Space to thrive

A rapid evidence review of the benefits of parks and green spaces for people and communities

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The Mall, Armagh

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Cover image: Barnes Park, Sunderland
Left: Towneley Park, Burnley

Executive Summary

This report summarises a rapid review of evidence on the social benefits of urban parks and green spaces. It has been conducted by researchers from Sheffield Hallam University and The University of Sheffield. It focuses on issues such as health, wellbeing and social integration rather than on the wider environmental and ecological benefits of green spaces.

It is based on a review of 495 empirical studies published within the last ten years that have been through a process of academic peer review, supplemented by an additional 31 papers reviewed in order to cover evidence gaps. After sifting for quality and relevance, 385 papers were considered. While that means the research reported here is more likely to be robust and rigorous, providing a solid evidence base for policy and practice, it also means that valuable work that has not undergone a peer review process has not been included.

The evidence is presented within a context of increasing policy interest in the social benefits of parks and green spaces. Following work by The National Lottery Heritage Fund, the National Lottery Community Fund and civil society organisations, there is growing political recognition of the social importance of public parks. This has been recognised in, for example, the Loneliness Strategy announced by the Government in October 2018, and in work by NHS England on creating healthy new towns.

Whitstable Castle Park, Whitstable

Findings

1. **Physical health, mental wellbeing and life satisfaction are all enhanced through access to and use of parks and green spaces.** The way parks are used is as important as how easy it is to get to them. People need parks and green spaces nearby, but they need to be of a sufficient quality to encourage regular visits. Visiting parks can help address policy priorities such as reducing obesity, diabetes and heart disease. Visits to green spaces support mental wellbeing and stress relief. The quality of green spaces has a stronger bearing on health outcomes than quantity.

2. **Parks create important opportunities for social integration.** They play an important role in helping refugees and migrants establish a sense of belonging in new communities. But they can also amplify social divisions and groups may exclude themselves from green spaces if they feel the space is dominated by one particular group of users (for example, if a park is overwhelmingly used by young people) or if they feel unsafe (for example, when a space is poorly maintained or attracts antisocial behaviour).

3. **Parks provide opportunities for community engagement and local residents value the chance to be involved in designing and improving their green spaces** (e.g. through volunteering). Community gardening offers opportunities for new residents to build social connections. Children appreciate the chance to have their say on park improvements. Schemes to include young people in the care of green spaces can enhance their personal development and increase their environmental awareness.

4. **Parks and green spaces highlight inequalities in society.** There is evidence that the quality of parks and green spaces is worse in areas of lower income. Minorities are often marginalised in terms of access to green space in addition to the other areas of discrimination they face.

5. **Parks and green spaces enable people to connect with nature, which in turn brings benefits in terms of wellbeing.** Nature connectedness includes experiencing the natural world through the physical senses, learning about it, and engaging mindfully with nature by noticing and paying attention. Connectedness with nature is associated with a sense of gratitude and feelings of belonging in a place. Feeling connected to the natural world helps people recover from stress and mental illness. Connections with nature also help to build a sense of place and community and foster a sense of gratitude and self-worth.

6. **There are economic benefits of parks and green spaces** in terms of creating employment, hosting economic activities (such as cafes or events) and encouraging inward investment.

Burslem Park, Stoke-on-Trent

Recommendations

On the basis of the evidence we have reviewed, we set out three overarching principles for park and greenspace investment. The actions recommended here are generally simple and often inexpensive, but require sustained commitment and revenue funding to support the people who can make them happen. The recommendations aim to sustain and enhance the benefits parks and green spaces are known to provide, and prevent the negative and costly impacts of neglect and poor planning. We provide more detail in section 5 of this review.

First, parks should be seen as social as well as physical infrastructure. This means that as well as investing in and maintaining high quality physical environments, funders should also support the activities that animate green spaces and encourage people to use them. Investment should support activities that increase community engagement, bring different social groups together, encourage volunteering and open up parks to disadvantaged sections of society.

This can be done through a range of methods, including funding neighbourhood-based groups to provide community development activities in green spaces; creating welcoming meeting spaces such as cafés in parks; and ensuring high standards of care and maintenance are provided in all parks and green spaces to deter crime, littering and antisocial behaviour.

Second, parks and green spaces should be managed to support health and wellbeing. Design, maintenance and activities should encourage physical exercise appropriate for all sections of the population. They should also create restorative spaces and activities that enable people to recover from the stresses of life.

Examples of relevant actions include funding social prescribing within green environments; supporting fitness and exercise activities in parks in low-income areas; and improving lighting and pathways to increase a sense of safety and security.

Third, parks and green spaces should be managed to encourage connections with nature. A wide range of habitats should be provided to give visitors the opportunity to engage with and better understand the natural world. This in turn will maximise the wellbeing benefits associated with nature connectedness.

Victoria Gardens, Neath

Barnes Park, Sunderland

Actions could include outdoor learning activities such as Forest Schools; wildlife-friendly planting to attract pollinating insects and birds; 'natural play' using logs and boulders rather than standardised commercial play equipment; and benches and seating that make the most of natural views.

Such actions offer opportunities to encourage visitors to value and protect biodiversity and understand its role in supporting human flourishing.

The range of actions recommended above requires involvement and contributions from all partners: local authorities and others responsible for park ownership and maintenance; healthcare providers; national bodies responsible for environment and heritage; private businesses offering facilities and activities in green spaces; and voluntary and community organisations, including local 'Friends' groups.

This evidence review is intended as the first element in a wider evaluation of the Parks for People programme which will investigate in more detail the benefits of investment in parks, including attempting to address gaps found within this review. As such more detailed recommendations will flow from the final evaluation report.

Evidence gaps

- There is little evidence in the peer-reviewed literature of the wider social effects of specific interventions (such as the provision of a new café or different horticultural approaches).
- The evidence on inequalities focuses largely on income and ethnicity, and there is limited consideration of gender or disability. While there is a large body of evidence on young people's inclusion or exclusion, there is relatively little on older people.
- There is limited evidence of initiatives to prevent or solve issues of discrimination or exclusion in green spaces.
- There is limited evidence of the wider benefits of community engagement (beyond the direct benefits of attending organised activities in green spaces and participating in decision-making).
- Evidence on economic benefits is patchy and further investigation is needed of the potential gentrification effects of park improvements.

These gaps in the evidence indicate an absence of relevant research within the scope of our review. They should not be taken as suggesting that (for example) disability discrimination in parks is not a problem, or that community engagement is not beneficial.

Foreword

Parks and green spaces are a key component of social infrastructure; 'the physical places and organisations that shape the way people interact' (Klinenberg, 2018, p.5), 'that meet local and strategic needs and contribute towards a good quality of life' GLA, 2017, p.202).

