



Cultural ecosystem services: Characteristics, challenges and lessons for urban green space research



Dawn C. Dickinson*, Richard J. Hobbs

School of Biological Sciences, The University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia

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ABSTRACT

City dwellers have fewer opportunities to connect with nature, with urban green space (UGS) often one of the few places where this can occur. Natural environments are known to contribute to human wellbeing, although to date research has largely focused on quantifiable benefits. The less tangible benefits obtained from ecosystems have commonly been referred to as ‘Cultural Ecosystem Services’ (CES). However, challenges persist around the definition and measurement of CES. A qualitative review of literature was conducted to identify key characteristics of CES, challenges to CES research, and lessons for the future of UGS research. The review found that CES have tended to be characterised by intangibility and incommensurability, when perhaps the most distinguishing features are the form and extent of human-environment co-production, and association between CES and held values. Despite ongoing challenges, researchers have applied a range of methods to capture and analyse CES, including non-economic and participatory/deliberative approaches. As urbanisation increases, it is important to understand how CES from UGS affect wellbeing. The review found that attention to date has mainly focused on identifying CES but scope exists to research the effects of UGS attributes, and how the socio-cultural diversity of cities might influence co-production of CES.

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* Corresponding author.

E-mail addresses: dawn.dickinson@research.uwa.edu.au (D.C. Dickinson), richard.hobbs@uwa.edu.au (R.J. Hobbs).

1. Introduction

In 2005 the Millennium Ecosystem Assessment (MEA) explicitly linked the biophysical realm with human wellbeing in its examination of the consequences of ecosystem change. Wellbeing was defined as comprising “the basic material needs for a good life, health, good social relations, security, and freedom of choice and action” (MEA, 2005: 49). Research has since identified access to nature and ties to the physical environment as being components of wellbeing (Summers et al., 2012); and not just any component but potentially a core wellbeing domain (Smith et al., 2013).

Understanding the contribution to wellbeing made by natural environments is important in the context of humans as an increasingly urban species. Urbanisation is known to have altered humans' relationship with the natural environment. Overall, people in cities are exposed to less biological diversity (Turner et al., 2004). Coupled with different development trajectories of cities that have resulted in unique combinations of natural and built form, this can affect the way in which city dwellers experience and perceive the natural environment (Andersson et al., 2014). Compared to the more utilitarian relationship with the natural environment experienced by those directly dependent on natural resources for their livelihoods, city dwellers tend to interact with nature less, and for different reasons such as leisure (Corbett, 2006). Such human-nature interactions that are particular to cities, and related impacts on wellbeing, are increasingly pertinent as most people globally now dwell in cities and the proportion is set to rise (UN, 2014).

In cities, urban green spaces are often among the few, or only, places where people can experience nature (Maller et al., 2008; Fuller and Gaston, 2009; Dallimer et al., 2014). ‘Nature’ can be thought of as a spectrum ranging from the full complement of living creatures within a system (including humans), to a wilderness that excludes humans (Spirn, 2002). While a ‘nature’ that encompasses human impacts is more typical of densely populated and highly modified urban environments, the extent of human modification varies. ‘Nature’ as represented by urban green space (UGS) can range from remnants of vegetation (such as conservation reserves) through to purposefully created and intensively managed areas like parks and playing fields (Wolch et al., 2014).

Urban ecosystems, such as UGS, have been known for some time to contribute towards the physical and psychological wellbeing of city dwellers (Bolund and Hunhammar, 1999). A rich literature already exists on the positive effects people gain from interacting with urban nature; for instance as summarised by James et al. (2015) in their review of public health benefits associated with green spaces. Shanahan et al. (2015) similarly provided a comprehensive summary of empirical evidence linking urban nature exposure to positive physical, psychological and social wellbeing outcomes. If, as suggested by Fuller and Gaston (2009), urbanisation threatens to diminish opportunities to connect with nature, this could limit the extent of health benefits obtained by city dwellers through interactions with the natural environment (Shanahan et al., 2015). Reduced contact with nature also risks a corresponding diminishing awareness of nature and care for its protection (Pyle, 2003).

Despite research attention on urban nature, Panagopoulos et al. (2016) identified that there remains a paucity of information around the social value and meaning of green spaces to city dwellers. Much of the research focus to date has been on the physical and/or mental health effects of nature (Keniger et al., 2013). In contrast, the least tangible aspects of the human-nature interface such as sense of place, access to nature, aesthetics, and spiritual beliefs, although important contributors to wellbeing (Summers et al., 2012), are not as well understood.

The MEA used the term, “Cultural Ecosystem Services” (CES) to describe the “nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences” (MEA, 2005: 39). Research has linked CES to improved physical health outcomes via changes to psychological wellbeing (Clark et al., 2014). CES are also thought to inform people's preferences and held values (Russell et al., 2013). In doing so, CES potentially motivate people's willingness to conserve natural environments, and can have consequences for conservation practices (Gobster et al., 2007). CES may even be the most important ecosystem services for city dwellers given that they represent some of the most familiar and personal experiences of nature that people encounter in an urban context (Kremer et al., 2016; Larson et al., 2016).

Many studies have equated CES with ‘benefits’ as per the MEA definition but a lack of consistency in CES definitions used by researchers has led to confusion and poor translation of research into practical decision making (Blicharska et al., 2017). While the ecosystem services concept has undergone much conceptual development and empirical study since it was popularised by the MEA (Braat and De Groot, 2012; Lele et al., 2013; Häyhä and Franzese, 2014), difficulties around definition and measurement of CES remain.

The challenges around defining and measuring CES are frequently highlighted as major impediments to research. The review by Chan et al. (2012a) for instance, focused on reasons why CES have been overlooked in research. Milcu et al. (2013) examined main areas of CES research in order to highlight gaps and focus attention on challenges, including heterogeneous perspectives on CES and disparate methodologies used for research. In contrast with these more theoretical reviews, Hernández-Morcillo et al. (2013) reviewed the quality of CES indicators. Our aim is not to replicate but rather to build upon the insights of these reviews. We intend to bring together the current knowledge about this most enigmatic of ecosystem services with an emphasis on extracting lessons to assist researchers exploring CES in an UGS context.

Urban areas present particular opportunities for city dwellers to interact with the natural environment, so UGS research is important from the perspective of understanding, and potentially enhancing, the liveability of cities, wellbeing of human inhabitants, and fostering of an environmental ethic. Research has already established that UGS provides many benefits, among them nonmaterial benefits. Although commonly referred to as ‘CES’, part of the reason these remain so poorly understood is because confusion still exists about what CES are and how they should be measured. With that in mind, our study seeks to explore:

1. *Characteristics*: What are the distinguishing features of CES?
2. *Challenges*: What are the impediments to CES research and how are researchers overcoming these?
3. *Lessons*: Where should UGS researchers focus their attention?

In structuring our review around these questions, we first examine some of the defining features of CES in order to establish a foundation for what follows. We do this by taking a closer look at how CES are conceptualised and characteristics typically attributed to CES (Section 3). Next, we examine ways in which researchers capture and analyse CES (Section 4). Finally, we look at some of the research gaps, and factors that researchers should consider when investigating CES and UGS (Section 5).

2. Methods

We undertook a qualitative review of the literature rather than a systematic review or meta-analysis. We selected this approach

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