

New report highlights the benefits of bringing nature into our cities

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The report highlights planting urban trees, increasing community green spaces, utilising brownfield sites and building sustainable drainage systems as effective nature-based solutions in cities to improve wellbeing, bring economic benefit, increase biodiversity and fight climate change.

These conclusions, released today (29 April), form part of the Nature-based Solutions report produced by the British Ecological Society which will be published in full on the 12th May. The report will offer, for the first time, a complete assessment of the potential of nature-based solutions to mitigate climate change and benefit biodiversity in the UK.

Our cities and towns may not seem an obvious place to tackle climate change and biodiversity loss. But the high concentration of people mean that nature-based solutions can have significant and direct impacts on people's lives.

Professor Marc Cadotte of University of Toronto-Scarborough and lead author of the built environment chapter of the report said: "Cities are a place where most people interact with nature so improving this environment with nature-based solutions makes a lot of sense. Any space, no matter how small, has value and can have a major contribution to environmental wellbeing.

"The multiple benefits that nature-based solutions bring to cities are inseparable from each other. For example, a project to improve biodiversity in a park will also directly benefit local people, providing access to nature and the wellbeing benefits associated with that."

A key message from the authors' assessment of all the evidence is that there is no single nature-based [solution](#) that should be applied to cities. Multiple approaches are needed across different contexts and these need to be diverse, multifaceted and inclusive.

Professor Cadotte added "The implementation of nature-based solutions in cities is inherently complex and at odds with siloed governance structures. Unified top-level vision is needed to coordinate nature-based solutions across disparate agencies in urban areas, such as parks, construction and sewerage."

Examples of nature-based solutions

The report reviews a wide range of evidence to highlight several ways nature-based solutions can be used to tackle the sustainability and resilience challenges our cities face, such as air pollution, rising temperatures, flood risk and a disconnect with the natural world.

Storing carbon

The report finds that [urban areas](#) have substantial potential for carbon capture. One case featured in the report found that despite the [city](#) Leicester covering 0.03% of Britain's land area, it accounts for approximately 0.2% of Britain's aboveground carbon store, with over 97% of this is attributable to trees.

Urban soils can also act as an important carbon sink if managed correctly. The retention of fine material derived from demolition on urban brownfield land can result in carbon sequestration. Providing a source of calcium, in the form of crushed concrete or other sources to just 1% of the UK's urban and suburban soils could remove up to 1 million tonnes carbon dioxide annually.

Providing shade

Planting [urban trees](#) can also help cool cities and mitigate air pollution. UK cities already experience average day and night temperatures 1 to 3°C warmer than surrounding natural and agricultural areas. Urban temperatures and the frequency of extreme heatwaves in the UK are predicted to increase.

Nature-based solutions such as planting street trees and [green roofs](#) can reduce urban temperatures through shading and the movement of water

to the air (termed evapotranspiration). In Greater London, current greenspace reduces temperatures by over 0.5°C on clear, still and warm nights.

Removing particulates

40,000 premature deaths each year are attributable to exposure to outdoor air pollution in the UK, and cities are focal points for the production of these pollutants. The report details how urban trees and other vegetation can both sequester carbon dioxide and intercept airborne particulate matter (PM) and other aerial emissions. Modelling in Glasgow has shown that current tree cover in the city removes 3% of the primary particulate matter.

Reducing flood risk while benefiting biodiversity

Storms and the severe flooding they cause are predicted to become more frequent. Sustainable drainage systems which include wetlands, swales and raingardens can be combined with green roofs, urban forests and meadows to reduce flood surges and move water safely.

By incorporating these features into our built environments, we also encourage greater biodiversity and there is the potential to support rare species. For example, in London, the building of green roofs has provided habitats for black redstarts. Brownfields can also be used to mimic many of the traditional habitats used by rare butterflies.

Access to green space

Nature-based solutions in cities can also help solve a disconnect many urban populations have with nature, as well as improve health and wellbeing. Green spaces are known to reduce stress and increase physical

activity while the presence of urban forests has been shown to reduce incidence of cardiovascular and pulmonary disease.

Access to green space is often a socio-economic issue with marginalised communities having less access. Brownfield sites are common in areas of high deprivation and the report highlights that through working with local communities, nature-based solutions can turn these sites into resilient, accessible, and useable assets that provide considerable health, economic, climate and biodiversity benefits.

Economic benefits

Nature-based solutions can also provide considerable economic benefits through improved population health, climate change mitigation and green job creation. Attempts to account for the monetary value of ecosystem benefits have shown that natural systems add millions of pounds of value to cities. For instance, Birmingham valued its ecosystem services at £11.66 million per year, recognising that this was a substantial undervaluation. The City of London calculated the annual economic contribution of its eight million trees to be £132.7 million annually, equalling about £15 per tree.

More information: You can sign up the launch event for the report taking place Wednesday 12 May, 10:00 – 11:30 (BST): www.britishecologicalsociety.org/te-change-in-the-uk/

Provided by British Ecological Society

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