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PALETTES OF PLACE

Green/blue spaces and health

Ronan Foley

The value of the wider environment to human health and flourishing is well established, and human geographers have had a substantive hand in this realization (Gatrell and Elliott, 2015). While environmental health studies have traditionally focused on risk associated with specific damaged or polluted locations (as shown in Section 1 of this volume), the potential of natural and built settings to promote and sustain healthier populations has been studied across a range of subjects, including psychology, anthropology, physiology and sports science (Hartig et al., 2014; Korpela et al., 2008). For qualitative health geographers, much of that research has drawn on historical writing on therapeutic landscapes (Gesler, 1992), and the specific development of that subject is succinctly documented in Williams (2010) and in other sections of this handbook. Other health geographers have preferred to work more directly on person/place interactions within primarily urban settings (Mitchell, 2013; Richardson et al., 2013). In both of these connected strands of health geography, green space – both natural and built – has been a significant focus for that research (Groenewegen et al., 2012; Hartig et al., 2014). In the past decade, the intertwined idea of blue space has been additionally extracted for separate study (Foley and Kistemann, 2015; Völker and Kistemann, 2011). “Green space” is broadly defined as encompassing publicly accessible areas with natural vegetation, such as grass, plants or trees, including spaces like urban parks and wilderness (Lachowycz and Jones, 2013). Blue space broadly refers to a range of natural and artificial spaces associated with water, including lakes, rivers, seas, reservoirs and other pooled waters (Foley and Kistemann, 2015). At the heart of all this research lies an intention to uncover how green/blue spaces act as supportive settings to enable health, recognizing that those settings can also be disruptive (Duff, 2011).

Health geographers interested in green and blue space now routinely discuss an increasing range of spaces and places, natural and built, managed and unmanaged, alongside concerns for how they work (Groenewegen et al., 2012; Lachowycz and Jones, 2013; Foley and Kistemann, 2015). In addition, contemporary empirical work builds on theory to consider the significance of both mobility and stillness and the ways in which places are, simultaneously, active and contemplative settings for the maintenance of physical and mental health (Conradson, 2005; Foley, 2017). While recognizing their, at times, contested natures and uses, Williams (2010) notes the ongoing centrality of therapeutic places and spaces to health promotion and illness prevention as a way of recognizing their importance in public-health policy. There remain nagging issues around evidence, preferred methodologies and the difficulties health geographers sometimes have in identifying *dose* effects associated with nature. In truth, such a narrow focus on health outcomes contradicts much

of what contemporary health geography – drawn to mobility, difference, affect and experience – is all about. Nonetheless, this chapter identifies and argues for a number of complementary research strands, driven by a range of approaches and evidence bases that document the value of green/blue spaces to human health. More importantly, there has been, since the turn of the millennium, a visible presence for healthy natures in both cultural and public-health discourse and presents an opportunity for health and medical geographers to show how such spaces matter, and how they, as a sub-group, can contribute meaningfully to that elucidation.

Green space: exploring vitamin G

Green spaces have been studied by health geographers at a range of scales and settings, from national parks and woodlands, down to urban parks, gardens and allotments. While the value and benefits of what has been referred to as *vitamin G* are broadly accepted, they are complex and not always entirely consistent across different subject perspectives (Groenewegen et al., 2012; Lachowycz and Jones, 2013). From other subjects, especially psychology, a range of studies built on psychometric and other instrumental measures have identified improvements in stress reduction, attention restoration and general well-being from being in or viewing natural green spaces (Hartig et al., 2014). Such studies were often experimental and set indoors, especially Ulrich's classic studies in hospital settings that measured better health outcomes for patients facing views of nature than a brick wall (Ulrich, 1984). Arguably, one of the ways in which health geographers have advanced these studies is by bringing in a more *situated* (real-world) spatial component.

