

Current Research: Green and Blue Health and Place

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Places and Spaces for Health and
Wellbeing, Edinburgh, 25th November 2013

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Policy Contexts

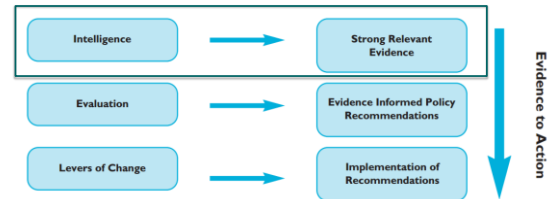
Greenspace, health and well-being intersect a wide
range of topics of policy and practice



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Good Places, Better Health

Intelligence, evaluation and levers systems

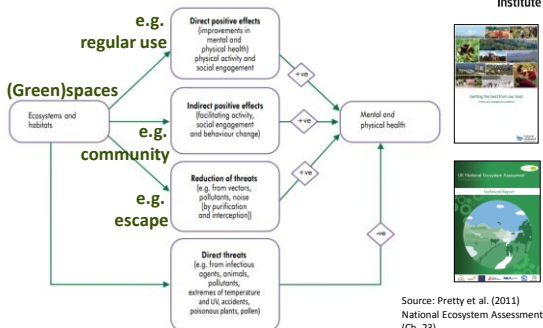


(Source: Good Places, Better Health, Implementation Plan, 2008)

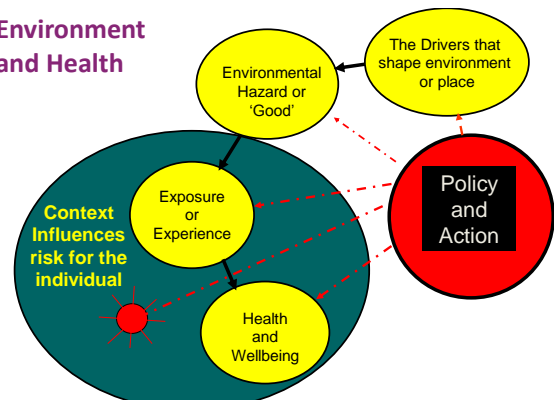
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Spaces and Ecosystem Services

Emphasis on links within and between ecosystems



Environment and Health



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Courtesy: G. Morris (2013) Introducing
the GreenHealth Programme

Green spaces under pressure

Economic and demographic drivers of land use change

Changes of greenspace to housing in 'semi-natural space' and 'amenity' (generally grassland)



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Imagery courtesy of Google and Bing

Green spaces under pressure

Conversion of amenity space to housing



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Imagery courtesy of Google and Bing

Quality of green space

Differences in quality of spaces, e.g. gardens



Two contrasting back gardens in the city of Dundee

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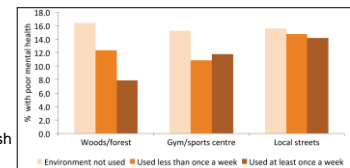
Imagery courtesy of Bing

Urban green space, mortality and morbidity

Aim To investigate if there is a link between green space and population health in Scotland

Methods

Testing for relationships between green space in neighbourhoods, use of green spaces for physical activity, and morbidity with respect to the 2008 Scottish Health Survey (SHS)



Urban green space, mortality and morbidity: findings

- Regular physical activity in green environments appeared far more protective of mental health than that in other places, like the gym or streets
- Those who use their green space regularly are at much lower risk of poor mental health than those who do not. Helping people to become and stay regular users could be a useful additional means of protecting and enhancing mental health.
- Simply increasing amount of green space in urban areas is unlikely to have impacts on population mortality rates or socio-economic health inequalities

Contact: R Mitchell, U. Glasgow. Mitchell R. (2012) Is physical activity in natural environments better for mental health than physical activity in other environments? *Social Science & Medicine*, Volume 91, 130–134



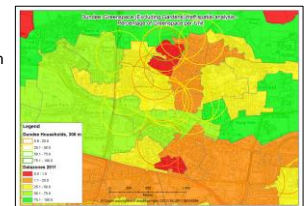
Green space quantity, stress and wellbeing

Aim To investigate links between stress and mental wellbeing and amount of green space in residential environments in deprived urban communities

Method

Questionnaire of 305 men and women in Dundee and Edinburgh (high and low green space in deprived communities)

Two self-reported measures of health used: (i) perceived stress, (ii) mental wellbeing



