Wellbeing and blue-green space in post-pandemic cities: drivers, debates and departures

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Abstract: Covid-19 has focused attention on the importance of urban green and blue spaces (such as parks and watercourses) for human wellbeing. Less attention has been devoted to how those spaces might contribute to a wider rethinking of relations between humans and the more-than-human world in post-pandemic cities. This article outlines how Covid-19 opens up a broader debate about the future of urban green spaces, especially in the global North, but highlights the limitations of this debate. It signposts emerging directions in inquiry, drawing on current concerns in health geographies and the political ecology of health. These include recognition of the agency and worth of the more-than-human world; the need to understand and value wellbeing in terms of relationships between places, nature and people; and the importance of long-term thinking in practical decision-making and planning. These shifts can be grounded in everyday practice by rethinking the role of urban blue-green space, pointing to a research agenda in which ordinary spaces and practices are understood as contributing to assemblages of wellbeing across whole urban areas, rooted in increased connection between humans and the more-than-human world.

Keywords: health geographies, wellbeing, Covid-19, parks, more-than-human, green space, urban blue-green space

Introduction

The Covid-19 pandemic has focused attention on the importance of urban green and blue spaces for human wellbeing. Studies around the world showed increased use, or an increasing appreciation of, natural spaces during the pandemic. Examples included Vermont, USA (Grima et al., 2020); Tokyo, Japan (Soga et al., 2021) and international surveys (Pouso et al., 2020; Ugolini et al., 2020). Parks, woodlands, riversides or other open spaces were often the only places accessible to communities 'locked down' to slow the spread of infection in many cities. In others, even these spaces were prohibited. This article draws on the experience of Covid-19 to illuminate current debates on the value of 'urban blue-green space' (Yu et al, 2020) for human wellbeing. The term 'blue-green space' is used rather than 'urban green space' (Geary et al., 2021) to include the full range of natural spaces within cities, including informal sites and watercourses. The article adds to and complements previous research by considering how these spaces and places may contribute to a rethinking of urban life in a post-pandemic environment. Reflecting on current and potential drivers of policy, practice and research, it highlights the opportunity to move beyond recent debates about the funding and management of green spaces as discrete entities. Instead it argues that the city as a whole (and not just the green and blue spaces within it) should be considered as a natural as well as a built landscape, supporting the wellbeing not only of humans but also of other species.

The article highlights three key areas of debate on the future of urban blue-green space (UBGS). It considers how spaces are valued; the contribution they make to human wellbeing;

and issues of equity and environmental justice. These debates arise within a broader context in which geographies of health and wellbeing are being re-examined, drawing on the insights of the 'posthuman turn' in health geographies (Andrews, 2019) and notions of human health and environmental justice as socio-spatial assemblages (Bickerstaff and Agyeman, 2009; Duff, 2016). Spaces and places of wellbeing exist within political ecologies of health (Senanayake and King, 2019; Nichols and Del Casino, 2020) that 'understand health in terms of nature-society relationships' (Jackson and Neely, 2015, p. 47). Such an understanding calls for ethical, equitable and practical responses to situated challenges of whose health matters (including the health of the more-than-human world). These issues generate contested notions of value and the 'production of nature' (Kenter et al., 2015; Andueza, 2020).

Drawing on this context, the article calls for the provision, planning and management of blue-green space to be reconsidered as part of an approach to urban planning that is more epistemologically, temporally and emotionally expansive than has been the case to date.

Methods and approach

This article is based on a review of recent literature on UBGS and wellbeing (World Health Organization, 2016; Wendelboe-Nelson et al., 2019; Dobson et al., 2019) and draws on research conducted before and during the Covid-19 pandemic on the health and wellbeing benefits of UBGS and the importance of nature connectedness (Pritchard et al., 2019; Tomasso et al., 2021). It also draws on an extensive review of local government responses to the Covid-19 pandemic within the four nations of the UK, undertaken as part of the pan-European Geographies of Governance project (Gore et al., 2021). The literature review focused on the benefits of UBGS; the ongoing debate on how to value these benefits; and the 'posthuman turn' in health geographies. While the article considers UBGS primarily in terms of the benefits enjoyed by humans, it situates this discussion within an understanding of the wellbeing of the more-than-human world (Andrews, 2019; Henrique and Tschakert, 2020).