Parks and green spaces play an important role in developing strong and inclusive communities and providing opportunities for different groups of people to come together. People forge bonds in places with healthy social infrastructure not because building a community is a predetermined objective but because 'when people engage in sustained, recurrent interaction particularly while doing things they enjoy, relationships inevitably grow' (Klinenberg, 2018, p. 5). Parks and green spaces like any other social infrastructure require investment, whether for development or maintenance. And when we fail to create new ones and/or maintain them the consequences are detrimental for the community (ibid.).

Recognising the importance of parks and green spaces in the UK and the need for investment, Lottery Funding has been supporting parks for more than two decades. The National Lottery Heritage Fund (formerly known as the Heritage Lottery Fund) launched in 1996 its oversubscribed Urban Parks Programme, followed by the Public Parks Initiative and later on the last targeted funding programme, Parks for People. From 2006 onwards, with increasing demand, the programme gained additional funding from the National Lottery Community Fund (formerly known as The Big Lottery Fund). Since 1996, over £900m of National Lottery funding has been awarded to more than 900 UK public parks for capital works in single sites and related public engagement activities.

Two influential reports, the 2014 and 2016 State of UK Parks (commissioned by The National Lottery Heritage Fund) highlighted the new challenges that currently parks face within a changing political, financial social and environmental context.

Despite the value that communities attribute to their local parks, parks managers across the UK report continuous reduction to their maintenance budgets, cuts to their revenue budgets, staff and skills being lost and parks declining in condition expected to rise (HLF, 2016). Accordingly, the Lottery funding support has also changed taking a more strategic role. The National Lottery Heritage Fund and The National Lottery Community Fund have partnered with other organisations and funders (including the government) in a series of new funding programmes including Rethinking Parks I and II and the Future Parks Accelerator. Collectively all these initiatives are particularly crucial in the current climate where parks are under direct threat. Within the various types of funding support from the Lottery the desire and vision remains unchanged: to secure and enhance the future of public parks and greenspaces, for the long term public benefit, serving community needs and aspirations now and over the next generations.

The National Lottery Heritage Fund aims to inspire, lead and resource the UK's heritage to create positive and lasting change for people and communities, now and in the future. Over the last 25 years we have invested in creating high quality active green spaces. Now, more than ever before, we need to use evidence to prove the value of past and future investments in securing the social benefits provided by our unique legacy of historic and urban green spaces.

The National Lottery Community Fund's purpose is to support people and communities to thrive. We believe that when people are in the lead, communities thrive. One of the ways that we do this is through funding places and spaces that communities can use to make good things happen.

Saughton Park, Edinburgh

This includes parks as vital places where people can connect with others and with the natural world, and improve their overall wellbeing.

Parks and green spaces have power. They can change how people live in a place, interact in a place and choose to stay in a place. Recognising that there is a lack of collected peer reviewed evidence of the benefits of parks as social infrastructure, this rapid review has been conducted to fill this gap. It is part of a bigger programme evaluation of the Parks for People funding which rather than looking at the past to demonstrate impact for accountability purposes, aims to evidence and demonstrate the societal long term impact of the funding to parks and make the case for further strategic central and local government support and future investment for the regeneration and environmental and financial sustainability of public parks and green spaces.

Asimina Vergou, Drew Bennellick, The National Lottery Heritage Fund and Rowan Boase, The National Lottery Community Fund

Parks and green spaces have power. They can change how people live in a place, interact in a place and choose to stay in a place.

A note on definitions

Throughout this document we talk about parks and green spaces, and discuss access to parks and green spaces. We follow the definition of parks set out in the application guidance for the Parks for People programme (HLF, 2013, p.5): 'A public park is an existing designed urban or rural park, the main purpose of which is providing free access to informal recreation and enjoyment. Our definition includes urban parks, country parks, gardens, squares and seaside promenade gardens'.

We consider urban green spaces to be publicly accessible vegetated land connected to build-up areas that may vary in size, vegetation cover, species richness, environmental quality, proximity to public transport, facilities and services. Examples of the variety of urban green spaces include formal parks, commons, roadside verges, allotments, cemeteries, street trees, sporting fields, nature conservation areas etc. (Wolch et al., 2014; Taylor and Hochuli, 2017).

We define 'access' as covering the proximity, quality, variety and inclusivity of parks and green spaces. Our definition is not taken from a single source, but based on the wealth of evidence considered in this review. Access is how easy it is for any individual to travel to, enjoy and feel welcome and included in a park or green space. It encompasses the quality of the routes taken (for example, do users have to cross busy roads?); the suitability of green spaces for people with disabilities; the variety of activities possible within a space (for example, is there room for informal outdoor family gatherings?) and the sense of inclusion felt by users (for example, will a woman wearing a hijab feel harassed by other park users?).

A public park is an existing designed urban or rural park, the main purpose of which is providing free access to informal recreation and enjoyment.

Hesketh Park, Southport

Duthie Park, Aberdeen

Water Gardens, Hemel Hempstead

- **Parks and green spaces are politically important**
- **Parks and green spaces are important for wellbeing**
- **Parks and green spaces are environmentally important**
- **Parks and green spaces are vital to placemaking**
- **Parks and green spaces are vulnerable**

Myatt's Fields Park, London

Policy Context

Parks and green spaces are politically important

The importance of parks and green spaces for health and wellbeing, social cohesion and environmental resilience is being recognised across the political spectrum and by civil society organisations. The need for action to make parks fit for the future has been recognised by the current Government in its support for the Parks Alliance and announcement in February 2019 of an additional £13m for parks. This followed the inquiry into public parks in 2017 by the House of Commons Housing, Communities and Local Government select committee, which received widespread public and political attention. While the inquiry's recommendations were largely accepted by the Government, this comes in the context of a forecast 60% decline in funding for parks and green spaces (Wallis, 2015). The National Lottery Heritage Fund's State of UK Public Parks reports in 2014 and 2016 give an overview of the current position (HLF, 2014; HLF, 2016).

Parks and green spaces are important for wellbeing

The social and mental wellbeing value of parks is recognised in the government's loneliness strategy (HM Government, 2018). A chapter in the strategy is devoted to community infrastructure - the places, spaces and activities that bring people together where they live. The strategy promises to unlock the potential of under-used community space, including local parks and green spaces. It recognises the wealth of research that shows how green spaces enhance health and wellbeing and provide community meeting places.

While there is extensive evidence of the value of parks and green spaces in promoting physical health and mental wellbeing, health policy agendas tend to focus on interventions rather than creating the conditions for good health. However, Public Health England recognises both the importance of providing green spaces to underpin physical and mental health, and the need to ensure access is more equitable across the population (Public Health England, 2014). NHS England's recent work on Healthy New Towns recognises the value of greenspace planning in promoting healthy lifestyles (NHS England, n.d.).