Different reporting units of green spaces (e.g. 300 m buffer around house, wards, datazones, walking route)



Green space quantity, stress and wellbeing: findings

- The **amount of green space** in the residential environment contributes to health and wellbeing of residents of deprived urban communities
- For men likely to **spend more time around the home**, higher mental wellbeing was associated with increasing amounts of green space
- For women, relationships between green space quantity and stress and mental wellbeing are **more complicated**. Only some showed the same patterns in self-reported stress and mental wellbeing described for men
- Study suggests that **increasing green space coverage** in deprived areas where there is little could contribute to reducing stress levels and increase wellbeing for some people

Contact: C Ward Thompson, OpenSpace, U. Edinburgh



Self-reported stress and green space

Aim

To test an indicator linking green space and stress in deprived urban communities.

Method

Salivary cortisol sampling took place over two consecutive weekdays

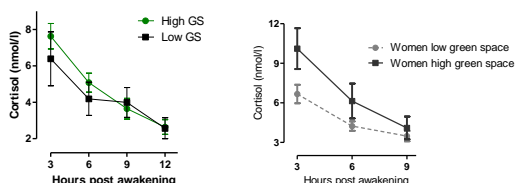
106 men and women aged 33 to 55

People not in work, living in socio-economically deprived areas of Dundee

Analysis relating proportions and areas of green space in participant's residential area



Self-reported stress and green space



- Salivary cortisol patterns indicate lower stress in residents where more green space
- Lower levels of self-reported stress are linked with more green space availability
- Higher levels of green space have a stronger relationship with diurnal cortisol concentrations in women than in men

Contact J. Roe, Stockholm Environment Institute, U. York. Roe et al. (2013) Green Space and Stress: Evidence from Cortisol Measures in Deprived Urban Communities. *Int. J. of Env. Res. and Pub. Health* 10(9), 4086-4103.



Urban green space, experience and use

Aim

To explore the role that green, or open, space plays in human health and wellbeing, and to understand how and why people engage with green space

Methods

Ethnographic study in two wards in Dundee using qualitative methods, including face-to-face interviews, walking interviews, production and review of video recordings



Urban green space, experience and use: findings

- Meanings of green space**, and hence any wellbeing benefits derived from engagement, vary between different people and social groups
- The **social aspect** of meeting others is key to their use of local green space and hence important to any wellbeing benefits derived from it
- For a small minority of people notions of escape and 'getting away from it all' are important to green space use and hence wellbeing
- Engagement with green space can be as **part of a group**, providing a strong social identity in relation to the space
- Activities of different groups** affects the experiences of others both positively and sometimes negatively

Contact L. Dinnie, James Hutton Institute. Dinnie et al. (2013) Community, cooperation and conflict: negotiating the social well-being benefits of urban greenspace experiences. *Landscape and Urban Planning*, 112, 1-9.



Wellbeing: effects of walking in natural environments

Aim To investigate whether type of environment in which people walk influences wellbeing

Methods

708 attendees of outdoors group walks at least once a week over 13 weeks

Participants > 55 years, 60% women, 50% in least deprived areas of England

Walks in natural/semi-natural places, farmland green corridors, urban green space, coastal, mixed

Self-report psychological and emotional wellbeing, frequency and duration of led and non-led walks, physical activity and environment of walk



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Contact: M Marselle De Montford U.; K Irvine James Hutton; S Warber U. Michigan

Wellbeing: effects of walking in natural environments

Findings

- Group walks in **farmland** associated with fewer perceptions of stress and negative emotions, and greater mental wellbeing.
- Group walks in **green corridor** (e.g. river path, cycleways) had fewer perceptions of stress and negative emotions
- Longer group walks reduced feelings of depression; longer non-group walks in green space increased feelings of positive emotions
- Frequent non-group walks in **green spaces** decrease perceptions of stress
- Added benefit of **natural environments** on mental wellbeing and negative emotions

Marselle, et al. (2013) *Int. J. Environ. Res. Public Health* 2013, 10, 5603-5628.