The article draws on international evidence but frames its argument through the experience of Covid-19 in the UK, where the author's research has been conducted, and so comes with the caveat that its observations are likely to be particularly applicable to the urbanised North, with its tradition of public parks and municipally owned or managed blue-green spaces.

Covid-19 and urban blue-green space

As the pandemic spread worldwide in early 2020, governments responded by 'locking down' cities and citizens (Allam, 2020). In Wuhan, China (Allam, 2020, p.14), and Lombardy, Italy (Allam, 2020, p.28), citizens were only allowed to leave home for necessities. In France they were only permitted to exercise once a day for an hour, within one kilometre of their homes (Momtaz, 2020). The UK began its lockdown on 23 March. While all non-essential shops were closed and the population told to stay at home, government ministers made it clear that

parks and public green spaces should stay open for people's physical and mental wellbeing (BBC, 2020). As restrictions were eased in June and July, people were allowed to congregate outside and parks became heavily used (Dearden, 2020).

Early in the lockdown researchers, policymakers and activists began to discuss how the pandemic could be used as an opportunity to 'build back better' (Build Back Better, n.d.). In an early commentary, a group of academics argued that 'the Covid-19 crisis may fundamentally change our relationship with public space', providing multiple opportunities to rethink cities (Honey-Roses et al., 2020, p.1). Research conducted during the pandemic suggests that UBGS, because of the benefits provided to urban populations, should be at the centre of such a process of rethinking. For example, a survey conducted across six nations in spring 2020, with 2,540 respondents from Croatia, Israel, Italy, Lithuania, Slovenia and Spain, highlighted the importance of natural or semi-natural spaces to people affected by lockdown restrictions (Ugolini et al., 2020). These spaces included small urban gardens in Italy and tree-lined streets in Spain and Israel. A survey with 386 respondents in Chengdu, China, revealed the mental health impacts of lockdown and observed that visiting green spaces even once a week could be beneficial (Xie et al., 2020). In Oslo, Norway, where residents were allowed outdoor exercise, a study using mobility data from Google and Strava suggested that outdoor recreation increased by 291% compared with a three-year average for the same days (Venter et al., 2020). This included more running and hiking outside the city, but also an increase in walking in city parks and peri-urban forests. A further study in the United States (You and Pan, 2020) suggested that the Covid-19 virus was slower to spread in areas with more urban vegetation.

In the UK, data on the use of green and blue spaces in England for the period 2-30 April 2020, when lockdown restrictions were most severe, were published in June 2020. These data from the People and Nature Survey, an online survey of 2,083 adults, show that 49% of respondents had visited a green or natural space in the last two weeks, although 26% had not visited any green or natural space in the last month (Office for National Statistics, 2020a). A later iteration of the survey found that in September 2020, almost half the adult population (47%) were spending more time outside than before the pandemic (Office for National Statistics, 2020b). Urban green spaces were visited most often, with 54% of respondents visiting these in the previous month.

The pandemic highlighted the salutogenic qualities of UBGS, providing respite from stressful home or work situations, a place to relax and take exercise or engage with the natural world, and as lockdown restrictions eased, a place to socialise (Ugolini et al., 2020; Venter et al., 2020). But green spaces could also become stressful in themselves, with reports of antisocial behaviour, overcrowding and excessive littering. For example, one survey of more than 100 local authorities in England found that 81% of respondents had to spend more money on clearing up litter, while 72% had to invest in maintaining public order and enforcing lockdown rules (Keep Britain Tidy, 2020).

Despite the plethora of research into UBGS during the pandemic, the recommendations that emerged were, by and large, relatively familiar. They included paying attention to equality

of access to parks (Geng et al., 2021); considering urban forests as 'critical infrastructure' (Derks, Giessen and Winkel, 2020); ensuring a regular 'dose of nature' to improve mental health (Soga et al., 2021) and investing in urban nature to support individual wellbeing (Tomasso et al., 2021). More extensive recommendations on urban design including redesigning streetscapes and neighbourhoods to include UBGS were articulated in a commentary by Slater et al. (2020). However, with the exception of Slater's work, none of these articles considered the city as a whole. Consideration of the needs of the more-than-human world was largely absent.

Drivers of change in urban blue-green spaces

The experience and use of parks and green spaces during the lockdown in the UK highlights several drivers of change that predate the pandemic, but were reinforced through the events of 2020/21. Three in particular stand out: public health and health inequalities; a crisis of investment in UBGS; and the urban impacts of climate change and biodiversity loss.

