Green space and health: the importance of inclusive access

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UN Sustainable Development Goals align with WHO

Goal 11.7: “By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities”

There's nothing new in this:
Martial (c. 100 CE) promoted the virtues of *rus in urbe*

Urban parks were first labelled “the lungs of the city” in London in the 18th century

Birkenhead Park, Joseph Paxton, 1843

“A park in the East End [of London] would diminish the annual deaths by several thousand, and add several years to the lives of the entire population” 1839.

It will benefit artisans’ and labourers’ health “and that of their families, by inhaling the fresh air at least once a week, at a distance from their own confined and wretched habitations” 1847

Birkenhead Park opening, 1843

The artificial conditions of the town produce “a harmful effect, first on (a man’s) entire mental and nervous system and ultimately on his entire constitutional organisation” – the antidote is pleasing, rural scenery. *F L Olmsted 1886*

Central Park, New York City – The Bridge, Currier and Ives, U.S. Library of Congress

Green/blue space is salutogenic

Urban studies from Japan, England, Lithuania, Canada, USA and Australia show that having green space near where you live is associated with reduced mortality rates, especially from circulatory diseases, even when income level is taken into account.

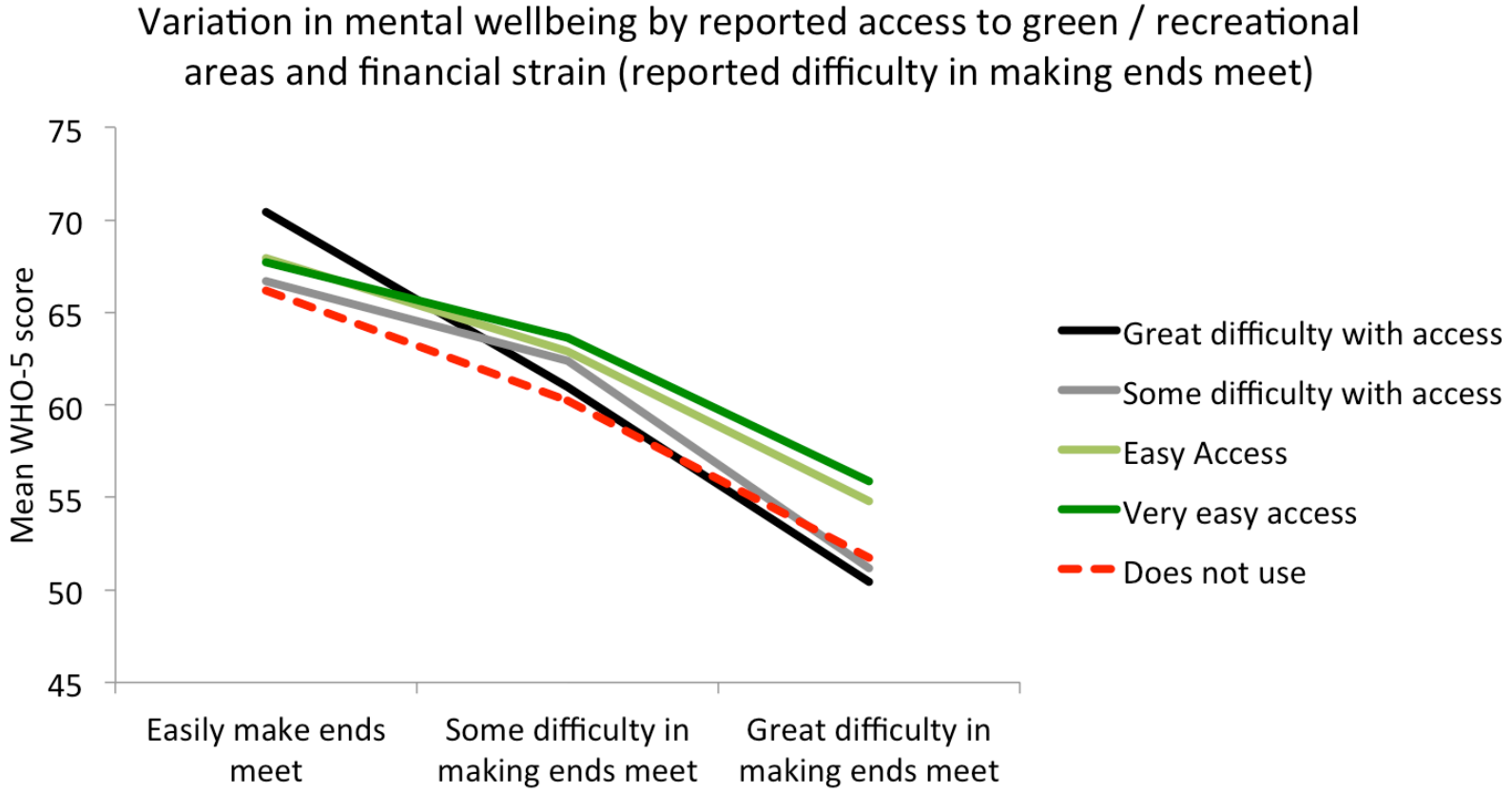
Green space is also equigenic

Associated with reducing the difference in health between the most economically deprived people and those better off.

Mitchell et al., 2015. Neighborhood environments and socioeconomic inequalities in mental well-being. *AJPM* 49(1):80–84

Mental wellbeing and green space access

Sub-groups by socio-economic deprivation in 34 European countries



Mitchell et al., 2015. Neighborhood environments and socioeconomic inequalities in mental well-being. *AJPM* 49(1):80–84

Potential mechanisms linking landscape and health: Psychophysiological responses

Independent physiological responses: psychoneuroendochrine mechanisms, immune functioning, parasympathetic nerve activity, etc. (Ulrich et al., Hartig et al, Park et al)

Potential mechanisms linking landscape and health: Physical Activity

Walking is by far the most popular activity when in natural landscapes – physical activity has positive effects on physical health, mood and stress

‘Green exercise’ is better for mental health

UK study: using natural environments for physical activity, min once/week, associated with c. *half the risk* of poor mental health cf those who don’t

Each additional use of *any* natural environment per week was associated with c. 6% lower risk of poor mental health

Mitchell, R. 2013 *Social Science and Medicine,* 91, 130-134.

The importance of biological pathways

