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RESEARCH NOTE

Tourism, landscapes and cultural ecosystem services: a new research tool

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ABSTRACT

This research note presents a new tool for analysing the benefits of landscapes for visitors and tourists using the Cultural Ecosystems Services (CES) framework as defined by the Millennium Ecosystem Assessment (MEA) in 2005. The authors reflect on the challenges of defining Cultural Ecosystem Services and interpreting and translating these categorisations for the purposes of questionnaire research. Previous studies had noted the difficulties inherent in capturing many of the intangible elements inherent in the CES terminology. Familiarisation with CES categories arguably affords new opportunities to bring together many of the disparate elements which have often been managed independently in landscape and tourism studies (e.g. cultural and intangible heritage, eco-systems, socio-cultural impacts of tourism and community-based tourism). A questionnaire was designed consisting of nineteen statements which related closely to the CES categorisations. It was translated into eight languages and distributed in autumn 2015 to visitors in Belgium, Germany, Greece, Hungary, Israel, Macedonia, Netherlands and Poland in six different kinds of landscape: forest, mountains, lakeside, seaside, mountains, desert and a combination of nature and manmade. In total, 876 valid questionnaires were obtained and were proven statistically to make a useful contribution to the field of CES research, landscapes and tourism studies.

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Introduction

Tourism and recreation are two of the main benefits that people derive from ecosystem services. The Millennium Ecosystem Assessment (MEA, 2005) included these benefits under the umbrella of cultural ecosystems services (CES) together with spiritual, aesthetic and cognitive benefits. However, previous studies demonstrated that the benefits of CES are difficult to assess because of their non-material and intangible nature (Andersson, Tengö, McPhearson, & Kremer, 2014; Leyshon, 2014). The question of how to assess the benefits of CES is especially important when addressing the issue of landscapes that provide visitors and tourists with intangible effects.

Landscapes are one of the main pillars of tourism. They are used as cultural contexts (Rössler, 2006), they provide rural scenery (Arriaza, Canas-Ortega, Canas-Adueno, & Ruiz-Aviles, 2004), present wildlife and natural surroundings (Lee & Han, 2002), and serve as a background for infinite visual images (Robinson & Picard, 2009). Furthermore, changes in landscape such as placing wind turbines in natural settings, can produce changes in demand for tourism (Broekel & Alfken, 2015). Hence, a deeper understanding of the link between landscapes and tourism is a fundamental element not just within the conceptualisation of CES,

but also for the tourism sector in general. There are close links especially to cultural heritage tourism, eco-tourism and cultural landscape-based tourism.

The current study presents a new tool for analysing the benefits of landscapes for visitors and tourists. It utilises the CES framework to assess the benefits of visiting landscapes, and by doing this, bridges some knowledge gaps in CES research and provides an empirical tool for assessing CES. The suggested new research tool reflects on the challenges of defining and translating CES terminology and the difficulties inherent in devising appropriate statements that accurately convey the abstract nature of CES categories. Comparing the current method with other studies (e.g. Pleasant et al., 2014; Scholte, van Teefelen, & Verburg, 2015; Szücs, Anders, & Bürger-Arndt, 2015), the research illustrates how questionnaire data may be applied to gain a better understanding of visitors' perceptions of CES in different types of landscapes.

Researching and measuring cultural ecosystem services

There has been relatively little research on human perceptions of CES, especially in the context of landscapes. CES are socially and culturally sensitive (Riechers,

Barkmann, & Tschardtke, 2016), subjective, intangible, non-scalable, temporally and spatially specific and are therefore difficult to measure (Leyshon, 2014). The elusive nature of CES has led to a gap in scientific research between what can be or is measured and what actually matters to people (Chan, Satterfield, & Goldstein, 2012; Milcu, Hanspach, Abson, & Fischer, 2013). As Satz et al. (2013) determined, some cultural values can be measured economically but others need different metrics and tools to be able to capture their essence.