One strand of this research has focused on quantitative spatial analysis, wherein the associations between measured *good* access to green space and positive health outcomes have been used as directly quantifiable evidence, often developed via the use of GIS and spatial modeling (Lachowycz and Jones, 2013). In recent years, such work has been especially motivated by a rise in perceived public-health concerns around high levels of societal obesity and overweight. As a result, a focus on obesogenic environments and the ways in which green space might be recruited in urban planning to encourage movement and activity-promoting place/space design are central drivers of health-geography research (Mitchell, 2013; Ward-Thompson, 2011). In Shortt et al. (2014), a focus on environmental justice has taken a socioecological approach, using a national self-reported survey to explore relationships between levels of activity, unhealthy environments and associations with deprivation to show how health inequalities persist at a population level across England. A parallel study using behavioral and psychometric data from the Scottish Health Survey 2008 compared the use of natural environments (woods, parks, paths, beaches) with other environments (home gardens, pavements, gyms, pitches, pools) and found some enhanced mental-health effects for natural spaces, but less clear associations in most other cases (Mitchell, 2013). Importantly, the study identified the need for more work on the specifics of both the activities and the places/spaces to uncover more evident relationships.

While always a suspect distinction, a second strand developed the above scoping work via a more specific place-based qualitative focus. Personal/narrative studies of green space have deepened the focus on experiential and emotional aspects of health and well-being in a range of green spaces (Bell et al., 2014). In addition, those studies have paid attention to specific sub-populations and drawn from approaches and methodologies from other subjects, including psychology, anthropology, health promotion and wider public health. Milligan and Bingley's (2007) work focused on allotments and their value for older people in maintaining both physical and mental health capacities. Both Doughty (2013) and Macpherson (2012) focus on walking as an aspect of active well-being in a range of outdoor spaces. Doughty's study focused on five different walking groups of variable ages, using a *walking-and-talking* methodology to emphasize more active components of therapeutic outdoor spaces to, in turn, uncover a relational well-being in place, framed by in-space encounters. Macpherson (2012) worked outdoors with a group of people with visual impairments to uncover voices of difference and track different experiential outcomes in outdoor green space. Dinnie, Brown and Morris (2013) studied how people used two different types of public parks in Dundee. They identified a range of

contested outcomes and uses – inevitable in public spaces – that both promoted and constrained the use of green space. They additionally noted specific local topographies (shape, size, organization of paths) that combined with more topological components (movement through, interactions) to further the findings of both Doughty and Macpherson on an increasingly mobile relational focus on how health and well-being emerge in such spaces to support health education and promotion (Gatrell, 2013). Yet equally, the ongoing power of green spaces to act as sites of rest and restoration, within which stillness, escape and *shift-spaces* from everyday stress and pressure remained important tropes (Plane and Klodawasky, 2013; Finlay et al., 2015). Finlay et al.'s study of a group of formerly homeless women in a park in Ottawa uncovered the significance of a solid place connection for people who had always lived relatively unconnected lives, yet was equally realistic about more unhealthy uses and user populations (drug dealers, thieves) who might occupy the same spaces at different times of the day and especially night.

Lachowycz and Jones (2013) usefully developed a theoretical model that mapped the mechanisms by which exposure/inputs (green-space access) become beneficial health outcomes (physical/psychological), with a particular focus on what they called moderators and mediators. Moderators included factors – such as demography, space characteristics, living contexts and climate – that affected or shaped people's experience and use of green space. Mediators, loosely identifiable as side effects, were associated with presence (knowing the park is there), aesthetic pleasure and individualized use experiences, all of which shaped differential and previously unconsidered benefits.

Such studies, with their focus on how individual and sub-groups use and benefit from parks in quite different ways, document the very relational ways in which green spaces can be approached. While recognizing ongoing difficulties with quantifying dose effects, health geographers are now exploring (using complementary quantitative and qualitative methods) more open and connective sets of possible outcomes, linked to more fully inclusive experiential insights from users and planners and an enhanced focus on external factors (structures, income, opportunity, spatial justice, neighborhood design, exclusion and resilience) that a critical health geography might easily recognize.

Blue space: immersive encounters

Research on green space has always included glimpses of the blue, but spaces associated with water have been extracted recently for separate study. "Blue space" is defined by Foley and Kistemann (2015) as "health-enabling places and spaces, where water is at the centre of a range of environments with identifiable potential for the promotion of human well-being" (p. 157). The idea for a separate study of blue space originated in work on riverine and coastal health but recognized the difficulties in complete separation from green space (Völker and Kistemann, 2011; White et al., 2013). As a result, the term "green/blue space" has gained common usage, with health geographers central to the development of a complementary and parallel set of blue-space studies (Bell et al., 2014, Finlay et al., 2015; Thomas, 2015; Völker and Kistemann, 2011, 2015). That interest in blue space – drawn in part from therapeutic landscape traditions – considers how exactly geographies of water shape and improve health and healing outcomes through developing studies of specific settings and practices (Foley and Kistemann, 2015). An interest in environmental health reflects earlier research and guides a number of city-based studies, in which rivers, lakes and other bodies of water have been productively studied for health gain within the "urban blue" (Völker and Kistemann, 2011). Völker and Kistemann's work picks out both riverine and park locations to explicitly compare public response to and preference for blue over green spaces, though it recognizes that the two are often mingled, as in the case of linear green parks that run alongside the River Rhine in Düsseldorf (Völker and Kistemann, 2011). That blurring across green and blue is also reflected in other urban work. Finlay et al. (2015) carried out an innovative walking-and-talking study on older adults in metropolitan Vancouver that identified improved physical, mental and social well-being associated with access to both types of space as well as directly observed

