



The benefits of our open and green spaces.

Our City's green spaces and biodiversity have long been diminished through insensitive development and other pressures of urbanisation. These threats continue and our open space network is now at even greater risk through imposed austerity.

A healthy green and blue infrastructure requires political will, investment and professional management. These are difficult to sustain when facing more apparently pressing demands from social care and other statutory services. This situation and the consequent increasing need to attract inward investment and development mean that, as the recent cross-party committee of M.P.s concluded, the benefits of green spaces to all of us are at the point of being lost.

Nationally Local Government Parks have seen 92% of their budgets cut in recent years. Through strong political direction and innovative management the City of Nottingham has not so far suffered to the same degree as other Authorities. The situation does however remain critical, Nottingham's Parks and Open Spaces will receive no direct Council funding by 2020.

We should value, and take responsibility for the wellbeing of our greenspaces and biodiversity for their own sake. Attempting to quantify the song of a thrush in monetary terms demonstrates the worst aspects of human nature. However in our neo-liberal age more pragmatic arguments are required, there are many.

A study for Edinburgh City Council concluded that £1 invested in parks delivers £12 of social, environmental and economic benefits. A similar investigation on behalf of Sheffield City Council suggested that the benefits were even higher at £34.

The benefits gained have been presented in "three general functions of greenspace"⁽¹⁾:

- Reducing harm (e.g. exposure to air pollution, noise & heat)
- Restoring capacities (e.g. attention restoration & physiological stress recovery)
- Building capacities (e.g. encouraging physical activity & facilitating social cohesion)

Reducing harm:

It is estimated that the 2003 heatwave increased mortality in London by 42%⁽²⁾. Urban green spaces, particularly trees, ameliorate this effect through evapotranspiration and by providing shade. The cooling effect extends beyond the green space itself.

Urban green spaces, particularly those more "naturally" managed, take in more carbon than they emit thus contributing to a reduction of atmospheric carbon⁽³⁾.

The presence of urban vegetation leads to an overall reduction in air pollution⁽⁴⁾. Studies have demonstrated, for example, that schools surrounded by green space experience lower traffic pollution in the classroom⁽⁵⁾.

Urban areas are especially liable to excessive surface run-off leading to localised flooding and increased contamination of water courses. This will be reduced by including green space in new developments and by integrating green spaces within the existing urban structure⁽⁶⁾.

Restoring capacities:

It has been established that depressive disorders are now the main cause of disability in developed countries ⁽⁷⁾. It is however also widely accepted that the need to treat for mental health conditions can be significantly reduced by enabling access to green spaces ⁽⁸⁾. Use of green spaces has beneficial chemical impacts on the brain ⁽⁹⁾ and also increases the ability to maintain attention ⁽¹⁰⁾.

Importantly it has also been demonstrated that usage of green space is not affected by localised socio-economic factors ⁽¹¹⁾. The provision of accessible green space is therefore very likely to contribute to the reduction of socio-economic inequalities in health ⁽¹²⁾.

Building capacities:

Two thirds of the UK population do not reach recommended levels of physical activity ⁽¹³⁾ and across Europe the lack of physical activity contributes to 1 in 15 deaths ⁽¹⁴⁾. Accessible green space is crucial to addressing this issue. Physical activity is encouraged by the presence of a pleasant environment and more organised physical activity requires sport and playing fields and neighbourhood parks ⁽¹⁵⁾.

Well managed and maintained urban green spaces have been shown to promote increased social activity and strengthen neighbourhood cohesion ⁽¹⁶⁾. Studies have also highlighted the particular importance of this to older neighbourhood residents ⁽¹⁷⁾. It is also clear that neglected and poorly managed open space has correspondingly negative effects on social cohesion and anti-social behaviour.

Biodiversity and urban greenspace:

"A decline in wildlife is threatening core functions of the ecosystem that are vital for human wellbeing, researchers behind an unprecedented study of biodiversity in the UK have warned. Further declines in biodiversity driven by intensive farming and urbanisation could lead to catastrophic and irreversible impacts on human wellbeing". ⁽¹⁸⁾.