Green space services: Community views

Aim Enable community selection of features for future uses of spaces

- Peace and quiet, read, escape
- Play, sport, socialise
- Habitat management – green and blue



Green space services: Community views



- Agreement: **dog restricted areas, more trees, park benches, shelter**
- Disagreement: **benches on south facing slope – for sunshine, or in trees – for shade**
- Surprise: **car parking, for weekend football matches!**
- Area reputation: **different associations by age group and time in area**



'Bottom-up' green space plan

More woodland – noise buffers

Link woodland units – green network



Burn – a boundary
Water - relaxing
Community management
of Dichty Burn

(Finlathen Park, Dundee)

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Water, health and wellbeing



Water as an attraction

- Play
- Relaxation

And threat

- Flooding
- Risk



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Salutogenic benefits of blue space



- Mental health** positive effects on perceived psychological restoration
- Coastal visits** generate greater positive affective responses
- Self-reported stress recovery** from exposure to water settings in adults suffering from stress and depression
- Water is a **strong predictor of preference** in urban environments)

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Flooding and threats

- **UK:** 10% (1.7m homes) live in 100-year flood zone
- **Scotland:** 1 in 22 residential properties at risk from flooding
- **Scotland:** 1 in 13 non-residential properties at risk from flooding
- **Floods and associated experiences** can have emotional and psychological impacts, longer lasting than damage to property
- **Intangible** impacts greater than tangible



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Flooding and threats: impacts on place and wellbeing

- **Impacts of** loss of life compromised personal hygiene, disruption of services, front line support workers
- **Greatest anxiety** under 65s, women, minority ethnic groups
- **Anxiety about future flooding**, loss of trust/ confidence in authority, sense of isolation, loss of sense of security
- **Change in people's perception of place**, as a social environment, as home, and as place of work
- **Community discord** from lack of understanding by non-flood residents

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Improved data and availability



Open Space audits
2007 – Digital mapping of greenspace in local authorities using 'PAN 65 Typology'

Scotland's Greenspace Map

(www.greenspacescotland.org.uk/scottlands-greenspace-map.aspx)

SIMD online data and mapping – attributes by datazones



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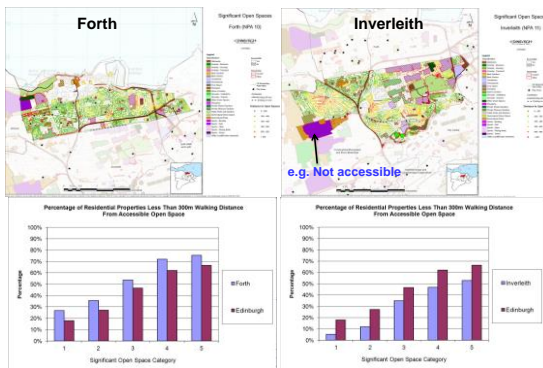
Scotland's Greenspace Map



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Access and Availability



'Visible Access'



- **Visibility from each property**
- **Barrier to view of open green space** – trees, but view of greenery
- **Visual definition of area**

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Combined physical and visual accessibility

- Combine walking distance and visibility of green space



Thresholds

Distance: 300 m

Visibility: median view

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Walking distance

Low High

Visibility of surroundings

High Low

Thresholds

Distance: 200 m

Visibility: median view

Health Inequalities

Examples: Strategic/Development planning, Curriculum for Excellence, Woods for Health

- Emphasis on increasing access and use of greenspace by children leading to their use as adults
- Increase access and use for different population groups (e.g. ethnic, ability, interest)
- Involvement in planning decisions, encouragement of social participation, aiding community well-being
- Plan for co-existence of multiple uses



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Concluding Comments

- Green and blue spaces can be part of preventative measures for reducing risks to human well-being
- Multiple functions associated with different places, often contested
- Land use change threaten as well as benefit contents of places
- Importance of providing common purpose, sense of achievement, ownership of green space use, foster responsibility for local environments (i.e. placemaking)
- What geography is most meaningful in terms of place?
- Does significance of place change over time?
- At what scales are health and place best considered?
- How might land reform impact on land use, place and health?

Impacts of extreme events on place and health?



Courtesy unknown photographer

'Bottom-up' green space: findings

- Park provides multiple services for **communities of place and of interest** (the Dichty Burn and sports facilities)
- Multiple functions** of features: additional trees extend habitats, dampening vehicle noise, provide shelter
- Additional facilities** could encourage increased use by family and community groups of all ages: e.g. seating, permanent barbeques
- Sub-areas could provide **mutually compatible services**, e.g. peace and escape, active sport and play, and enhanced ecological and physical connectivity
- Small areas** of green space in close proximity to houses used for short time periods (e.g. 10 minutes). Their loss more significant than of equivalent area from a larger green space

Contact D. Miller, James Hutton Institute