and discussed activities in place. Thomas (2015), in a study of how different women used both green and blue space in Copenhagen, identified similar benefits around exercise and anxiety alleviation, but also more nuanced countereffects for women who were overweight and found such settings anxiety-producing.

As a contrast to this urban work, the coast has also become a site of study. While Collins and Kearns (2007) acknowledged its contested nature, they identify a clear psychological preference value, especially in a country like New Zealand with an extensive and proximal coast. Other studies have used a range of measurable forms, such as censuses, cross-sectional surveys and personal histories. White et al. (2013) noted an enhanced proximity-to-coast effect from self-reported health measures from the 2001 UK census, which they augmented with data from the British Household Panel Survey (BHPS) to identify physical and mental health benefits of living near the coast (though, interestingly, life-satisfaction measures did not show any association). In applying Lachowycz and Jones' (2013) theoretical model, the mediating value of the coast as a site of aesthetic and reflective value emphasizes its ongoing importance for older people, which is especially evident in a study of an older community on Waiheke Island, New Zealand (Coleman and Kearns, 2015), in which the potential of the coast for island-dwellers, both for active visits and for passive views, speaks to differential modes of encounter that produced differential forms of well-being.

In using the sub-heading “immersive encounters,” one can uncover subtle ways in which blue space differs from green space. While coastal walking is a good example of a shared person/place interaction, specifically immersive and interactive practices, such as swimming, diving and a range of watersports (kayaking, canoeing, sailing), have become more central to health geographers' work. From earlier research by Collins and Kearns (2007), there was a clear sense of both health-promoting and health-endangering behaviors at the beach. Being active outdoors promoted physical health yet also increased exposure to hot sun and potentially dangerous waves. Foley's (2015, 2017) recent writing on outdoor swimming takes a generally positive slant on its function and value for a range of healthy and unhealthy bodies. It also suggests that, as a relational engagement, swimming is important in terms of shared socialization, mobile outdoor settings and physical engagement across the life course. While some of the work on watersports has been undertaken outside of health geography, Bell et. al's (2014) innovative work on coastal interactions using a range of GPS tracking devices and *in situ* narratives, picks out kayakers as one representative group to see how they negotiate blue space for its affective and well-being value. All of these works present new, “vertically embodied” perspectives – with strong sensory dimensions – from above, on, in and under water that augment the more horizontal visual and active perspectives drawn from green-space research.

Shades, shapes and scales

Although the primary focus of this chapter is on green/blue spaces, therapeutic places come in many shades, shapes and scales. While there are multiple shades in the green and blue themselves, other shadings are also present. For example, browns and grays represent built environment spaces, such as allotments, community gardens and abandoned or vacant plots, that act as valuable interstitial micro-spaces for restoration and well-being (Finlay et al., 2015; Pitt, 2014; Völker and Kistemann, 2015). Duff's (2012) work on enabling spaces for mental health in Melbourne identified other shades – and even shapes – in the shadows and corners, as well as unexpected emergent practices in such settings. One of his respondents identified a wall as an object for practicing handstands, but equally saw that wall as absorptive, capable of “soaking up” anxiety. This role for particular places, as “affective resources for . . . recovery” (p. 1392), tallies well with wider psychological studies of green/blue space, wherein attention restoration, stress reduction and mood enhancement were identified health outcomes (Hartig et al., 2014). Similarly, Houghton and Houghton (2015) call for more study of the blurred boundaries between rural and urban, the *Edgelands* in Richard Mabey's writing, that act to enhance a place-mindfulness within previously unconsidered, even counterintuitive therapeutic settings.