Urban areas can and should make a significant contribution to the conservation of nature. All our green spaces, from roundabouts and roadside verges to woodlands and parks have the potential to support a healthy level of biodiversity. Creating wildlife corridors prevents the fragmentation, isolation and loss of wildlife.

The phrase nature deficit disorder has been used to describe a widespread alienation from nature leading to concerns about the effect on our mental wellbeing. Many of our citizens have no contact with nature outside our own open space network and "such contact has measurable physical and psychological benefits which increase with species richness. Successful management of urban greenspaces should emphasis biological complexity to enhance human wellbeing in addition to biodiversity conservation." ⁽¹⁹⁾.

References:

- (1). "Exploring pathways linking greenspace to health", Markevych et al, <http://www.sciencedirect.com/science/article/pii/S0013935117303067>
- (2). <http://www.eurosurveillance.org/content/10.2807/esm.10.07.00558-en>
- (3.) Nowak, D. J. et al. *Environmental Pollution*, 178, 229-236, (2013).
- (4.) Nowak, D. J. et al. *Atmospheric Environment*, 34, 1601-1613, (2000).
- (5). Davdand, P. et al. *Science of the Total Environment*, 523, 59-63, (2015).
- (6). Gill, S. E. et al. *Built Environment*, 33, 115-133, (2007). Villarreal, E. L. et al. *Ecological Engineering*, 22, 279-298, (2004). Ellis, J. B. et al. *Water and Environment Journal*, 16, 286-291, (2002).
- (7). World Health Organisation. *The Global Burden of Disease: 2004 update*. (2008).
- (8.) White, M. P. et al. *Psychological Science*, 24, 920-928, (2013). Nutsford, D. et al. *Public Health*, 127, 1005-1011, (2013).
- (9). Ward Thompson, C. et al. *Landscape and Urban Planning*, 105, 221-229, (2012).
- (10). Hartig, T. et al. *Journal of Environmental Psychology*, 23, 109-123, (2003). Hartig, T. et al. *Environment and Behavior*, 23, 3-26, (1991). Tennessen, C. M. & Cimprich, B. *Journal of Environmental Psychology*, 15, 77-85, (1995). Roe, J. & Aspinall, P. *Health & Place*, 17, 103-113, (2011).
- (11). Grahn, P. & Stigsdotter, U. A. *Urban Forestry & Urban Greening*, 2, 1-18, (2003).
- (12). Mitchell, R. & Popham, F. *The Lancet*, 372, 1655-1660, (2008). Mitchell, R. J. et al. *American Journal of Preventive Medicine*, (2015).
- (13). Department of Health. *Start Active, Stay Active: A report on physical activity for health from the four home countries' Chief Medical Officers*. (2011).
- (14). Ekelund, U. et al. *The American Journal of Clinical Nutrition*, (2015).
- (15). Coombes, E. et al. *Social Science & Medicine*, 70, 816-822, (2010). Brown, G. et al. *Landscape and Urban Planning*, 121, 34-44, (2014).
- (16). Sullivan, W. C. et al. *Environment and Behavior*, 36, 678-700, (2004).
- (17). Sugiyama, T. et al. *Environment and Behavior*, 41, 3-21, (2009). Kweon, B.-S. et al. *Environment and Behavior*, 30, 832-858, (1998). Sugiyama, T. & Ward Thompson, C. *Environment and Planning A*, 39, 1943-1960, (2007).
- (18). <https://www.theguardian.com/environment/2015/dec/08/wildlife-decline-threatens-uks-biodiversity-study-finds>
- (19). Psychological benefits of greenspace increase with biodiversity
Richard A Fuller, Katherine N Irvine, Patrick Devine-Wright, Philip H Warren, Kevin J Gaston
Biol. Lett. 2007 3 390-394; DOI: 10.1098/rsbl.2007.0149. Published 22 August 2007