2. Promoting green space access

This is the second in a series of four evidence report cards summarising what we know about: (a) natural environments and human health; and (b) opportunities for promoting human health and wellbeing through sensitive ‘green’ and ‘blue’ public open space management. This card focuses on preconditions for green space access, examining both actual and perceived barriers to accessing and engaging with such settings.

Accessing local green spaces

As noted in Card 1, public green spaces have the potential to contribute to diverse health outcomes. However, an important prerequisite for experiencing such benefits is having the opportunity and capabilities to engage with these settings. This section describes how access is shaped by green space awareness, proximity, physical obstacles, and personal time constraints.

Awareness: limited awareness of local green spaces and their facilities – termed ‘restricted horizons’ – can hinder use, particularly amongst low income groups (Kaczynski et al., 2009). Similarly, the full potential of physical green space improvements can go unrealised if not accompanied by appropriate outreach activities and promotional campaigns (Hunter et al., 2015).

Proximity to home: this has gained long-standing research and policy attention, including Natural England’s Accessible Natural Greenspace Standard (ANGSt), which describes the amount and quality of green space that every household ‘should’ have access to (Natural England, 2010). Studies have suggested that urban green space use tends to decline after between 100m and 400m, varying with personal mobility and motivation (Schipperijn et al., 2010; Akpinar, 2016). Data from Natural England’s Monitor of Engagement with the Natural Environment (MENE) indicates that around 2/3 (66%) of visits to natural spaces are within 2 miles of home. This varies by type of space, for example over half (54%) of visits to urban parks, 37% to woodlands and 19% to coastlines are within 1 mile of home (Natural England, 2011). Proximity is therefore a key issue, and for example, research has indicated that living closer to the coast – especially in the south west – is associated with increased physical activity (White et al., 2014). Yet, studies in Cornwall have also noted lack of time, perceived distance, crowding and prohibitive car parking costs as barriers to accessing the local coastline, even amongst those living less than 2.5 miles away (Ashbullby et al., 2013; Bell et al., 2015 and In press).

Physical obstacles to access: including (a) the presence of busy roads, water courses or steep hills en route which may impede direct access and require additional walking time to reach an appropriate crossing point (Wolch et al., 2010); (b) few or poor quality traffic-free paths around and within green settings, which are a particular concern for individuals with compromised mobility and fears of falling (Sugiyama et al., 2009); (c) infrequent or unaffordable public transport links for those (e.g. low income groups) without access to personal transport (Morris and O’Brien, 2011); and (d) a lack of appropriate facilities within the green space, including
Toilets, seating and safe play facilities (Burgess et al., 1988; Alves et al., 2008; Aspinall et al., 2010).

**Time constraints:** time and scheduling constraints are frequently cited as a key barrier to green space use (Reis et al, 2012; Natural England, 2015a; Bell et al., In Press). Time spent in green spaces can be perceived as an unavailable ‘luxury’ for those with busy routines (Pinder et al., 2009), particularly if working long hours in low paid, insecure employment; a key issue in Cornwall.

Opportunities to maximise the integration of active or passive green space experiences into people’s routine movements depend on the existence of safe, accessible, well-lit, car-free connections between green and blue spaces, residential, commercial and work locations, including designated trails, cycle lanes or pavements (Brown et al., 2014; Sugiyama et al., 2014a,b). This links to recent calls by the Landscape Institute (2013) to integrate a ‘green spine’ within and between urban areas, connecting green spaces, river valleys and waterways with pedestrian and cycle routes. Enhancing such connectivity could promote health, wellbeing, sustainable transport and ecological resilience (Ilojä et al., 2014; Haaland & van den Bosch, 2015; Žlender and Ward Thompson, 2016), thereby also supporting recommendations in the Lawton Review (2010) to enhance England’s ecological network (discussed further in Evidence Card 3).

**Designing for safety**

A recurring issue in the existing evidence concerns psychosocial barriers to green space access when perceived or actual safety of users is undermined. Whilst physical risks are mentioned (e.g. Lyme disease ticks, tree fall), social risks are reported more regularly, including fear of crime, physical or verbal abuse, harassment and environmental incivilities (Maruthaveeran and van den Bosch, 2014). Studies suggest safety concerns are more prevalent amongst women than men, but this varies between individuals (Skår, 2010) and with setting familiarity (Krenichyn, 2006).

