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Guidelines for the integration of biological and cultural values in a Landscape Interpretation Centre: application in southern Portugal

Teresa Batista[1]; José Manuel de Mascarenhas[2] and Paula Mendes[3]

1 CIMAC – Comunidade Intermunicipal do Alentejo Central, Rua 24 de Julho 1 7000-673 Évora Portugal; Departamento de Paisagem, Ambiente e Ordenamento, Escola de Ciências e Tecnologia, Universidade de Évora, ICAAM - Instituto de Ciências Agrárias e Ambientais Mediterrânicas, Núcleo da Mitra, Ap. 94, 7002-554 Évora, Portugal. tbatista@cimac.pt; +351.266749420; +351.266749225

2 CIDEHUS and UNESCO Chair - Universidade de Évora, Palácio do Vimioso, Apartado 94, 7002-554 Évora, mascarenhas_jm@sapo.pt

3 Departamento de Paisagem, Ambiente e Ordenamento, Escola de Ciências e Tecnologia, Universidade de Évora, Rua Romão Ramalho, 59 7000-671 Évora, paulabmendes@yahoo.com

Abstract

The city of Évora (the Roman *Ebora Liberalitas Julia*) is the most important town in Alentejo province (Southern Portugal) and is surrounded by a quite rich cultural and biological landscape involving archaeological sites of several epochs, old field networks and farms, as well as specific multifunctional cultural landscapes, the agro-forestry-pastoral systems called *montados*. Based on previous studies and land surveys, in which where identified the best preserved sectors and marks around Évora concerning the old cadastral systems, ecological corridors networks and the most important *montados* areas for preservation, it is presented the main guidelines for the development of an interpretation centre for the cultural and biological values in the Évora region.

The methodology applies GIS spatial analysis and multilevel approaches and gives the guidelines for the integration of the different cultural and biological values in a holistic approach of landscape.

The conceptual model is presented as well as the results obtained for the Évora Region.

Keywords: Old Cadastral Networks, Montados, Biocultural Landscapes, Southern Portugal, Interpretation Centre.

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INTRODUCTION

There is a need for the awareness rising the biocultural landscapes, since they can not only contribute to the preservation of the sense of place but also to the economic development of rural communities, reversing the tendency of rural abandonment and desertification affecting many inland Portuguese regions.

Several approaches can be applied to the touristic development of landscapes, such as areas and sites classification, creation of protected areas, ecomuseums, parks, and others cultural and natural museographical figures. Among these last ones the establishment of Visitors and Interpretation Centres is the most common solution in European countries, since they generally involve few human and financial resources, and contribute to sustainable tourism.

Through these Centres, knowledge on ecosystem and geographical features can be improve, giving the visitor the necessary information about the landscape history and tangible and intangible heritage values. Moreover they can promote awareness campaigns and education training.

The main objective of this paper is to define the main guidelines for the integration of cultural and biological values in a landscape Interpretation Centre, as well as to characterize the Évora surroundings landscape and its biological and cultural values in order to identify the most suitable areas to implement an Interpretation Centre.

METHOD AND MATERIAL

Biocultural landscapes

Cultural landscapes can be considered as 'illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal' (WHC 2005). This is a dynamic concept since cultural landscape it's a long-term product of the scientifically demonstrated nature/human interactive process (Fowler 2006). Cultural landscapes are undoubtedly supported by natural environment, soils, water, vegetation and fauna, biodiversity. Biocultural landscapes integrates both natural and cultural elements that interact giving a particular character to the landscape that man shaped for centuries adding permanent disturbance into the system. The result of these interactions is a biocultural landscape that is maintained in a particular balance by man. So biocultural

landscapes are a particular case of heritage landscape where both natural and cultural values are present. A biocultural landscape is related with an intertwined holistic system that has been shaped by human management over long periods of time.

Interpretation Centres and biocultural heritage development

What is the heritage interpretation (HI)?

Heritage interpretation can be considered as a creative process of strategic communication which produces intellectual and emotional connexions between the visitor and the interpreted resource, allowing the visitor to elaborate his own perception about the referred resource so that he can appreciate and enjoying it (Morales Miranda and Ham 2008). However this concept is not unanimously accepted, it has evolved along time, such has the interpretative practice, especially since the publication of "*Interpreting our Heritage*" by Freeman Tilden in 1957, considered the interpreter's "bible" for many people (Tilden 1957).

These conceptual changes have been analysed by Hector Bazán (2014) who defines *heritage interpretation* as:

- an attractive, relevant, organized and thematic communication process regarding the characteristics of a heritage good (natural, cultural or mixed),
- a way permitting the visitor to appreciate and enjoy such good,
- through intellectual and emotional links with it,
- promoting the creation of personal meanings about heritage and,
- a wish to preserve such heritage good so that the future generations can benefit from it.

