Meeting Program for a Workshop on the

Assessment and Economic Valuation of Recreational Ecosystem Services of Landscapes in EU Member States

Leibniz Universität Hannover, Germany September 12-13, 2016

organized by

Leibniz Universität Hannover, Institute for Environmental Planning, and Georg-August-Universität Göttingen, Department of Agricultural Economics and Rural Development





GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

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with intellectual support from

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ESMERALDA Project (Enhancing ecoSysteM sERvices mApping for poLicy and Decision mAking)



<u>Working Group</u> <u>"Landscape Planning" of</u> <u>the International</u> <u>Association of Landscape</u> <u>Ecology (IALE)</u>



Working Group "Application of Ecosystem Services in Planning and Management" of the Ecosystem Service Partnership (ESP).

ESP

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Objectives

The workshop picks up the challenge of assessing and valuing ecosystem services as stipulated by target 2, action 5 of the EU Biodiversity strategy (i.e. Mapping and Assessment of Ecosystems and their Services – a process commonly abbreviated as MAES, http://biodiversity.europa.eu/maes). The workshop focusses on Recreational Ecosystem Services (RES) as one kind of cultural ecosystem services and, more specifically, on the potential, demand, actual use, and economic value of RES. We understand RES as the contributions of landscapes for non-specific and specific recreation opportunities. Non-specific recreation opportunities refer primarily to aesthetic quality as it determines a landscape's general suitability for recreation purposes. Specific recreation opportunities, in contrast, refer to activities like hiking, climbing, boating, in-situ bird watching that require specific elements in landscapes. Potential is understood as the current provision of RES in a given landscape, regardless of their actual use. Demand is the societal request for RES, which may or may not be fulfilled. Actual use is the current usage of RES, and economic value describes the value attributed to a marginal change of landscapes' provision of RES.

The objectives of the workshop are:

- 1. To bring together and discuss the best available knowledge concerning RES of landscapes in EU member states, that is spatial analysis and quantification of potentials, estimation of demand as well as actual use, and economic valuation,
- To synthesize commonalities and differences, current bottlenecks and new ideas for further research to advance the theory and practice of RES mapping, assessment and economic valuation in the context of MAES, including suggestions for harmonizing the diversity of approaches,
- 3. To develop material and insights for a joint publication effort on the topic such as a special issue or joint paper, depending upon the interest of participants,
- 4. To initiate and enhance across EU member states' knowledge exchange and cooperation around RES assessment and valuation approaches.

Schedule

Monday, Septer	nber 12, 2016
09:00 - 09:30	Welcome, introduction of participants, workshop objectives and schedule
09:30 - 11:00	Session I: Assessing and mapping potentials of RES of landscapes
	Assessing the aesthetic quality of landscapes in Germany Johannes Hermes
	GLAM and AVANAR, operational GIS-based models for landscape appreciation and recreation in the Netherlands
	Sjerp de Vries
	Mapping nature-based recreation at multiple spatial scales Grazia Zulian
11:00 - 12:00	Discussion in break-out groups
12:00 - 12:30	Reporting back to plenum
12:30 - 13:30	Lunch break
13:30 - 15:10	Session II: Assessing and valuing the demand, preferences, and actual use of RES of landscapes
	Assessing the actual use of landscapes in Germany for recreation based on an a representative survey
	IBA
	The role of perceptual knowledge in mapping cultural ecosystem services in urban areas – methodological reflections on using public participatory GIS
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15:10 - 15:30	The role of perceptual knowledge in mapping cultural ecosystem services in urban areas – methodological reflections on using public participatory GIS Leena Kopperoinen IMPULSE: A comparative approach to assess the contribution of landscape features to aesthetic and recreational values in agricultural landscapes Boris van Zanten Using social media for Cultural Ecosystem services Mapping Derek van Berkel Coffee break
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Tuesday, September 13, 2016	
08:30 - 10:10	Session III: Economic valuation of RES of landscapes
	Economic valuation of changes to the capacity of landscapes to provide recreational benefits
	Economic valuation at all cost? The role of the price attribute in a landscape preference study
	Boris van Zanten
	Recreational Ecosystem Service Value Estimation: A Meta-Analysis
	Stephen Hynes
	IMPULSE: Valuing recreational ecosystem service flow in Finland
	Leena Kopperoinen
10:10 - 10:30	Coffee break
10:30 - 11:30	Discussion in break-out groups: Lessons learned, research gaps and options concerning economic valuation
11:30 - 12:00	Reporting back to plenum
12:00 - 13:30	Session 4: Discussions and Conclusions Discussing open questions Synthesis of conclusions concerning data and research needs Discussion of further steps, including preparation of special issue