The health benefits of urban green spaces are increasingly well understood (World Health Organization, 2016), fuelling the argument that green space can be deployed as a health resource or 'green prescription' (Natural England, 2017; Bell et al., 2019). An international review of 263 studies relating to green space and mental health (Wendelboe-Nelson et al., 2019) noted that 70% of articles examined reported a positive association between green space and wellbeing. A review of 385 papers published since 2009 (Dobson et al., 2019) found that visits to parks can help address policy priorities such as reducing obesity, diabetes and heart disease; they support social integration and community engagement; and they encourage connections with the natural world. The review noted evidence showing that the quality of green spaces has a stronger bearing on health outcomes than quantity. Other recent reviews (e.g. World Health Organization 2016; Pritchard et al., 2019) support these findings. It is unsurprising, therefore, that the notion of a 'dose of nature' as a healthcare intervention has begun to take root (Barton and Pretty, 2010; Shanahan et al., 2015; Shanahan et al., 2016, Cox et al., 2018). Shanahan et al. (2015, p.476) claim significant public health gains may be achieved if urban residents receive the right 'dose' of nature, because urban nature 'has the potential to provide an inexpensive intervention' to address conditions such as cardiovascular disease, high blood pressure and obesity. Barton and Rogerson (2017, p. 81) similarly argue that 'If greenspace were considered in the same way as a drug for mental health and well-being would be, more detailed understanding of its mechanisms would lead to optimal dosage…'

This argument is attractive for two reasons. The first is that health inequalities, often associated with disadvantaged urban areas and populations, persist despite high levels of investment in healthcare (Marmot, 2010; Rydin et al., 2012). Second, it is postulated that a social prescription such as a health walk or an activity in a green space designed to fit an individual's preferences will be more cost-effective than hospital care (Capaldi et al., 2015, Bloomfield, 2017). However, although such activities have been recommended by some public agencies (Burt and Preston, 2017) evidence of their effectiveness is often not considered

sufficient to meet the standards required for clinical interventions (Bickerdike et al., 2017), so nature-based approaches remain the exception rather than the norm.

The second potential driver of change is a crisis of funding for publicly accessible UBGS (the majority of which is owned or managed by public bodies such as local authorities). This is particularly apparent in the UK as a consequence of a decade of government-imposed financial austerity following the financial crisis of 2007/08. In the UK and elsewhere, a process of 'austerity urbanism' (Peck, 2012, Featherstone et al., 2012) led to the removal of resources from local government coupled with an increase in municipal responsibilities, resulting in real increases in local hardship (Hastings et al., 2017). A survey of parks managers in 2016 found that 92% had experienced cuts in maintenance budgets over the past three years, and in 33% of cases the reduction was more than 20% (Heritage Lottery Fund, 2016). Local authorities in England experienced a 49.1% real-terms loss of government funding from 2010 to 2017 and 28.6% real-terms reduction in total spending power (National Audit Office, 2018). Municipal UBGS budgets continue to remain discretionary, in contrast to services provided on a statutory basis in the UK such as social care or refuse collection, leading greenspace provision to be regarded as an 'optional extra' (Mell, 2018, p.752). One response has been a greater reliance on commercial activities to plug funding gaps, which some scholars claim has led to the 'financial and symbolic exclusion of those unable or unwilling to pay' for ticketed events and attractions (Smith, 2020, p.1). Austerity has had knock-on effects for the work of charitable organisations such as wildlife trusts in the UK: although they own and manage some green spaces independently and are funded by voluntary donations, they are dependent on the ability of local government to collect data on local wildlife and influence the actions of property developers (Royal Society of Wildlife Trusts, 2016, p. 21).

The groups who may be 'unable or unwilling to pay' are likely to be those whose experience of UBGS is most affected by the lack of investment, but who are understood to benefit most from spending time outdoors. For deprived urban populations, both the proximity and the quality of green spaces matter in reducing psychological distress and improving wellbeing (Astell-Burt et al., 2014, Pope et al., 2015). The evidenced wellbeing benefits of urban green spaces offer an argument for involving health services in decisions on funding the management and upkeep of green spaces (Public Health England, 2020). However, the public health grant to local authorities has fallen in real terms in recent years while spending on hospital services has been protected, even though preventative public health interventions can more be than three times as cost-effective as treatment after the event - a cost per QALY (Quality Adjusted Life Year, a measure of the value for money of health interventions) of around £3,800 for public health compared with £13,500 for healthcare spending (Martin, Lomas, and Claxton, 2019).

