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Francisco Moreira

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Overview of landscape research and assessment in Portugal

Aperçu de la recherche paysagère et évaluation des paysages au Portugal

Francisco Moreira

- 1 The aim of this paper was ambitious: to present – in a few pages – a comprehensive overview of the landscape research in Portugal in recent years, as well as the results of existing landscape assessment initiatives, mainly concerning landscape types and regions.
- 2 A large national project of landscape identification and characterisation, the first of this type, is just being finished, resulting in the identification of landscape character areas, grouped in regions and covering the whole country. This landscape assessment was used as the basis for the landscape characterisation presented in this paper.
- 3 Concerning the overview of landscape research in Portugal, the task was more complex, since in recent years landscape research developed in many different fields, with various and complementary approaches and mostly in dispersed research groups. In order to make a comprehensive overview, the authors made a review of the recent publications and an inquiry amongst the members of the Portuguese Society of Landscape Ecology Society (APEP) and the informal network of landscape experts in universities, research institutions and governmental organizations. Portugal being a small country and the authors having different backgrounds as a geographer, a landscape architect and a biologist, the authors hope to have achieved a broad overview of the national *state of the art* in landscape research. Nevertheless, as time and resources were limited, the results still have to be considered as incomplete in this short contribution.

Landscape research

- 4 Studies that focused on the landscape itself, in terms of its structure, functions, change, aesthetic quality, etc., are few and dispersed. Various disciplines perform landscape

studies in the broadest sense, meaning that the main objective may not be necessarily the landscape itself, but issues related to the landscape, e.g. studies on fauna within a particular habitat using landscape metrics (patch size, shape, etc.), studies on specific species behaviour in a broad landscape area, or policy measures based on specific rural landscape features.

Who is doing landscape research?

- 5 To know who is involved in landscape studies, we focussed upon the participants of the activities organised by the Portuguese Society of Landscape Ecology. This group aims to represent the main teams working on landscape research in the country, and to focus upon the main concerns and trends in the different approaches to landscape studies. An questionnaire has been sent to all the members, collecting information concerning their profile, working interests and research activities.
- 6 This society is the Portuguese chapter of the International Association for Landscape Ecology IALE, was created in 1999 and had 38 members in 2002. These belong to different disciplines and work in various types of institutions, located in different parts of the country. Most people work in Lisbon, as the capital concentrates most of the national research and administration bodies. Figure 1 shows the distribution of the APEP members per type of institution they are affiliated to. The majority (82%) is working in public institutions, either university or public administration services within the Ministry of Agriculture and the Ministry of the Environment. Most of the members of this group are engaged in academic (56%) and research units (17%).

Figure 1. Distribution of APEP members per type of institution they are affiliated to.

- 7 The education background of the members covers six main disciplines: landscape architecture, biology, agronomy, forestry, geography and environmental sciences, as presented in Figure 2. Nevertheless these six disciplines are widely scattered over a range of fields of interest or professional activities, such as nature conservation, planning, agricultural statistics, soil sciences, rural studies, GIS/DR technologies,

environmental impact assessment, ecology, botany, phytosociology, rural development, agricultural policies, economy, environmental education and geology. The authors believe from their knowledge of landscape related work in Portugal that this situation within the APEP members, can be generalised for the whole country.

Figure 2. Educational background of APEP members.

Main fields of work

- 8 The survey among APEP members showed the broad diversity of the landscape related work. The results of this survey have been complemented with a review of the published work, using both technical reports and more scientific publications, as well as a review of the participation and presentations in recent meetings and seminars devoted to the landscape and organised by APEP and others (APEP, 2002; Pinto-Correia and Cancela d'Abreu, 1998).
- 9 Issues related to landscape functions, structure and pattern are frequently addressed in landscape planning documents, which are often the domain of landscape architects and geographers. Landscape is acknowledged as a central concept in the planning disciplines and practice (Cancela d'Abreu, 1999), and spatial planning is one of the important fields of work related to the landscape. Geographers with different specialities are also increasingly aware of the significance of the landscape concept in all kind of geography studies (Alcoforado, 2001). Analysis of the landscape pattern and functions are often mentioned in environmental impact assessment studies, where also landscape architects participate together with biologists and specialists from the environmental sciences.
- 10 Many disciplines are involved in the research activities and landscape architects are no longer dominant. There is definitely a growing group developing research on landscape ecology with a quantitative approach, focusing on species behaviour, biodiversity, habitats, conservation, etc., mainly composed of young researchers and scattered over

different institutions in all parts of the country. These are mainly biologists but also geographers, foresters and people, environmental sciences, and others. Another important research field is concerned with policy analysis and landscape changes. It is mainly focussing upon rural landscapes, and thus agriculture, forestry and new functions such as recreation. Here, geographers, agronomists and landscape architects are involved. Research on landscape perception, preferences and values is also being developed by a smaller group. Finally, some recent research projects adopt specifically an interdisciplinary approach, trying to combine different perspectives and analysis approaches in order to improve the support to management decisions at different levels.