On the other hand, Norton, Inwood, Crowe, and Baker (2012) point out that few studies have attempted to provide measures of cultural services as they relate to ecosystems or landscapes. Although there have been numerous studies in a tourism context about the socio-cultural impacts of tourism, cultural heritage management or ecotourism, few studies have attempted to combine all of these in a landscape context. CES research can help to bridge this gap. The meta-analyses of CES research conducted by Plieninger, Dijks, Oteros-Rozas, and Bieling (2013) and Hernández-Morcillo, Plieninger, and Bieling (2013) determine that researchers mainly focus on recreation and ecotourism services, leaving out other qualifying categories like aesthetics, spirituality or inspiration. Therefore, Tratalos, Haines-Young, Potschin, Fish, and Church (2016) argued that CES are so rich and multifaceted that any set of indicators is likely to appear incomplete and only partly to measure the full range of services provided.

Several research methods are now being used to assess or measure the impacts or perceptions of CES. Winthrop (2014, p. 210) describes how 'Many non-economic techniques are now used to characterize cultural ES, applying well-established tools of ethnography, surveys, social impact assessment, regional planning, spatial analysis, and collaborative process.' Research methods include mapping visible manifestations of CES, however, these are not good indicators for intangible CES, for example, inspiration (Bieling & Plieninger, 2013). Szücs et al. (2015) suggest that CES trends can be analysed on the basis of historical maps, pictures and written materials. They argue that cultural landscape inventories could serve as an essential database (e.g. characteristics, features and use), and that mapping landscapes can be used to initiate discussions with stakeholders. Hernández-Morcillo et al. (2013) suggest that benefit indicators were the most frequently used for measuring inspirational, educational and overall recreational services. Pleasant et al. (2014) advocated that stakeholder participation methodology can be used to determine values which are not defined by the market. Riechers et al. (2016) interviewed 41 different stakeholders in the urban context of Berlin, for example.

Scholte et al. (2015) recommend a deliberative approach to capture multiple dimensions of socio-cultural values (e.g. focus groups). Plieninger et al. (2013) undertook interviews with 93 local residents from 5 villages in Germany. However, Gould et al. (2014) discussed how challenging it can be to articulate CES concepts. In their study, some respondents said they had not fully conceptualised CES benefits prior to their interviews, and others discussed the difficulty of putting CES concepts into words. Riechers et al. (2016) state that their expert and inhabitant interviewees in Berlin were unfamiliar with the concept of CES. The latter point is important for Tourism Studies as familiarisation with CES categories affords new opportunities to bring together many of the disparate elements which have often been managed independently (e.g. cultural and intangible heritage, ecosystems, socio-cultural impacts of tourism and community-based tourism).

Landscape research and assessment

Landscapes are defined as areas as perceived by people, whose character is the result of the action and interaction of natural and/or human factors (European Landscape Convention, 2000). This definition led to different directions of investigation in the context of CES and landscapes. De Groot, Alkemade, Braat, Hein, and Willemsen (2010) studied the links between CES conceptualisation and landscape planning and policy-making. Vallés-Planelles, Galiana, and Van Eetvelde (2014), on the other hand, examined the link between CES and human well-being in the context of landscapes and suggest that they can contribute to enjoyment (e.g. recreation and aesthetics), personal fulfilment (e.g. education, inspiration and spiritual benefits), health (e.g. escapism and calm) and social fulfilment (e.g. social relations, cultural heritage and sense of place). Schaich, Bieling, and Plieninger (2010) noted the similarity between the concepts of CES and cultural landscapes, and described them as almost identical objects but which are studied by different tools and by different researchers. Cultural landscapes form some of the most attractive and important destinations for tourists, especially since UNESCO has designated many of them World Heritage Sites since 1992 (2016).

