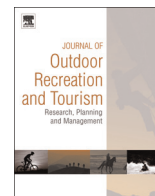




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Editorial

Cultural ecosystem services and their effects on human health and well-being – A cross-disciplinary methodological review



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1. Introduction

The concept of ecosystem services, based on the Millennium Ecosystem Assessment (MEA) (2005), led to new approaches in research and it also initiated new thinking in land use related decision making, land use policy and around the associated trade-offs. In current applications of the ecosystem service concept, the so-called cultural services, which include outdoor recreation, are perceived as underrepresented compared to the economically more relevant supporting, provisioning and regulating services (Daniel et al., 2012; Chan, Satterfield, & Goldstein, 2012). Against this background, a special issue on this subject in the *Journal of Outdoor Recreation and Tourism* is not only timely, but it seems that this area of research is in need of a cross-disciplinary review to stimulate research, to enhance the discussion and to provide insights into how cultural ecosystem services can be better included into decision making.

This special issue also addresses the outcomes of cultural ecosystem services, looking at their effects on human health and well-being. Over the past few years, the benefits of exposure to nature and outdoor recreation activities for public health have become increasingly prominent in the public health debate – hence a better understanding of these benefits is timely. Beyond the immediate public health and management debate, aspects of human health and well-being are research topics in many different academic fields, which apply a divergent set of theories and a wide range of methods and concepts. This special issue compiles eight such studies on human health and well-being, and this introduction will provide an overview and synopsis of the topic at hand, with the intent to position the respective articles in their various research traditions.

This synoptic essay draws on an extended literature review undertaken by a European research cooperation (COST ACTION

IS1204) on “Tourism, Well-being and Ecosystem Services”, which provided an initial database with relevant publications. From this starting point we identified different methodological approaches within the existing research on ecosystem services, health and well-being (see Martinez-Juarez, Chiabai, Taylor, & Quiroga Gómez, 2015).

This editorial provides a brief understanding of cultural ecosystem services, health and well-being and the methodological challenges for research, as well as of main trends to be addressed in future research.

2. Background

The concept of ecosystem services was originally developed to assess and investigate effects of ecosystem and biodiversity loss on human well-being globally (MEA, 2005). The overall framework combines ecosystem functions with the capacity of ecosystem components and processes to provide goods and services that satisfy human needs directly and indirectly (de Groot, 1992). While several definitions of ecosystem services have been proposed over the years, Haines-Young and Potschin (2010) observe that, regardless of the definition, one must carefully distinguish among functions, services and benefits or values. Daily (1997) describes ecosystem services as “conditions and processes through which species ..., sustain and fulfil human life”, while Costanza et al. (1997) focus more on “ecosystem functions”. The most recent definitions in the Millennium Ecosystem Assessment (MEA) (2005) and the Economics of Ecosystems and Biodiversity process (TEEB, 2009) are in favour of a broader definition of ecosystem services, such as the “benefits people derive from ecosystems” (MEA, 2005) or the ecosystem services providing “direct and indirect contributions of ecosystems to human and wellbeing” (TEEB, 2009).

Biological Dimension	Psychological Dimension	Social Dimension
such as <ul style="list-style-type: none"> • genetic disposition • influence of a virus • influence of a bacterium 	such as <ul style="list-style-type: none"> • behaviour • attitudes • stress 	such as <ul style="list-style-type: none"> • socio-economic status • working conditions • ethnical group

Fig. 1. Bio-psycho-social concept, after Engel (1980).

Cultural services are defined as the nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences (MEA:58,59). They include cultural diversity, which is often linked to specific ecosystems, spiritual and religious values, educational values and cultural knowledge systems. Chan et al. (2011:206) defined cultural ecosystem services as the “ecosystems’ contribution to the nonmaterial benefits (e.g. experiences, capabilities) that people derive from human–ecological relations”. In the context of health and well-being, the provision of inspiration, aesthetic values, the “sense of place” that is associated with recognised features of an environment or the maintenance of historically significant cultural landscapes or ecosystem elements are supposed to be relevant. Ecosystems are also regarded as valuable places for physical and mental restoration and recreation.