One important and slightly underappreciated aspect of recent health geographers' research has been innovative thinking around emplaced methodologies. The shapes of place interactions have been often linear: along streams, rivers and coasts and through forests and gardens; within which different shades of brightness and shadow are identified during those events (Doughty, 2013; Völker and Kistemann, 2011). In using a range of *in situ* approaches, including walk-alongs, visual-elicitation and informant-led wanderings, one can identify relational shifts, emergent from both the time- and space-frames of the interactive conversations and subjects that, in turn, opens up space for voices of difference and more place-responsive narratives of connection (Bell et al., 2015; Coleman and Kearns, 2015; Finlay et al., 2015; Macpherson, 2012). This is evident even in treatment settings, where individual descriptions (written and visual) of imagined therapeutic landscapes clearly identified green and blue spaces, but with important shadings that saw, for example, lake edges and horizons as both welcoming and disturbing, depending on the dark imaginative shading those individuals applied to them (Lengen, 2015). Finally, any mention of shape and shade might also include a mention of scale, wherein work by health geographers has operated across scales, from landscape level to very localized affective/active settings of a park bench or a rock by the sea. These more nuanced understandings of multiple forms of green and blue can meaningfully identify shadings of place experience and health outcomes that remain hidden in more aggregated quantitative studies.

Contested palettes

As is to be expected, there has been a strong critical component within much of this work. More clinical perspectives focus on difficulties with measurability in terms of data and causality, a factor fully discussed in Hartig et al. (2014) and Lachowycz and Jones (2013). At the heart of this critique, the identification of spatial associations are not transferable, or, in terms of specific causalities, explainable as solely contextual factors. In addition, finding the right scale of analysis remains an issue for some (Lachowycz and Jones, 2013). Most health geographers would not disagree with this, in the sense that there are multiple and complex factors at play and there will always be problematic scalar and data-matching issues within quantitative and aggregated work. Given the wider difficulties of unpacking composition and context, this clearly connects green/blue health geographies to mainstream medical/health geography work. Nonetheless, the specific focus on tackling wider societal "problems" – as classified by public-health initiatives – such as obesity/overweight, and the clear identification in many studies of benefits to physical and mental health, suggest the work has value (Shortt et al., 2014). The focus of much ongoing research is still quantitative, and health geographers can be more creative in using spatial statistics and other forms of modeling that connect health indicators with green/blue spaces to show how geography can augment existing measurable evidence.

More recent work has shifted the focus a little more widely by a fuller validation (even revaluing) of subjective experiences, identifying other ways of uncovering scalar effects (Bell et al., 2014). Earlier critiques on therapeutic landscapes research considered the uncritical ways in which place, especially unusual or special places, were incorporated, and this has led to the inclusion of a much broader range of everyday encounters, practices and settings in green/blue space (Williams, 2010). While recognizing the ongoing significance of urban parks, coasts, mountains, wilderness and the generally recuperative potential of nature, a focus on what has been referred to as *nearby nature* has shifted the focus to more mundane and always occupied spaces (Duff, 2012; Foley and Kistemann, 2015). In addition, new methodologies and techniques, such as walk-alongs, GPS, accelerometers and photo/video elicitation interviews, uncover site-specific and *in situ* well-being responses of considerable depth and value from such everyday settings (Bell et al., 2015; Coleman and Kearns, 2015; Finlay et al., 2015; Straughan, 2012; Stewart et al., 2016).

A final critical strand, reflecting the work of Conradson (2005) and Collins and Kearns (2007), identifies contested effects and affects; differential outcomes by personality, ability, community, condition and

identity affiliation. Here, the ways in which green/blue spaces not only contain light and dark shades – but also, crucially, how those shades of darkness and light are affectively identified and experienced – has shifted thinking in both spatial and, indeed, temporal terms. Studies of urban parks, for example, make very specific distinctions between a positive daytime and negative nighttime affective response in such spaces (Plane and Klodawasky, 2013; Thomas, 2015). Similarly, an emphasis on sub-groups – children, older cohorts, people with disabilities or mental illness – uncovers more differentiated understandings of how and why green spaces become therapeutic (Bell et al., 2014; Duff, 2012). One should note, however, that some of the valuable new technological possibilities for data-gathering, via public participation and active citizen science, can also act as invasive and anxiety-creating tools on bodies and in places. Finally, there is still a tendency for “green space” to have an urban focus, the assumption being that anything rural is by definition all green and/or healthy. Here, too, there are multiple blurred and mobile geographies at play – for example, research on asthma sufferers identified a counterintuitive preference for urban space, given high levels of pollen in the countryside (Edgeley, Pilnick and Clarke, 2011).