The present work takes a step forward and utilises the concept of CES to empirically measure the benefits of visited landscapes for visitors and tourists. It focuses on the ways in which moods, emotions and perceptions of well-being are derived from a given landscape and how these affective states may be related to aesthetics, sense of place, inspiration, spirituality, heritage, recreation and education. The next section describes each of the stages of developing and distributing the questionnaire.

Method: developing the research tool

The chosen research tool is a questionnaire, which could foster an objective, scalable and spatially non-specific measurement. The questionnaire statements were connected as closely as possible to the MEA categorisations. The work of Gould et al. (2014) was taken into consideration when writing the statements for the questionnaire, as it was noted in this study that CES terminology can be elusive and difficult for respondents to grasp or articulate. But while Gould et al. (2014) use interviews, the present research tool was developed to be closed-ended and self-completed. The researchers in this study considered some of the existing CES categorisations, such as those used by Plieninger et al. (2013):

Spiritual services:

- Sites of spiritual, religious, or other forms of exceptional personal meaning

Educational values:

- Sites that widen knowledge about plant and animal species

Inspiration sites:

- that stimulate new thoughts, ideas or creative expressions

Aesthetic values:

- Sites of particular beauty

Sense of place:

- Landscapes that foster a sense of authentic human attachment

Cultural heritage values:

- Landscapes relevant to local history and culture

Recreation and ecotourism:

- Landscapes used for recreational activities (walking, dog walking, horse riding, swimming, gathering wild foods, angling, hunting, etc.).

A well-being category was also added to fill the gap in the CES research as identified by Plieninger et al. (2013). Pleasant et al. (2014) stated that CES were the only ecosystem service category to be linked to all four categories of human well-being provided by the MEA framework (security, health, good social relations and basic material for good life). Vallés-Planells et al. (2014) also conclude that CES are fundamental to human well-being in the context of landscapes. It should be noted that the relationship between tourism and well-being is an increasingly important research theme, especially in the context of natural environments (e.g. the COST Project Tourism, Wellbeing and Ecosystem Services 2012–2016 from which this research originated).

Table 1. CES categories and suggested items for landscape questionnaire.

MA CES category	Linked statements
Spiritual/ religious	I came to this landscape for spiritual reasons I feel a close connection to nature here I feel connected to a special energy here
Aesthetic	I came here to enjoy the beautiful scenery or views I came here to enjoy the plants and flowers
Inspirational	I find this landscape awe-inspiring This landscape makes me feel creative (e.g. to write, draw, paint or make music)
Sense of place	This landscape is unique and unlike other landscapes that I have been to I feel a strong sense of place in this landscape
Educational	I came here to learn something new about the natural environment I came here to learn something new about cultural traditions
Recreation/ tourism	I came here to enjoy recreational activities linked to fitness or sports (e.g. hiking, biking, climbing and swimming) I came here to view wildlife/animals
Cultural heritage	I came here because of the interesting cultural or heritage attractions This landscape is linked to peoples' cultural traditions
Well-being	Being in this landscape makes me feel happy I came here to feel calmer I came here to reduce my stress levels I came here to relax

In order to design the statements, to connect them as closely as possible to the CES categories, and to ensure that the terms were as easy to understand as possible (including in multiple language translations), the questionnaire designers used a Delphi Study in addition to the literature review already discussed. The three-round Delphi Study took place between March and June 2015 with a group of 15 experts from 11 countries who were all involved in a COST project on Tourism, Wellbeing and Ecosystem Services. The use of the Delphi technique for solving complex tourism problems has been recognised for many years (Donohoe & Needham, 2009; Green Hunter & Moore, 1990). Following the Delphi Study, the draft questionnaire was pre-tested on five potential respondents to check if the statements were clear and then piloted in June 2015 with 22 visitors of different ages, gender and nationalities in a forest landscape called Vodno near Skopje, Macedonia. They were asked to complete the survey while thinking out loud, and it was observed how they completed it for example, hesitations and misunderstandings. After piloting, several changes were made and some statements were refined and the overall number of statements was reduced.

