The Heat Is On

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As London and the UK experienced record-breaking heat this summer, attention turned to the cooling effects of parks and other green infrastructure. Overheating is more prominent in London and other cities due to climate change and the urban heat island, which can cause temperatures to be 10°C higher than in surrounding rural areas. With dense development, cities typically have more hard surfaces, such as roads and buildings, and less vegetation to absorb the sun's rays. Vegetated spaces do more than just cool the actual space, they can lower the temperature in the surrounding area, known as the urban green space cooling effect. For example, research by Doick et al., found cooling of up to 4°C over a 440 m distance from a Central London park.

With density and policies calling for infill development, increasing the number of conventional parks is challenging. As such, complementing London's network of green spaces with other green infrastructure, such as vegetated roofs, living walls and tree canopy, is all the more critical to mitigating and adapting to increasing temperatures. Indeed, research conducted in Manchester by Skelhorn et al., concluded that adding 5% mature trees may reduce average surface temperatures by 1°C.

London's urban green spaces feature prominently in the Cool Spaces project, initiated by the Mayor of London. The project provides a map of indoor and outdoor spaces where Londoners can go on hot days. Spaces included in the project are suggested by local authorities and community and other organisations, and must meet specified criteria, such as being publicly accessible. Most of the parks and green spaces on the map are included because they provide shading via tree canopy. According to London's Urban Forest Plan, 21% of the city lies under tree canopy, although this varies wildly from less than 3% to more than 50% across wards, mirroring inequality in access to other types of green infrastructure that exists in London and the UK. Eliminating the uneven provision of green infrastructure, including parks and tree canopy, should be a policy priority and is an effort Parks for London can bring attention to.

Yet, simply providing green spaces does not automatically mean cooler spaces, as these spaces themselves are affected by heat and drought. The seasonality of London's water supply will increase with climate change: up to 30% less rainfall is expected in summer by 2080. Recent research has found that the ecosystem services provided by urban green spaces are diminished when these spaces themselves are affected by heat and drought. In their 2022 article, Kraemer and Kabisch conclude that "Urban planning needs to account for larger green spaces that are complemented by decentralized, well-distributed small-scale green infrastructure that intersperses the built infrastructure such as roadside greenery and vegetated backyards." Parks for London can continue to champion the importance of an interconnected, multifunctional network of a range of green elements—not just parks. However, my research has found that many practitioners take a conventional approach that parks—as large green spaces—are the "best" delivery mechanism for access to green space.

Ongoing maintenance and horticultural choices will be critical for ensuring urban green spaces can provide pivotal ecosystem services during heat and drought, and other extreme weather events. As such, sustained, secure funding for maintenance—not simply headline-grabbing capital projects—is essential. Heatwaves and droughts can increase the likelihood of wildfires in green spaces; increase diseases and pests, such as the oak processionary moth; and weaken trees, making them susceptible to damage and potentially presenting a safety hazard, among other heat-induced challenges. In response, parks services, green space managers, landowners and others responsible for providing urban green spaces will have to adapt—at times very quickly—to the changing conditions,

potentially in ways that contradict other green space-related policies and practices. For example, concerns about fire risk during prolonged hot, dry weather conditions may necessitate increased mowing frequency, which could have an effect on biodiversity plans. How parks and green spaces are planned and designed also can be affected. For example, Chang and Li found that parks and other open spaces should be designed with less than 50% paved area and at least 30% trees, shrubs and other shadings. Yet, many urban parks comprise a considerable amount of impervious cover, including paved paths, sport facilities and plazas.

Urban green spaces continue to demonstrate how vital they are to human and ecological health. However, with most of London's green spaces being more yellow and brown than green this summer and leaves falling from weakened trees like it is autumn, we have a striking visual of the impact extreme heat and drought can have. This should serve as a reminder not to take these spaces for granted. They must be actively managed and appropriately funded to continue to be a lifeline for people and the planet.