The study area

The Évora city surroundings, located in Central Alentejo, Portugal, can be considered as a biocultural landscape. It is composed by several important heritage values both natural and cultural as vegetation and fauna diversity and rarity, the existence of important ecological corridors, *montados* (agro-forestry-pastoral systems), two Roman cadastral networks from different epochs, a Medieval parcels network and many archaeological and architectonic sites.

The study area includes 36100 ha around Évora (the Roman *Ebora Liberalitas Julia*), that is the most important town in Alentejo province (Southern Portugal) (Fig.1) and it's involved by a biocultural

landscape where, as referred before, many archaeological and architectonic sites (walls, roads, bridges, houses) of several epochs, old parcel networks and specific agro forestry pastoral systems, the *montados*, exist.

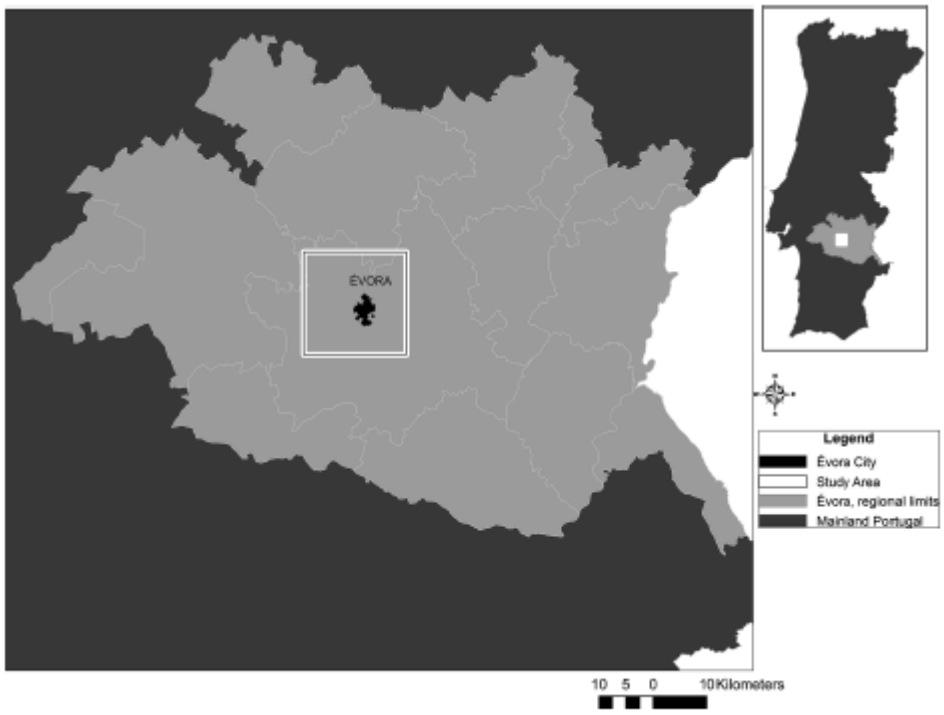

Fig. 1 – Study area – Évora surroundings, Central Alentejo, Portugal (author: Paula Mendes, 2014).

In the Évora case study, the main thematic issues involved in setting up an Interpretation Centre (IC) creation were:

***Montado's* landscape**

Montado is the most important agro-forestry-pastoral system of the region, not only concerning its biological diversity, but also in terms of multifunctionality. Besides their high value as regards nature conservation, the Évora surrounding *montados* are a seminal element to the great landscape scenic quality in the western part of the town (Monfurado foothills).

Montado biocultural landscape is protected since 1999 (Decree-Law 140/99, April 24 – Annex B-1 republished by Decree-Law 49/2005, February 24; Directive 92/43/CEE, May 21 – Annex I; Decree-Law 169/2001, May 25, with alterations; Decree-Law 155/04, June 30). It is a typical mediterranean land use system composed mainly by holm oak (*Quercus rotundifolia*) and cork oak (*Quercus suber*) open formations that have, under the tree layer, rotation of crops, fallows and pastures. These *montados* are