Chronic stress leads to 'wear and tear' on the body; if green space reduces or buffers this allostatic load, it will influence physical as well as mental health

In our UK study, chronic stress in a deprived urban population (measured via cortisol) was predicted by % green space

Ward Thompson, C. Roe, J., Aspinall, P., Mitchell, R., Clow, A. & Miller, D. 2012. More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. *Landscape and Urban Planning* 105, pp. 221–229

Roe, J.J., Ward Thompson, C., Aspinall, P.A., Brewer, M.J., Duff, E.I., Miller, D., Mitchell, R., Clow, A. Green Space and Stress: Evidence from Cortisol Measures in Deprived Urban Communities. *Int. J. Environ. Res. Public Health* 2013, *10*, 4086-4103

Understanding use of woods near urban areas in deprived communities:

"You can just go away by yourself. You can just disappear and nobody can see you…you can't do that in the city, you can't just keep walking, walking, walking"

"I find it's quiet, it gets you away from everyday life. You just go away and be in a world of your own sometimes… if you're angry at anything, just go away and get yourself all calmed down."

Unemployed men and women from urban areas in Central Scotland

Open Space and Social Inclusion: Local Woodland Use in Central Scotland, Edinburgh: Forestry Commission, 2004

Our research with older people

"It's a psychological thing about escaping the flat … a load comes off my mind when I go out".

"I have a different feeling about myself when I get home after being out"

"I enjoy the seasons and elements of change. I like trees, wildlife and the atmosphere – it's all stimulating for thought"

Sugiyama et al. 2009. Associations between neighborhood open space attributes and quality of life for older people in Britain. *Env & Behavior*, *41*, 3-21

Ward Thompson, C. & Aspinall, P. 2011. Natural environments and their impact on activity, health and quality of life. *Applied Psychology: Health and Well-Being*, *3* (3), 230–260

What did you do when you were small?

"Collected conkers, look for fishing in the river; there's hardly any fish there now"
Teenager

"I was always in Greenfield when I was a wee lassie, climbing the trees"
Teenager

"We used to cook just at this little dip, and we used to play in it (Water of Leith) ...and we used to swim…it was very wild."
Adult

Central Scotland

Open Space and Social Inclusion: Local Woodland Use in Central Scotland, Edinburgh: Forestry Commission, 2004

Childhood play and teenage years

In addition to being important for *healthy physical, mental, cognitive, emotional and social development,* childhood play in natural settings appears to have a long-term and positive effect on attitudes, well-being and behaviour

Natural England 2010 *Wild Adventure Space its role in teenagers' lives*. NECR025

Is the restorative potential of natural settings different in young people with behavioural problems v. those without?

