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I. SESSION DESCRIPTION

ID: T9

Cultural Ecosystem Services and Public Health in Urban Areas

	Title	Name	Organisation	E-mail
Host(s):	Dr.	Melissa Marselle	Helmholtz Centre for Environmental Research – UFZ & German Centre for Integrative Biodiversity Research (iDiv)	melissa.marselle@idiv.de
	Dr.	Sjerp de Vries	Wageningen Environmental Research	sjerp.devries@wur.nl

Abstract:

Natural environments and cultural ecosystem services in urban areas are increasingly recognised to be important for preventing non-communicable diseases and promoting positive human health and well-being. Most studies of the health effects of ecosystem services in urban areas investigate the provisioning and regulating services, like food and clean air and water (Chen et al. 2019). Studies of the health promoting and preventing effects of cultural ecosystem services are less common. Indeed, the human health impacts of cultural ecosystem services, or the nonmaterial contributions to people, are not overly stated in the ecosystem service literature (Díaz et al. 2018), nor in the more recent literature on nature-based solutions (Van den Bosch & Sang, 2017). They appear more in the environmental psychology and public health literature (Hartig et al., 2014; Frumkin et al. 2017). There is a need for interdisciplinary work to improve the research on the potential importance of cultural ecosystem services in urban areas for human health and well-being, as an integral part of nature-based solutions. In this session, we will invite researchers from different disciplines that investigate the public health effects of urban nature by way of cultural ecosystem services. We welcome studies from both the natural and social sciences investigating such effects.



Goals and objectives of the session:

The main aims of this session are to:

- Learn from one another on how to assess public health effects of cultural ecosystem services;
- Identify research gaps;
- Establish a relationship between TWG8 ‘Cultural Services and Values’ and TWG9 ‘Ecosystem Services and Public Health’ and;
- Agree on common findings to communicate at the end of the Conference

Planned output / Deliverables:

To develop a research paper on the gaps and methodologies for future assessments of public health effects of cultural ecosystem services.

Related to ESP Working Group/National Network:

[Thematic working group: TWG 9 – ES and Public Health](#)

II. SESSION PROGRAM

Date of session: Tuesday, 22 October 2019

Time of session: 16:30 – 18:00

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
16:30–16:45	Katherine	Irvine	The James Hutton Institute	Biodiversity and spiritual wellbeing
16:45–17:00	Sjerp	de Vries	Wageningen Environmental Research	Natural environments and happiness: Large-scale experience sampling in the Netherlands
17:00–17:15	Melissa	Marselle	German Centre for Integrative Biodiversity Research (iDiv)	Which types of green and blue spaces have a positive impact on mental health and well-being?
17:15–17:30	Roy	Remme	Stanford University	Frontiers for including greenspace-based physical activity into urban ecosystem service model



17:30–17:45	Xianwen	Chen	Østfold University College	Research challenges for cultural ecosystem services and public health in (peri-)urban environments
17:45–18:00	All attendees			General discussion: How can we guide future assessments of the public health effects of cultural ecosystem services? What research gaps exist? What methodologies are needed?

III. ABSTRACTS

The abstracts appear in alphabetic order based on the last name of the first author. The first author is the presenting author unless indicated otherwise.

1. Type of submission: *Invited speaker abstract*

T. Thematic Working Group sessions: T9 Cultural ecosystem services and public health in urban areas

Research challenges for cultural ecosystem services and public health in (peri-)urban environments

First author: Xianwen Chen

Other author(s): Sjerp de Vries, Timo Assmuth, Jan Dick, Tia Hermans, Ole Hertel, Anne Jensen, Laurence Jones

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Urbanization is a global trend, and consequently the quality of urban environments is increasingly important for human health and wellbeing. Urban life-style is typically associated with low physical activity and sometimes with high mental stress, both contributing to an increasing burden of diseases. Nature-based solutions that make effective use of ecosystem services, particularly of cultural ecosystem services (CES), can provide vital building blocks to address these challenges. This paper argues that, the salutogenic, i.e. health-promoting effects of CES have so far not been adequately recognised and deserve more explicit attention in order to enhance decision making around health and wellbeing in urban areas. However, a number of research challenges will need to be addressed to reveal the mechanisms, which underpin delivery of urban CES. These include: causal chains of supply and demand, equity,



and equality of public health benefits promoted. Methodological challenges in quantifying these are discussed. The paper is highly relevant for policy makers within and beyond Europe, and also serves as a review for current researchers and as a roadmap to future short- and long-term research opportunities.

Keywords: Cultural ecosystem services, Public health, Urban green/blue infrastructure, Nature-based solutions

2. *Type of submission: Invited speaker abstract*

T. Thematic Working Group sessions: T9 Cultural ecosystem services and public health in urban areas

Natural environments and happiness: large-scale experience sampling in the Netherlands

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Building upon on the Mappiness study by MacKerron and Mourato (2013), a large-scale experience sampling study was conducted in the Netherlands to investigate if, and if so to what extent, Dutch people are happier in more natural environments, compared to a predominantly built-up environment. A smartphone app was developed for iOS- as well as for Android-phones, and made freely available in the respective app stores. The app, named HappyHier, sends requests to fill in a short questionnaire, with the first question being how happy one feels at that moment in time. Requests are programmed to oversample natural environments. Location data are provided by the GPS of the smartphone. The type of environment is determined based on a land use map incorporated in the app. HappyHier was launched with a media campaign starting on the first of May 2016. In the next few months, over 4000 people participated, generating over 100,000 experience samples. Multi-level analyses were conducted, controlling for, among other things, being inside or outside, type of activity, type of company, weather conditions. As in the UK, in the Netherlands participants generally felt happier when being in a natural environment, especially at the coast and in areas with low natural vegetation, such as heath. Whether the environment is thought to be fascinating and to offer peace and quiet appears to be more important than its scenic beauty.