quite diverse in biodiversity, tree coverage and structure (Batista et al. 2014). One of the main characteristics of these multifunctional traditional landscapes is the persistence of native scattered vegetation throughout the landscape, constructing a heterogeneous mosaic from a variety of grazed, shrubby and cultivated land uses. The *montado* is a quite old land use system. As Stevenson already stated in 1985 and 1988, a forestry-pastoral system has its origins between 2500 and 1500 B.C. (Batista et al. 2010). Its transformation into an agro-forestry-pastoral system is described in municipal regulations from the 16th century, showing the existence of cereal breeding under arboreous cover. However, according to Fonseca in 2003, it was during the 18th century that this practice was generalised (Batista et al. 2010). Nevertheless as referred by Ferreira in 2001, it was mainly by the end of the 19th century that the great expansion of the cultivated *montado* happened (Batista et al. 2010). Important structural alterations in the economy of these systems took place during the 20th century: the Iberian black pig, making the best use of acorns, prevailed until the sixties after which it suffered a great regression with the African swine fever; on the other hand, the growth of mechanised cereal culture was responsible for a great regression in the holm oak *montado* area and, since the seventies, the reconversion of the system into forestry-pastoral, with the increase of bovines and decrease in sheep production (Batista et al. 2010). This biocultural formation is 'one of the most aesthetically pleasing and biologically rich landscapes in Europe' (Pinto-Correia and Mascarenhas 2001). According to the World Heritage Convention classification, the *montado* landscape is clearly a type of *continuing landscape*.

Cork oak and holm oak *montados* occupies around 43% of the study area (15.372 hectares), in different tree densities and associations mainly with annual crops, grasslands, broadleaf (mainly eucalyptus), resinous (pines) and mixed *montados*. Table 1 provides some landscape metrics for holm oak and cork oak typologies: number of patches (NP), class area (CA) and class area proportion (CAP). The main localization is in the northwest and west part of the study area where we can find examples of cork oak and holm oak *montados* (Fig. 2).

Table 1 – Landscape metrics for *montados* typologies

MONTADOS TYPOLOGIES	NUMBER OF PATCHES (NP)	CLASS AREA (CA) (M2)	CAP (%)
HOLM OAK* + BROADLEAF	2	28240,00	0
HOLM OAK + RESINOUS	12	1327560,00	1
HOLM OAK MONTADO	616	78573667,71	**51**

HOLM OAK + GRASSLAND	72	18038789,38	**12**
CORK OAK**	19	3348607,72	2
CORK OAK MONTADO	207	15814918,00	**10**
CORK OAK + RESINOUS	13	2143288,66	1
CORK OAK + GRASSLAND	18	534387,39	0
MIXED MONTADO	107	33908509,74	**22**
TOTAL	1066	153717969	100

*Holm Oak – *Quercus rotundifolia*; ** Cork Oak – *Quercus suber*

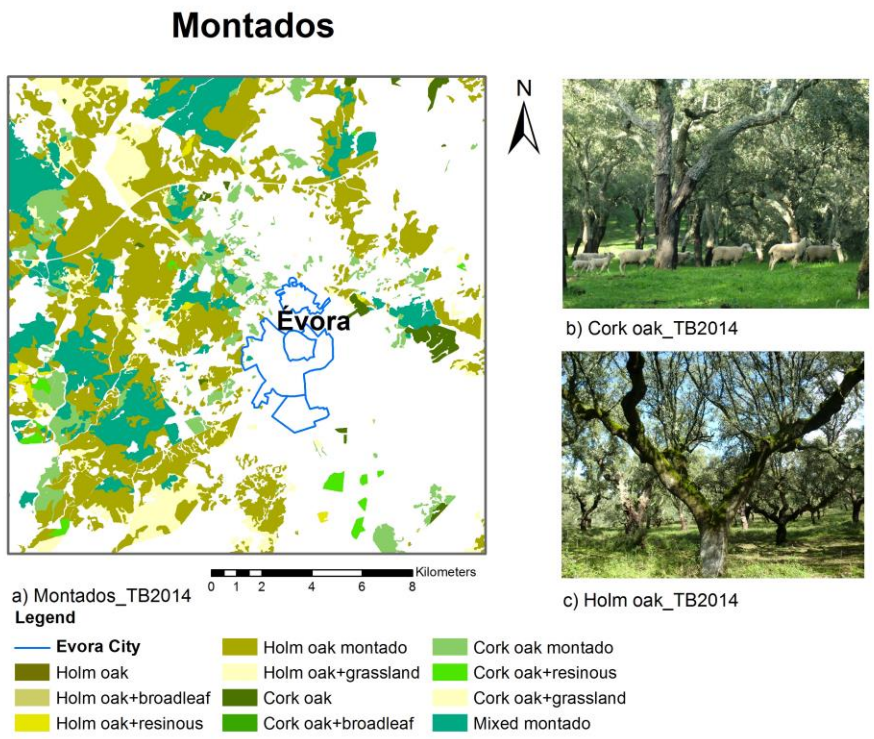

Fig. 2 –*Montado's* landscapes typologies map (author: Teresa Batista, 2014). . Examples of cork oak (above) and holm oak (below) *montados* (author: Teresa Batista, 2014).