Jenny Roe, PhD with OPENspace, 2008

Two studies of Forest School in Glasgow from:

1. Mainstream school (n=10) ages 11-13

2. Specialist residential school (n=8) ages 10-12

A forest setting is advantageous compared with the school setting (both measured over a day) to young people with behavioural problems. Significant differences were found on 4 outcome variables: **anger, hedonic tone, stress** and **energy.**

Young people without behavioural problems also benefited from the forest setting, but to a lesser degree.

Roe J, Aspinall P and Ward Thompson C (2009), Forest School: evidence for restorative health benefits in young people, Access and Health, Forestry Commission Scotland

Natural England Commissioned Report NECR025

Wild Adventure Space: its role in teenagers' lives

First published 20 May 2010

www.naturalengland.org.uk

NATURAL ENGLAND

"People have stereotyped teenagers – there are no play areas for teenagers"

What do young people say they want?

What do young people say they want?

"Teenagers don't really want to be on the streets, they want to be somewhere with their friends where is no one to tell them to get off."

Choice is important "… the opportunity to do things alone… a sense of power, being mature/responsible… developing new skills… doing what you want"

Activities led by trained youth workers - so long as young people felt they were free to do what they wanted, they enjoyed the sense of challenge and achievement as well as "having a good time with your mates".

Natural England 2010 *Free-Range Teenagers: Wild Adventure Space its role in teenagers' lives*. NECR025

Our latest research project with older people

Mobility, Mood and Place (MMP) has explored how places can be designed collaboratively to make mobility easy, enjoyable and meaningful for older people.

Lifelong Health & Wellbeing
Research for Healthy Ageing

Mobility, Mood and Place is funded by Lifelong Health and Wellbeing, a cross-council initiative addressing the challenges and opportunities of an ageing population.