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Abstracts

in alphabetic order of speaker

of landscapes to	Session III
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	of any economic nanges to cultural ts does not differ . To assess citizen ased methods are DCE). Contrary to

	critical voices in the literature, the application of these methods to law	
	person respondents is methodologically and conceptually more	
	straight-forward for CES valuation than for the economic valuation of	
	more ecologically 'functional' ecosystem services.	
	This contribution will present method and results of a DCE economically	
	valuating recreation-relevant landscape change in Germany. The DCE	
	assesses mean subjective preferences for changes to accessibility,	
	special attractions recreation infrastructure as well as aspects of	
	assthetic quality for generic landscapes. Changes to the assthetic	
	auditu ware presented as a complex attribute using 2D viewelingtions	
	quality were presented as a complex attribute using 3D-visualizations.	
	By including a cost attribute in the DCE, the monetary value changes to	
	a landscape's attractiveness for recreation are assessed. Preliminary	
	results show that ease of access, more special attractions as well as	
	better recreation infrastructure are economically favored by	
	respondents. Unsuspectedly, the inclusion of power lines in the	
	landscapes visualizations did not result in a lower economic valuation -	
	potentially explained by poor visibility in the visualizations	
	Eurthermore survey respondents showed a strong general tendency to	
	reject any changes to the landscapes they are accustomed to	
	The usehility of the results for decision support on different scales will	
	The usability of the results for decision support of unreferit scales will	
	be discussed as well as the need for further methodological	
	development. Finally, conclusions are drawn concerning potential	
	improvement options, next research steps and lessons-learned.	
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	much sought after during outdoor recreation. At the moment AVANAR is available for two activities: walking and cycling. Although AVANAR is not meant to predict actual use levels, calculated supply shortages have been associated with fewer walking trips and more holiday nights spent away from home. Both models will be introduced briefly, including some outcomes of validation studies.	
Donis, Janis	Recreation in forests and visual preferences of different silvicultural systems in Latvia Forest covers more than 50% of territory of Latvia. Forest is an important source of timber, in the same time it is important for recreation activities, especially in the vicinities of urban areas. There is need for assessment of recreation resources to improve forest management planning. Our goal was to assess visual preferences of forest stands created by different silvicultural activities as well prepare tool for mapping recreation potential. Recreation habit as well visual preferences were assessed based on face to face interviews of 1000 people. We asked how often, how far away, what are recreation activities in the forest. Visual preference study was based on catalogue of 45 pictures of forest development stages typical for specific silvicultural systems – clear cut, shelterwood and selection system. Each respondent was asked to compare 10 pairs of pictures assessing in five-level Likert scale. Majority of respondents use forest for recreation and as a role those situated nearby. Most often forests are used for walking. Most preferred are mature pine stands. People do not like fresh clearcuts and areas damaged by disturbances. Based on survey data we calculated impact of distance from residential area to the forest on recreational use and elaborated visual quality assessment of stand based on forest inventory data.	Poster
Hermes, Johannes	Assessing the aesthetic quality of landscapes in Germany Action 5 of the European Union's Biodiversity Strategy calls upon its Member States to map and assess the state of the ecosystems and their services (the MAES process). The indicators for implementing MAES differ substantially across the member states. The German approach proposes indicators for evaluating ES supply in terms of ES potentials, for estimating ES demand, as well as for analyzing the relationship between them. This contribution introduces indicators developed for mapping and assessing the aesthetic quality of landscapes in Germany as one important determinant of Cultural Ecosystem Services supply. We first introduce our approach for the spatial analysis based on a broad spectrum of landscape metrics and the best available spatial data. We continue with a presentation of the spatial results of the analysis, and	Session I

