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Building Biodiversity: Supporting Nature in London

November 2021 · Leonie Cooper AM

Building Biodiversity

Executive Summary

The way we have been accustomed to designing our cities, with paved streets and grand buildings, is proving to be less resilient to the effects of climate change. Even after the pandemic, the desire to live in cities remains strong. There is often a false perception that urban living and country living are fundamentally different from each other. The countryside is viewed as full of open, green landscapes and full of nature, while urban living is viewed as the opposite; grey and crowded. This report challenges this idea and makes clear that wherever humans locate themselves, they need nature around them to thrive and survive. Cities have a big environmental and climate impact and they must be changed to help us and the planet survive. Increasing biodiversity in cities is therefore crucial.

Nature and green infrastructure play an important role in our everyday lives: they provide us with somewhere to walk the dog, exercise or play, and somewhere to meet friends and relax. They help us feel calm and happy, bring people together and create a sense of identity and belonging. They improve air quality and reduce overheating. They are places where we can grow the food that feeds our families and can generate economic value in a myriad of ways.

Sixty percent of people in the UK live in cities and so they must be diverse and green to allow us to thrive and lead healthy lives. We have seen the importance of this during the pandemic as many people's eyes were opened as to how crucial nature and open spaces are to our wellbeing.

London is leading on promoting biodiversity and the Mayor has committed to rebuilding a greener, cleaner and fairer city as we recover from the pandemic. This report showcases the best examples of urban biodiversity in London and in other cities, to show what can be done when policymakers resolve to promote nature by improving green spaces and biodiversity. It shows how this is key to improving people's health and wellbeing, tackling air pollution, the climate crisis and in strengthening the social bonds of our community.

Recommendations

Recommendation 1

The Mayor should appoint a Green Space Commissioner for London.

Recommendation 2

The Mayor should introduce a place-based measurement system to understand and address the unequal access to quality green space across London; similar to a PTAL map. This should be regularly reviewed with a view to improve areas that are deficient in access to nature.

Recommendation 3

The Mayor should explore the opportunity to launch a pilot scheme for garden sharing and food growing in partnership with a London borough.

Climate Crisis

Climate change is the biggest threat to our world right now. The report issued in August by the United Nations Intergovernmental Panel on Climate Change issued a 'Code Red' for humanity and made it clear that without immediate and drastic action global temperatures are set to rise by more than 1.5C between 2041-2060.[1]

The effects of the climate emergency are already being felt in London. The Thames Barrier has been used far more frequently since 2000, and especially so since 2017. The city has seen a series of flash floods this summer which have disrupted Tube stations, hospitals, major roads, and have left some businesses and homes swamped with water. London was also issued its first ever extreme weather warning.[2] As London is already vulnerable to increased temperatures, these extreme weather events are set to increase.

The Mayor is leading the way on tackling climate change and making London a beacon of sustainability. In his 2018 Environment Strategy he set a target of reaching net zero by 2050 – but has now updated this. The revised target is to reach net-zero by 2030 and in October 2021 the Ultra-Low Emissions Zone was expanded out to the North and South Circulars – crucial action which will create a healthier, more liveable and more equal city. But alongside these big and bold policies, we must also remember the important role that biodiversity and the natural environment plays in climate control.

Cooling

The Urban Heat Island (UHI) is the phenomenon in which air temperature in cities is typically higher than nearby rural areas. The UHI occurs due to solar energy being stored within the urban fabric of the city. UHI has a direct effect on London's climate leading to warmer winters, an earlier spring season and less snow. Research shows that major UK cities, such as London, have at times been up to 5°C warmer than their surrounding rural areas within the past two decades.[3] This is especially the case at night. Compared to rural residents, urban inhabitants can be more susceptible to heat-related illnesses and deaths in hot summers because of the UHI effect. Nearly a quarter of London's neighbourhoods are regarded as extremely heat-vulnerable.[4] Finding ways of cooling the city is crucial, otherwise Excess Summer Deaths similar to Paris in the summer of 2003 might occur in London.

There is strong evidence that in an urban context green space is associated with heat reduction.[5] This can take many different forms such as small local parks, large urban parks, street trees, green roofs, gardens, water bodies, city pocket forests and more. Research indicates there is a 'park cool island' effect of between 1.5-3.5°C, with a stronger cooling effect for larger urban green space.[6] Other green infrastructure such as street trees also provide an important means of heat relief by providing shade.