Parks and green spaces are environmentally important

The 25-year Environment Plan (HM Government, 2018) calls for investment in urban green infrastructure to meet the challenges of biodiversity loss and climate change. It promises (p.77) to 'draw up a national framework of green infrastructure standards, ensuring that new developments include accessible green spaces and that any area with little or no green space can be improved for the benefit of the community'.

Natural England recognises the importance of 'nature nearby' in its guidance on accessible natural greenspace. Its standards are based on ensuring that people are able to experience the natural environment close to where they live and not only in national parks and rural areas.

Parks and green spaces are vital to placemaking

Green infrastructure and green spaces are central to the revised National Planning Policy Framework (MHCLG, 2019). Local planning authorities should set out strategic policies on 'conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation' (ibid. p.9) and planning policies should support networks of high quality open spaces, recreational land and public rights of way (ibid. Chapter 8). Communities have the power to designate sites as protected Local Green Spaces through neighbourhood plans (ibid. p.29).

Ouseburn Parks, Newcastle upon Tyne

Parks and green spaces are vulnerable

Public parks and green spaces in the UK have a history of cycles of investment and decline, stemming in part from the absence of any statutory duty on local authorities to maintain and invest in them. This situation was noted by MPs in two inquiries, 18 years apart (House of Commons Environment, Transport and Rural Affairs Committee, 1999; House of Commons Communities and Local Government Committee, 2017).

The Urban Green Spaces Task Force – set up as a result of the 1999 select committee report – underlined the message about the need for investment with Green Spaces, Better Places (Department of Transport, Local Government and the Regions, 2002). It called for funding of £100m a year for five years to improve urban parks and a national agency to oversee this revival. The National Lottery Heritage Fund's and the National Lottery Community Fund's investment in public parks over two decades has been one consequence of the increased recognition of parks' importance to local communities.

Nevertheless the last decade has witnessed a period of sustained disinvestment. The natural environment white paper (HM Government, 2011) reported that one in six local authorities said their green spaces were declining. It called for green spaces to be 'recognised as an essential asset and factored into the development of all our communities' (ibid. p.31). The response to the 2017 select committee inquiry into public parks, mentioned above, suggests that the risks to parks and urban green spaces are now beginning to be recognised.

Green spaces should be recognised as an essential asset and factored into the development of all our communities

The Rose Garden, Bushey

Rapid evidence review methodology

The rapid review draws together existing academic evidence, seeking to provide evidence on the contribution of parks (and where possible investment in parks) to the following policy agendas:

- community engagement, public participation and civic action;
- overcoming barriers to broaden the use of and access to parks;
- health and wellbeing (including health and wellbeing inequalities);
- loneliness and social integration;
- connectedness to nature;
- economic regeneration.

There were four stages to the review.

Stage 1: Scoping and identifying literature

This review has been conducted by researchers from Sheffield Hallam University and The University of Sheffield. Following initial discussions with The National Lottery Heritage Fund and the National Lottery Community Fund, we agreed to focus our literature search on peer-reviewed academic research articles published over the last ten years (including 2009). The rationale for this focus was:

- We are focusing strongly on empirical evidence from previous research that has been through a rigorous process of research design, reporting and peer review.
- We are focusing on relatively recent studies in order to ensure our findings are consistent with current knowledge.

However, setting parameters in this way necessarily excludes useful and relevant literature. We have not included the extensive policy literature produced by the likes of CABE Space as it has not been through a comparable process of peer review. The same principle would apply to interesting and potentially valuable work such as the recent Fields in Trust (2018) study on valuation. Similarly, while non-academic case studies and individual accounts provide interesting and often persuasive evidence, their value is to supplement and illuminate the evidence base and not as a substitute for it.

We undertook initial literature searches to identify existing evidence reviews relating to our research questions. This identified 886 documents. These were then sifted on the basis of their relevance to the study (within the timeframe and relevant geographic focus). This left us with 24 documents, three of which were excluded because the literature cited was out of timeframe.

We then collated all references from these documents to produce a database of source materials: 495 studies in total. Again, each of these references was checked for time and geographic relevance, and those that did not comply were removed.

Following collation of the references we conducted a gap analysis and carried out searches for additional material where required, also drawing on input from an academic advisory group of experts in the field and stakeholder interviews key policy and practice representatives. A further 31 papers were considered during this stage. Altogether, we considered 385 papers that were found to be within the scope of the review within the time available.

We continued to identify additional literature throughout the period of the rapid review. Please note, a rapid review was conducted due to limited time and resources. A full systematic review may have identified additional evidence, or strengthened the evidence summarised.

Stage 2: Quality assessment

Stage two involved an assessment of evidence sources according to quality (robustness, rigour of methodology and analysis) and relevance. This left us with a final set of outputs for synthesis around the research questions.

We applied the following quality criteria:

- Is the study a fresh empirical investigation or a fresh analysis of existing data?
- Are the study's research questions relevant to the questions guiding this evidence review?
- Are the study locations and choice of participants relevant to this evidence review?

We limited our literature search to studies of locations with a developed parks and greenspace sector broadly comparable with the UK. The studies examined are predominantly in the UK, Europe, the United States and Australasia.

Approximately 60 papers were UK-based studies, with 250 being from other countries, and the rest covering a wider international context (e.g. systematic reviews summarising data from a range of countries).

Following quality assessment, 61 papers were removed because of duplication, limited relevance, or because the original paper could not be found. Our study therefore examined 354 documents in all.

Stage 3 and 4: Synthesis and reporting

We collated and synthesised key findings from across the evidence base under each of the research questions. We then drew key lessons from the evidence to develop a set of policy recommendations, which were also tested with stakeholders from the parks sector at a policy roundtable in May 2019. This document presents the current policy context, summarises findings from the literature reviewed, and sets out a recommended approach to parks and greenspace policy on the basis of the empirical evidence.

Greenwich Park, London

Rapid evidence review findings

There are some areas of overlap in the findings. This is to be expected, as psychological wellbeing and nature connectedness are also associated with social connections; similarly, physical health and mental wellbeing are interconnected.

Health and wellbeing benefits of parks and green spaces

- Green space is associated with positive outcomes for health, mortality and morbidity.
- Access to parks and green spaces is associated with increased physical activity and exercise.
- Wellbeing and stress relief is associated with access to green space.
- Wellbeing is associated with social and civic activity in green spaces including volunteering.
- Life satisfaction is associated with access to green space.
- There are associations between wellbeing and ecological richness.
- There are associations between the use of green space and improved cognitive functions.