	of potential indicators for quantitatively assessing and evaluating the overall level of respective ES supply. Results show that our approach allows for a very differentiated picture of the distribution of landscape aesthetic quality on the national level, which is sufficiently detailed even for regional scale usage. The usability of the results for decision support on different scales will be discussed. Furthermore, the need for action in the fields of data and methodological development will be identified. Finally, conclusions are drawn concerning potential improvement options, next research steps and lessons-learned.	
Hynes, Stephen	Recreational Ecosystem Service Value Estimation: A Meta-Analysis An alternative to the primary non-market valuation methods such as revealed preference and stated preference approaches is value transfer (VT). VT involves transferring value estimates from previously conducted studies of change in an environmental good or service to value changes in the same or similar environmental good or service at a study site. There are a number of methods of transferring values between the study and policy sites, but in this paper we focus on the application of a Meta-Analysis approach. Using Meta-Analysis, information from past studies published in the literature can form a meaningful basis for recreation ecosystem service valuation. Meta- analysis is a value function estimated from the information contained in multiple studies. It is applied by using regression-based techniques to infer the impact of explanatory variables (such as valuation method, ecosystem where the recreation in the study takes place, GDP per capita in the country where the study was conducted, etc.) on the formation of values in a set of study sites. In this particular application, the meta-analysis approach is used to estimate the values of the recreational services provided by marine and coastal ecosystems. We also investigate if cultural differences between study and policy sites are an important determinant that should be considered in international VT. Existing economic valuation studies show that attitudes are linked to environmental values for ecosystem protection; our speculation is thus that accounting for measurable differences in cultural factors should improve our ability to predict values from value transfer models that incorporate information from international studies. We test this theory in this analysis with the inclusion of a number of cultural indicators in our model. We find that accounted for differences in cultural dimensions across recreation valuation studies in our model has a significant influence on the magnitude of the va	Session III

Kopperoinen,	The role of perceptual knowledge in mapping cultural ecosystem	Session II
Leena	services in urban areas – methodological reflections on using public	
	participatory GIS	
	Cultural ecosystem services (CES) are immaterial and experiential, and	
	their benefits are not in fact restricted to a single location - the	
	beneficiaries can take e.g. the health benefits of recreation, or the	
	pleasant experience of admiring scenic beauty with them. However,	
	these immaterial services need to be consumed at a distinct location -	
	the recreational activities and admiring impressive scenery require a	
	physical setting. These places can be mapped based on e.g. semi-	
	quantitative bio-physical mapping methods (e.g. Kopperoinen et al.	
	2014), which will give us a view on the potential of the landscape to	
	provide various CES. To get a complete picture, we need also	
	information about the demand for CES (Wolff et al. 2015). This is where	
	perceptual knowledge should be collected.	
	Perceptual knowledge, which reflects sociocultural values, is difficult –	
	or impossible - to map based on biophysical parameters only.	
	Acknowledging this problem, participatory mapping methodologies	
	(also called public participatory GIS) have been developed to capture	
	the values.	
	These methods comprise Internet-based surveys, interviews, surveys,	
	focus groups, citizens' juries, community or group process mapping,	
	and modelling from participatory mapping of landscape values (Brown	
	2013; Kyttä et al. 2011, 2013; Kelemen et al. 2014). The methods	
	provide systematic identification and measurement of values based on	
	local ecological knowledge and people's experiential values, which are	
	seen critical in developing place-based solutions to societal problems	
	such as biodiversity loss and in supporting robust and adaptive	
	socioecological systems and expanding public participation and	
	community consultation (Raymond et al. 2009; Brown 2013).	
	In my presentation I will reflect on public participatory GIS	
	methodologies based on the experience gained in research projects.	
ТВА	Assessing the actual use of landscapes in Germany for recreation	Session II
	based on an a representative survey	
	The benefits people obtain from cultural ecosystem services (CES)	
	depend on preferences and perceptions, e.g., for the recreational use	
	of a landscape. Complementing a (hypothetical) Discrete Choice	
	Experiment, we conducted a representative survey among the German	
	population to assess three main components of the actual recreational	
	use of German landscapes. First, we asked questions regarding general	
	recreation behavior, including the frequency of outdoor recreation for	
	recreational trips of different duration. Then, we asked for details about	
	the last trip in each of three duration classes including reasons for	
	destination choice, specific activities, expenses, modes of transport,	
	utilization of special attractions and recreation infrastructure, and	

