entering the UK.

The current tree population may not be resilient to these new pests and diseases as they would not normally meet under natural circumstances.

This can have devastating consequences on tree numbers and canopy cover, which will reduce the benefits the council relies on trees to provide for residents.

For example, Camden is over reliant on London plane for the benefits it provides. Ceratocystis platani (canker stain) is a disease that was introduced from the USA to Italy on ammunition cases during the Second World War. This disease is easily transmitted from tree to tree via root-to-root connections or wounds and results in tree death. If this disease arrives in the UK and Camden the council would see a significant portion of Camden's tree population threatened, as trees can die within 3-7 years[30].
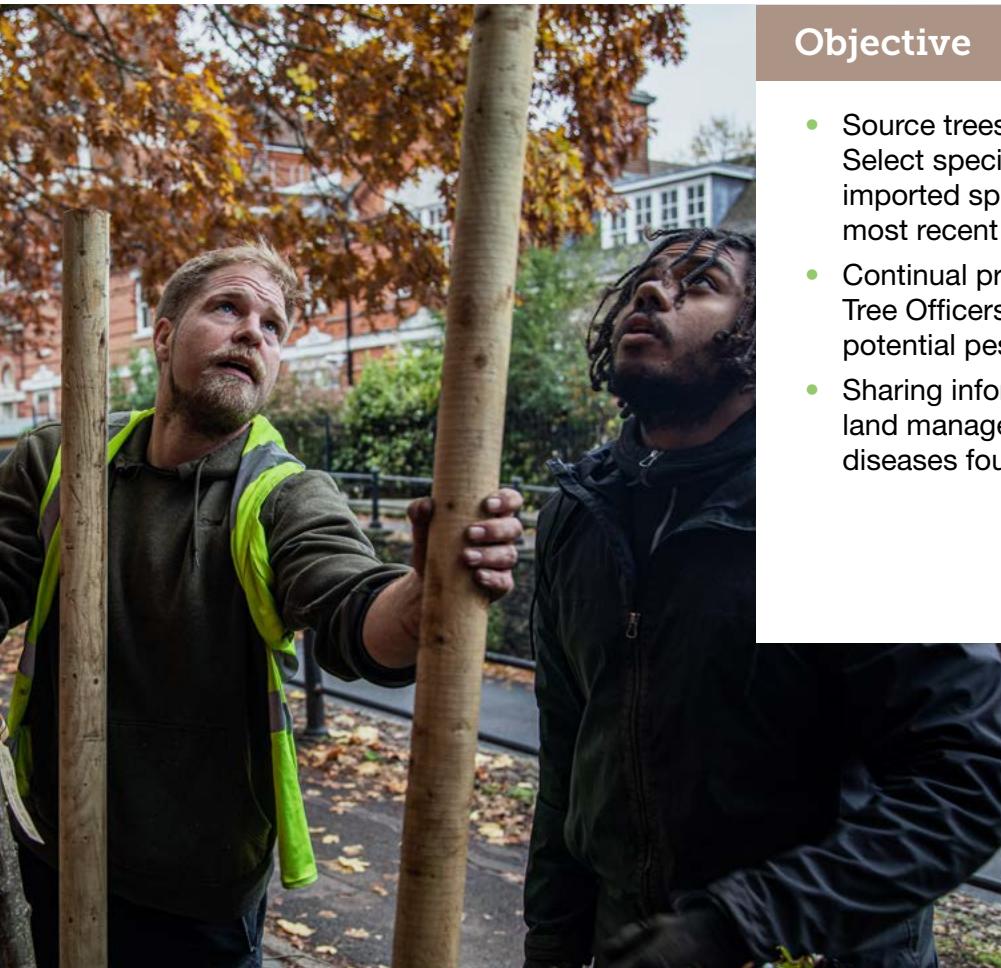
To help protect the tree population of Camden the council has produced a pest and disease management plan (see appendix C), a new document which looks at current practices and sets out short, medium and long term recommendations. Prevention is better than cure and appropriate species selection, sourcing, planting and aftercare, and awareness are the best ways to protect Camden's trees.