Towneley Park, Burnley

The World Health Organization defines health as 'a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity'. Mental health is defined as a state of wellbeing in which 'every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community'. In this review we use 'health' to encompass physical health benefits and 'wellbeing' to refer to mental health, recognising the interconnectedness of the two concepts.

The health and wellbeing impacts of parks and green spaces have been assessed in numerous quantitative and qualitative studies. They fit into the following broad categories.

Green space is associated with positive outcomes for health, mortality and morbidity

There is consistent evidence that exposure to natural environments during pregnancy is associated with increased birthweight (Dadvand et al., 2012; Markevych et al., 2014; James et al., 2015). Villeneuve et al. (2012), in a study in Canada, found lower levels of mortality in neighbourhoods with more green space. The most significant difference was in respiratory disease. Gascon et al.'s systematic review (2016) affirms links between green spaces and mortality, but finds the effects to be strongest in relation to cardiovascular disease. Risks of Type 2 diabetes have been found to be significantly lower where 40% or more of the area is greenspace (Astell-Burt et al., 2014).

Providing additional greenspace in deprived areas may help to address health inequalities (Roe, Aspinall and Ward Thompson, 2016) and may make it easier for elderly people to manage

the process of ageing (Douglas et al., 2017). This includes a specific group of mostly older people; those with dementia. A scoping review of 16 studies into the benefits of sensory gardens and horticultural activities for people with dementia suggests positive impacts of these activities, particularly for wellbeing, affect and behaviour. There also appeared to be improvements in sleep and functional level and reductions in serious falls and use of psychotropic drugs (Gonzalez and Kirkevold, 2013). Similarly, a systematic review of quantitative and qualitative evidence suggested that people with dementia living in care homes experienced lower levels of agitation if they spent time in the gardens or outdoor spaces (Whear et al., 2014).

Access to parks and green spaces is associated with increased physical activity and exercise

Conditions associated with modern and sedentary living, including cardiovascular disease, diabetes and obesity, are all mitigated by access to and use of green spaces. The presence of nearby green spaces is associated with increased physical activity (Coombes et al., 2010; Toftager et al., 2011; James et al., 2015) and there are strong interlinking relationships between greenspace, physical exercise and mental wellbeing (Ambrey, 2016). New pocket parks offer one way of increasing levels of physical activity (Cohen et al., 2014). Obesity levels among children are lower when there is more nearby green space (Dadvand et al., 2014). Lee and Maheswaran (2010) and McCormack et al. (2010) note, however, the importance of perceptions of greenspace quality and access in influencing the extent to which potential health benefits can be realised. Recreational walking is most likely to occur in large and attractive open spaces (Sugiyama et al., 2010).

Playgrounds, unsurprisingly, are linked with increased physical activity among children (McCormack et al., 2010; Jenkins et al., 2014; Lindberg and Schipperijn, 2015) and tend to be among the most popular features of parks (Baek et al., 2015). However, they are used mainly by children under the age of 10, with little comparable provision for adolescents (Loukaitou-Sideris and Sideris, 2010; Baran et al., 2014).

Barnes Park, Sunderland

Wellbeing and stress relief is associated with access to green space

Green spaces provide important places for stress relief and restoration of wellbeing. Van den Berg et al. (2016), in a cross-sectional study of four European cities, found consistent links between time spent purposefully in green spaces and better levels of wellbeing and vitality. Proximity to green spaces is associated with reduced anxiety and mood disorder (Nutsford, Pearson and Kingham, 2013) and green spaces can provide a 'buffer' enabling people to maintain their health through stressful life events (van den Berg et al., 2010). Wood et al. (2017) found positive associations between wellbeing and the provision of public space in new developments, including green spaces for sports and recreation.

Mackerron and Mourata (2013), in a study using a smartphone app, reaffirmed the link between exposure to green space and short-term wellbeing. Ward Thompson et al. (2012), using levels of salivary cortisol as a stress indicator, found reduced levels of stress were associated with the quantity of nearby green spaces. This is

reinforced by Chiang and Li (2019), who found that people who used parks more frequently also had lower self-reported stress levels.

However, it is not enough simply to have green space nearby. The proximity of green spaces on its own is not necessarily associated with mental wellbeing (Houlden et al., 2017). A Dutch study found that quality of green spaces had a stronger bearing on health outcomes than quantity (De Vries et al., 2013) while Nordh et al. (2011) explored which features are preferred by park users looking for rest and pyschological restoration. They found that prevalence of vegetation (trees, grass and so on) were more important to park users than decorative features (such as water and flowers) in this respect. And Irvine et al. (2009) found that sound and noise were also important: in their study, participants preferred quieter green spaces with more 'natural' rather than mechanical sounds. This has implications for planning smaller parks in urban areas because background urban noise is likely to be higher in smaller green spaces and may need additional mitigation.

Wellbeing is associated with social and civic activity in green spaces including volunteering

Psychological benefits are enhanced when parks provide opportunities for social support (Fan, Das and Chen, 2011). Wellbeing is increased by opportunities for volunteering (Molsher and Townsend, 2015). Green spaces can enable newcomers and migrants to feel at home in new communities through activities such as community gardening (Hartwig and Mason, 2016; Hordyk, Hanley, and Richard, 2015). Conversely, there are links between lower levels of green space, reduced social support and greater loneliness (Maas et al., 2009). Furthermore, Dinnie et al. (2013) find that the social experience of parks is potentially critical to the extent of positive wellbeing effects, and that these differences vary


Birkenhead Park, Birkenhead

across individuals and population groups. They point to the need to balance the needs of different park users to ensure that different social groups can benefit from parks (see section 4.2.2, below).

Life satisfaction is associated with access to green space

Living in or moving to greener areas is associated with sustained mental health improvements (White et al., 2013; Alcock et al., 2014) and a sense of connectedness to nature is linked with greater psychological wellbeing (Cervinka et al., 2011; Howell et al., 2011). A programme to increase nature connectedness through mass public engagement in the UK, organised by the Wildlife Trusts, led to increased levels of happiness (Richardson et al., 2016). A study in Australia (Ambrey and Fleming, 2014) found that the impact of green space on life satisfaction was equivalent to an implicit willingness-to-pay of $1172 per household for a 1 per cent increase in public green space. Neighbourhood parks are important for life satisfaction among older people, who particularly value a sense of safety in urban green spaces and activities that are tailored to their needs (Loukaitou-Sideris et al., 2016).

Clissold Park, London

There are associations between wellbeing and ecological richness

Taylor, Hahs and Hochuli (2018) show that levels of wellbeing can be greater in more biodiverse locations. A study in Italy (Carrus et al., 2015) reported a positive correlation between biodiversity and the restorative effects of green spaces. Birds and a variety of vegetation are important in generating wellbeing effects (Luck et al., 2011). However, perceptions of biodiversity may be more significant than actual species richness (Dallimer et al., 2012).

