



Research paper

Mapping landscape potential for outdoor recreation using different archetypical recreation user groups in the European Union

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ABSTRACT

Engagement with the natural environment and public enjoyment of access to farmland and woodland often takes the form of outdoor recreation. Numerous studies on landscape preferences of outdoor recreation have focused on individual characteristics and attitudes of recreation users. Although the importance of differences in user groups has been acknowledged, a clear distinction of archetypical user groups has not yet been made. This study presents spatial maps of landscapes' outdoor recreation potential throughout the EU based on the different landscape preferences of five archetypical outdoor recreation user groups. The resulting maps are based on spatial indicators for landscape characteristics identified through a literature review of landscape preferences and an expert workshop regarding the relative importance of those preferences. We find overlapping patterns of outdoor recreation potential for all user groups, as a result of similar preferences for elevation, cultural heritage and presence of specific flora and fauna. Areas with high recreation potential for multiple user groups are dominated by forest or mosaic land use and often concentrated in mountainous areas, showing the areas' multifunctional potential. The developed maps provide a synthesis of available information and data on the differential preferences and patterns for outdoor recreation in the EU. The differentiation of user groups enables stakeholders at different levels to develop sustainable landscape management strategies targeted at the demand for and supply of outdoor recreation opportunities.

1. Introduction

Engagement with the natural environment and public enjoyment of farmlands and forests often takes the form of outdoor recreation, nature-based tourism, and ecotourism. These concepts are increasingly recognized as an important contribution of ecosystems to well-being (Bennett et al., 2015; De Groot et al., 2002; MEA, 2003; Plieninger et al., 2015a,b) through physiological, attentional and emotional stress-recovery (Kaplan and Kaplan, 1989; Korpela and Borodulin, 2014; Thompson et al., 2012).

Outdoor recreation refers to any leisure time activities where recreants access non-urban landscapes (Silvennoinen and Tyrväinen, 2001), including short-term recreation in nearby green space, one-day or overnight tourism (Daniel et al., 2012a,b), educational recreation (Holdnak and Holland, 1996; Smith and Jenner, 1997), and spiritual recreation (Sharpley and Jepson, 2011). Nature-based tourism, often referred to as nature tourism, focuses on the direct enjoyment of undisturbed nature (Kline, 2001; Valentine, 1992; Weiler and Davis, 1993), in terms of natural reserves, national parks, forests, or tourism

close to lakes or the sea (Bell et al., 2007). Nature tourism activities are often congruent with the qualities of the natural environment (Silvennoinen and Tyrväinen, 2001), but might include traditional or mainstream tourism activities that are linked to a negative environmental impact (Bell et al., 2007; Kline, 2001). A term strongly related to nature tourism is ecotourism, focusing on rural and peripheral areas with a strong concern for the protection of nature. Main attractions of ecotourism include flora, fauna and cultural heritage (Bell et al., 2007), engaging in activities at local arts and craft centres, enjoying local food or hiking (Kline, 2001).

Tourism and recreation are often used interchangeably. Tourism, even though compatible with the concepts of leisure and free time, also incorporates activities, e.g. business travel, that do not take place within the leisure setting (Williams, 1998). This paper will therefore focus on outdoor recreation as an activity or experience that is set only within the context of leisure and free time. We explicitly focus on short-term recreation, thus leaving out several-day holidays.

The recreational enjoyment of non-urban landscapes is an increasingly important activity with a variety of economic and environmental

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implications depending on changes in the demand for and trends of outdoor recreation (Bell et al., 2007; Buckley, 2003). Within outdoor recreation, recreationists' preferences for areas and activities are based on different elements, including landscape attributes, accessibility and specific facilities (Paracchini et al., 2014). Preferences for specific landscapes are associated with the structure and composition of a landscape and related landscape attributes (Van Zanten et al., 2014a,b). Due to this direct link with the natural environment, recreationists' preferences regarding outdoor recreation are influenced by goods and services provided by landscapes, referred to as Public Goods (PGs) or Ecosystem Services (ES) (Costanza et al., 1997). PGs are goods and services that are beneficial to the public and thus highly desired by society but not readily traded on the market (Dwyer et al., 2015). PGs focus on aspects of management and governance, such as the type of provision and societal demand of goods, whilst ES (e.g. water quality regulation, soil nutrient regulation, pollination, biological control) focus on the benefits for and dependence of humans on ecosystems (De Groot et al., 2002; Haines-Young and Potschin, 2010; MEA, 2003). Recreation is therefore regarded as a Cultural Ecosystem Service, a specific group of ES defined by the Millennium Ecosystem Assessment (2003) as “nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences” (MEA, 2003, p. 8). Quantifying and evaluating outdoor recreation as a cultural ES relies, more than biophysical ES, on the perceptions and value assignments of stakeholders and users (Daniel et al., 2012a,b; Weyland and Latta, 2014). Most landscape preference studies take into account that preferences, and the values stakeholders assign to landscapes, differ according to landscape users' individuals characteristics and attitudes, such as socio-economic and demographic characteristics, environmental attitude, residential location, familiarity with the landscape and ethnicity (Dearden, 1984; Howley et al., 2012; Strumse, 1996; Swanwick, 2009; Van den Berg and Koole, 2006). However, previous literature regarding the spatial mapping of outdoor recreation has often treated recreationists as one single user group, not accounting for a distinction between different user groups based on preferences for landscape attributes. An exception is a previous regional-scale map for outdoor recreation by Kienast and Degenhardt (2012), who took different recreational user groups based on age of respondents and type of transportation into account. Distinguishing variations in the user groups of outdoor recreation is important for two reasons. Firstly, due to the heterogeneity in appreciation of similar landscapes by different individual users, the generalization capacity of outdoor recreation is quite low (Weyland and Latta, 2014). Secondly, knowledge about the preferences of different recreation user groups and their spatial distribution will enable stakeholders to adopt their agenda at different levels (e.g. landscape management, spatial planning, development of recreational facilities) in order to meet recreational users' demands and prevent the occurrence of potential conflicts (Bell et al., 2007).