- 11 The integration of social sciences, as sociology, history or anthropology, is not yet developed, even if contacts between disciplines exist and methods from different traditions are used in combination.

Landscape assessment

Landscapes types and regions

- 12 Portugal has although its small size (90,000 sq.km.) a remarkable diversity of landscape types due to its geographical situation and a long history of human occupation. The recent landscape assessment undertaken for the Ministry of Planning and the Environment (Pinto-Correia *et al.*, 2002), identified 128 landscape areas have been identified in the continental part of Portugal alone (Figure 3). A similar study was also done for the Azores archipelago. These landscape character areas were defined at scale of 1:250,000 and reflect the landscape diversity and contrasts between them at different scales of landscape organisation and in various parts of the country.

Figure 3. Portugal – Landscape Units and regional Groups of units.

- 13 According to mainly biophysical conditions, and also using the existing geographical divisions of the country defined by the well-known Portuguese geographer O. Ribeiro and other authors, these 128 areas form 22 groups. Ribeiro distinguishes three main geographical regions: (i) the North-western mountainous region, more humid than the rest of the country with a very high population density and a fine-grained mosaic of land use, which is sometimes referred to as semi-bocage landscape; (ii) the North-eastern region, also mountainous but with a drier climate, a lower population density and larger farm structure, and a characteristic and diversified landscape mosaic of forest and agriculture; and (iii) the Southern, clearly Mediterranean region, with low altitudes and a more gentle morphology, large plains and large farm units, where the dominant land use is an open oak woodland with agro-silvo-pastoral use resulting in more homogeneous and large scale landscapes.

Values, potentials and threats

- 14 The diversity of the country makes it difficult to summarise values, potentials and threats. Generally speaking, the Portuguese landscapes are still based upon specific land use systems adapted to the natural conditions and traditional farming systems, which possess important cultural and aesthetic values, sustainable land use and a high biodiversity. However, in many areas landscapes have been disturbed and simplified, causing the loss of many of these properties. An assessment at a national and even regional level of the remaining values and threats would be too coarse and imprecise because of this regional diversity. Following examples illustrate this heterogeneity.

- 15 The landscape unit nr.15 in Northern Portugal (Alvão-Marão) is a mountain area, characterized by long and steep slopes, deep valleys, forest and shrub in the higher areas and a complex and intensive land use combining cultivation, grazing and forestry around the villages, organised in a structure of small properties and very small plots, often on terraces, resulting in specific «hamlet landscape» (Grove and Rackam, 2001). This is a highly multifunctional landscape with a well-defined character that resulted from traditional land use practices that were maintained until recently, but now are changing and becoming simplified. The traditional land use system has been sustainable until now, but was based on intensive labour and hard life conditions that are not generally accepted anymore. Biodiversity still is high, and cultural and recreational values are important as well as the aesthetic appreciation. These landscapes are threatened because of the ageing of their inhabitants and depopulation of the area, as well as modernisation and specialisation of the land use, resulting in a strong simplification or the abandonment of the area. The main issue for proper management here is whether it is possible to maintain the mixed small-scale land use systems, to assess the degree of simplification without leading to a loss of the traditional landscape identity and a reduction of its multifunctionality.
- 16 Extensification or abandonment of the traditional and typical land use systems in different parts of Portugal, which have subsisted recently, is one of the most severe threats to the preservation of the landscape richness and identity of the country. The landscapes resulting from these systems are part of the country cultural heritage and but they also possess a high level of multifunctionality, which so much desired in actual landscape management.
- 17 Some landscape units have also a high historical value, even when much specialised, intensive and highly profitable land use occurs. Examples include the Douro valley (nr. 33-34-35) and its unique wine terraces, the rice fields in large valleys in different areas of the country (nr. 59 and 96), the intensively cultivated flat and fertile valleys contrasting with their surrounding slopes (85 and 87). These landscapes are transformed by modernisation, but the production is kept and roughly also the typical landscape pattern. Here, there is no multifunctionality at the field or farm level, but at the landscape level.
- 18 Again a completely different situation occurs in the landscape areas where monospecific forest plantations of eucalyptus or pine trees, are dominating, such as in the centre of the country (n units 63-64-65) or in parts of the mountains between Alentejo and Algarve (units 121-123). Here the mixed land use systems developed during the first half of the 20th century when the population density was high. These areas became abandoned due to various reasons. Today's landscapes are dominated by large plantations of one tree species planted for timber production. The land use is not sustainable in the long term, biodiversity is low, the risk of wildfires is very high, the landscape identity changed profoundly and the recreational and aesthetic qualities decreased drastically. Different perspectives for future, long term development of these landscapes need to be formulated in order to improve their multifunctionality, but eventually also the acceptance - most realistic maybe - that some parts of the country will remain as such simplified and monofunctional landscapes. This might be the future of former agricultural areas in Alentejo (units 122-116, for example), which today are covered by shrub or recent forest plantations.