The third, longer-term driver of change is the growing recognition of the need to take action on the twin challenges of climate change and biodiversity loss. An increasing number of municipalities in the UK have declared a 'climate emergency', and some have set significant targets for carbon reduction (Local Government Association, 2021). Urban green spaces contribute to carbon sequestration and alleviate urban heating and flood risks as well as

providing important natural habitats (Wolfram and Frantzeskaki, 2016; Xing, Jones & Donnison, 2017; Cortinovis and Geneletti, 2018). So while there are pressures on municipalities to reduce investment, which have been exacerbated by the costs of responding to Covid-19 (Gore et al., 2021, pp.15-17), the climate and biodiversity crisis calls for increased investment and the creation of new, ecologically richer urban habitats.

These three drivers reinforce two distinct narratives. First is the narrative that humans' needs for physical and mental wellbeing can be supported through and within UBGS. Second is a narrative, entrenched through a decade of austerity, that resources are scarce. These include both the resources available to support health and wellbeing through traditional interventions, and the resources available to invest in alternative interventions using UBGS. The actions that could or should flow from these narratives are contested. The next section considers three areas of contestation that have material impacts on the provision and use of UBGS.

Debates and dilemmas in urban blue-green spaces

While there are numerous ways to frame and categorise the debates and dilemmas that will affect the post-pandemic provision and care of urban blue and green spaces and their links with human wellbeing, three issues stand out. They are not new, but have been brought into focus through Covid-19 and will be significant in informing urban policies as cities and towns emerge from the pandemic.

The most immediate issue, in terms of public policy, and driven by the narrative of resource scarcity, is value (typically construed in terms of value for money). Blue and green spaces are often treated as assets in discourse but as liabilities, or of limited interest, in decision-making (Horwood, 2011; Hislop, Scott and Corbett, 2019). Standard valuation measures and benefit-cost ratio calculations favour investment in grey infrastructure such as roads and housing: the benefits are realised rapidly and the long-term environmental impacts are frequently externalised. The UK government's announcement in June 2020 of a £5 billion infrastructure investment programme to kickstart economic recovery from Covid-19 was criticised by environmental advocates on these grounds (The Wildlife Trusts, 2020) and suggests that national investment priorities have not shifted significantly from traditional economic models.

The benefits and costs of UBGS are unevenly distributed, with an imbalance between those who pay and those who benefit (Choumert and Salanié, 2008). The failure to account for the long-term benefits of natural spaces has led to a growth in the use of natural capital accounting (Weir 2018; Office for National Statistics, 2019), which seeks to quantify the resources provided by the natural world in economic terms. Advocates of natural capital accounts argue that quantifying these natural resources enables decision-makers to recognise 'the significant value provided by … urban natural capital assets' (eftec, 2017, p.5). This, it is reasoned, will help to protect land and species that are otherwise devalued or damaged. In times of continued pressure on local government finances in the aftermath of Covid-19, advocates of natural

capital accounts hope their use will encourage local authorities to understand more fully the benefits that local UBGS provides (Vivid Economics, 2016).

Such notions of value, however, are contested (Andueza, 2020; Victor, 2020). The monetary value of ecosystems is considered reductive (Victor, 2020, p6): 'Describing nature as capital implies that nature has value … only to provide goods and services to humans'. Even if it is accepted that natural capital accounting is useful in assessing the economic costs and benefits of particular decisions, evidence suggests that it remains more financially profitable in the short term to 'develop' the natural environment than to protect it (Wild, Henneberry and Gill, 2017, p.184). Despite some high-profile recent examples of investment in UBGS, including the planned demolition of a shopping centre in Stockton-on-Tees to create a new public park (BBC, 2021), the UK Government's infrastructure investment programme cited above suggests that traditional economic priorities remain unchanged.