As London's population is set to continue rising, we need more green infrastructure across the city to tackle the UHI phenomenon and the climate crisis.

Air Quality

Green infrastructure also acts as a natural barrier which removes air pollutants from the atmosphere through gaseous absorption or dry deposition.[7] Carefully designed green infrastructure, such as tree lined streets, green roofs and green walls can positively influence pollutant exposure.

For example, street trees and green spaces make a major contribution to the capture and storage of CO_2 and improvement of air quality.[8] Approximately 50% of wood by dry weight is comprised of carbon, therefore tree stems and roots can store up to several tonnes of carbon for decades or even centuries.[9] Research carried out by University College London suggests that the urban forest can store almost as much carbon as an equivalent area of tropical forest.[10] Soil can also play a major role in storing carbon if it is managed correctly.

Flooding

Surface water flooding caused by heavy rainfall is London's biggest flooding risk, together with flooding from the River Thames.[11] The targeted use of planting or green infrastructure can help reduce surface water flooding.

- Urban forests can help reduce temperatures, remove carbon dioxide from the atmosphere, reduce flooding and run-off by intercepting water, and provide recreational benefits.

- Constructed wetlands or river meanders can improve water quality, and provide a wildlife habitat.

- Green roofs and walls, as well as bunds, can reduce water run-off, provide insulation and improve air quality.

These types of green infrastructure act as sustainable drainage, which prevent or slow down water reaching London's main drainage systems. In the event of heavy rainfall and

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flooding events, sustainable drainage can reduce the amount of surface water run-off, which in turn reduces the risks of flooding in an area, as it reduces the likelihood that the drainage system will become overwhelmed.

Biodiversity and Climate Change: where are we now?

Under the current Mayor, London is already leading the way in many areas of biodiversity and green infrastructure.

For example, on green roofs:

- The total area of green roofs in the Greater London Area is 1,500,000m2, the equivalent of 125 Trafalgar Squares.

- In the Central Activity Zone (CAZ) green roofs covers 290,000m2. This is higher than many other cities in the world which are famed for their green roofs.

- 42% of the total UK green roof market is in London.

1.5million m2 of green roof space in London

That's 125 Trafalgar squares

Case Study: Wild West End

Supported by the Mayor of London, The West End's largest property owners are currently working together to improve biodiversity and green infrastructure within this iconic area of London. The partnership is adopting a long-term shared vision which aims to:

• Enhance biodiversity (particularly to increase bugs, bees, bats and birds) and ecological connectivity.

• Improve the wellbeing of residents, workers and visitors by increasing connections to green space and nature, and contributing to improvements in local air quality.

• Raise awareness and promote the benefits of green infrastructure to inspire others to participate and create similar initiatives.

A key component of the scheme is the creation of green 'stepping stones' between the existing areas of surrounding parkland. This is being achieved through the combined provision of green roofs, green walls, planters, street trees, flower boxes and pop-up spaces. As a priority, the partnership is looking to re-attract species once common in London such as the black redstart and the house sparrow.

Biodiversity and Climate Change: What Next?

The value in increasing green infrastructure and the biodiversity of London is clear; urban cooling, improved air quality and reduced flooding. While London has made big strides in tackling the climate crisis and London's UHI through biodiversity and green spaces, we need to go further. Beyond climate change, the introduction of green spaces in London can also bring back species to the city and revive ecosystems and have a positive impact on people's wellbeing. A Green Space Commissioner could coordinate this work and be a champion for promoting green infrastructure and biodiversity in London.

Recommendation 1

The Mayor should appoint a Green Space Commissioner for London.

The health and social benefits of green space

There is an undisputable link between green areas and health and social benefits. Research has shown that frequent personal use of parks and green spaces is worth over £30 billion a year to the UK population.[16] In London, every year green spaces save around £580 million from health spending by contributing to better physical health, and £370 million by contributing to better mental health.[17] Despite this, funding for green spaces and parks has not reflected the value of these cost savings to the nation and they continue to face a funding crisis.

Public Health England's recent review of the health and social benefits of green space

reported that living in an environment with access to nature can promote and protect good health, and aid in recovery from illness and managing poor health.[18] People who have greater exposure to nature also have more favourable physiological outcomes.