There are associations between the use of green space and improved cognitive functions

Bratman et al. (2012) highlight cognitive benefits including attention, memory, and impulse inhibition from activity in environments where characteristics associated with 'nature' rather than those with 'urban' associations dominated. Taylor and Kuo (2009) found that children with ADHD concentrated better after a walk in the park.

Towneley Park, Burnley

Social integration

- People's positions within the community affect their experience and use of green spaces.
- Parks and green spaces can create opportunities for social interaction, inclusion and cohesion, which may be particularly valuable for marginalised groups.

A range of quantitative and qualitative studies have investigated the extent to which parks and green space facilitate social integration and cohesion.

People's positions within the community affect their experience and use of green spaces

Several small-scale qualitative studies in the UK have found that people's experiences of green space and its associated benefits are related to their social situations. For example, Dinnie et al. (2013) suggested that wellbeing benefits experienced by dominant groups may exclude or marginalise other groups. Seaman et al. (2010) found that tensions between adults and young people around antisocial behaviour resulted in self-exclusion of one group from the park. Gidlow and Ellis (2011) found that, for some park users, tensions with other groups were a source of distress and conflict. Similarly, in the USA, some studies have found negative relationships between parks and social cohesion. For example, Byrne (2012) found that ethnic minority groups felt unwelcome and excluded from parks, through experiences of direct discrimination or where the park users were predominantly white. Facilities such as picnic benches and tables can make parks more attractive to minority ethnic groups whose park use tends to be more associated with family gatherings (Peters et al., 2010; Ordonez-Barona, 2017).

Victoria Gardens, Neath


Lister Park, Bradford

Parks and green spaces can create opportunities for social interaction, inclusion and cohesion, which may be particularly valuable for marginalised groups

Parks and green spaces may provide particularly important opportunities for social integration for groups who may be at risk of exclusion or marginalisation. For example, social interactions in urban green spaces have been found to help young people make friends across different cultures (Seeland et al., 2009). They provide opportunities for people from different ethnic groups to mingle (Peters et al., 2010). Urban green spaces support immigrants in the process of identifying with their new home (Jay and Schraml, 2009) while preserving connections with the past (Rishbeth and Powell, 2013). Byrne and Goodall (2013), in a study of Arab and Vietnamese migrants in Australia, found that when migrants made places for themselves in the park environment they also evoked memories of their home countries. Involvement with urban green spaces, such as community gardens, fosters social inclusion by helping migrants and refugees to build connections in their local community (e.g. Harris et al., 2014; Beckie and Bogdan, 2010), while also providing space to maintain their cultural identity (Agustina and Beilin, 2012).

Social contacts may be an underlying mechanism for the relationship between green space and health, and the space created by urban parks for social interactions may facilitate social cohesion. For example, a large-scale study in the Netherlands found that lower levels of green space in people's living environment was associated with loneliness and a perceived lack of social support (Maas et al., 2009). Other research has found that the level of social contact between neighbours is linked to the availability of trees and grass, and their perceptions of how green the neighbourhood is (Kemperman and Timmermans, 2014). A study in Hong Kong found that older people especially valued parks for social interaction (Yung et al. 2017). However, while Peters et al. (2010) suggested that even informal and cursory interactions could promote social cohesion, Konijnendijk et al. (2013) concluded that these brief chats or greetings would not necessarily have lasting impacts.

Community engagement, public participation, civic action

- There is evidence of the benefits of community consultation and involvement in the planning, design and maintenance of parks for marginalised groups.

In recent years communities have become increasingly involved with the management, maintenance and ownership of parks. However academic literature on successful models of community engagement, public participation and civic action relating to parks remains relatively limited. This tends to feature more strongly in practice-based literature which is not within the scope of this summary.

There is evidence of the benefits of community consultation and involvement in the planning, design and maintenance of parks

Studies have found that children and young people particularly appreciate being asked to have their say on park design and use (Derr and Tarantini, 2016; Malone, 2012; Gallerani et al., 2017). By drawing on young people's social networks and friendships, greenspace managers can help to increase park use (Ries et al., 2009). Similarly, Eggert et al. (2015) showed how involvement with community gardening had positive community engagement outcomes for refugees. There is also some evidence that youth-focused programmes for stewardship of green spaces and/or parks can have benefits for young people's personal development and environmental awareness (DuBois et al., 2017).

Victoria Gardens, Neath

However, there is limited evidence on whether community participation improves green spaces. Fors et al.'s (2015) evidence review highlighted that while it is generally agreed that community engagement and participation is positive and has the potential to improve green spaces, more evidence is needed to understand the impacts of community participation on the quality of parks and green spaces.

More broadly, there is general consensus on the value of 'deliberative' decision-making for improving inclusivity and equality in relation to a range of urban services (see for example De Smet and Reusel, 2018) but there is also a need to adequately support and provide resources for citizen-engagement in parks management (ibid.). Studies such as Rosol (2010), found that volunteers can be treated as 'tools' to carry out practical tasks or achieve local authority or government goals without properly valuing the contribution that communities can make to green spaces. This can happen through a failure to create adequate opportunities to engage in decision-making processes, or by failing to provide resources to develop and implement ideas. Relatedly, studies in the UK (Mathers et al., 2015) and across Europe (Mathijssen et al., 2017) show the importance of wider stakeholder networks and local government support for community engagement with green space decision-making and management.

Towneley Park, Burnley

Inclusion and equalities benefits of parks and green spaces

- Parks can be inclusive and welcoming.
- Access to parks and green spaces is unequal.

The question of equality is one of environmental justice: do all people have equal rights and access to the benefits offered by public green space? (Wolch et al., 2014). There is a body of literature dealing specifically with inequalities, especially in relation to the unequal access available to people of low income or disadvantaged ethnic groups. There is also literature on how parks and green spaces can increase inclusion of disadvantaged groups, especially among children and young people. However, there is surprisingly little on people with disabilities and older people.

While some literature addresses the beneficial effects of parks and green spaces in helping to address inequalities, the majority deals with issues of unequal access. This is a particular concern in the US literature. We have not found studies evaluating the success of urban green space interventions in addressing social inequalities. There is a lack of research tracing the use of particular spaces by different social groups over extended periods of time.

Parks can be inclusive and welcoming

Exploring the role of parks in providing inclusive leisure spaces, Hindley (2018) found that Parkrun provided an environment for casual sociability, as well as facilitating a shared experience of exercising with others. Parks and green spaces can be inclusive and welcoming places for children and young people, who can build friendships outside their own cultural groups (Seeland et al., 2009).