If market valuations are insufficient to drive decisions that support the natural world and preserve the value it provides, this raises a second debate: should UBGS be considered as a health service in order to generate appropriate investment? The public health arguments raised in the previous section apply here: is investing in therapeutic activities in green spaces (such as health walks led by community workers who are generally paid modest salaries) a more cost-effective way to promote and maintain human wellbeing than more invasive medical interventions performed by highly trained (and expensive) medical staff? The 'dose of nature' arguments cited above explicitly link the therapeutic efficacy of nature-based interventions with the potential to reduce healthcare costs. The associations between UBGS and wellbeing reveal the potential for 'green prescriptions' - for example, proximity to green spaces has been associated with reduced anxiety and mood disorder (Nutsford, Pearson and Kingham, 2013) and green spaces can provide a 'buffer' enabling people to reduce their stress levels (van den Berg et al., 2010).

But a primary focus on UBGS as an enabler of human wellbeing may have unintended consequences. It concentrates attention on the proximity of spaces to their potential users, and time spent in them by the groups most at risk of particular illnesses (the 'optimal dose' as Barton and Rogerson (2017, p.81) put it). This approach flattens the wide variety of spaces, species and subjectivities in play. Bell et al. (2018, p.2) point out that this flattening has a universalising effect, which 'may be both illusory and potentially exclusionary for the many individuals and groups whose healthy nature encounters diverge from the statistical average or "normal" way of being'. It encourages a reductive concern with the most effective ways to generate human wellbeing, rather than understanding the wide variety of affordances for wellbeing that natural spaces offer (Dobson et al., 2021). It ignores the range of experiences and subjectivities that affect perceptions of nature and human flourishing, categorising particular groups as 'low users of nature' or suffering from 'nature-deficit disorder' when their lived experiences are widely varied, and include wellbeing benefits associated with being in or caring for urban nature (Birch, Rishbeth and Payne, 2020). It also overlooks the insights of

posthuman geographies of wellbeing that affirm the multiplicity of human, spatial, 'natural' and material factors at play in 'becoming well' (Duff, 2016, p.59; Andrews, 2019).

The third area of contestation concerns equity. This is frequently framed in terms of health inequalities and access to green spaces. One comprehensive literature review (Rigolon, 2016) found that lower socioeconomic groups and ethnic minorities have access to fewer acres of parks, fewer acres of parks per person, and parks with lower quality and poorer maintenance and safety than privileged groups. However, while more deprived communities also suffer from poorer quality (and sometimes quantity) of urban green spaces, with fewer features and facilities and more problems of littering or crime (Boone et al., 2009; Roe, Aspinall and Thompson 2017; Pope et al., 2018), this does not occur in isolation from other social and economic factors that generate and sustain geographies of deprivation. Austerity policies have had adverse impacts on the quality of green spaces (Simson, 2018). They may also be localities where capacity for action is being eroded (Mathers, Dempsey and Frøik Molin, 2015). Capacity needs to exist not only to pursue beneficial environmental outcomes (Holstead et al., 2018), but also to resist the loss of environmental goods (Haaland and van den Bosch, 2015). Other factors may also be at work, including population pressures leading to the densification of cities such as London (Whitten, 2019). This recognition of the importance of context is reflected in the concept of environmental justice, a notion often backgrounded in discussion of access to UBGS. Environmental justice is concerned not only with whether people have equal rights and access to the benefits offered by the natural world (Wolch et al., 2014), but also with the distribution of disbenefits (Agyeman 2013; Nassauer and Raskin, 2014) and the competing or complementary demands and priorities of different groups and entities (Bickerstaff and Agyeman, 2009; Venter et al., 2020). It leads on from questions of how goods and resources are distributed to more fundamental questions about the inherent injustices of the extractive economies that underpin modern urban development (Martinez-Allier, 2012; Henrique and Tschakert, 2020). Scholars have called for the development of a 'political ecology of health' that can 'lay bare the unevenness of healthy and hungry futures' (Jackson and Neely, 2015, p.60).

In all three areas of debate, narratives are constructed about who and what matters. These predominantly continue to valorise the economic quantification of the natural environment and the notion of green spaces (and their inhabitants) as resources for human enjoyment or consumption. But as the next section considers, Covid-19 has highlighted opportunities to write alternative narratives that depart from the operationalisation of space and nature for economic and policy ends.

Departures from dominant paradigms: divergent thinking about urban blue- green space

The experience of Covid-19 has focused attention not only on the utility of natural spaces for human wellbeing, but also on the limits of traditional policymaking. The continued financial pressures on UBGS suggest that even viewed as a resource for human wellbeing, urban nature will struggle to attract investment on a scale comparable with 'grey' infrastructure such as roads

and buildings. In a century shaped by crises that have already rocked global financial, health, ecological and climate systems, the adequacy of current paradigms is increasingly called into question.

