Map of European Leisurescapes

A Geographic Image of Tourist Values, Trends and Potentials in European Landscapes

Dirk Wascher¹, Rini Schuiling¹, Niek Hazendonk² & Bart Loose²

1. Motivation and Context

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 values and changes on the other hand. Such a European map is meant to form the complementary background for the initiative’s national approach in which academic training courses in the field of recreation/tourism as well as in landscape design and planning have been asked to deliver national maps, using the legend provided by the project organizer. This legend (see Annex 1) requested the participants to provide mapped information on the patterns of (1) tourist resorts, (2) areas of outstanding beauty, (3) everyday landscape, and (4) remaining areas. While the same basic legend items form also the backbone of the European map, it is important to understand that there has not been any communication, let alone data-exchange, between the European and the national assessment process: the European approach relied entirely on internationally available and harmonized data sets, while the national approach followed a strict bottom-up device when addressing the same legend units. The underlying rational for keeping the two approaches separate is the inherent lack of methodological consistency in the way the legend has been put to use by the different schools and courses. The participants were absolutely free in determining how to implement the legend for their national mapping exercises. At the national level, such a flexibility was considered as highly desirable as it enabled the participants to make creative use of their national and regional resources when addressing culturally and socially determined items such as ‘beauty’, ‘leisure’ and ‘landscapes’. The intention of the national approach was to learn from the different views and interpretation, rather than to streamline them.

The main objective of the European map, on the other hand, was to provide a neutral point of reference based on more objective data deriving from internationally standardized sources. 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. The most prominent data agencies at the European level are the European Environment Agency (EEA in Copenhagen) and the European

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Statistical Office (Eurostat in Luxemburg). While Eurostat is specialized on socio-economic data such as demographic, trade and production, the EEA and their associated European Topic Centres collaborate closely with national focal points on the compilation and reporting on environmental data. In addition, the European Spatial Observation Network (ESPON) and the Joint Research Centre (JRC) support the European Commission in the application and reporting tasks. 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.

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) 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).

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

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.

2. Research questions

The initial legend (see Annex 1) that has been developed by the project group\(^3\) provided the guiding principals in the formulation of interesting, but also challenging policy and research questions:

- What shall be the central message of map? E.g.:
  - the identification of landscape types that attract tourist and recreation attention;
  - the distribution of tourist and recreational activities across Europe;
  - the differentiation between different forms of tourism and recreation;
  - the (likely) effects and impacts of tourism and recreation on landscapes and the environment;
  - the opportunities and locations for future tourist and recreational activities.

- Which legend items and forms of presentation are appropriate to communicate the central message?
  - the full list of legend items gathered around European countries
  - additional legend items found in literature or deriving from the data
  - a strong reduction of legend items to facilitate the interpretation
  - a distribution of different themes (messages) across separate maps or one conclusive map;

- Which methodological approach and which data sources should be considered as adequate?
  - A systematic-scientific approach making only use of representative, internationally harmonised and consolidated data sources (e.g. Eurostat, EEA data);
  - An eclectic, only partial scientifically sound approach build upon a variety of data sources, including data sets of unclear methodological origins;
  - Data sets at different scales to integrate national maps into the European map;

\(^3\) This project is an initiative of Dirk Sijmons, Government advisor on the Landscape and landscape architect, who chairs the Landscape and Leisure project group. Other members of the group include: Niek Hazendonk, landscape architect, assistant to the Government Advisor, Annika van Dijk, trainee, Jacqueline Oud, trainee, Mark Hendriks, spatial planner and journalist
Rather than taking a priori decisions on all of the above questions, several possibilities have been explored and applied, resulting in a series of draft maps over the course of the year (essentially between September and December 2007). The draft maps have been discussed with representatives from the projectgroup\(^4\) which throughout the implementation acted as the focal point on behalf of the steering committee that had produced the initial specifications. On November 23-24\(^{th}\), members of the international expert team\(^5\) met in Wageningen and reviewed a draft map of ‘European Leisurescapes’, resulting in revised suggestions for the legend. At the end of 2007, an amended draft that takes up parts of these suggestion as been produced (see Annex 1).