For migrants, refugees and newcomers, urban parks play a range of important functions. They


The Rose Garden, Bushey

build emotional wellbeing for children and families (Hordyk et al., 2015) and provide restorative environments and social experiences for migrants (Main, 2013). They facilitate belonging, social relationships and the creation of positive memories (Peters et al., 2016; Rishbeth and Powell, 2013). Migrants' wellbeing is also supported by visits to woodlands (which may include wooded areas of public parks) (Jay and Schraml, 2009).

Community gardening and urban agriculture offer successful ways to build migrants' social connections and sense of inclusion (Agustina and Beilin, 2012; Beckie and Bogdan, 2010; Harris et al., 2014) as well as providing mental health benefits (Hartwig and Mason, 2016).

In a UK study, Neal et al. (2015) highlight the importance of urban green spaces in facilitating chance encounters and social mixing in super-diverse communities. Jakubec et al. (2016) found that facilitated visits to green spaces improved the self-esteem, mental wellbeing and social lives of people with disabilities.

Access to parks and green spaces is unequal

Much of the literature reviewed highlights inequalities of access to or provision of parks and green spaces, particularly in US cities where low income groups and minority ethnic citizens are seen to be disadvantaged. Rigolon's comprehensive literature review (2016) concludes 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.

The relative lack of UK literature should not be taken as a sign that there are no such problems in Britain. A study by Jones et al.


Towneley Park, Burnley

(2009) in Birmingham found that the most deprived communities had poorer access to green space. In Bristol, Jones, Hillsdon and Coombes (2009) discovered that while people living in more deprived areas actually lived closer to green spaces, they reported having poorer access to parks, felt less safe using parks, and used parks less frequently than other groups. This suggests that for these groups access is not necessarily about proximity.

Income inequalities have been associated with poorer access to shade in parks in Australia (Anderson et al., 2014), poorer access to recreational programmes in green spaces (Dahmann et al., 2010) and worse provision in poorer cities in the US (Jenkins et al., 2014). Wolch et al. (2014) note that investment to improve parks in poorer areas can have the unintended consequence of gentrification, reducing the benefits to low income communities. They therefore call on urban authorities to make cities 'just green enough' to provide wellbeing benefits for poorer communities while avoiding impacts on land values.

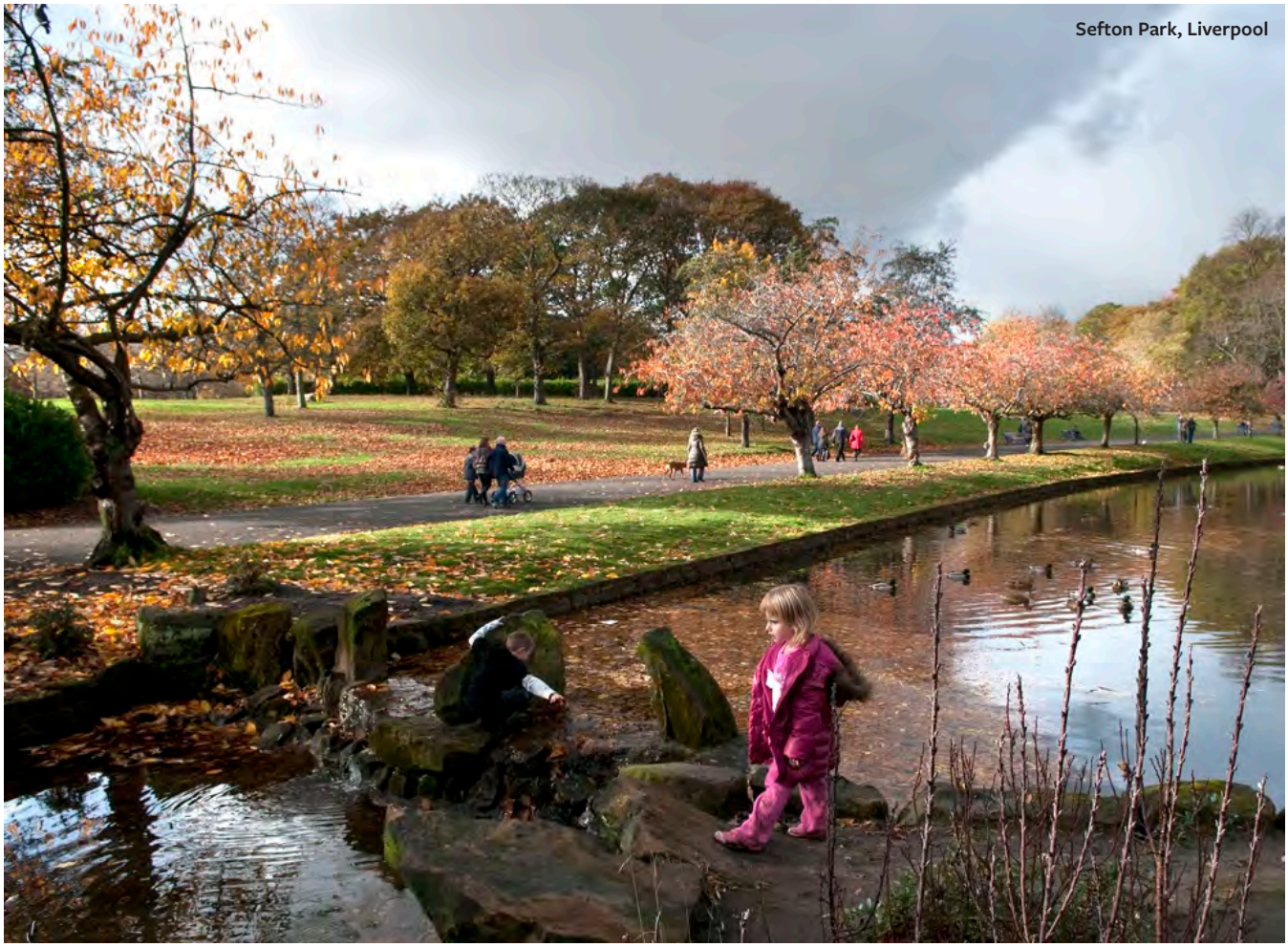
The literature on racial inequalities, primarily in the US, is extensive. Findings reveal the poorer availability of greenspace to African Americans (Dai, 2011); that non-English speakers and minorities often feel unwelcome and excluded in public parks (Byrne, 2012) and that even when minorities enjoy equal proximity to parks, they do not have access to the same acreage or quality of parks (Boone et al., 2009).