Greener environments are also associated with better mental health and wellbeing outcomes, including reduced levels of depression, anxiety, and fatigue, and enhanced quality of life for both children and adults.[19] Green space can help to increase community cohesion, reduce loneliness, and deliver environmental benefits.[20]

Evidence also shows that disadvantaged groups gain a larger health benefit and have reduced socio-economic-related inequalities in health when living closer to nature and a greener urban environment.[21] However, poorer people (particularly those from Black, Asian and Minority Ethnic backgrounds) are more likely to live in areas of London that are deficient in access to nature. In the UK, Black and brown people are twice as likely to live in a neighbourhood with minimal access to green space. Almost 40% of people from BAME backgrounds live in the most green-space deprived areas, compared to just 14% of white people.[22]

Case Study: Parks for Health, Islington and Camden

Launched in 2019, Camden and Islington Councils' Parks for Health project was developed to address local health priorities including high levels of mental ill-health, physical inactivity and health inequalities, and to increase social cohesion and respond to social isolation. The community's parks were well-used and enjoyed, however the vision is to shift the thinking about these spaces as passive enablers of positive physical and mental health outcomes, to playing a central role in achieving better health for the local population. This case study shows the importance of a strategic and planned approach to using nature for realising health and social benefits.

 The project aims to:

•   develop a new infrastructure to deliver health-focused green space provision;

•   develop closer links with the NHS, health providers and doctors;

•   build a strong understanding of community infrastructure to enable engagement with, and pathways into, social networks;

•   produce a baseline assessment of the current health opportunities of our green spaces;

•   identify and test innovative opportunities in the active use of green spaces for wellbeing.

For the project to succeed, Islington and Camden have had to have a systems transformation so that parks and green space become central to local strategies for promoting health and wellbeing, instead of being considered separately as they have been previously.

The pandemic and lockdown have increased people's awareness of the importance of nearby nature and all the health and wellbeing benefits it brings. The Mayor of London has recognised this and has set a bold vision to become the world's first National Park City. This action will be crucial in improving the health and wellbeing of Londoners, as well as tackling environmental issues.

However, as a city, we can go further. When looking at all local authorities across the UK, Friends of the Earth ranked 16 London boroughs as the worst in the country for access to nature per capita.[23] Increasing access to quality green space in areas that are deficient in access to nature is a crucial part of creating a fairer, healthier London. The Mayor's London Plan does identify distance to green space as an issue and does make it clear that deficiencies should be addressed. This needs to be done systematically, to ensure all Londoners benefit equally.

Decision-makers must start seeing green spaces and parks as a health asset and must ensure that access to quality green space and reducing areas of deficiency are made more of a priority. This could be improved by measuring green infrastructure with the same importance and thoroughness with which we measure other vital forms of infrastructure such as public transport.

Case Study: PTAL

Access to transport in London can be measured using the public transport accessibility level (PTAL) method. This uses information on the distance from any given point to the nearest public transport stop and its service frequency to calculate a PTAL score. These scores range from zero to six with the highest PTAL scores being areas which have the best access to public transport. The highest scoring areas are likely to have: a short walking distance to nearby stations or stops, have short waiting times, a high number of services which pass through nearby stations and connectivity to other routes, as well as having major rail stations nearby. This method has been used to map out transport provision. Given the importance of green infrastructure and nature, the Mayor should consider learning from this approach and introduce a similar measurement system to understand the areas of London which do not have access to quality public green space. The Mayor has already introduced important changes to improve London's green space. Most notably, he has introduced the Urban Greening Factor as a new planning policy which seeks to quantify green space and provide minimum standards in new developments. This is a welcome innovation that will boost London's access to nature.

The Mayor also has mapping tools such as the Green Infrastructure Map and London's Open Spaces map which provide overviews of green spaces. However, a PTAL type system could quantify the provision of green space and factor in the quality of green space to provide a single, easy to understand measure. This system should cover the provision and quality of nearby public green space, also taking into consideration the size of green spaces for the local population it serves.