The final items are presented in Table 1, together with their CES categories.

Process and participants

A questionnaire consisting of the 19 statements described above was designed with a Likert scale of 7

Table 2. Characteristics of the questionnaires and the participants.

Country	Landscapes						% men	% locals visitors and domestic tourists	Total
	Seaside	Mountains	Forests	Lakeside	Desert	Nature + manmade			
Belgium	0	0	104	0	0	0	57	88	104
Germany	0	0	0	0	0	100	51	98	100
Greece	149	0	0	0	0	0	40	43	149
Hungary	0	86	20	0	0	0	42	99	106
Israel	2	14	7	0	91	0	54	86	117
Macedonia	0	0	100	0	0	0	42	100	100
Netherlands	100	0	0	0	0	0	44	78	100
Poland	0	0	0	100	0	0	55	94	100
Total	251	100	231	100	91	100	46	84	876

degrees (from 1 strongly disagree to 7 strongly agree). It was translated into eight languages that are spoken in eight countries (Belgium, Germany, Greece, Hungary, Israel, Macedonia, Netherlands and Poland). During the autumn of 2015, the questionnaires were distributed to visitors in six different kinds of landscape: forest, mountains, lakeside, seaside, mountains, desert and a combination of nature and manmade. In total, 876 valid questionnaires were obtained. 46% of participants were men, but in Israel, Poland and Germany they were the majority. Table 2 presents the main characteristics of the questionnaires and participants.

Results

The statistical features of the questionnaires were analysed using the data reduction function of the IBM SPSS statistics (version 22) software. Computing of the composite reliability (CR) and average variance extracted (AVE) was done by the SmartPLS software (version 3.2.2) (Ringle, Wende, & Becker, 2015). Three items were omitted in the preliminary stages of the process due to low communalities (>.50), and another in the very preliminary stage of the factor analysis due to a double loading. The Extraction method of Principle Component Analysis with a rotation method of Varimax with Kaiser Normalisation produced four factors solutions after six iterations. In this stage, another item was omitted because of double loading. The results of factor analysis of 15 items are presented in Table 3. Four factors explain 69% of variance and are supported by acceptable statistical measures (e.g. Cronbach's alpha, CR and AVE).

Discussion

This study presents an empirical tool that bridges the gap between landscape research and CES and can be used to assess the benefits of visited landscapes for tourists and visitors. An on-site study with an international sample of 876 participants revealed that responses to landscapes are not only measurable, but also closely correspond to CES conceptualisation and terminology. This

implies that CES categorisations could be a useful addition to existing research on the relationship between tourism and cultural landscapes. Indeed, new papers are already starting to emerge on this theme (e.g. Willis, 2015).

According to the questionnaire that was tested in this study, the benefits derived from landscapes consist of four distinct factors, each of them reflects a domain of interaction between the visitor and the landscape: spiritual interaction, emotional interaction, intellectual interaction and an interaction that related to the existence value. The four interactions that were analysed empirically in the current work converge with the Common International Classification of Ecosystem Services (CICES) version 4.3. The CICES classification was developed by the European Environment Agency (EEA) to promote standardisation in the process of ecosystems services valuation (Haines-Young & Potschin, 2013). According to this standardised classification, CES provide various benefits to people through four types of interactions – physical and experimental, spiritual, intellectual and those interactions that are related to existence values. Visited landscapes, according to our findings, provide very similar benefits through the same interactions. Yet, the experience of landscapes is more emotional and passive than the experience of other CES. In other words, the view of the sea cannot provide the same experience as swimming or snorkelling. These passive characteristics of the landscape-related experiences were also demonstrated by the elimination of the item 'to enjoy recreational activities' from the analyses of the questionnaire, due to a negative correlation with all other items. Apparently, this item represents a physical interaction that does not reflect the types of passive experiences that are linked to landscapes.

