

Understanding outdoor nature experiences and wellbeing

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An established body of research supports the role of outdoor natural environments in relation to wellbeing. There are three main pathways by which nature and wellbeing relationships are often interpreted:

- 1) The outdoors as a setting for physical activity
- 2) Natural environments as psychologically restorative settings
- 3) Outdoor environments as places for social interaction

There are, however, a number of important gaps in our understanding of how wellbeing benefits are derived (or not) from outdoor nature experiences. In particular, we know relatively little about how benefits vary between individuals and between people of different social groups, or how they differ depending on the qualities of the environment experienced and the activities performed there. Research has also tended to focus on urban greenspaces, yet outdoor activities in rural and peri-urban environments may also play an important role in the wellbeing of both rural and urban residents.

This research note provides a brief overview of examples of recent projects on the outdoors and wellbeing by the James Hutton Institute. It aims to give a flavour of how our transdisciplinary research contributes to the evidence base in this area as well as to outline future directions for outdoors-wellbeing research in the Scottish Government's Rural Affairs, Food and Environment (RAFE) Strategic Research Programme. 2016-21.



Figure 1: Research 'walkshop' in Dundee



Figure 2: Exploring walking routes on the touchtable

Key Points

- Use of the outdoors can positively influence psychological and emotional wellbeing, but the extent of these benefits may depend on the types of environment in which activities are conducted and their perceived qualities.
- To gain in-depth understanding of how different environments influence wellbeing we must consider what visual cues users pay attention to, and how extra-visual stimuli such as sounds influence the experience.
- Wellbeing benefits of outdoor use are also influenced by the meanings people attach to particular outdoor spaces. Investigating these meanings can shed light on differences in benefits between population groups.
- Evidence on the varied motivations and inter-related barriers to outdoor engagement experienced by people of different societal groups can aid the design of interventions to promote wellbeing through use of the outdoors.
- Building a detailed understanding of the complexities of outdoors-wellbeing relationships requires a suite of different research methods, combining both quantitative and qualitative, and traditional and innovative approaches.

Our approach

As a group, our approach to research on the outdoors and wellbeing focuses on:

- Recreational areas in the **countryside** as well as green and blue space in **urban and peri-urban** areas.
- How **qualities of the setting** influence the benefits of spending time in the outdoors and greenspace. For example, how benefits can vary by environment or habitat type, at different levels of biodiversity and according to perceived naturalness.
- How people benefit from engaging with the outdoors in **different situations** e.g. through walking groups, nature conservation volunteering, use of greenspace at the workplace.
- The ways in which **different groups of people** (e.g. women and men, residents of deprived urban areas) experience the outdoors, and how this may influence their engagement and the benefits (or otherwise) derived.
- The use of **innovative visual and mobile research methods** to understand engagement with the outdoors and wellbeing, using both quantitative and qualitative approaches. Examples of novel methods we have employed include: eyetracking in conjunction with physiological data; participatory approaches using touchable technology to explore walking routes recorded through Global Positioning Systems (GPS) (see Fig. 2); 'go-along' interviews and 'walkshops' (Fig. 1).

Wellbeing benefits of health walks initiatives

Group walks in nature are increasingly being promoted as a public health intervention to improve health and wellbeing. While such walks can facilitate interaction with nature, social interaction, and physical activity, much of the evidence focuses on whether such walks increase physical activity and little is known about their efficacy in promoting mental, emotional, and social wellbeing. Drawing on an online evaluation of a national-scale group walking programme in England, a longitudinal study (13 weeks) investigated the influence of nature-based group walks on these multiple dimensions of wellbeing¹.

The study used standardised psychometric measures and statistical matching to reduce group differences between those who did and did not participate in the walks (n=1,516 participants; 88% aged 55+; 66% women).

Individuals who attended outdoor group walks reported significantly less depression, perceived stress, and negative affect and significantly greater mental wellbeing and positive affect compared to those who did not take part in the walks. No difference was found on social support. Results remained the same even when accounting for the effects of health condition, recent stressful life events, frequency and duration of other nature walks, and recent physical activity.

A further analysis (n=708 walkers) examined the wellbeing effects of group walks in different types of

nature. Compared to urban built open spaces, group walks in farmland and in green corridors (e.g. river path, bridleways) were associated with less negative emotions and perceptions of stress; farmland walks were also associated with greater mental wellbeing



Photo © The Ramblers / Walking for Health / Paul Glendell



Gender and conservation volunteers

Over a two year period (2013-2015) we engaged with a conservation group using a greenspace in a deprived city area to explore how men and women act in the space and how engagement might affect their health and wellbeing².

This qualitative ethnographic study identified a number of gender differences in the way volunteers engaged (and potentially in any wellbeing benefits accrued).