[30] https://www.forestresearch.gov.uk/tools-and-resources/pest-and-disease-resources/plane-tree-wilt-canker-stain-plane-ceratocystis-platani/

Aim

Minimise the potential of new pest and diseases entering the borough.

Objective

- Source trees from UK based nurseries. Select species that are grown in UK or imported species that have followed the most recent biosecurity procedure.

- Continual professional development of Tree Officers to recognise current and potential pests and diseases.

- Sharing information with other public land managers on new pests and diseases found in the borough.

Measure

Check with nurseries the source of their tree stock and biosecurity policies

Increasing planting on private land

Tree planting on private land, or in people's gardens, is necessary to increase canopy cover in Camden.

To help developers and resident make the correct decisions on planting trees the council shall provide information on Camden's urban forest through the website.

Further information for developers can be found in Camden Planning Guidance Trees[31].

The council will work with representative community groups, such as the Camden Forest 2025[32] and the Think & Do, to encourage private home and land owners to plant trees in their garden.

CAMDEN FOREST 2025

CAMDEN POP-UP
THINK & DO
COMMUNITY SPACE FOR CLIMATE & ECO ACTION

[31] https://www.camden.gov.uk/documents/20142/4823269/Trees+CPG+March+2019.pdf/985e3c70-d9a5-6ded-a5a3-3c84616f254d

[32] https://camdenforest2025.wordpress.com/

Aim

# Promote tree planting on private land.
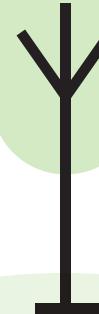
Objective
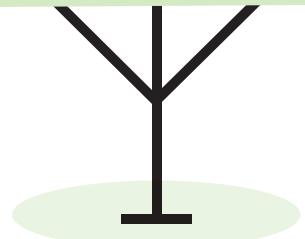
- Share information on Camden's urban forest through the council the website and provide guidance on species selection.
- Work with Camden Forest 2025 to promote tree planting in people's gardens.

Measure

Request data on number of trees planted annually.
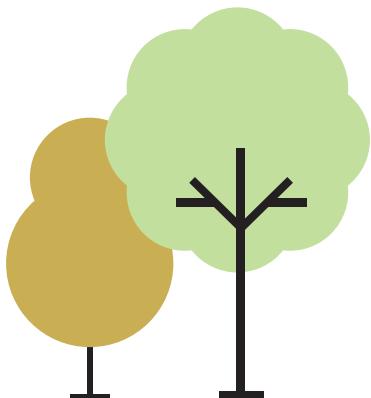
Canopy cover survey carried out every 5 years by ward

Involving the community

Opportunities to explore nature is vital. As is making space for nature across Camden[33].

Research has shown that people who connect with nature are more likely to exhibit pro-conservation behaviour[34]. One way of fostering a connection with nature is through planting and caring for a tree.

The amount of public land available for communities to plant on is small. However, there are currently opportunities for tree planting in the borough via the Green Gym[35].

The council is happy to consider any tree planting proposal for public land presented to them, but residents and businesses are also encouraged to look at planting in their own gardens or land.

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33 https://www.rspb.org.uk/our-work/conservation/projects/connection-to-nature/

34 https://nt.global.ssl.fastly.net/documents/noticing-nature-report-feb-2020.pdf

35 https://www.tcv.org.uk/london/green-gym-london/camden-green-gym

Aim

Community involvement.
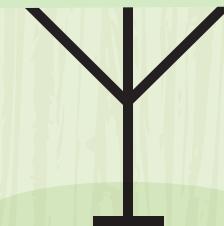
Objective

- Offer community tree planting provided by the Camden Green Gym for residents who wish to volunteer.

Measure

Request data for number of trees planted per annum

Appendices

Appendix A

The planting process

When a request for a new tree is received, if submitted by August and funds are available, it is added to the planting survey for the current planting season. If the council is unable to include the location that year it will be added to the following year's programme.

In order to plant new trees on the pavement, an initial survey is carried out to determine where and if the location is suitable for new trees. The visual survey takes in consideration street furniture, road and pedestrian crossing, proximity to properties and existing vegetation.

The survey will then use detecting equipment to identify underground utility cables and determine if the space is free to plant a tree. The successful locations are then marked and passed to the second phase of the survey which is the trial excavation.

