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Leisurescape: A Pan-European Spatial Assessment of Tourism between Cities, Nature and Landscape

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Introduction

Part of the project initiative *Landscape and leisure*, launched by the Dutch Government Advisor on the Landscape, is the development of a European map on the basis of a standard methodological approach for presenting the spatial relations between leisure and tourism on the one hand, and landscape and nature conservation other hand. Due to the increasing need of European institutions for harmonized, reliable data on the state and trends of the environment – and meanwhile on the all-encompassing policy domain of sustainability which includes the social, economic and environmental dimension – the production of European data sets has become a key policy domain and the core business of a wide range of agencies at both the national and international level. Since the publication of the first pan-European state-of-the-environment report (Stanners & Bourdeau 1995), tourism has taken a steady place in international and national assessments, echoing its role as the fastest growing sector in Europe (EEA 2005). EU research and reporting activities on the environmental impacts of tourism focus mainly on issues such as waste management, traffic, energy or water consumption – with landscape being only randomly or not addressed.

Background & Literature Review

The reason for this shortcoming is that landscape assessment at the European level has started only recently. In response to increasing policy needs for landscape indicators in the framework of agri-environmental assessments at the level of the European Union and OECD, new landscape tools and references have been developed. The development of the new landscape map and typology LANMAP2 (Mücher et al. 2006, see Figure 1) found its way into several publications (Pedroli et al. 2007) and international projects such as ELCAI (Wascher 2005), IRENA (EEA 2004) and SENSOR (Helming et al. 2007).

The work on landscape indicators undertaken by Konkoly et al (2006) as part of the sustainability impact assessment of the SENSOR project was one of the first European-wide approaches linking tourist data and landscape aesthetic assessment. Though landscape units as identified by LANMAP2 did not (yet) play a methodological role, the approach inspired the making of the Leisurescape Map. Here, European landscape typology LANMAP2 has been used as an overall reference framework for depicting and describing the major bio-physical and land use aspects with regard to tourism and leisure activities at the European level. It is hence for the first time, that a European mapping effort has been undertaken to spatially present tourist and leisure activities in the context of distinctive landscapes addressing natural and site protection boundaries.

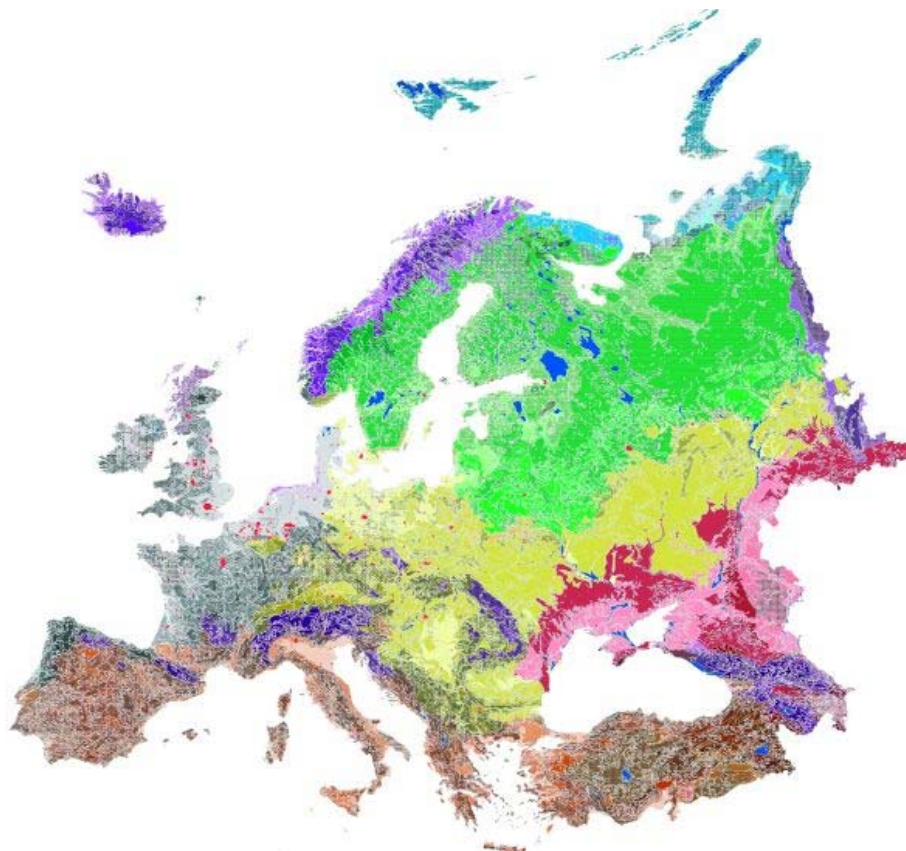
















Figure 1: European Landscape Typology and Map LANMAP2 (Mücher et al. 2006)