Figure 2.6: A London-wide PTAL map
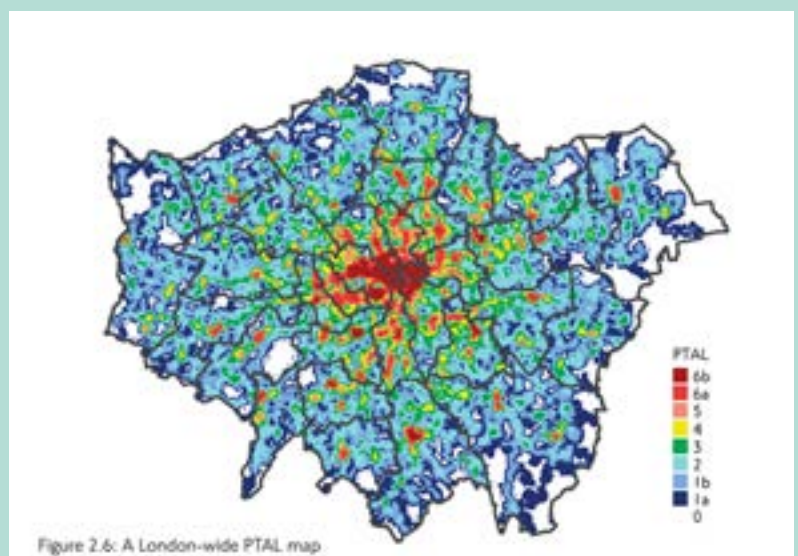
A PTAL style system would also be more public facing and therefore play a role in boosting awareness of access to nature. This could then allow us to measure the impact measures like the Urban Greening Factor have had over time at a pan-London level.

Recommendation 2

The Mayor should introduce a place-based measurement system to understand and address the unequal access to quality green space across London; similar to a PTAL map. This should be regularly reviewed with a view to improve areas that are deficient in access to nature.

To accommodate demand for food growing spaces, allotment space would need to increase by 80%

Food Growing

We already know growing your own food is good for you. Not only does it provide access to healthy food, it's also good for your physical and mental health - and it's cheaper.

Growing your own food also has wider environmental benefits as it allows you to stop relying solely on traditional methods of purchasing your food from a supermarket. Much of the food we buy comes with "food miles"; DEFRA estimates that moving food is responsible for 25 per cent of all miles covered by heavy goods traffic in the UK.[24] Transporting food within, to and around the UK produces 19 million tonnes of CO2 annually – equivalent to around 5.5 million cars driving an average of 8,000 miles a year.[25]

If more people across London were able to grow their own food, we could reduce these massive carbon emissions. Food growing also reduces waste from food packaging materials such as man-made plastics and cardboard, that also travel hundreds and thousands of miles.

Community growing schemes have become increasingly popular across London. Beyond the environmental benefits, growing schemes promote social cohesion, reduce isolation and

can improve people's general wellbeing.[26] In fact, a recent study suggests that the health and wellbeing outcomes of these spaces are worth three times the value of the funds invested in garden establishment and upkeep, and the financial value of the fruit and vegetables produced.[27]

It's no wonder, then, that since the beginning of the pandemic there has been a spike in interest in growing our own food.[28] A new study from Imperial College London further demonstrates London's urban food growing revival, finding that Londoners' demand for food growing spaces is outstripping shrinking availability. The provision of allotment space would need to increase by almost 80% to address current waiting lists.[29]

Allotments are important for building community cohesion, providing people with health benefits, and improving the environment. But in many places, land and finances are so scarce that the demand for allotment land cannot be met. Some places are cutting allotment parcel sizes in half to meet the demand while others are stripping allotment requirements altogether.

We need schemes that can address this serious

supply and demand issue in London for growing spaces. One option, successfully implemented in Edinburgh, is garden sharing.

Case Study: Edinburgh Garden Partners

Edinburgh Garden Partners (EGP) has been developing and supporting mutually beneficial garden sharing relationships since 2011. EGP has supported between thirty and seventy garden partnerships at any given time – it has 42 partnerships running currently.

The EGP model involves matching garden owners who are unable to make full use of their space, with volunteer gardeners who are looking for space to grow within a busy urban city. A key factor, beyond the food growing, is that the garden owners and volunteers often mention a concern with isolation, or a desire to develop broader and more diverse connections across their communities. The garden sharing scheme encourages the growth of meaningful relationships, via that shared interest.

"Especially with lockdown, being able to visit the garden safely was a big mental health saviour and haven for me, as I otherwise had no access to private outdoor space. That and the distanced chats with my garden partner was really grounding during a particularly stressful time." [EGP Garden volunteer]

"The garden at times can be overwhelming and having someone to share with, that has the same values, is comforting and definitely helps with mental health, especially as the seasons change." [EGP Garden owner]

Recommendation 3

The Mayor should explore the opportunity to launch a pilot scheme for garden sharing and food growing in partnership with a London borough.

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Endnotes

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