New relational geographies of green/blue space

In contemporary studies of green and blue space, one can see an evolution of approaches that provide a more relational understanding of the value of therapeutic places within society at large. Health geographers have been instrumental in making place a visible factor in the measurement of health outcomes. At the same time, they have been central to deeper uncoverings of how experiential, embodied and emotional geographies emerge in green/blue space to maintain and promote health and well-being. While tensions still remain in orientations toward either quantitative or qualitative approaches, there is now a plurality in evidence-based approaches across health geographies – they draw on everything from GIS and correlation coefficients to videos and voices from the water. In combining experimental and experiential approaches, a new relational geographical understanding of green/blue space continues to emerge. The explicitly multiscalar and networked nature of such spaces is another starting point. Ranging in size from tiny (pocket parks) to grand (national parks and reserves), green/blue spaces represent connective patchwork assemblages from lived lives that are also socially produced (Hartig et al., 2014). The design and planning of green and blue spaces remains an important consideration, with much of the work of landscape architecture and urban planning explicitly focused on producing active spaces for active bodies (Stewart et al., 2016).

An exciting direction for this new relational geographical work is to further uncover an enabling practices/spaces approach that blends people and place together; while intriguing new methodologies hint at a combined physiological and narrative shift (Bell et al., 2015; Stewart et al., 2016). We need to know that embodied health improves through exposure to healthy natural spaces, but we also need to know what mechanisms – physical and emotional, direct and managed – affect that process and what part places and spaces play in those mechanisms (Lachowycz and Jones, 2013). Time as well as space is important here, and there is an emergent interest in interactions across the life course, drawing from surveys and spatial mapping as well as new forms of direct monitoring and geo-narrative (Foley, 2017; Pearce et al., 2016). Linked to this, a focus on a *life-course-of-health* perspective suggests a value in new research that considers the relational geographies of preventative, behavioral-management and recovery elements of a range of chronic and acute conditions. Developing the work of health geographers working with specific sub-groups has real potential to uncover how specific conditions and, indeed, disruptive life events (injury, the sudden loss of bodily capacities), in turn, condition place-based health benefits (Doughty, 2013; Macpherson, 2012). What may emerge is not so much individualized medicine as individually and communally emplaced health outcomes across a range of geographies.

Health geographers have always considered the potential critical-policy value of their work. Work on green/blue space clearly overlaps with wider research on the value of nature for human health and flourishing,

a concept increasingly framed in public policy under terms such as “ecosystems services” and “natural capital” (O’Brien, Morris and Stewart, 2014). Health geographers are in a strong position to critically engage beyond the subject and draw attention to some of the implicit dangers in framing nature in specifically commodifiable ways, yet they can also carefully co-opt such terms. One way of doing this is to bring a range of spatially attuned methods and approaches into interdisciplinary work that informs public-health policy and that draws attention to wider discussions around inequality, public space and access to healthy spaces. One intriguing area for study is access to private green and blue space. Some of this is picked up in spatial modeling from remotely sensed data, but there have, to date, been almost no small-scale studies that map area-based levels of private green/blue space (gardens or swimming pools) against public space to identify differences in area-based health outcomes. In addition, Duff’s (2011) reframing of health-enabling spaces as a set of public resources identifies new ways of measuring their value beyond the economic, highlighting the sense of a sustainable resource for future life courses as well as current and past ones. That concern with value remains crucial – an anecdotal comment by a colleague suggested that *sea* and *view* are the two most valuable conjoined words in the English language. Health geographers are centrally concerned with new valuing of the parks and coasts around us, and framing these as new “resources” or “supports” for health and well-being may be less instrumental than seeing them solely in terms of “service” or “capital.” As *third spaces*, the shared and social nature of green/blue spaces are at the heart of their value to health and well-being (Foley, 2017). That multiplicity of uses and users matters. In framing green/blue spaces as relational, the combination of a singular focus and shared intents lends coherence, but much of the joy of green/blue space is in its emergent possibilities – as a contrast from everyday gray spaces and a place for managing both stress and distress – that mark it out as a shift-space, both physical and emotional, that continues to enhance the health of all citizens.

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