Goals and Objectives

The main target group of the Map of *European Leisurescapes* are authorities and stakeholders concerned with leisure and tourism as a driving force of landscape change, with both opportunities and risks, at a regional, national and international scale. The map will form part of an advisory to the Council of Europe and to national authorities. The goals and objectives of the map has been as follows:

- Identify tourist activities at the landscape level:
 - the identification of landscape types that attract tourist and recreation attention;
 - the distribution of tourist and recreational activities across Pan-Europe;
 - the differentiation between different forms of tourism and recreation;
 - the (likely) effects and impacts of tourism and recreation on landscapes and the environment;
- Explore the relationship between recreational activities and landscape vs nature conservation
 - the identification of all national nature and landscape conservation
 - the distribution of these protected areas with regard to landscapes
 - the relationship between protected areas and recreational activities.

Table 1: Legend of the map of European Leisurescapes (Wascher & Schuiling, 2008)

LEGEND		Sources	Data at national level
Urban Tourism (Number Hotel Beds)			
	< 10 000	http://epp.eurostat.ec.europa.eu/portal	NUTS-X
	10 000 - 50 000		
	> 50 000		
Countryside Tourism (Number Camping Beds)			
	5 000 - 10 000	Eurostat http://epp.eurostat.ec.europa.eu/portal	ESPON report (2007, figure 8.) Croatian National Data Institute for Statistics, Turkey: EEA rapport 3 rd Assesment; Switzerland (Urban Portrait by Herzog & de Meuron)
	> 10 000		
	Tourism Function Index > 300	http://epp.eurostat.ec.europa.eu/portal	
Coastal Tourist Concentration			
	Coastal Landscape Unit		
	Coastal Landscape Unit with high tourist concentration		
Areas of outstanding beauty			
	Landscape Protection Areas	CDDA_boundaries2007 Site boundaries Zipped ESRI sh (EEA 2007)	DE: BfN, Germany), SVN: Env Agency Slovenia, PL: Institute of Soil Science NL: LNV
	Nature Conservation Areas	CDDA_boundaries2007 Site boundaries Zipped ESRI sh (EEA 2007)	Naturea 2000 sites & data above
Everyday Landscapes			
	Urban area	<u>City contours:</u> globio (http://www.globio.info/) <u>Point data:</u> ESRI database of european topography	
	Peri-Urban Recreational areas	All cities in database with easy-access buffer zone ("halo" of 5km)	
Transport			
	major road	ESRI database	
	Ferry	ESRI database	

- Spatial contextualization of recreational activities with regard to
 - the location of coastal zones;
 - the presence of urban and peri-urban structures, including recreational buffers
 - the role of major infrastructure on land and at sea

According to European Landscape Convention (Council of Europe 2000), “Landscape” means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors (Article 1) and applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas. It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes (Article 2). In the light of tourist appreciation, the latter can be considered as an especially relevant definition. The common definition of leisure as “time off work” or “time for play” points out an important aspect of leisure: time. It specifies the nature of the freedom or opportunity which is involved in leisure: leisure is time available for action. In the context of this mapping exercise, the focus is on all kind of outdoor-related leisure activities as there are hiking, riding horses, playing golf, exploring nature, taking photos, meditating in certain locations. The boundary between urban leisure and countryside leisure is as hard to define as between the two spatial entities. To grasp the full significance of leisure, we must recognize it as time available for any action whatever. The focus here, however, is on landscape-related leisure activities.

Methods

One of the central objectives of the Leisurescape Map is the depiction of tourist activities, possibly tourist hotspots, but also regional differences. The selection and manipulation of the data was based on some hypothetical assumptions. In the following, the legend of the first draft Leisurescape Map (see Table 1) will be explained.