- (i) Motivations for getting involved with the group – Volunteers attended the group for two reasons: the women specifically got involved with the conservation aspect of the group; and men were involved ‘as something to do’ or as a mechanism to get out of the house.
- (ii) Social connections within the group - The conservation group provided opportunities for regular social contact and interaction with the wider community. All of the men who regularly volunteered also had strong connections to the area, as they had used it frequently as children and had developed friendships through these visits.
- (iii) Greenspaces as “neutral” spaces - Being in greenspace was more important than the quality of the greenspace itself. The greenspace was valued for being “neutral” if it was a place where people felt in control of what they could choose to do and stated they were more at ease with others. Wellbeing benefits were derived from the space if people regarded it to be neutral. The men appeared to value the neutral space aspect of the space more than the women.



Barriers to outdoor recreation for older people



Older people are less likely to participate regularly in outdoor recreation than young or middle-aged adults, yet there is limited evidence on the barriers that discourage or prevent older adults from engaging more. In 2015-2016 we investigated this issue through interviews and focus groups with over 65s in three case studies covering urban, rural and coastal areas³.

The research highlighted a number of barriers impeding older people's use of the outdoors. These were: poor health and mobility; feelings of fragility and vulnerability; social relationships and isolation; lack of time and other commitments; weather and season; access to and characteristics of outdoor spaces; lack of motivation and negative attitudes to outdoor recreation; and perceptions of safety. Participants often reported experiencing multiple interrelated barriers.

In addition to exploring current barriers, the research also investigated the ‘moments of change’ during the life-course where participation in outdoor recreation underwent a transition, and examined older people's attitudes towards interventions such as organized group health walks. The findings suggest that interventions to facilitate greater use of the outdoors amongst older people should aim to address multiple barriers, be tailored to different needs and abilities, and may benefit from targeting individuals at key moments of change such as after bereavement, at the onset of health problems, or upon retirement.

Tracking visual attention

Whilst there is a growing body of evidence indicating the value and benefits of spending time in greenspace, the psychological mechanisms underpinning these benefits are still poorly understood. One important aspect here is visual attention (where people look), and whether and how other senses (particularly sound) interact with this.

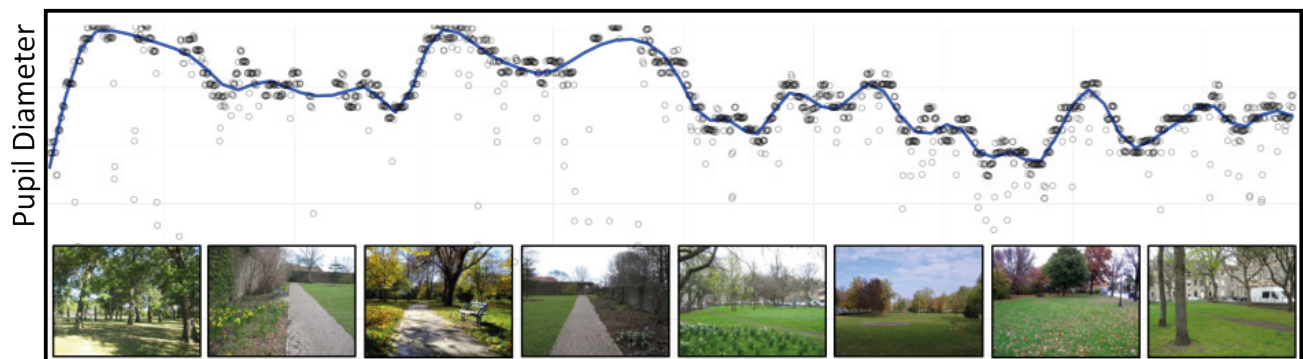
An exploratory study was conducted using an eyetracker to investigate the effect of sound on both subjective and objective responses to visual images presented in a slideshow⁴. Figure 3 illustrates one participant's pupil diameter data as they viewed a slideshow with an accompanying soundtrack. Overall, we found that the sound had a marginal effect on both how much people liked the images and participants' self-reported psychological restoration. We hypothesise that this is due to the increased level of realism, when compared to

a standard experiment using only images. Conducting research of this type poses considerable challenges. However, we firmly believe that additional well-controlled experimental studies looking at the multisensory nature of everyday experiences are required to better understand the effects of spending time in outdoor environments.

Next steps

Research into the outdoors and wellbeing continues in the RAFE Strategic Research Programme (SRP) 2016-21. This work focuses on facilitating outdoor engagement through a capabilities approach, and on how environmental qualities and landscape changes influence wellbeing. The research links to other SRP projects investigating the delivery and mapping of cultural ecosystem services.

Figure 3: Individual pupil diameter data while viewing images and listening to soundtrack



Time (each image shown for 6 seconds)

Further information

1. Marselle, M.R., Irvine, K. N., & Warber, S. L. (2014). Examining group walks in nature and multiple aspects of well-being: A large scale study. *Ecopsychology and Public Health* [Special issue]. *Ecopsychology*, 6 (3), 134-147. doi:10.1089/eco.2014.0027
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