While the MEA (2005) includes “ecotourism” in their list of cultural ecosystem services, current research into ecosystem services (de Groot, 2013) does not consider tourism of any kind as a service but as an outcome. Other publications, such as Daniel et al. (2012) include “tourism” in its entirety as a part of the cultural ecosystem services. Although Daniel et al. (2012) are cognisant of the impacts tourism may have on ecosystems, they do not distinguish the various forms of tourism activities and/or the fundamental differences between tourism and outdoor recreation.

In the context of ecosystem services and their effects on human health and well-being, global assessments and analyses currently focus on the Human Development Index (HDI) which considers GDP per capita, childhood survival and education (World Resources Institute, 2009). Although the HDI captures only a few indicators of human well-being, current research shows that these indicators correlate strongly with other important indicators of health and well-being such as life expectancy, adult and youth literacy, and gender equality (McGillivray, 2005). Furthermore, the indicator “happiness”, which is part of the World Values Survey (EWVS, 2006), shows a significant correlation with the HDI (Leigh & Wolfers, 2006; Bjornskov, 2003). In the context of ecosystem services, health and well-being, several studies also focused on personal security as one further significant dimension, including natural disaster-related mortality (Mack, 2005; IPCC, 2007).

However, other important aspects have been studied less, such as psychological health, or the influence of social solidarity or cultural change (Raudsepp-Hearne et al., 2010). These authors also stated that “although there is research on the economic value of cultural ecosystem services linked to tourism, there is less understanding of their broader impacts on human health and well-being” (Raudsepp-Hearne et al., 2010:586). They highlight that further research on ecosystem services should consider and integrate more strongly the role of human infrastructure, culture and values (Raudsepp-Hearne et al., 2010; Norgaard, 2010).

In the context of research on ecosystem services, health and well-being, differences in the HDI-Index as well as security aspects are both less important within Europe, while other aspects such as culture and values are more relevant. Knoll, Scholz, and Riekmann (2005) argue that psychological and social dimensions are crucial across Europe. As in other developed countries, research on health

and well-being in Europe is mainly prompted by

- a significant increase of chronic degenerative diseases, which are now replacing the main infectious diseases (i.e. tuberculosis) as the most significant causes of illness and mortality;
- research findings showing that behavioural patterns significantly influence the appearance and course of diseases;
- the significant increase of costs in all health and health insurance systems in Europe, mirroring the ageing population but also the chronic diseases mentioned above.

Overall, new research on health and well-being frequently investigates the relationships among the biological, psychological and social dimensions (Engel, 1980; Knoll et al., 2005) (Fig. 1).

This concept assumes that each individual is to some extent responsible for his or her health and well-being, under consideration of its respective societal background. This understanding focuses therefore on the individual work-life balance, the preferred way to recover, to recreate and to spend leisure time. Outdoor recreation and tourism can contribute positively to the recovering processes of ill and injured individuals, and to health and well-being in general. In this context, health does not merely relate to the absence of illness but more generally to a positive functional status based on a balanced bio-psychological situation (Quaas, 1994).

For recovery from work as well as for recreation and relaxation, the presence and accessibility of a green environment such as forests, diverse landscapes, parks or gardens are now regarded as crucial. The term “cultural ecosystem services” covers all these positive effects. Many research findings also distinguish between direct and indirect positive health effects from exposure to the natural environment (e.g. Cervinka et al., 2014; Brown & Bell, 2007; Kearns & Gessler, 1998; Sherman, Varni, Ulrich, & Malcarne, 2005; Ulrich et al., 1991; Li, 2010), while at the same time many therapeutic approaches have been developed to put these findings into practise (see Ecotherapy.org.uk; therapeutic gardening).

However, Chan et al. (2012:745) still perceive a great gap in the methods for valuing cultural ecosystem services. They report that, in most frameworks for ecosystem service-related research, market-oriented valuations are dominant. This primacy is often defended by stating that “many cultural ecosystem services could likely never be appropriately represented” by such valuations (Chan et al., 2012:746).

Fig. 2 summarises the concept of ecosystem services in its relationship to human well-being, and shows that the relationship between cultural ecosystem services and health and well-being is seriously under-researched compared to the other connections. The links in Fig. 2 between cultural ecosystem services and the components of well-being are all of medium or weak intensity. To highlight this underrepresented relationship, this special issue aims to address these links in particular. This introductory paper gives an overview of the various methods used to analyse these links in the various disciplines.

While Daniel et al. (2012) provide a selective review of work in landscape aesthetics, cultural heritage, outdoor recreation and

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