Urban tourism

One of the key data sets on European tourism can be derived from an interpretation of the ESRI data base on European cities. The location and importance of European tourist cities in combination with statistical information of hotel bedrooms forms one of the key references for assigning tourist attractiveness to landscape units. Due to the differences in the available data sets – and given the goal of focusing on the link between tourism and landscapes – it was initially decided to differentiate between ‘urban’ and ‘rural’ forms of tourism. The main source of information on tourist activities in Europe derives from Eurostat. The most adequate data sets that indicate the intensity of tourist activities is EUROSTAT Database on tourist information on NUTS-2/NUTS-3 level:

- Location of European tourist cities (ESRI data base)
- Number of tourist hotel bedrooms, bed-places per km (NUTS-3)

Calculation of Hotel beds per City: First calculated the total area of cities within a Nuts region. Then for each city calculated the area_Percentage of this total area. With this Percentage The number of Hotelbeds was divided over the cities.

Countryside tourism

Since interim results of the tourist mapping showed deficits with regard to certain European regions that are known for high tourist densities (e.g. Spanish Costa Brava, Alpine ski resorts), a different and less expert-driven approach was developed. In the final 2007-version of the European Leisurescape map, Eurostat tourist data on hotel and camping beds is used as a selection criteria for protected areas within a NUTS3 region. The cut-off density for selection is more than 300 beds per km². The underlying assumption is that high numbers of tourist are likely to be attracted by and putting pressure on sites of landscape and nature protection within close proximity of such high density NUTS region.

Calculation of the Camping beds:

Input: Table with number of camping beds per Nuts region

Geographical layer of Nuts region

Geographical layer of Landscape units

The table with total area for each nuts region was joined (based on NutsId) with the combined map.

Calc NutsPerc = (shape_area / Total_Nuts_area) * 100

Calc NumCampBeds = (NutsPerc / 100) * NumberOfBedsPerNutsregion

For the map of European Leisurescapes the ESPON approach has been amended as follows:

Hotelbeds per km² = (Total-Bed-Capacity * 100) / (NUTS-X region in m² / 1 000 000)

[Total-Bed-Capacity = number of hotel beds + number of camping beds]

Nature and landscape protection areas

The advantage of IUCN categories is that IUCN has already undertaken the analysis of different national protection categories to determine their broad commonalities across Europe/the world. This means that national parks do have different regulations and objectives in different countries, even though IUCN promotes certain minimum standards. It was decided to also include nature conservation areas since their protection status is based on the presence of rare habitats and species and are generally less open to recreational activities. Sites of scientific interest were left out since they are not likely to offer tourist access. IUCN's World Database on Protected Areas (WDPA) data is now included in the Common Database for Designated Areas (CDDA) maintained by the EEA. CDDA data is largely mixed with point data on the one hand and polygon information on the other hand. The map represents large protected areas such as national parks or landscapes as polygons with true boundaries. For this purpose additional national data sets such as

from Germany, France, Poland and the Netherlands have been added (CDDA use is partly restricted). The data is being presented as.

- Nature Conservation Areas (Natura 2000 sites & IUCN Categories I-IV)
- Landscape Protection Areas (IUCN Category V-VI & national information)

Everyday Landscapes

The underlying assumption is that recreational activities such as jogging, walking or barbecuing are likely to occur in the direct proximities of urban centers. These areas shall hence be indicated by using a so-called 'halo' around all cities.

- Urban areas (city contours)
- Peri-urban recreational buffers (buffer-zones around urban areas, depending on size)

The Urban zones with known hotel bed capacity are colored with 3 reddish colours depending on the number of calculated hotel beds. The other Urban zones (with no Nuts info) have a light pink colour.

Results

The development of a map combining spatial information on different forms of leisure and tourism with landscape has led to interesting results as it demonstrates a rather peculiar distribution of key leisure/tourist activities across European landscapes. Though concentrations were to be expected in certain mountain and coastal regions, the assessment makes clear that there is a large coincidence between Europe's demographic high-density, economic high-performance regions of Europe with strong leisure and tourist functions. The map points at a large number of sites where the quality of life is and will be judged upon their ability to safeguard the landscapes in the direct proximity of urban centers, infrastructural core areas and industrial facilities. However, the assessment presented in this map marks only the beginning of what is likely to be one of the key information sources for policy and research experts concerned with land use change, spatial planning, biodiversity and rural development strategies.