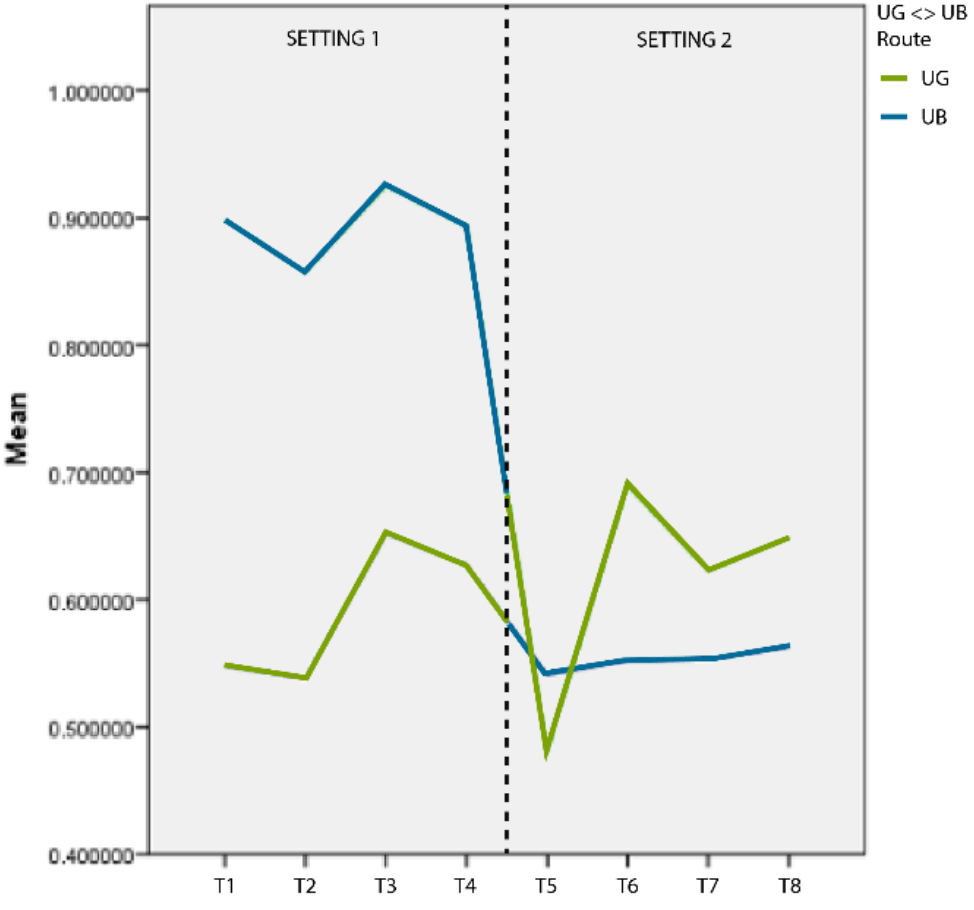
MOBILITY MOOD PLACE

THE UNIVERSITY OF EDINBURGH
HERIOT WATT UNIVERSITY
KING'S College LONDON
THE UNIVERSITY of York

Environment and affect: measuring mood

We've been working with older participants to test neural imaging and ethnographic approaches to understanding emotional response to different environments

Low Beta Activation Over Time
transitioning from Urban Busy <> Urban Green



Low Beta is associated with alert states or directed attention.

Potential explanation for EEG findings: Restorative Environments

Attention restoration theory: natural environments are particularly good for restoring depleted attentional reserves, and maybe lower stress and improve our mood

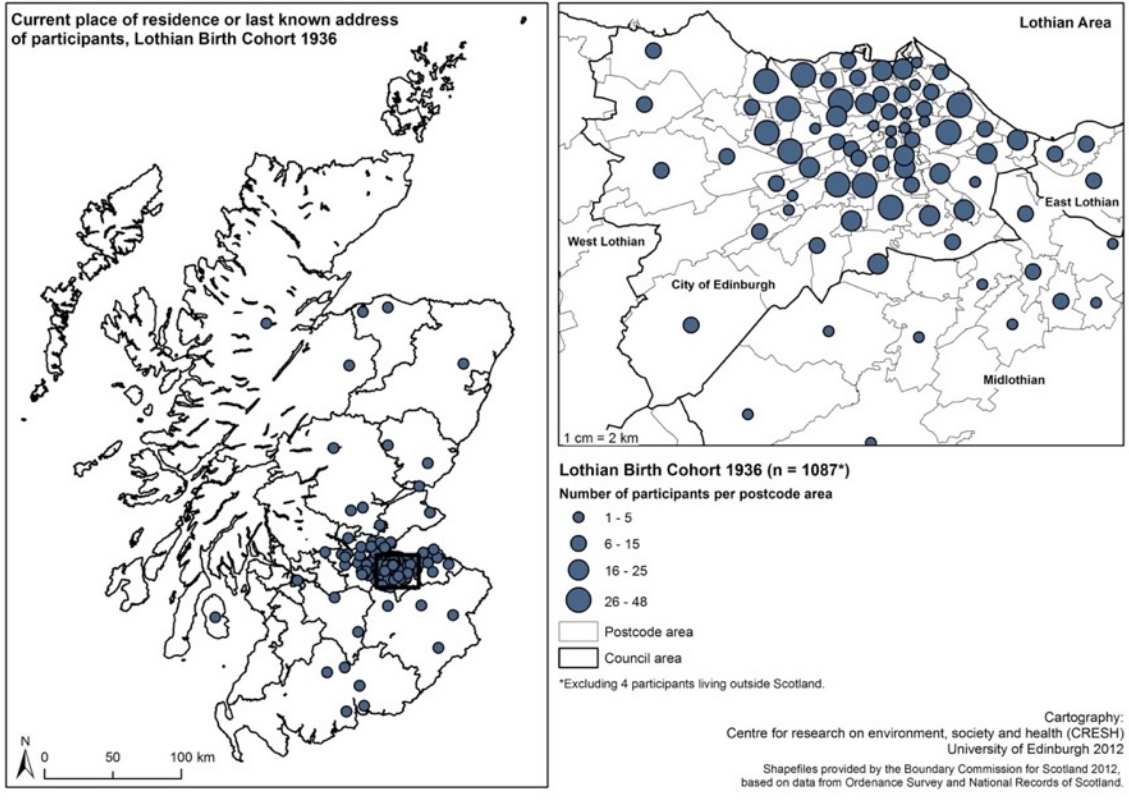
Directed Attention: busy urban environments demand our directed attention – we become cognitively fatigued

Involuntary Attention: the 'soft fascination' of nature engages us effortlessly and restores our capacity for directed attention

Neale, C., Roe, J., Aspinall, P., Coyne, R., Mavros, P., Tilley, S., Thin, N., Cinderby, S., & Ward Thompson, C. 2019. The impact of walking in different urban environments on brain activity in older people. *Cities and Health* doi: 10.1080/23748834.2019.1619893