	relevance of landscape features for destination choice. Finally, we asked respondents to mark their last destination as well as the location of their home in a map application. By regressing these non-hypothetical destination choices on variables indicating recreationally relevant destination features, revealed preferences for landscape features can be assessed. Spatial destination variables included indicators of landscape aesthetic quality, special attractions and recreation infrastructure as well as accessibility. As we also analyzed home locations, relations between recreation potential at home location, recreation potential at destination, and accessibility of the destination can be analyzed. This contribution will present the methodology and results, as well as a concept for modelling the actual use of landscape for recreation based on the results.	
van Berkel,	Mapping and quantifying cultural ecosystem services using Social	Session II
Derek	Media Over the past decade much effort has been placed on mapping and quantification of ecosystem services for articulating the societal benefits derived from ecosystem processes. Particularly hard fought in this work has been conveying the significance of cultural ecosystem services (CES). Several new and promising methods that measure perceptions and values of landscapes have been developed, yet challenges remain for effectively mapping and quantifying these intangible goods. Often studies have been constrained to local scale assessments due to the time and cost of collecting landscape perceptions. This has been prohibitive for understanding the spatial variation and dynamics of CES. Global emergence of volunteered and web content enabled through mobile technologies is a promising empirical data source for quantifying CES, offering rich georeferenced qualitative information, across large geographic areas. We present a method for mapping and quantification of CES that leverages social media (Instagram, Flickr and Panoramio) and web content. Through spatial analysis of volunteered locations and content we are able to map landscape characteristics associated with outdoor recreation and enjoyment for the European Union and US. Mining web content and social media data offers a highly efficient way for repeated estimates of the value of CES that has yet to be achieved in current methodologies for ecosystem service evaluation.	
van Zanten, Boris	Economic valuation at all cost? The role of the price attribute in a landscape preference study In ecosystem services and landscape research, both monetary and non- monetary preference studies are applied to elicit values that people assign to landscapes. In this paper, we apply a split-sample approach to compare relative preferences for landscape attributes between a choice experiment with and an experiment without price attribute. Also,	Session III

	within the choice experiment with a price attribute, we examine the effect of non-attendance to the price attribute (i.e., ignoring the price) on landscape preferences. A comparison of the marginal rates of substitution of landscape attributes between the two experiments reveals a clear difference of preference patterns. In addition, 36% of the respondents in the monetary experiment ignored the price attribute. This group expressed similar preferences for landscape attribute as respondents in the non-monetary experiment. We also show that ignoring this type of non-attendance leads to a substantial upward bias in monetary value estimates. We conclude that adding a price attribute to choice experiments substantially affects trade-offs and choices made by respondents. Including a payment vehicle ensures that trade-offs between attributes are more pronounced, and that money has to be put where the mouth is. However, controlling for non-attendance appears crucial for obtaining accurate monetary value estimates.	
Zsolt, Szilvácsku	Field margins as opportunities or threats for RES	Poster
SZIIVACSKU	During the mapping and assessment of RES (Recreational Ecosystem)	
	Services) we come across interesting problems. On the one hand the	
	users, beneficiaries of RES not the owner's onsite, but other people,	
	groups or communities (1. Factor: side of using and beneficiaries). On	
	the other hand the 'using', pleasure, enjoyment of several RES realize	
	on the boarder of the difference land use or difference property,	
	ownership (2. Factor: side of property and management).	
	When we mapping the difference type of RES in 'cut-off' situation, have	
	to take into account the characteristic of this special aspect this RES and	
	to take into account the characteristic of this special aspect this KES and	
	nave to analyse and assess together with the type, status of ES, type of	
	R, and connection ES-R. Such as neighbourhood aspect (in 2. Factor):	
	farmer-farmer (arable land - grassland, arable land - forest etc.),	
	government - farmer (arable land - difference type of roads, arable land	
	or grassland - river etc.). Such as aspects of R-using (in 1. Factors): need	
	for trees, lines of trees or patch of forest with aesthetical values and	
	simple shade (e.g. along the greenway, road of riders, cyclist etc.), need	
	for reach of riverside or getting across the rivers, need for continuous	
	network of difference path and road as greenway, need for resting	
	nlace need for place for watching enjoyment wondering relaxation	
	and revelation in nature in landscape	
	Based on recearch in Carnethian basin and in European countries	
	Based on research in Carpathian-basin and in European Countries I	
	present my experiences and results, which could establish contributing	
	to RES assessment and management methods and practice.	
	My poster presents the difference between property-drived thinking	
	and RES management and landscape-drived thinking and RES	
	management and the role of the ethical, aesthetical aspects of RES,	
	opportunities of covenant-based management of RES on field margins.	