The identified locations are then trial excavated to determine if the pits are free of services or other obstruction. The detecting equipment is not 100% accurate, some cables might not be identified at the initial process, cellar or other existent obstruction are as well not detectable initially. The council requires at least a tree pit of 600x600mm and 600mm in depth free of services in order to plant a tree.

The locations that pass the excavation are then planted as part of the planting programme for that year.

The survey usually takes place during the summer so that excavation are completed by end of September. If the new location is in soft landscape the procedure above might not be necessary and the location will be added to the planting list, pending agreement with existing Friends Group or Resident Association.

Once the availability of the location is confirmed selection of a suitable species for the site based on "the right tree for the right site" principle, and criteria set out in Council's Tree Policy and Tree Planting Strategy.

The species is selected and the order to plant the trees is passed to the tree contractor that will schedule the planting within the planting programme that usually runs from October to March. The tree will be planted and secured to wooden stakes with hessian ties. A watering bag will also be installed.
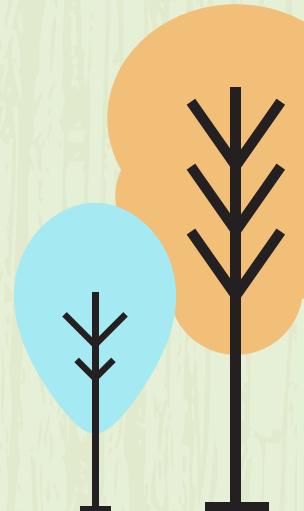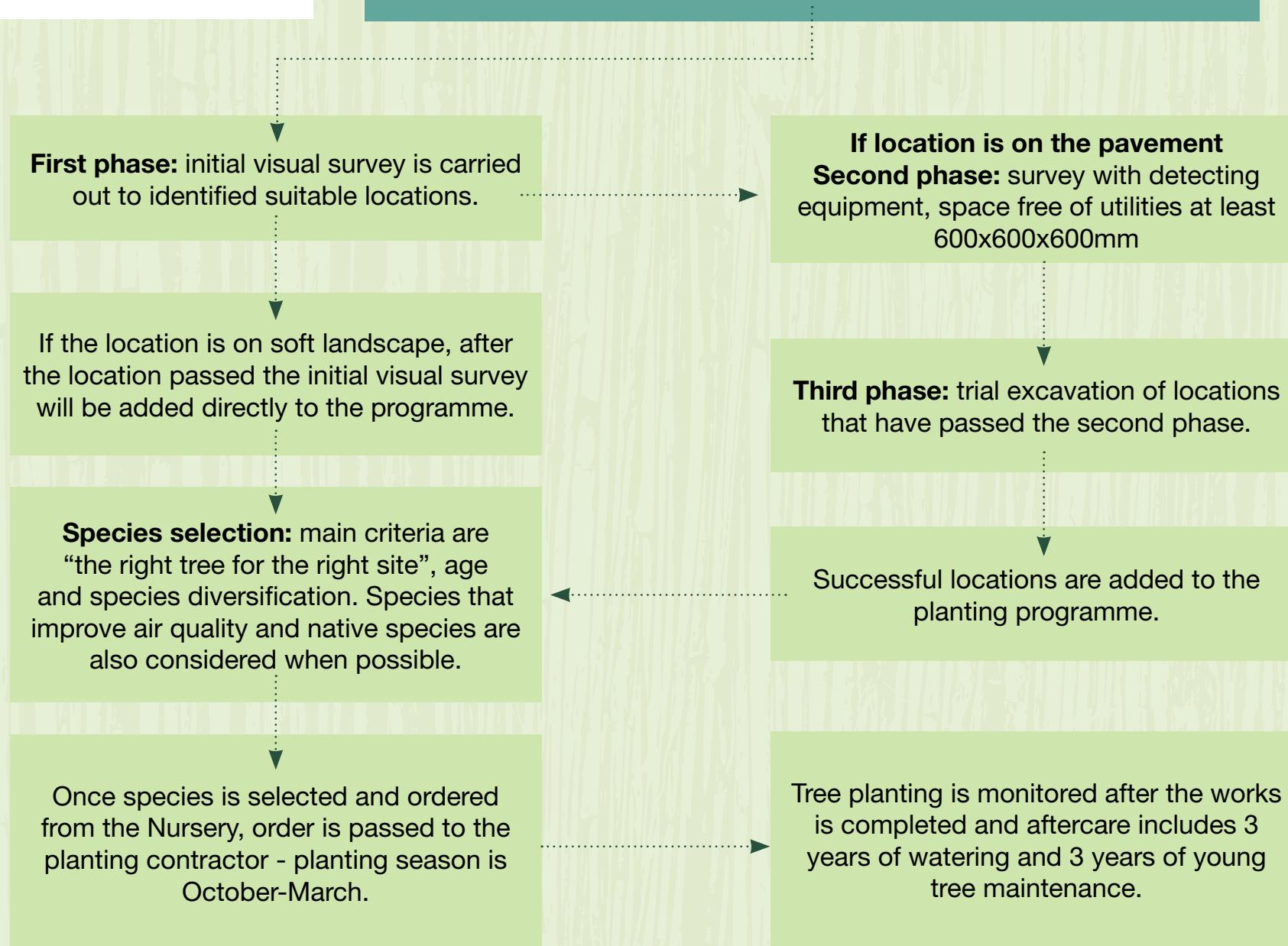
After planting the trees are monitored by the tree team to ensure the standard of planting and condition of the trees is suitable. The trees are then passed to the aftercare programme which includes 3 years of watering and 3 years of young tree maintenance