MOBILITY MOOD PLACE

Environmental histories: the influence of place over a lifetime



We have mapped life-course environments for the 1936 Lothian Birth Cohort, using GIS to integrate longitudinal environmental measures with cohort data

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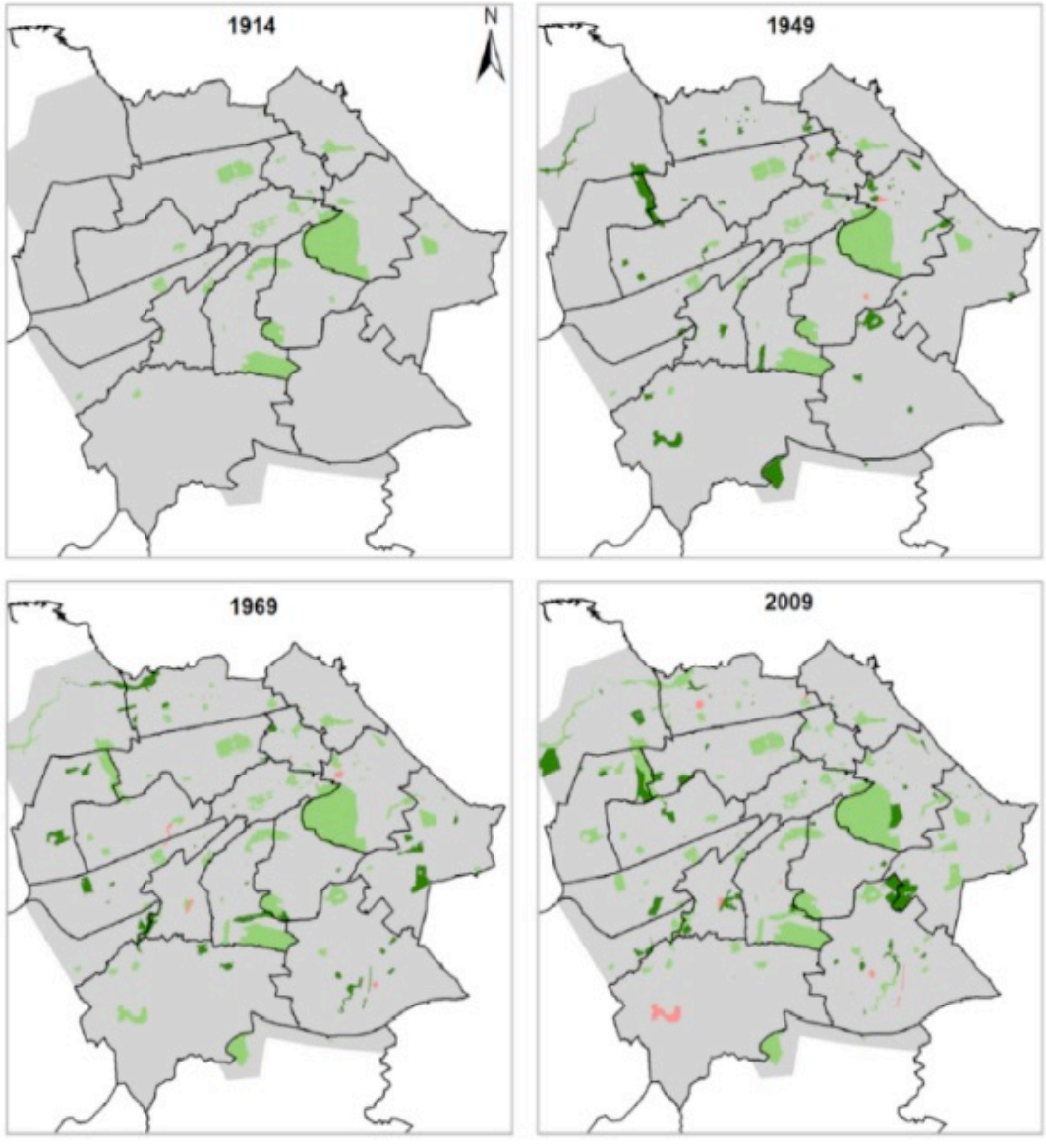
MOBILITY MOOD PLACE

The University of Edinburgh · Heriot-Watt University · King's College London · The University of York