Mapping the potential of landscapes to be used for outdoor recreation, demands extensive empirical and spatial information in order to be able to capture the heterogeneity of recreational preferences. Only limited research is available on landscapes' outdoor recreation potential, with exception of selected case studies (e.g. Bastian et al., 2015; DeLucio and Múgica 1994; Schmitz and Aranzabal, 2007) and national-scale evaluations (e.g. NaturalEngland, 2016). At a European scale, Van Berkel and Verburg (2011) included the potential for outdoor recreation in an assessment of spatial variations in rural development options for Europe. Paracchini et al. (2014) published the first study focused on mapping the outdoor recreation potential at EU scale. Their framework is based on several common recreational preferences (e.g. maximum travel distance, preferred destinations) using information from three Northern European visitor surveys. However, they do not include information on different user groups, due to the limited amount of studies that explicitly address the role of landscape characteristics in relation to outdoor recreation.

The objective of this paper is to address this lack of differentiation between recreation user groups at supranational levels. We aim to map outdoor recreation potential at the EU scale by taking different archetypical outdoor recreation user groups and their specific landscape preferences into account. As a result of the great heterogeneity in individual recreational and landscape preferences across the EU and the relatively small amount of empirical data to support the differentiation of user groups, our ambitions were modest. The main aim of the archetypical user group distinction in this paper is to illustrate the variation in recreation focus and landscape preference of different recreational user groups and to show to what extent these can be mapped across the EU based on the available information. We aim to create maps that allow for the analysis of general outdoor recreation patterns and spatial concurrence of these user groups, rather than creating an exact reflection of the European recreationist population.

2. Material and methods

To synthesize and map the outdoor recreation potential for different user groups, a variety of data sources and methods were used. Fig. 1 provides an overview of the used methods that will be described in more detail in the following sections.

As a basis for archetype delineation, we distinguished archetypical outdoor recreation user groups inspired by the work of Cohen (1979), who established a typology of recreational user groups based on the meaning of culture appreciation, social life and natural environment for the individual traveller. He divided recreationists' motivations for touristic experiences into five distinct ‘modes’ of experience: the recreational mode; the diversionary mode; the experiential mode; the experimental mode; and the existential mode (Cohen, 1979). Cohen's typology is a useful starting point to define archetypical recreation user groups due to its applicability to various different recreational activities, its simplicity and its potential relevance to policy and management (Elands and Lengkeek, 2000). Cohen's framework was further evolved for outdoor recreation by Elands and Lengkeek (2000), who relate each motivation to the perceived quality of a landscape. We elaborated on the earlier work by Cohen (1979) and Elands and Lengkeek (2000) by gathering landscape preferences of different user groups linked to interpretations of Cohen's recreational motivations in a literature review, and by translating these into specific landscape attributes in order to spatially represent user-group-specific outdoor recreation potential across the EU. These landscape attributes were mapped using one or more spatial proxies. We define landscape preferences of outdoor recreationists as the desire for the presence of a certain landscape characteristic such as naturalness or wilderness. Moreover, we apply Santos (1998, p. 81) definition of landscape attributes as being ‘biophysical attributes of the scenes that are objectively measured’. All types of ecosystems, from natural to more intensively managed ecosystems, are included as all types of ecosystems are potential providers of outdoor recreation (Paracchini et al., 2014). Urban core areas were excluded, hence we could not account for outdoor recreation in urban green spaces.

In contrast to outdoor recreation potential, the actual supply of outdoor recreation depends on the presence of people in a landscape (Costanza, 2008). To account for this, we include an additional analysis on the accessibility of each user group's preferred landscapes, following the approach presented by Paracchini et al. (2014).

2.1. Literature review

We developed an overview of common landscape preferences for different outdoor recreation user groups in the EU by analysing available conventional academic literature in English. We thereby limited our literature review mainly to Europe because we wanted to ensure that the landscape preferences attributed to the various recreation user groups were linked to European landscapes and users specifically, as

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