3. Definitions

An introduction to the methodological approach and objectives a map is certainly not the place to enter extensive semantic discussion on the meaning and origins of the different terms and scientific background. However, at least the two key terms addressed in this map, namely ‘landscape’ and ‘leisure’ should be briefly defined.

Landscapes are based on natural features that are evolutionary and abiotic, including climate, relief, soil type, water availability, etc., as well as on human intervention through agriculture, transhumance, forestry, rural policies, economic pressures and other cultural influences. Hence, both natural and cultural features should be considered when defining landscape. Building upon a definition that has been developed on the event of an international workshop by Landscape Europe in 2001, the following definition has been developed: “Landscapes are spatially defined units, which character and functions are defined by the complex and region-specific interaction of natural processes with human activities that are driven by economic, social and environmental forces and values” (Wascher 2004). 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.

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4. General Approach

One of the starting points of the mapping process has been the list of legend items for the map of *European Leisurescapes* (see Annex 1).

Table 1: Originally conceptualized legend items for the map of *European Leisurescapes*

<table>
<thead>
<tr>
<th>Patterns</th>
<th>Processes</th>
<th>Sub - categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tourist Resorts (Red)</td>
<td>5. Transformation Areas</td>
<td>8. Potential</td>
</tr>
<tr>
<td>4. Remaining Areas</td>
<td></td>
<td>11. Second Homes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12. Beautiful Underwater Landscapes</td>
</tr>
</tbody>
</table>

Based in this first set of legend items, an initial approach was developed in order to define the spatial components of leisure and tourism (Brinkhuijzen 2007). Four components were defined: access & approach, attractions, facilities and setting. The four components together were meant to form the spatial entity for leisure and tourist purposes. The idea behind this approach was the need to define accurately what each legend item comprehends and how items relate to each other. In this methodology, the legend items which represent specific leisure and tourism related features are directly related to the landscape typology. However, the question of how the many relations between the four components and the key recreational/tourist types of interest where supposed to be presented on the map, was not addressed. It also deems questionable whether the level of detail with regard to the multiple relationships between components, especially with regard to ‘real’ distances between mapping objects could be based on existing European data sets.

It was hence decided to use the first set of legend items (see Table 1) to develop a methodological approach (October 2007, see Annex 3) that is largely based on (1) existing European data sets as developed by Eurostat, EEA and research institutes such as Alterra, (2) apply recent results from European projects such as of SENSOR (Helming et al. 2007; Konkoly et al. 2006), ELCAI (Wascher 2005) and ENRISK (Delbaere & Serradilla 2005), (3) to put large emphasis on the clarity and transparency of the data presentation, and (4) to accommodate as much as possible with the structure and requirements laid down by the project group.

Also for this modified approach, the LANMAP2 data set (Mücher et al 2006) provides the generic spatial framework for integrating all relevant legend items. The reason for this choice is the pan-European coverage of the landscape typology, the largely objective methodological approach and its high level of detail. In contrast to the largely biophysical data represented in LANMAP2, the remaining data sources, especially those deriving from EU institutions such as Eurostat, are limited to the 27 EU Member States (see Annex 2). But also non-European data sets such as on camping sites or golf places deriving from commercial providers or internet sources, are clearly biased towards
Western European countries, while especially Russia, Belo-Russia, but also Turkey are largely under-represented, inaccurate and simply absent in international surveys. This means that any current approach at the pan-European will run short of providing a balanced overview.