The representativeness of the data gathered by this still rather new method is explored from several angles: people, moments, locations.

Keywords: happiness, subjective well-being, experience sampling, natural environments, smartphone

3. *Type of submission: Abstract*

T. Thematic Working Group sessions: T9 Cultural ecosystem services and public health in urban areas

Biodiversity and spiritual wellbeing

First author: Katherine Irvine

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Among government agencies, practitioners and researchers there is growing interest in the potential of natural environments for human health and well-being. In parallel, conserving biodiversity is seen as critical in this effort. Likewise, spiritual well-being is increasingly considered as an important dimension of human health. This talk reports findings from an examination of literature on the beneficial aspects of the interrelationship between biodiversity and spiritual well-being.

Our purpose was four fold: (i) to examine definitions of spiritual wellbeing; (ii) gain an overview of the relationship between biodiversity and spiritual wellbeing; (iii) develop a conceptual model specifically focused on effects of biodiversity on spiritual well-being. Literature was identified through structured searches and authors' knowledge of their respective fields (e.g. environmental psychology, sociology of religion); themes within the literature were identified through thematic analysis.

Spiritual well-being emerges as a dimension of health that incorporates relational interactions with one's self, one's community, the environment, and transcendent Other(s). Few empirical studies specifically investigated the effect of biodiversity on spiritual well-being. The literature did contain a rich account of the multiple relationships among various spiritual traditions, ecology, and biodiversity conservation, including spiritual aspects of well-being. Four themes



were identified that illustrate the complexity of the biodiversity–spiritual well–being nexus: (i) influence of spiritual traditions on biodiversity; (ii) sacred places as repositories of biodiversity; (iii) the spiritual domain within ecosystem services; and (iv) the effects of biodiversity on spiritual well–being.

We bring these strands together into a conceptual model and discussion of measurement issues that can inform future research and consider implications for policy and practice.

Keywords: spiritual traditions, sacred places, spiritual outcomes, cultural ecosystem services, ecological quality

4. Type of submission: **Abstract**

T. Thematic Working Group sessions: T9 Cultural ecosystem services and public health in urban areas

Which types of green and blue spaces have a positive impact on mental health and well–being?

First author: Melissa Marselle

Other author(s): Maria Beatrice Andreucci, Femke Beute, Zoe Davies, Sjerp de Vries, Julie Glanville, Hans Keune, Annamaria Lammel

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Greater urbanization means that most people live in cities, where natural environments are a scarce commodity. Given that mental health problems contribute significantly to the burden of disease (WHO, 2017), it is important to look at whether and to what extent (contact with) nearby green and blue space in urban environments can promote positive mental health and help to prevent mental disorders. Therefore, it is important to focus on those types of green and blue space that have the biggest impact on public health. However, despite much research, information about which types of green and blue spaces are most beneficial is still largely lacking (Hartig et al., 2014; Frumkin et al., 2017). This may be because the limited research on this issue is scattered over a wide array of disciplines. To bring the fragmented available evidence together, the French Ministry in charge of the Environment, and the World Health Organization requested an EKLIPSE Expert Working Group (EEWG) be formed to answer the following question: “Which types of urban and suburban blue and green spaces and which



characteristics of such spaces have a significant impact on human mental health and well-being?" To answer this question, the EEWG conducted two separate systematic reviews – one for green and one for blue spaces. After development of the study protocols, two extensive literature searches were conducted by experienced librarians. Following identification of eligible publications, descriptive data were extracted and studies were critically appraised. This contribution will present the results from these systematic reviews to describe which types of green and blue spaces in cities positively contribute to mental health and well-being. We will discuss how nature-based solutions can be used to successfully address the mental health challenges facing an ever-urbanizing world.

Keywords: green space, blue space, mental health, systematic review, cultural ecosystem services

5. *Type of submission:* **Abstract**

T. Thematic Working Group sessions: T9 Cultural ecosystem services and public health in urban areas

Frontiers for including greenspace-based physical activity into urban ecosystem service models

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Urbanization is occurring at a rapid rate, and urban design affects the health of billions of people. Urban green space (UGS) plays an important role in creating healthier cities. One well-recognized pathway for UGS to positively influence public health is through stimulating physical activity for both leisure and active transportation. Insufficient physical activity is the fourth largest risk factor for global mortality, and urban sedentariness a major challenge.

While within the field of public health research, the relationship between UGS and physical activity has been intensively studied, it has received very limited attention in ecosystem service research. Most widely applicable ecosystem service modelling tools do not include models related to physical activity. This means that in practice, the service is rarely quantified in ecosystem-based approaches to urban planning.



Our study synthesizes the current state of research on the relation between physical activity and UGS and outline pathways to incorporate these relationships into widely applicable ecosystem service modelling approaches in urban contexts. We characterize greenspace-based physical activity (both leisure and active transportation), frame its role as a pathway between UGS and public health, and position it in an urban ecosystem service framework. We found that there is a limited set of ecosystem service models addressing physical activity from an active transport perspective. There are no ecosystem service models that apply public health research results on greenspace-based physical activity, resulting from inconclusive results regarding association between UGS and physical activity, inconsistent data application, incomparable methodologies and a diffuse set of indicators. Modelling frontiers include the need for reassessment of existing data-sets with consistent methods and input data, application of novel techniques, including crowd-sourced data and eye-level street greenery and underpinning assumptions in active transport models. We discuss the feasibility of different modelling approaches and prioritize research needs to develop robust models.

Keywords: Health, well-being, urban green space, active transport, leisure