The watering programme consists of a minimum of 12 visits from end of April to end of September, the exact period and the frequency may change to tailor it to the weather conditions.

Young tree maintenance consists of checking the condition of the stakes and support, aerating the soil, and removing any failed tree.

Received request from residents for new tree

First phase: initial visual survey is carried out to identified suitable locations.

**If location is on the pavement
Second phase:** survey with detecting equipment, space free of utilities at least 600x600x600mm

If the location is on soft landscape, after the location passed the initial visual survey will be added directly to the programme.

Third phase: trial excavation of locations that have passed the second phase.

Species selection: main criteria are "the right tree for the right site", age and species diversification. Species that improve air quality and native species are also considered when possible.

Successful locations are added to the planting programme.

Once species is selected and ordered from the Nursery, order is passed to the planting contractor - planting season is October-March.

Tree planting is monitored after the works is completed and aftercare includes 3 years of watering and 3 years of young tree maintenance.

Camden tree diversity

Metric	Camden's current population	Moving forward
Species diversity	Camden's public tree inventory currently exceeds the 10% species representation benchmark. It is important to note that Plane Trees (Platanus spp.) represent 13% of the population, and are the only species to exceed the limit. With Lime (Tilia x europaea) representing just 7%.	Camden's current public tree inventory has a good diversity of species. Future tree planting should be targeted to further diversify its population, and reduce the proportions of a few key species. Camden's target should be, when new species are planted, that no individual species represents more than 10% of the population.
Origin of species diversity	Currently Camden has a good diversity in terms of species origins. As can be expected most species are native to Europe.	With the ever-present threat from climate change it will become more important to diversify the population through careful species selection. Camden should aim to plant trees from continents with lower representation.
Size and age Diversity	The size class distribution of trees within Camden is well balanced in the lower size classes.	The tree population would benefit from a greater diversity of large statue trees as this size class (Trees over 60cm DBH) is dominated by Plane trees (Platanus spp.).
Distribution diversity	It would be advised that distribution diversity is assessed through evaluation of canopy cover maps and datasets.	Ward-by-ward analysis specifically focussing on the diversity of the distribution would enable Camden to prioritise tree planting to areas where distribution is low. Where possible, evenness of canopy cover could be a key target. Camden's Tree Planting Strategy will provide strategic planting hotspots which do account for distribution of canopy cover.
Dominance diversity	When compared with other local boroughs within London, it can be seen that the diversity of dominance holds many similarities in terms of the curve.	With Camden's most dominant species (Platanus spp.) representing 40% of the total leaf area, it is essential that this is taken into account for future tree planting given the proportion.