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

<table>
<thead>
<tr>
<th>LEGEND</th>
<th>Sources</th>
<th>Data at national level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urban Tourism (Number Hotel Beds)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 10 000</td>
<td><a href="http://epp.eurostat.ec.europa.eu/portal">http://epp.eurostat.ec.europa.eu/portal</a></td>
<td>NUTS-X: see Annex 2</td>
</tr>
<tr>
<td>10 000 - 50 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 50 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Countryside Tourism (Number Camping Beds)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 000 - 10 000</td>
<td>Eurostat <a href="http://epp.eurostat.ec.europa.eu/portal">http://epp.eurostat.ec.europa.eu/portal</a></td>
<td>National input for: Stockholm and Riga region on basis of ESPON report (2007, figure 8.6) Croatia (National Data Institute for Statistics), Turkey EEA rapport 3rd Assessment, Switzerland (Urban Portrait by Herzog &amp; de Meuron)</td>
</tr>
<tr>
<td>&gt; 10 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tourism Function Index &gt; 300</strong></td>
<td><a href="http://epp.eurostat.ec.europa.eu/portal">http://epp.eurostat.ec.europa.eu/portal</a></td>
<td></td>
</tr>
<tr>
<td><strong>Areas of outstanding beauty</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature and Landscape protected areas</td>
<td>CDDA_boundaries2007 Site boundaries Zipped ESRI sh (EEA 2007/ see Annex 4)</td>
<td>National restrictions for AT, EST, FIN, UK, GR, NL, SVN; additional national data sets for DE (Federal Agency for Nature Conservation, Germany), SVN (Environmental Agency Slovenia), PL (Institute of Soil Science and Plant Cultivation Pulawy / Polish State Council for nature Conservation)</td>
</tr>
<tr>
<td>protected areas with no tourist data or low tourist presence</td>
<td>CDDA_boundaries2007 Site boundaries Zipped ESRI sh (EEA 2007/ see Annex 4)</td>
<td>Same as above</td>
</tr>
<tr>
<td><strong>Everyday Landscapes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Point data: ESRI database of european topography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peri-Urban Recreational areas</td>
<td>All cities in database with easy-access buffer zone (“halo” of 5km)</td>
<td></td>
</tr>
<tr>
<td><strong>Transport</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>major road</td>
<td>ESRI database</td>
<td></td>
</tr>
<tr>
<td>Ferry</td>
<td>ESRI database</td>
<td></td>
</tr>
</tbody>
</table>
Starting off with the general mapping framework, the European Landscape Typology and Map, followed by the different legend items of the *European Leisurescape* map will be briefly presented.

### 5. The Implementation of the Leisurescape Legend Unites

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.

#### 5.1. Urban tourism

The intention was to display (1) urban tourism at different levels of intensity based on hotel beds. Originally the overnight-stay data on hotel beds has been used to highlight cities that have been ranked according to their cultural attractiveness. This ranking has been done by national experts, who – however – are not specialised on such questions. Furthermore, a specific methodological approach or a common set of ranking criteria was lacking. The database of cities has been classified according to the following categories:

- **World cities** (500,000 inhabitants and worldwide recognized significance beyond cultural parameters)
- **Global cultural metropoles** (more than 500,000 inhabitants and known for their prominent historical or cultural aspects)
- **European cultural attractions** (100 - 500,000 inhabitants)
- **Other international attraction** (less than 100,000 inhabitants less or where the cultural attraction is key, independent from the city)
- **Tourist attractions** (meant as indications for high tourist frequency)
- **World Cultural Heritage sites** (meant as indications for high tourist frequency)

Though the ranking is likely to have produced improvements compared to a generic distribution of tourist activities across all cities of a country, the approach requires revisions and its role in the map should not be central.

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 mains source of information on tourist activities in Europe derives from Eurostat. The most adequate data sets the 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 sqkm (NUTS-3)
Calculation of Hotel beds per City
Same as under 5.4, but 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.

5.2 Intensive leisure landscapes and Countryside tourism
Since interim results of the tourist mapping showed deficits with regard to certain European regions that are know 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 are 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 regions

Calculation of the Camping beds for the legend label of countryside tourism

Input:
Table with number of camping beds per Nuts region
Geographical layer of Nuts region
Geographical layer of Landscape units

Workflow:
The table was joined with the Nuts regions to get the number of camping beds for each Nuts region. Then a combination is made of the Nuts regions with the landscape units, this was done by an identity function.

two fields are added to this combined map
-NutsPerc
-NumCampBeds

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

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Tourism Function Index 2003 - Area (NUTS 3)
EuroGeographics Association for the administrative boundaries
Source: EUROSTAT; Norway and Switzerland: National Statistical Offices