There are no simple solutions: transitions are complex, incremental and unpredictable, and the resilience of human and more-than-human life is more easily theorised than enacted (Folke, 2006; Duit, 2016). The search for 'leverage points' to enable better connections between humans and the natural world (Meadows, 1999; Richardson et al., 2020) is messy and outcomes are uncertain. However, there are some promising departures from dominant paradigms that demand attention if humans are to live well in urban settlements in future. They address the big picture rather than the detail, but have implications for the everyday activities of designing, managing, and appreciating UBGS. They point to a more epistemologically, emotionally and temporally expansive understanding of urban life which, if adopted, could lead to markedly different planning and investment choices.

The first departure concerns what it means to be human in a natural world. The idea of the 'more-than-human' world (Maller, 2018; 2021) attempts to challenge the anthropocentric view of 'nature' as other. Humans and non-humans are 'entangled together in ways that cofabricate worlds, spaces, and encounters' (Bell, Instone and Mee, 2018, p.136). An 'ecological perspective of the city' respects the 'multiple intermingling of human and nonhuman entities' (Farías, 2011, p.369). The idea of 'nature connectedness' (Lumber et al., 2017) seeks to identify human wellbeing with the wellbeing of the more-than-human world. All these conceptualisations stumble to some extent in that attempts to decentre the human or construe the 'posthuman' are seen from human perspectives, and decisions on planning and investment are inevitably taken from anthropocentric perspectives. They can also overlook 'the manner in which the natural world has been used to destroy, damage or subjugate' many humans, and people of colour in particular (Dungy, 2009, p.xxvi). Yet they pose a necessary challenge to the instrumentalist view of the natural world as existing largely to support human ends. Blue and green spaces are not only 'spaces' created by humans in cities, but participants in ecosystems (not just infrastructure) that have their own reasons for being and are of intrinsic value (Vucetich, Bruskotter and Nelson, 2014). Humans themselves are not separate from ecosystems but contain their own 'microbiomes' of organisms (Robinson and Jorgensen, 2020) and are produced through relations between a range of biological/natural and material/technological actors (Andrews, 2019). Policymaking that takes account of human and more-than-human entanglements is more likely to consider the needs of other species, and not only those with 'iconic' or 'endangered' status. As the recent Dasgupta Review of the economics of biodiversity in the UK asserts, human beings and human economies are embedded within nature, not external to it (Dasgupta, 2021, p.47). However, it remains to be seen how far this perspective will influence mainstream policymaking, even within the Treasury that commissioned the review.

A second, related, departure focuses on what it means for humans to be well rather than wealthy - or to understand wealth in terms of wellbeing rather than financial assets. The

notion(s) of *buen vivir*, which have informed economic and political thinking in Andean countries including Ecuador and Bolivia, represent 'a turn towards a more biocentric, relational and collective means of understanding and being in the world' (Chaves et al., 2018, p.153) - although there are numerous ways of interpreting this (Dupuits et al., 2020). *Buen vivir* underlines that values and rights to being do not reside only with humans (McGregor et al., 2020). Alongside this re-valorisation of the more-than-human world goes a broader understanding of what it means for humans to be well, taking into account their emotional responses to nature and their sense of place and self (Jakubec et al., 2016; Raymond et al., 2017; Nichols and Del Casino, 2020). These insights point to a view of wellbeing as multifaceted and consequently less amenable to logics of quantification. Costanza et al. (2017) observe that after 20 years of identifying and valuing ecosystem services, a new economic paradigm is required that puts 'nature' at the core. They call for more engaged and discursive approaches that enable citizens to influence economic priorities. One such perspective is offered by the practice of deliberative valuation, in which people are given opportunities to express their preferences and trade-offs. Working with an indigenous community in Colombia, Lliso et al. (2020, p.106499) found that participants involved in designing a system of payments for ecosystem services (PES) placed a high value on 'equity considerations that go beyond the monetary benefit that PES provide'. Such approaches could be transferred to urban contexts through systems such as participatory budgeting (Cabannes, 2004) to elicit the role the more-than-human world plays in the 'foundational economy' (Engelen et al., 2017) of human life.