Theoretical and methodological implications

Landscapes are fundamental elements in tourism, but their value to tourists, locals, visitors and the tourism industry is often perceived as intangible. The current research tool was developed to empirically value the

Table 3. The results of factor analysis.

	Mean of the item (SD)	Component				Mean of the factor (SD)	Cronbach' alpha	CR	AVE
		Spiritual interaction	Emotional interaction	Intellectual interaction	Existence value				
Connected to a special energy here	4.29 (2.02)	.784	.301	.130	-.079	4.611 (1.416)	0.819	0.867	0.567
Feel creative	4.20 (1.93)	.735	.091	.112	.122				
Close connection to nature	5.01 (1.80)	.733	.128	.134	.289				
Awe-inspiring	5.02 (1.78)	.677	.059	.046	.384				
A strong sense of place	4.53 (1.75)	.616	.245	.239	.146				
To reduce my stress levels	5.13 (1.81)	.148	.898	-.013	.143	5.311 (1.598)	0.896	0.934	0.825
To relax	5.63 (1.70)	.171	.872	-.031	.074				
To feel calmer	5.18(1.77)	.268	.860	.011	.135				
To learn something new about cultural traditions	3.58 (2.02)	.111	.103	.885	-.051	3.983 (1.541)	0.815	0.771	0.488
To learn something new about natural	3.77 (1.866)	.284	.030	.788	-.034				
Cultural traditions	4.37 (1.79)	.126	-.071	.740	.192				
Cultural heritage attractions	4.19 (2.00)	.007	-.088	.711	.369				
To enjoy the plants and flowers	4.33 (1.91)	.149	-.013	.142	.752	4.998 (1.462)	0.600	0.807	0.683
To enjoy the beautiful scenery or views	5.66 (1.53)	.166	.266	.080	.742				
*Feel happy (excluded later)	5.67 (1.44)	.406	.260	.094	.557				
*Landscape is unique and unlike other	4.48 (1.81)					Excluded before factor analysis			
*Spiritual reasons	3.38 (2.11)					Excluded before factor analysis			
*To enjoy recreational activities	4.93(2.05)					Excluded before factor analysis			
*To view wildlife/ animals	3.29 (2.01)					Excluded in a preliminary stage of factor analysis (double loading)			
Eigenvalue		4.732	2.483	1.326	1.149				
% of variance		33.799	17.732	9.473	8.208				% cumulative 69.209

Note: Bold values are identified for the factor analysis.

benefits of visited landscapes for tourists and visitors. Fifteen items were subject to factor analysis in this work, and represent four interactions and possible benefits afforded to people by visited landscapes. This research tool can enable academics and practitioners to compare different landscapes, assess trends and study responses to changes. In terms of theoretical contribution, the current work demonstrates how basic concepts from the CES framework are relevant to tourism studies, and contributes to the understanding of the benefits of landscapes for tourists and visitors. Furthermore, the close connections between dimensions of landscapes and CES (as defined by the CICES version 4.3) imply a common theoretical basis for the two concepts, which is promising for future research and additional attention of tourism scholars.

As suggested by Willis (2015) in the context of tourism, CES provide a more holistic framework for managing natural resources including impacts on human well-being. She argues that this can help to

ensure maximum opportunities for sustainable engagements with nature and lead to better understanding of 'non-material benefits of nature' in tourist motivations, expectations, behaviours and levels of satisfaction. The proposed and tested research tool provides data which can help to inform these understandings.

Nevertheless, any future research should pay attention to the limitations of the current study. The questionnaire was distributed in several languages and locations. Although this enabled the generalisation of the findings rather than focusing on specific locations, it also exposed the findings to potentially inflated variance. Furthermore, many of the respondents were domestic tourists and locals, whereas future studies could concentrate more on the benefits of landscapes to international tourists. Closer connections should also be made between CES research and existing research in Tourism Studies on cultural landscape management, heritage interpretation, socio-cultural impacts of tourism, community-based tourism and ecotourism.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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