<table>
<thead>
<tr>
<th>TFI - Area</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 - 80.0</td>
<td>ESPON space, but no data</td>
</tr>
<tr>
<td>80.1 - 300.0</td>
<td>No data</td>
</tr>
<tr>
<td>300.1 - 800.0</td>
<td>This map does not necessarily reflect the opinion of the ESPON Monitoring Committee</td>
</tr>
<tr>
<td>800.1 - 5000.0</td>
<td>CRT-NIBR-EuroFutures, 2006</td>
</tr>
<tr>
<td>5000.1 - 36154.4</td>
<td>Tourism Function Index (Area) = number of bed-spaces in hotels or similar establishments (x100)</td>
</tr>
<tr>
<td>36154.4+</td>
<td>36154.4</td>
</tr>
</tbody>
</table>

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**Calculation for the legend label of the Intensive tourist landscapes**

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

Hotelbeds per km\(^2\) = \(\frac{(\text{Total-Bed-Capacity} \times 100)}{(\text{NUTS-X region in m}^2 / 1\,000\,000)}\)

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

The comparable ESPON map depicting TFI:

Tourist Function Index (area) = numbers of bed-spaces in hotels or similar establishments (x100) in relation to the km\(^2\) of the corresponding NUTS region

Tables with hotelbeds have been downloaded from Eurostat and linked to NUTS-3 regions. In the case of Switzerland, only NUTS0 has been available. So we used there information manually derived from An urban portrait (Herzog and Meuron) As a principle, the most recent data has been used, this was in most cases 2006, but sometimes also 2003. For Croatia data from national institute of Statistics have been used from 2005 and manually calculated and connected with NUTS 3 (like) regions. For Turkeye data from the third asessement for the environment have been used.

In map legend, regions where hotel beds exceed 300 beds per km\(^2\) form a special class (“NutsGT300bedPerkm\(^2\)”). The reduction to only one class has been done to enhance the readability of this multi-assessment map.

As thematic map we also produced a map with the combination of hotelbeds and camping beds.

### 5.3 Areas of Outstanding Beauty and Protected Landscapes

The underlying assumption is that information on the location of the above protected areas – possibly also areas of beauty – will allow to interpret the tourist data from this perspectives. This is of course a rather difficult category because it addresses the topic of aesthetics and hence subjective perception. In order to get into grips with the topic, it was decided (in accordance with other international approaches such as the SENSOR landscape indicators) to focus on protected areas as indicators for societal appreciation. The World Database on Protected Areas (WDPA) is organized according to the IUCN categories, and World Heritage Sites by UNESCO as definite landscape protecting categories usable for estimation of legal appreciation level:

- **Category Ib**: Wilderness area: protected area managed mainly for wilderness protection
- **Category II**: National park: protected area managed mainly for ecosystem protection and recreation
- **Category III**: Natural monument: protected area managed mainly for conservation of specific natural features
- **Category IV**: Habitat/Species Management Area: protected area managed mainly for conservation through management intervention;
- **Category V**: Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation or recreation
- **Category VI**: Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural resources
World Heritage Sites (Categories: Cultural, Natural, Mixed)
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. The above categories, on the other side, can be considered as relatively good matches with areas of beauty.

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 and the Netherlands have been added (CDDA use is partly restricted). The objectives is to show all CDDA data on the map, but to highlight those areas within the boundaries of high tourist frequency. This way, only those protected sites likely to be exposed to high tourist activities will stand out.

- Nature and landscape protected areas
- Protected areas with no tourist data or low tourist presence

Discussion
Other areas of beauty are known to exist. E.g. all the wonderful but not protected landscapes in many parts of Europe, or the rather small natural/cultural monuments that are not captured with above method. Furthermore, the real aesthetic qualities of the protected areas are not examined or differentiated. It is highly probably that some of the protected areas are not receiving much tourist attention, especially since all IUCN categories have been included.