A third departure from dominant paradigms concerns time, a factor brought into focus by the unfolding climate crisis. The temporal perspectives regarding investment in green spaces and wellbeing are predominantly short-term, discounting the needs and interests of future generations. The concept of the needs of future generations has influenced environmental thinking since the Brundtland Report (World Commission on Environment and Development, 1987) defined sustainable development as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs, and this is reflected in areas of policymaking such as the 2015 Wellbeing of Future Generations Act in Wales, which requires public bodies to consider the long-term effects of their decisions. However, there is often an assumption that future generations will define their needs in the same ways as ours. Current interest in connecting with nature and making space for other species, reinforced by policy interventions such as the Dasgupta Review (Dasgupta, 2021) suggests that a growing proportion of urban populations may expect their green spaces to become less formal and more biodiverse, with greater attention being paid to urban 'wildscapes' (Jorgensen and Keenan, 2012) and to processes of 'rewilding' (Koninx, 2019; Sandom et al., 2019) that have the potential to foster greater awareness of the more-than-human. A less anthropocentric concept of nature and broader ideas of wellbeing both involve a stretching of the temporal dimension, challenging the economic convention of discounting future benefits.

Back to earth: 'building back better' in urban blue-green space?

A frequent riposte to such departures from dominant paradigms is that they are unrealistic and utopian, and have little relevance to the day-to-day management of urban space in times of financial stringency. However, system change involves situated practices as well as field-level change (Smets, Morris and Greenwood, 2012; Spaargaren 2011; Turnheim et al., 2015). And the impetus for change has been supported rhetorically, if not resourced financially, with the widespread adoption of the 'build back better' slogan.

'Build back better' is not new, however: it has been a feature of responses to crises since the Indian Ocean tsunami of 2004, encompassing efforts to rebuild economies, bolster community resilience and reduce future risks (Mannakkara and Wilkinson, 2013). Vahanvati and Rafliana (2019) argue that definitions of building back better are open to interpretation and difficult to operationalise. However, the authors emphasise the importance of sustaining community capacity beyond the rebuilding phase. Similarly, Francis et al. (2017) highlight the value of community-driven recovery strategies following the Christchurch earthquake in New Zealand. Building back better, in the view of these authors, takes time and must be grounded in community aspirations.

Such a long-term, grounded approach fits with the epistemologically, emotionally and temporally expansive outlook outlined above. It would also fit with an outlook that recognises the needs and rights of the more-than-human world and views nature as an intrinsic part of 'coupled human-natural systems' within cities (Alberti, 2016, p.21). In the humble context of an urban park in the post-industrial global North, this could start to happen through management practices more sensitive to the natural environment (Scott and Lennon, 2016), and the promotion of activities, events and natural features that build on people's continuing emotional connections with the more-than-human world (Birch, Rishbeth and Payne, 2020; Oh et al., 2020). Such practices could build on the 'pathways to nature connection' (Lumber et al., 2017), and explicitly consider future generations in decision-making, as recognised in the 'place-keeping' approach to greenspace management (Dempsey and Burton, 2012). For researchers, the concept of 'assemblages of health' (Duff, 2016) offers a gateway to more socially, ecologically and temporally equitable and inclusive ways to understand place and wellbeing (Jackson and Neely, 2015; Andrews, 2019; Senanayake and King, 2019).

Alternative stories are beginning to be written into urban landscapes and could stimulate further re-imagination of urban space. Charities such as the National Trust in the UK are promoting activities to encourage connections with nature (Richardson et al., 2020). Alternative visions for redundant retail spaces such as the Broadmarsh shopping centre in Nottingham, UK, highlight a growing public appreciation of the value of nature (Nottinghamshire Wildlife Trust, n.d.), although the delivery of such visions is far from certain. In Paris, mayor Anne Hidalgo has won plaudits for urban greening and active travel plans, but has also prompted fierce opposition (Nossiter, 2019). It is not sufficient simply to create new urban blue-green spaces; as a recent study in Barcelona shows, the 'carrying capacity' or ability of the habitats to support biodiversity

is key too (Melero et al., 2020). This calls for attention to UBGS at a micro as well as a macro scale.

Meanwhile the challenge of equity persists. To make environmental justice a building block of wellbeing, these new narratives about people and the more-than-human world in urban spaces need to be written 'from the margins' (Hanacek et al., 2020): from the viewpoint of those who are sidelined in a 'growth economy' that commoditises both people and nature. By doing so, more opportunities may be generated to create UBGS that better supports both the human and more-than-human worlds.

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