Taken from Treeconomics. (2020). *Briefing Report Tree Diversity Metric Evaluation for Camden*

Pest and disease management

Background

Managing tree pests and diseases in cities is expected to become increasingly important as the climate changes and new pests and diseases are introduced by human activity.

Trees in the urban environment are already in an environment where they face restricted growing environments, human inflicted damage and lower water availability. These factors mean that urban trees are more likely to be susceptible to damage from pests and diseases. Looking to the future, Camden has the opportunity to begin to adapt to these new realities by monitoring tree pests and diseases in the borough and adapting tree planting to ensure a healthy tree canopy in years to come.

Approaches to pest and disease management

There are three approaches to Pest & Disease (P&D) management:

Resistance: Continue to replace like for like, use species and cultivars already known to tolerate the local climate and expected pest and disease issues. - Camden has already moved away from this approach.

Resilience: Plant natives and species adapted to local climatic conditions along with trees expected to be resistant to emerging P&D outbreaks. This spreads risk and maintains historically important trees.

Transition: Actively plant new species in order to mitigate the impacts of tree P&D. A higher risk strategy given the unknown future climate and P&D outbreaks.

Is Camden adapting its approach?

Camden has moved away from a resistance approach and is concentrating on resilience. Historically large volumes of London Plane trees were planted across the borough. Camden now use a wider variety of species when replanting trees which have been removed or planting new areas. In planting a wider species selection, Camden is reducing the potential impacts that a new pest or disease could have on the borough's tree stock. Utilising a greater range of tree species has additional benefits in terms of improving the boroughs biodiversity and adding extra amenity value to areas.

What should the council be looking out for?

The observatree project has identified 20 pests and diseases which pose the greatest threat to tree stocks[36]. Additionally, the London Tree Officers Association (LTOA) provide guidance on P&D deemed most likely to impact trees within London. These are classified as P&D which:

- have already arrived in the UK and further spread is of concern
- most likely to arrive in the UK in the future
- Those which have the potential to cause the most serious and widespread impact on commercial forestry, amenity woodland and ecological systems

Known issues within the borough

Below are links to the main pest and diseases present within the borough of Camden

- **Horse Chestnut Leaf Miner**
- **Ash Dieback**
- **Oak Processionary Moth (OPM)**
- **Massaria Disease of Plane Trees**

[36] https://www.observatree.org.uk/tree-health/pests-and-diseases/

What is the council doing about these known issues?

Camden is taking a proactive approach to mitigate the impacts these established pests and diseases have on its tree stock. Camden follows the best practice of the LTOA, Arboriculture Association and Forestry Commission. This guidance informs the management and control of these pests and diseases. Oak trees are checked annually for OPM, with specialist technicians removing and destroying any outbreaks detected as this is a notifiable pest. The council's Plane trees are also regularly inspected for Massaria disease, with any deadwood or signs of the disease being pruned to reduce the incidences of branches dropping. Issues such as Horse Chestnut Leaf Miner have a visual impact to trees in the borough and are likely to reduce tree vigour overtime. This highlights the need to remain vigilant in preventing new pests and diseases to enter and establish in the borough.

Biosecurity

Increasingly invasive alien species are posing greater threats to Camden's tree stock. Diseases such as Ash dieback have the potential to cause large tree population losses, having lasting amenity and ecological impacts. With a changing climate, diseases such as Massaria of Plane have emerged as new diseases, requiring a proactive approach to the management of trees and with significant additional costs. It is likely scenarios such as this will increase in the coming years. There are several known tree pests and diseases not currently in the UK that have the potential to have a significant impact on Camden's tree stock and it is important the council keeps informed on these potential threats in order to prevent them establishing within Camden.