5.4 Everyday Landscapes
To show those landscapes that are not necessarily of outstanding beauty, but of general importance for recreational quality, landscapes directly adjacent to urban areas shall be depicted. 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 their size)

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

Because of the high number of urban areas the creation of halo's around the cities is somewhat complicated (we don't want a total yellow map)
a. Urban areas with a known number of hotelbeds have a buffer distance depending on the number of beds. Maybe this is not fair, but we can change this later. These buffers vary from 100m to 16km.
b. The other cities with a size > 0.01dd got a buffer of 10km.
c. The rest (but with a size > 0.005dd) got a buffer of 500m.
d. Smaller cities have no buffer.

Discussion

The term ‘everyday landscapes’ can be understood in different ways. Though a definition will be provided, there is the possibility that the term is associated with landscapes that are normal or average, without specific aesthetic qualities. In the context of the Leisurescape Map, ‘everyday’ refers exclusively to no areas of close proximity and easy – those – daily access. The assumption that all areas around urban zones serve recreational functions requires further investigations. Random examples show that only certain areas qualify for those functions. Certain areas are intensively used by agriculture or other sectors and simply do not offer recreational qualities – even if easily accessible.

6. Conclusions and prospects

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 now, the map is being incorporated into the project on land use change scenarios Eururalis (Verburg et al. 2008; www.eururalis.eu). Some initial assessments have already been undertaken for restricted areas of the map. Figure 2 illustrates the expected amount of land abandonment in relation to areas of current leisure and tourist activities. The example illustrates how the interpretation of land use change scenarios can be supported by information resulting from maps such as European leisurescapes.

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.
Figure 2: Leisurescape (version April 2008) compared to land use change data of Eururalis (www.eururalis.eu)

References:

Brinkhuijsen, M. (2007. European leisurescapes: creating a geographic image of leisure and tourism; internal project communication, Alterra, Wageningen, 3 pages


EEA (2205). The European Environment – State and Outlook 2005. The European Environment Agency, Copenhagen, Denmark, 584 pages

Konkoly, E., Jomback, S. and Duray, B. 2006. Continuity of Appreciated Landscape Heritage Impact Issue; SOC 11 Landscape Identity, Contribution to the SENSOR deliverable report 2.3.1, University of Western Hungary, ZALF, Müncheberg, Germany, 12 pages.


ANNEX 1: Initial Legend proposal (2006)

Patterns
The different types indicate to what extent a certain area or landscape is aimed at its leisure function. The types should represent the current situation in your country. It is possible that one or more types do not occur in your country. In that case, do not use that type on your map.

TOURIST RESORTS (Red):
These areas are completely given over to leisure activities. For instance, the Spanish costa’s and the Alpine ski resorts.

AREAS OF OUTSTANDING BEAUTY (Blue):
Attractive, arcadian, man-made and natural landscapes where leisure is combined with other uses. Examples are Tuscany, the Cevennes and the Lake District.

EVERYDAY LANDSCAPES (Yellow):
The urban areas in and around towns and cities, where day-visitor go.

REMAINING AREAS (White):
In these ‘white’ areas there is not much leisure and population density is low. Landscape and Leisure

Processes/changes
In certain areas there are constant developments going on with respect to leisure. By using the following items certain processes or changes in your country can be reflected. Processes or changes should cover the previous or next twenty years. Also for this applies: possibly some processes do not take place in your country.

TRANSFORMATION AREAS (hatched areas)
Changes in a region may be the result of leisure impacting on the area. Leisure may change the physical aspect of an area (e.g. the brown coal mining areas in eastern Germany or the Turkish coasts).

AREAS OF DETORIATION (grid, black):
Intensive leisure use may damage the landscape. For instance, mountain slopes walked in summer and used for skiing in winter, theme parks impinging on Arcadian landscapes, urban sprawl.
The leisure sector is also affected by change: there are villages on the Spanish coasts where the population is leaving as tourists move to Turkey.

CONTINUITY (open)
Areas where the processes referred to do not take place.

Sub categories
POTENTIAL (hatched, broken lines).
Specific characteristics that provide possible leisure opportunities in the future. Like the land in the Apennines left by farmers or former historical defense landscapes.