A study of access to parks for Latino and non-Latino neighbourhoods in Arizona (Lara-Valencia and Garcia-Perez, 2018) provided an interesting counterbalance to this evidence, however, finding that parks were not necessarily different in terms of quality but in terms of the types of amenities provided. Parks accessible to Latino neighbourhoods had more family-focused man-made amenities such as playgrounds, while parks in non-Latino neighbourhoods tended to have more natural features. The implication of this is that the parks in Latino neighbourhoods would have greater long-term maintenance costs and therefore be at greater risk if resources become stretched. Together the literature reminds us

that parks and greenspace managers need to be aware that spaces are used differently by different ethnic groups (Carlson et al., 2010; Marquet et al., 2019). Muslim communities, for example, tend to associate leisure activities with family gatherings (Peters et al., 2010) and Muslim women prefer parks that offer 'semi-secluded areas' where they can gather with their children at a distance from men (Kabisch and Haase, 2014).

Antisocial behaviour tends to be a particular problem when parks are underfunded or neglected. Dog fouling, graffiti and vandalism deter potential park users (Richardson et al., 2012) and small problems can precipitate further decline (Dempsey and Burton, 2012). Conversely, the presence of parks staff (Gallo et al., 2015) and community 'clean-up' events (Richardson et al., 2012) as well as the involvement of diverse communities in planning (Park, 2017) can help to mitigate antisocial behaviour, making parks more accessible to all members of a community.

There is little in the literature reviewed on gender and disability inequalities, although that does not imply there is no problem. The gendered character of sports and recreation facilities, for example, where facilities are provided for traditionally male-dominated sporting activities, is noted by Lindberg and Schipperijn (2015) in a study in Copenhagen.



Sefton Park, Liverpool

Nature connectedness benefits of parks and green spaces

- Parks and green spaces can support mental health recovery, providing a sense of harmony or equilibrium.
- Nature connections build a sense of place and community.
- Nature connections foster gratitude and a sense of spirituality.
- Nature connections are associated with personal quality of life and a sense of belonging.

'Nature connectedness' is a measure of the strength of relationships between humans and the natural environment. It has been defined as 'individuals' experiential sense of oneness with the natural world' (Mayer and McPherson Frantz, 2004, p. 504). The relationship between nature connectedness and public parks and green spaces is complex. Pre-existing nature connectedness may be a driver of the use of green spaces; repeated use of green spaces may nurture and reinforce nature connectedness; and connections with nature may be a mediating factor that unlocks physical and mental health benefits. However, not all public green spaces are 'natural': many formal parks, playing fields and recreation grounds are low in biodiversity. As Keniger et al. (2013) point out, it can be difficult to unravel which aspects of connection with nature have beneficial effects.

However, the following benefits of nature connectedness emerge from the literature examined.

Parks and green spaces can support mental health recovery, providing a sense of harmony or equilibrium

Hordyk et al. (2015) show that connectedness to nature and urban green spaces provides emotional nourishment in the face of difficult life circumstances. Molsher and Townsend (2015) show that volunteering on environmental projects increases participants' understanding of the natural world, reinforcing their nature connections. These benefits are closely linked to the mental health benefits discussed above. More general, questionnaire-based, studies show a significant correlation between nature connectedness in general and psychological and social wellbeing (Howell et al., 2011; Kamitsis and Francis, 2013; Nisbet, Zelenski and Murphy, 2011; Cervinka et al., 2011). Zelenski and Nisbet (2014), in a Canadian study, affirm that a sense of relatedness to nature is a predictor of mental wellbeing. Richardson et al. (2016) suggest that wellbeing and happiness are a consequence of nature relatedness rather than its cause; therefore, they argue, policy should encourage nature connections. However, a survey by Zhang and colleagues (2014) in the United States suggests that nature connectedness is only activated where individuals already have a sense of the natural world as beautiful. And Anguelovski (2013), in a study of disadvantaged neighbourhoods in Barcelona, Boston, and Havana, shows that connections with nature are not always positive, but can also trigger associations with grief or fear.

Nature connections build a sense of place and community

Studies in Berlin (Bendt et al., 2013) and Zurich (Seeland et al., 2009) found that natural spaces in cities can be places of shared learning and cross-cultural friendships. Luck et al. (2011) find that wellbeing in urban neighbourhoods is positively related to a variety of vegetation,

Cwmdonkin Park, Swansea

species richness and birdlife. Research with refugees and migrants shows the positive links between activities such as urban gardening and food sharing in natural environments, exploring woodlands, and establishing a sense of belonging (Eggert et al., 2015; Jay and Schraml, 2009; Rishbeth and Powell, 2013; Li et al., 2010). However, nature connections may be dependent on human intervention: Huang's study in Taiwan (2010), for example, found that emotional attachments to nature were stronger in 'improved' parks than they were in green spaces that had not been improved. Main (2013) warns that place meanings associated with greenspace can be negative as well as positive, while Agustina and Beilin (2012) note that nature connections are not always shared between different cultural groups.

Nature connections foster gratitude and a sense of spirituality

A study in Sheffield (Irvine et al., 2013) found that spiritual wellbeing, defined as a sense of calm or tranquillity, (see Fredrickson and Anderson, 1999, for further exploration of nature and spirituality) was one benefit of visiting parks, though not a motive for doing so. Surveys in Australia (Kamitsis and Francis, 2013) and Canada (Nisbet, Zelenski and Murphy, 2011) have found that spiritual wellbeing was one of the psychological benefits of connectedness to nature. Interestingly, Dallimer et al. (2012) suggest that such emotional connections are linked to perceived rather than actual biodiversity, and postulate that this may be because species identification skills are generally poor.

Nature connections are associated with personal quality of life and a sense of belonging

In addition to the community-scale benefits of nature connections, individuals have a greater sense of self and belonging through connections with nature inspired by activities such as urban gardening (Li et al., 2010) or childhood memories (Asah et al., 2012) and that this sense of self can be transplanted into new environments through engagements with nature (Peters et al., 2016).

Economic benefits of green space

- Parks and green spaces encourage inward investment.
- Parks help to save on environmental costs.
- Health improvements associated with use of green spaces save costs on health care.
- Sales of produce through urban agriculture may create economic benefits.
- Parks and green spaces generate employment.

The main review of evidence on economic impacts of urban parks and associated open spaces remains the one undertaken for Defra and Natural England by Gore et al. (2013). This study was peer-reviewed but not published in an academic journal. It did however draw extensively on academic references and it is these references that we use here. Economic benefits can be broadly grouped under six headings:

Parks and green spaces encourage inward investment

The evidence shows clearly that increasing the attractiveness of an area through investment in high-quality parks, increases inward investment and property values in the immediate vicinity of the amenity (Troy and Grove, 2008; Niedomysl and Hansen, 2010; Gensler et al., 2011). However, this may have a disbenefit in increased inequality, with more recent studies linking greater area attractiveness and higher

property prices to the processes of residential segregation and disparities in proximity to green space (see for example Duncan et al., 2013).