Already a first visual interpretation of the map, however, demonstrates stringent recreational patterns such as the high density along European coastlines, the specific role of England, Belgium, Netherlands, Switzerland and Italy as tourist countries, as well as the high concentration of landscape protection and nature conservation in combination with high Tourist Function Indices in Germany.

The example depicted in Figure 2 illustrates the results of the map for a section that covers Hungary and the adjacent countries. It can be recognized how high level of Tourist Function Index (>300 beds camping and hotel beds per km^2) are located in Western Hungary around Lake Balaton down to the Croatian border, and in Eastern Austria South of Vienna around Lake Neusiedl and the Eastern Steiermark and

Souther Burgenland. A close analysis of the distribution of camping grounds with regard to protected areas is likely to unveil interesting results when comparing the different regions and landscapes.

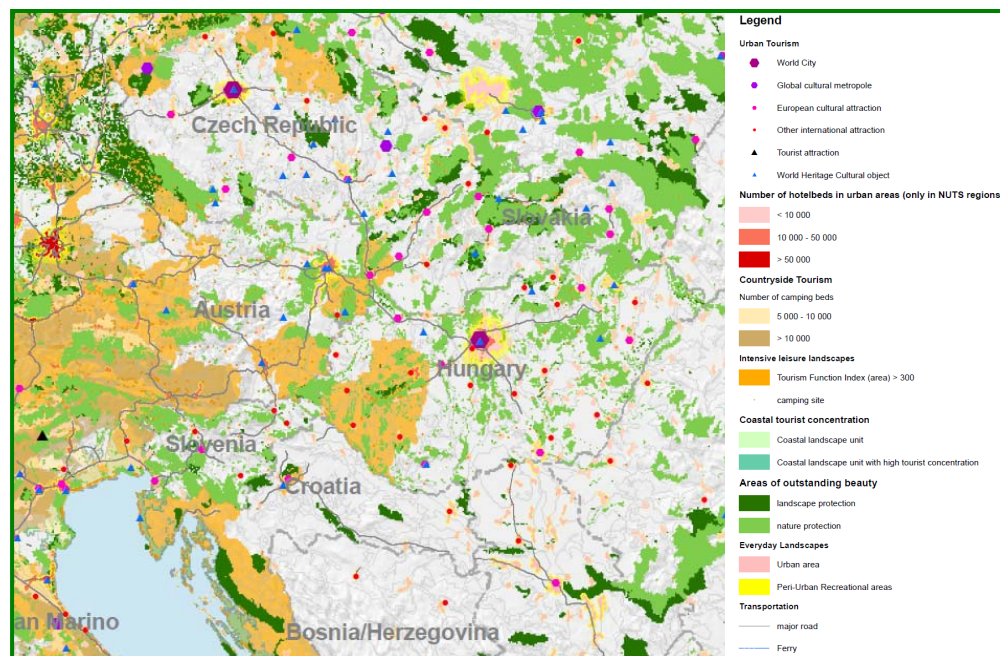


Figure 2: Section from the Leisurescape Map around Hungary

Discussion and Conclusions

At the European level, the interest in reliable information on the socio-economic values of landscapes is of direct interest when developing spatially explicit assessments on the effects of land use change on the sustainability of a region. Until now, spatial information is mainly available according to mono-disciplinary approaches and sector divisions. The Map of European Leisurescapes provides one of the view horizontal assessments that are likely to become essential references for policy implementation at the European, national and regional level. By bringing together information on different levels of recreational activities – indicated by the presence of camping and hotel beds on the basis of a landscape and urban typology – on the one hand, and the location of nature and landscape protection areas based on the most recent information such as the Natura 2000, EEA's CDDA and additional national data sets, the Leisurescape map allows a wealth of cross-analytical assessments of recreational activities in Europe. The data underlying this map can be used for calculating the share of camping site locations in (1) different landscape types, (2) nature conservation vs. landscape protection sites, (3) coastal regions and (4) urban peripheries.

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