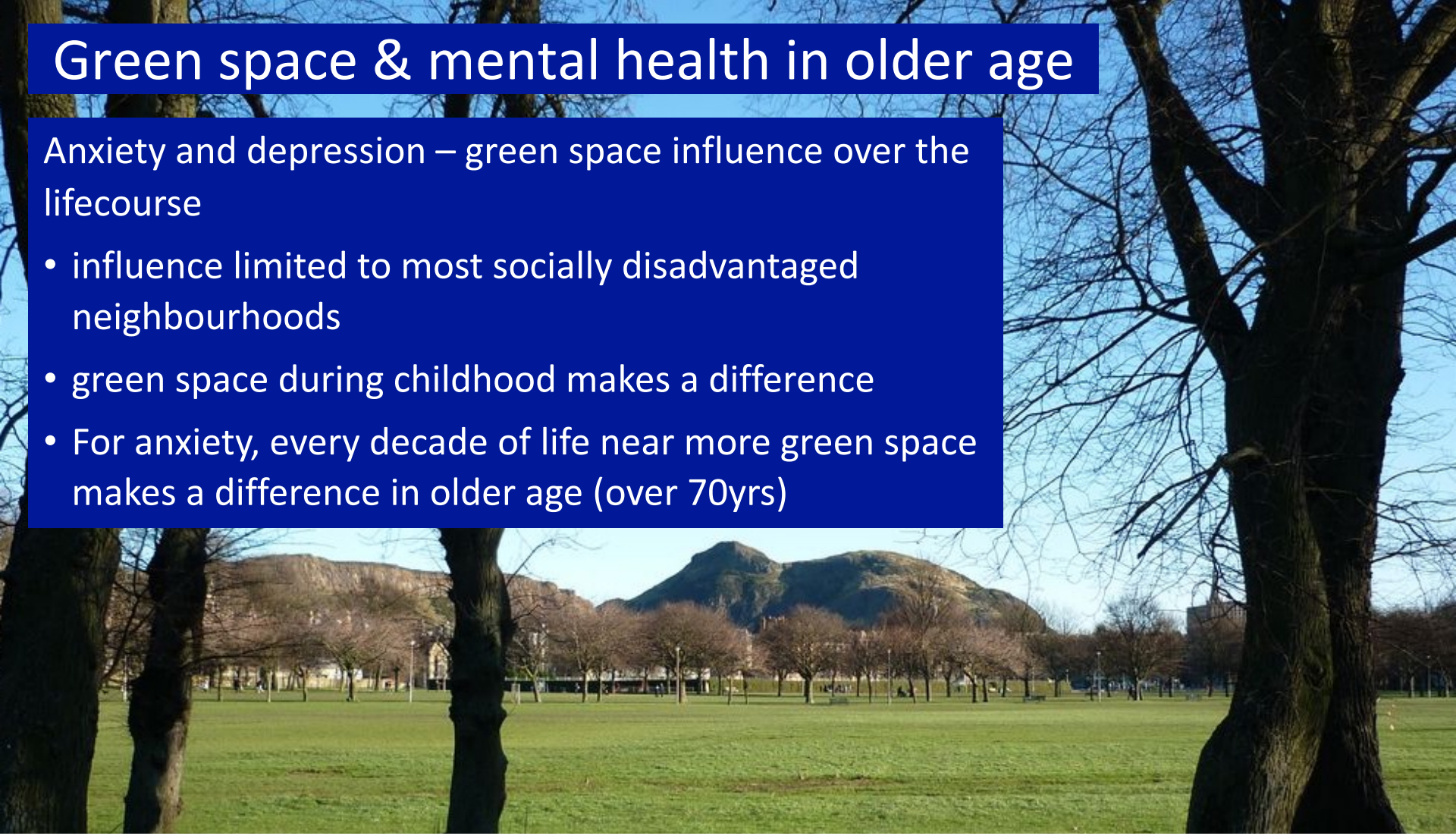
Mapping the public parks in Edinburgh in 1914, 1949, 1969 & 2009



Green space & mental health in older age

Anxiety and depression – green space influence over the lifecourse

- influence limited to most socially disadvantaged neighbourhoods
- green space during childhood makes a difference
- For anxiety, every decade of life near more green space makes a difference in older age (over 70yrs)



Pearce, J., Cherrie, M., Shortt, N., Deary, I. & Ward Thompson, C. (2018). Life course of place: a longitudinal study of mental health and place. *Transactions of the Institute of British Geographers* 2018;00:1– 18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