Zulian, Grazia	Mapping nature-based recreation at multiple spatial scales	Session I
	Ecosystem service (ES) modelling is a key component of integrated	
	assessments to support the development of sustainable policies and	
	management practices. Besides that, mapping, visualizing and accessing	
	data suitable to facilitate the dialogue among scientists, policy makers	
	and the general public are among the most challenging issues within	
	current ES science and applications. An essential question is how to	
	operationalize this generated knowledge for policy making and	
	implementation in a coherent way.	
	ESTIMAP (Ecosystem services mapping tool) is a consistent collection of	
	models for a spatially explicit assessment of ecosystem services. It was	
	developed in order to fit the continental scale to support European	
	policies. It is based on the ecosystem services cascade framework,	
	follows the Common International Classification of Ecosystem Services	
	and includes nine complete models.	
	The ESTIMAP-recreation model provides a spatially explicit assessment	
	of the provision of nature based opportunities for recreation. It is	
	framed in three parts: 1) an indicator of potential capacity; 2) an	
	indicator of supply, framed as a Recreation Opportunity Spectrum; 3)	
	an evaluation of the demand.	
	Aim of this study is the operationalisation at a local scale of ESTIMAP -	
	recreation and the evaluation of its usability to inform multi scale	
	planning activities.	
	We performed our exercise in Lombardia Region (Italy) involving two	
	provinces (Lecco and Varese) and three regional parks (Parco Adda	
	Nord, Parco del Campo dei fiori, Parco del Ticino).	
	A sequential, qualitative, multi-method approach was adopted to	
	involve practitioners and stakeholders in order to: adapt the model to	
	fit specific needs (especially concerning the demand analysis) and	
	obtain valuable feedbacks.	
	We will present here:	
	- the structure of ESTIMAP-recreation (conceptual, methodological	
	and practical issues for the application of the model at European	
	(TIER2) and local scale (TIER3)	
	- the results from the first step the sequential, qualitative, multi-	
	method approach	
	 the first co-produced ESTIMAP-recreation maps at a local scale 	

Venue & logistics

The workshop will be hosted at the Leibniz Universität Hannover, Institute of Environmental Planning. The venue is situated close to the city centre, making it easily accessible by public transport, and right across the street from the Herrrenhausen Gardens, an internationally famous ensemble of garden arts and culture that ranks among the most important historical gardens in Europe.

Directions

Leibniz Universität Hannover Institut für Umweltplanung (IUP) Herrenhäuser Str. 2 30419 Hannover

Public transport

The main railway station is frequented by ICE/IC/IR trains from five directions (Dortmund, Bremen, Hamburg, Berlin, Göttingen). Having arrived there, you walk the Passerelle (level -1) or the Bahnhofstraße (level 0) to Kröpcke, a square that forms the city center. There you descend to



level -3 where you take the tram lines 4 or 5 direction Garbsen resp. Stöcken. You leave the tram at the stop "Herrenhäuser Gärten" (6 stops).

Individual transport

Those who are not familiar are advised to enter the city from the North. You leave the motorway A2 at Hannover-Herrenhausen and take the direction Hannover (not Neustadt a. Rgbe.). You are now on the suburban road system. You leave the road at Herrenhausen and follow the sign "Universität". There is a parking lot immediately behind the Big Garden on the right. Please leave your car there.

Plane

You will arrive at the airport Hannover-Langenhagen. There you take the S-Bahn (suburban train) to the main station. From there you find us in the way described above. Tickets for the train are also valid for the tram.

And then?

You will find us in the building Herrenhäuser Str. 2. That is a yellow one or two story building on the other side of the street. There is a bike parking in front of the main entrance. The Institute of Environmental Planning is located in part D of the building on the ground and first floor.

Accommodation

Rooms are available at a reduced rate for workshop participants at "<u>Hotel in Herrenhausen</u>", which is only two tram stops away from the workshop venue. The price for a single room is 72€ per night, including breakfast. The pre-registration is valid until Friday, August 26th, so please make sure to complete the reservation in time, if you want to take advantage of this offer. Please see the attached reservation confirmation for further instructions.