Parks help to save on environmental costs

Urban green space provides important regulatory services such as pollution filtration, flood risk reduction and the mitigation of temperature extremes. There is good evidence that this in turn contributes to reducing the costs incurred in repairing damage. It also appears to be a more cost-effective way of meeting environmental targets than mechanical solutions. These savings could then allow greater investment in alternative activities (see e.g. Odefey et al. 2012).

Health improvements associated with use of green spaces save costs on health care

This evidence review has already highlighted that access to green space has a positive impact on both physical and mental health issues, as well as helping to address the significant burden of ill-health due to people not meeting recommended levels of activity. Attractive and accessible urban green spaces have been shown to be an important factor in encouraging daily exercise. The resulting health improvements have been clearly linked to increased productivity at work and thus more efficient economic performance (Barton et al., 2009; Chalquist, 2009).

Sales of produce through urban agriculture may create economic benefits

There has also been a recent upsurge in interest in the production of food in urban areas and suggestions that public parks could be used for food growing. The use of informal spaces within residential areas for urban agriculture has been framed as part of a move to sustainable food systems. Evidence on the potential is limited, although Napawan and Burke (2016) calculated the 'productive potential' of urban agriculture for four communities within the San Francisco Bay Area.

Parks and green spaces generate employment

Developing and maintaining urban parks and other green spaces provides paid employment. One aspect that has received recent attention has been the effects of contracting out parks maintenance on the twin grounds of cost savings and improved performance. A research review by Lindholst (2017) concluded that on balance economic and managerial outcomes were on the positive side, but outcomes related to service quality and staff were found to be more negative.

Dyffryn Gardens, Vale of Glamorgan

A recommended approach

From a synthesis of the evidence, we highlight some key ways of achieving the range of benefits described in our review. These recommendations are directed towards generating as many benefits as possible together, rather than seeking to isolate ways of delivering specific benefits. If the interventions and activities we recommend can be found in one place, we would expect the wide range of benefits indicated by the academic evidence to follow. We will aim to test this hypothesis in future case studies.

The actions recommended here are generally simple and often inexpensive, but require sustained commitment and revenue funding to support the people who can make them happen. Such an approach requires coordination at a local scale between healthcare providers, local government, education providers and civil society organisations. Organisations need to be incentivised to provide the recommended activities and facilities as they generally fall outside statutory duties and policy priorities. Match funding from central government for local cross-sectoral initiatives is one tried and tested method of incentivising action. We set out three broad principles for an overarching approach below. These would need to be adapted to local circumstances.

Castle Gardens, Lisburn

Parks and green spaces are social infrastructure

The wellbeing and inclusion benefits of parks and green spaces require a different approach to investment than is needed for other physical assets. The issue is not simply capital investment and maintenance: it is how to animate and activate green spaces to ensure they are inclusive, welcoming and safe for all the population they may serve.

In particular, the following activities could help to achieve the benefits noted in this review:

- Fund community development workers to facilitate outdoor activities, especially among groups who do not generally use parks.
- Fund 'Friends' groups to encourage volunteering in local parks and green spaces.
- Provide facilities such as toilets and cafés in parks to create sheltered meeting places.
- Provide nature-based activities such as arts workshops within community settings, especially for people with mental health difficulties.
- Ensure urban green spaces are well maintained and cleaned to discourage antisocial behaviour.
- Ensure parks and green spaces offer welcoming spaces for all cultural groups across all age ranges.
- Support fitness and exercise in parks and green spaces, especially in less affluent areas (Parkrun is a successful example).

Clissold Park, London

Parks and green spaces should be managed to a high standard to support wellbeing

Physical and mental wellbeing are sustained or increased by a wide range of factors. There is not a generic model of a park that can or should be replicated universally. Instead, greenspace managers need to pay attention to variety and quality. Variety includes spaces suitable for social gatherings and sports; paths suitable for walking and cycling; different habitats including woodland and shrubbery to support wildlife and to provide psychologically restorative environments; and planting for seasonal interest throughout the year. Quality includes removing litter and dog waste; tackling antisocial behaviour; providing lighting and lines of sight to increase a sense of safety; and regular, sustained maintenance. Social prescribing by NHS organisations should make the most of urban parks as a health resource, and NHS commissioners should consider funding organisations to provide therapeutic activities in parks and green spaces.

The following activities could help to achieve the benefits summarised in this review:

- Support social prescribing activities by NHS organisations using parks and urban green spaces.
- Create green routes linking formal parks with urban neighbourhoods and offering alternatives to busy travel routes.
- Improve lighting and pathways to create a sense of safety and security.
- Increase the variety of planting to provide a wider range of sensory experiences.
- Increase the number and diversity of urban trees.
- Tackle litter, graffiti, vandalism and other antisocial behaviour quickly to prevent escalation and reputational damage.

Saughton Park, Edinburgh

The Phillips Memorial Park, Godalming

Parks and green spaces need to connect people with nature

Being in, and observing, the natural world is integral to the wellbeing benefits of parks and green spaces. They should therefore be planted and managed to provide a wide range of habitats and opportunities for people to notice nature. This will require ecologically sensitive maintenance to attract birds and pollinating insects. Investment in new or refurbished parks should provide additional opportunities to build human connections with the natural world. A government that is committed to the idea of biodiversity net gain should recognise the value of urban parks and green spaces in contributing to this objective.

In particular, the following activities could help to improve connectedness with nature:

- Increase the variety of planting to encourage biodiversity and provide wildlife habitats.
- Outdoor learning as part of educational activities (including initiatives such as Forest Schools).
- Encourage 'natural play' using logs, boulders and natural materials rather than standardised play equipment.
- Provide benches and seating to encourage enjoyment of natural views.
- Improvements to physical access to parks to enable people with disabilities or mobility difficulties to spend more time in them.
- Create green spaces and pocket parks in city centres and built-up urban areas.
- Create temporary green spaces on vacant urban land.

Ouseburn Parks, Newcastle upon Tyne

Taken together, these recommendations do not suggest a radical change in the character of most public parks. They do, however, affirm the need for continuous improvement; for a greater emphasis on biodiversity and connecting with nature; and for support for the people who bring green spaces to life, whether they are healthcare link workers, local government officers, or volunteers with local Friends' groups.

Arnos Vale cemetery, Bristol

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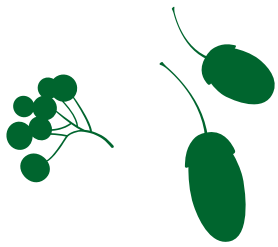

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