ATTRACTIONS (star, red)
Cities like Prague, Rome or Athens.

OTHER POINTS OF ATTRACTION (star, black)
Large theme parks like Disneyland, Efteling or Wunderwasser Kalkar.

SECOND HOMES (scattered dots)
These are areas where a big part of the buildings consists of second homes.

BEAUTIFUL UNDERWATER LANDSCAPES (star, blue)
ANNEX 2: NUTS-x administrative regions

The majority of socioeconomic data of the EU is based on the NUTS system (Nomenclature des Unites Territoriales Statistiques). The NUTS system is an administrative divisions of Europe for statistical purposes. In general, NUTS regions are administrative regions of a EU-member state. The smallest unit available for a European-wide assessment of socio-economic and regional administrative aspects is the NUTS 3-level. This socioeconomic information is relatively spatially fixed to NUTS-boundaries of the level it belongs to; in contrast to the majority of the biophysical datasets which are more easily to up- or downscale to another spatial unit.

A regionalisation in NUTS-X regions was developed to combine and relate all different data sets and formats in the Sensor project. In order to achieve a high level of data compatibility between the different indicators, it was decided to introduce the European Environment Agency (EEA) reference grid (which is the EU common standard of geographical sample grids), to apply INSPIRE standards and to develop a NUTS-X map. This NUTS-X level is a selective composition of NUTS-2 and -3 units. Agreed was that the mix would be the same as the IRENA methodology.

It turned out that the IRENA project covered only fifteen countries, whereas the SENSOR project is covering the whole of EU-27 plus Norway, Iceland and Switzerland. Therefore, the NUTS-X level for these twelve additional countries had to be defined. Proposals were made on the basis that the level chosen should be comparable to the size of the IRENA regions taking into account area, population size and administrative status. For some of these twelve countries it was difficult to find the appropriate trade-off between the NUTS-2 or -3 level. For example in Hungary, the Czech Republic and Slovakia one could propose NUTS-2 on the basis of area, or NUTS-3 because of population size. In Hungary the choice for NUTS-3 could be made also on the basis of the administrative status: the Megyek is the traditional regional division in Hungary, whereas NUTS-2 is purely a statistical region. With the same logic, the opposite choice could be made in Poland. For both countries, the region that would be most in accordance with the size of IRENA region would be in between NUTS-2 and NUTS-3 on the basis of area or population size.

It was decided that for these countries, the final proposal of NUTS-X regions to be used in SENSOR should be the NUTS-3 level. Choosing NUTS-3 prevents from a possible loss of information value and keeps the spatial regionalisation at the most detailed level.
Annex 3: LANDMAP2

The European Landscape Map (LANMAP2) has been produced on the basis of state of the art technology and four core data layers with a high spatial resolution; i) climate, ii) altitude, iii) parent material and iv) land use. This resulted in a classification at a scale of approximately 1:2M, with a minimum mapping unit of 11 km² and more than 14,000 mapping units. The European landscape classification covers the whole of Europe, from Iceland in the Northwest to Azerbaijan in the Southeast and from Gibraltar in the Southwest to Nova Zembla in the Northeast. It covers an area of approximately 11 million km² (Mücher et al. 2006). The European Landscape Classification is a hierarchical classification. Level one is based on climate only and has 8 classes. Level two is based on climate and altitude and has 31 classes. Level three is based on climate, altitude and parent material and has 76 classes. Level four is based on all four data layers and is the most detailed level and has 350 landscape types (Mücher et al. 2006).

Figure 1: Part of the newly established European Landscape Classification (LANMAP2) with the location of the case studies.
Annex 4: CDDA data

Analysis of GIS attribute table
GIS attribute table is a dbf file, part of GIS sites boundaries provided by country. Tests concentrate on connectivity of GIS data to "Sites" table. Number of sites with restrictions placed on use of the GIS data by data providers is also displayed.

There are four types of restrictions:
1 - copyright has to be mentioned
2 - usage only after permission from the owner
3 - for EEA internal use only, restricted for public access
4 - not allowed to deliver data in vector format

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