- 19 On the other hand, some typical Alentejo landscapes still have relatively favourable conditions, such as in units 89 and 99. These are characterised by gentle slopes, large farm units, low population density and open oak woodland, associated to a typical extensive agro-silvo pastoral land use system, today mainly silvo-pastoral. This system, the Montado, is a complex combination of various components, adapted to the regional environmental conditions. This system is still maintained in large areas of the Alentejo, for example in units 89 and 99, even under pressure simplification, abandonment or change during the last decades. Even when the land use system became less complex and more extensive, based on tree and livestock production alone, and the most marginal areas became abandoned, the actual landscape kept its unity and preserved its specific characteristics. Here multifunctionality is still high, the landscape gives quality products, land use is sustainable, biodiversity is high, cultural and aesthetic value are important as are recreational interests.
- 20 The Portuguese landscape is extremely rich and diversified, with many specific landscape types and landscape areas of strong character. As in many Mediterranean regions, large parts of these landscapes are still characterised by the traditional and typical land use systems, adapted to the natural potentials and condition of each region. Nevertheless, these systems are under change or even disappearing, requiring new management perspectives and new approaches aiming at a sustainable landscape multifunctionality.
- 21 Besides landscape transformation due to extensification and in some cases abandonment, other important threats to Portuguese landscapes are caused by the growing and often chaotic urbanisation and infrastructure development, which occurs mainly around the main urban centres and along the coast, the latter also associated with the development of tourism. Here a continuous degradation of the landscape is often linked to the lack of awareness in planning and to inappropriate designs needed for the preservation of landscape qualities.

Conclusion

- 22 Landscape research, in strict sense, is still relatively new in Portugal, although it has developed quite fast in recent years through various disciplines and approaches. The need for landscape research is important considering the richness and diversity of Portuguese landscapes, their values and functions, the many threats. Today, not only a growing group of researchers in various institutions becomes interested in the landscape, but also decision makers, both linked by spatial planning and with sectors such as agriculture, nature conservation or environment quality. The European sensitivity in this field, reflected in policy instruments as the agri-environmental programmes, or strategic documents such as the Pan-European Biological and Landscape Diversity Strategy (1996), the European Landscape Convention (2000), or the Guiding Principles for Sustainable Spatial Development of the European Continent (2000), have forced the Portuguese administration to face new concerns and therefore has strongly contributed to a growing awareness for the landscape issues. It may be hoped that this growing awareness will result in more research and more consideration of the landscape in integrated decision making for spatial management at various levels.

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ABSTRACTS

This paper presents two types of information in relation to landscape in Portugal. On the one side, information about the landscape related research and work undertaken in the country in recent years, and about whom is developing these activities, as a result of a survey carried out in 2002. On the other side, it describes some of the main characteristics (pattern, diversity, values and threats) of the Portuguese landscapes today, based on recent work for identification and characterisation of landscape areas developed by a research team for the Ministry of the Environment.

Cet article présente deux aspects concernant les paysages portugais. D'abord un aperçu est donné des études récentes sur le paysage au Portugal. Une enquête faite en 2002 montre quelles disciplines sont actuellement impliquées dans cette recherche. Ensuite, une description est donnée des caractéristiques principales (structures, diversité, valeurs et menaces) des paysages portugais d'aujourd'hui, fondée sur le travail récent concernant l'identification et la caractérisation des types de paysages par une équipe de recherche et financée par le Ministère de l'environnement.

INDEX

Keywords: Portugal, landscape, landscape research disciplines, assessment, landscape character, potentialities, functions, threats

Mots-clés: Portugal, paysage, étude du paysage, évaluation, caractère paysager, potentialités, fonctions, menaces

AUTHOR

FRANCISCO MOREIRA

Centro de Ecologia Aplicada «Prof. Baeta Neves», Instituto Superior de Agronomia, Lisboa,
fmoreira@isa.utl.pt