Emerging pests and diseases

As well as pests already in the UK, there are several pests and diseases which have the potential to cause significant damage if they enter the UK. The Camden tree team follow the best practice in sourcing new trees and monitoring the tree population to ensure that these new threats aren't allowed to establish within Camden. Many of these pests and diseases not yet in the UK have the potential to cause significant damage to the tree stocks in the urban environment. Some of the most significant threats are shown below:

- **Asian/citrus longhorn beetles-** Feeds on a wide variety of trees and shrubs. Severe infestations can kill mature trees or leave them susceptible to secondary fungal infections. Asian Longhorn beetle has been found in isolated outbreaks in the UK and has been successfully eradicated

- **Emerald ash borer-** Feeds on the inner bark of Ash trees, leading to their death. The insect is spreading westwards from Russia into Europe and is present in North America. No outbreaks have yet been discovered in the UK

- **Canker stain of plane -** a pathogen which causes sudden wilting and bleeding lesions in Plane trees. Thought to have been accidentally introduced to Europe in WW2 from North America, this would have a serious impact on the London plane population of Camden.

- **Xylella fastidiosa-** A bacteria which causes leaf scorch, wilt, dieback and plant death and can infect some 560 known plants, trees and shrubs. Xylella is present in southern Europe where it has become a serious issue in olive groves

Biosecurity threats

Threats to council owned trees are beyond the control of the tree department. However, being aware of the issues and following industry guidelines helps to raise awareness of biosecurity threats. The two greatest threats to biosecurity in Camden are as follows:

London's location: London is a city with global connections, and experiences high levels of movement of people and goods. It is therefore highly likely that future P&D outbreaks will emerge within the city. This could mean P&D could establish on trees already under stress caused by the built environment

Private trees: Private trees have the potential to be sources of infection/outbreak in the borough. Many trees may not be proactively managed, and landowners may not be aware of tree P&D issues. A likely scenario could see private trees acting as an ongoing source of infection to council managed trees. Additionally, private landowners may introduce new pests and diseases accidentally by using infected planting material from growers with poor biosecurity measures.

Climate change

Camden has set the target for net zero carbon emissions across the borough by 2030[37]. Trees are considered as having a crucial part to play in helping to offset emission and sequester carbon from the atmosphere. Additionally, trees have the potential to emit some of the impacts of climate change by helping to cool the urban environment, reducing the need for air conditioning during hot summer months. It is therefore important that Camden maximises canopy cover where possible within the borough. As the climate changes, trees in the borough are likely to come under increased stress through periods of drought and higher average temperatures. Camden are already working to increase the diversity of trees within the borough, making the future urban forest more resilient to climate change. Tree planting choices will likely change over the coming years as species suited to a hotter, drier climate will be better suited to the urban environment.

Camden tree pest and disease management

The LTOA recommends implementing moving from a reactive, to a proactive approach in managing tree pest and disease. This approach involves predicting future P&D outbreaks which are likely to impact the boroughs tree stock, identifying high biosecurity risk, and prioritising the protection of trees where appropriate.

Much of the work that Camden already undertakes is proactive. Trees are actively managed, inspected and new plantings take place using a mix of species from reliable suppliers. This is helping to reduce the risk of P&D on having detrimental impacts to Camden's tree stock. In the future, new P&D outbreaks will likely emerge, and climate change will have unpredictable implications leading to additional stresses on trees. It is therefore important that the council begin to anticipate these impacts now so the council are better informed should they become present within the borough.

[37] See Camden Climate Action Plan for more details https://www.camden.gov.uk/climate-crisis

What else can be done in the borough?

Short term: The observatree project has produced good literature and posters which the council could place in notice boards in parks. This would help increase public knowledge of the issues to keep an eye out for within the borough and on their own, private trees[38]. Additionally, tree officers should continue to build their skills and knowledge in relation to tree pests and diseases through ongoing professional development.

Medium term: Continue investigating the likely tree P&D pathogens which are most likely to impact the borough. Look at examples from other cities in their approach to integrated P&D management to inform practices at Camden. Work with greenspaces team to see how tree P&D management fits in with the wider plan for the borough. Record P&D impacted trees into a database: this can be used to see which P&D are most prevalent and the cost of the tree management to be estimated. Look at ways to promote biosecurity across the council.

Long-term: Use the gathered information to produce a document on P&D to help guide and inform practice in the borough. Work with the greenspaces team to increase shrub varieties in parks: This will support greater natural predators. A list of approved tree species for residents, based on the Tree Planting Strategy.

Ongoing: Communicate with other boroughs, LTOA, Arb association etc to see the latest developments in P&D and follow best practice

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[38] https://www.observatree.org.uk/