Studies also highlight the mentality of other users and a lack of shared values as potential barriers to use (van Herzele and Wiedemann, 2003; Seaman et al., 2010). For example, for vulnerable older adults and parents with young children, the antisocial behaviour of other users (e.g. underage drinking and petty vandalism) can lead to avoidance of parks, particularly outside of daylight hours (Bell et al., 2003; Ward Thompson et al., 2005). Whilst improved lighting might alleviate perceived social risks, concerns have been raised about the ecological consequences of night light pollution (Gaston et al., 2012), including adverse impacts on animal movements, foraging, inter-species interactions, communication and reproduction. These impacts depend on species’ wavelength sensitivity, the intensity of light reaching different organisms, and the directionality of the light. Efforts could therefore be made to: (a) install directional lighting, including light-focusing reflectors, to reduce unnecessary emission of light in horizontal or upward directions, providing ‘dark refuges’ for mobile animals; and (b) switch to narrow spectrum light sources (such as low-pressure sodium lamps) rather than broad spectrum ‘white’ sources (e.g. light-emitting diode lamps) in more ecologically sensitive areas (Gaston et al., 2012).
Safety concerns are particularly prevalent within more deprived neighbourhoods (O’Brien, 2006; Gidlow and Ellis, 2011) in the presence of vandalism, graffiti, littering, dog fouling and poor maintenance. These issues convey negative signals about how to behave, signalling a lack of care and a ‘collapse’ of community concern (Jorgensen et al., 2007; Tzoulas and James, 2010). Vegetation density has also been linked to perceived safety; a balance is needed between green spaces that look sufficiently natural to promote a connection to nature but with sufficient maintenance to prevent the growth of dense understory vegetation, deemed to limit lines of sight and opportunities for protective surveillance (Bjerke et al., 2006). Ecological quality is not always readily recognisable or well received by local green space users (Skandrani and Prévot, 2015). Where people’s aesthetic preferences conflict with biodiversity goals, ‘cues to care’ may be needed for ecological quality improvements to be fully appreciated. These could include litter removal, well-maintained edges, trimming vegetation along sight lines, introducing educational signage, and incorporating carefully placed physical infrastructure (e.g. fences, benches, picnic tables) (Ives and Kelly, 2016).

**Designing for inclusivity**

The importance of inclusive green space design, catering for multiple user interests and capabilities, is increasingly recognised, with calls to diversify from the ‘monotony’ of the ‘mown grass and tidy treatment’ (CABE Space, 2008). Inclusive design seeks to remove the barriers to access faced by many people (e.g. people with disabilities and their family and friends, parents with young children, older adults), and to think creatively in order to ‘combine technical access with quality of experience’ (Sensory Trust, not dated).

Whilst a range of online tools and guidance has been produced to facilitate inclusive design efforts, including a series of practical Sensory Trust fact sheets, it is important to acknowledge that design considerations are often subtle details, overlooked by all except those who need them (Shackell and Walter, 2012). Valuable insights can be gained by engaging people with diverse health and mobility needs in the design of their local green spaces to identify these ‘subtle’ details and thereby enhance their interactions with, and opportunities for positive wellbeing experiences within, these settings. Community engagement approaches are discussed further in Card 3.

Importantly, inclusivity goes beyond the physical infrastructure to include ‘facilitated access’ initiatives (Morris and O’Brien, 2011). Spending time in green spaces may not be a cultural or social norm for particular groups or individuals; this may undermine their confidence to visit alone and their sense of belonging whilst there. Morris et al. (2011) discuss the value of organising transport to more inaccessible green settings and running a series of guided ‘taster’ activities for such groups. However, they suggest such initiatives require long time frames in order to establish self-sustaining social contexts for continued engagement beyond programme duration.

Studies have also explored the importance of designing sensitive, tailored information sources to encourage diverse users to engage with their local green and blue spaces. For example, Kessel
et al. (2009) note that the visual imagery used in leaflets promoting a local community forest in East London made some community members feel inadequate; they did not identify with the active individuals using specialist outdoor equipment and clothing that were depicted in the leaflet photos. More recently, Elliott et al. (2016) explored the influence of using persuasive writing techniques in walking brochures. This research suggested that it may be possible to incorporate behaviour change techniques in leaflets, for example to better support and encourage ‘non-walkers’ to undertake accessible and manageable walks.

**Ecological impacts of increased public use**

When considering opportunities for maximising use and extending path networks within different urban green spaces, care needs to be taken to minimise the risks of introducing adverse ‘edge effects’, particularly in woodland settings. Edge effects refer to the altered microclimates - and associated ecological shifts - that exist along the borders of a habitat fragment relative to the interior environment (Alignier et al., 2014; Schneider et al., 2015), often extending 20-50m into forest patches. In woodlands, such factors include increased solar radiation, air temperature and wind speed, and decreased air humidity. This influences the abundance and distribution of species with differing physiological tolerances to microclimate changes, as well as species interactions, such as competition, predation and seed dispersal.

Edge effects are influenced by various factors, including edge orientation, structure, surrounding habitat type and species’ edge sensitivity (Fletcher et al., 2007; Ries and Sisk, 2010). Further challenges are created when enhanced visitor numbers intensify vegetation trampling and soil compaction within and around recreational trails. Ecological shifts may result if trampling-tolerant species outcompete more sensitive species and if visitors/dogs bring in novel seeds from surrounding habitats (Hamberg et al., 2008).

Efforts to reduce the detrimental impacts of enhanced path networks could include: (a) maximising the distance between parallel paths to minimise the cumulative influence of multiple edges; (b) restricting trails to existing habitat edges; (c) focusing trail development in less ecologically sensitive areas to maintain trail-free refuge habitats; and (d) managing the timing of visitor access, seasonality of use and permitted recreation types (Thompson, 2015).