Old Cadastral Networks

In the Évora surroundings there are remains of three old cadastral systems:

- Roman Augustan cadastral network
- Late Roman Empire cadastral network
- Medieval cadastral network

The existing marks of those boundaries, have an unquestionable heritage value since they are the "raw material" used by researchers to analyse old cadastral networks. According to the World Heritage

Convention classification these three cadastral networks can be placed between the *relict* (or *fossil*) and the *continuing landscapes* (Batista et al. 2010).

The Roman Augustan cadastral network

Dated from the I century b.C., the Roman Augustan field network system (cadastral system), would result from a land division operation granted to native people when the Roman Évora (*Ebora Liberalitas Iulia*) became a *municipium* (Clavel-Lévêque and Plana-Mallart 1995). Traces of a probable cadastral structure were identified with a 30-31 degrees of inclination and NW/SE orientation (the same than the *kardo maximus* and the *decumanus maximus* of the urban structure) and a theoretical matrix of 20 x 20 *actus* (710 x 710 m, approximately) (Clavel-Lévêque and Plana-Mallart 1995; Plana-Mallart 2002; Barata and Mascarenhas 2002) (Batista et al. 2011). Surveys of the terrain have shown that many network limits are still manifest in elements such as cobblestones and stretches of hollow paths, rural tracks, banks, ancient stone walls, boundary stones, canalized water courses, etc. (Batista et al. 2010) (Fig.3).

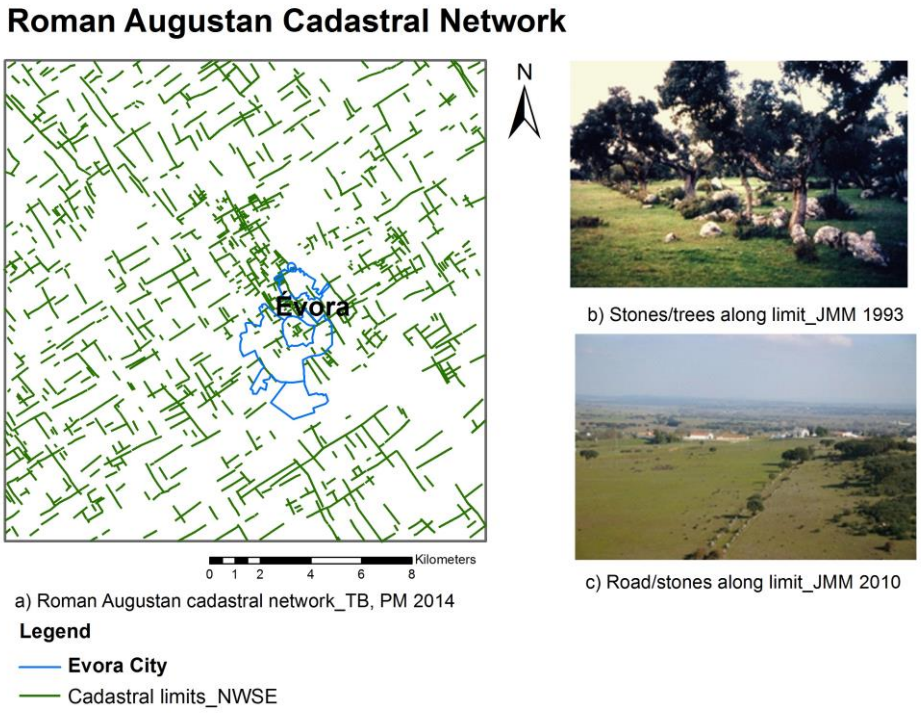

Fig. 3 – The Roman Augustan cadastral network in Évora surroundings (map authors: Teresa Batista and Paula Mendes, 2014). Photo above: stones and trees alignment along a cadastral network (author: José Manuel de Mascarenhas 1993); Photo below: stones alignments delimiting a road along a cadastral limit (author: José Manuel de Mascarenhas 2010).

The Late Roman Empire Cadastral Network

Dated of the III century, the Late Roman Empire cadastral system followed land *renormatio operations* in *Ebora* surroundings that have begun during the Dioclecian government and his colleagues with tax purposes (*jugatio)*, as recognized in Lusitania at *Pax Julia* and *Conimbriga* (Mantas 1990; Mantas 1999, Batista et al. 2010). This cadastral network, with the *centuria quadrata* module has well (710 x 710 m), shows an orientation close to N/S and is related with important existing roads (*kardo* and *decumanus* ways), cross roads and other structures (Fig.4). Certain alignments are coincident with administrative limits (Batista et al. 2010).

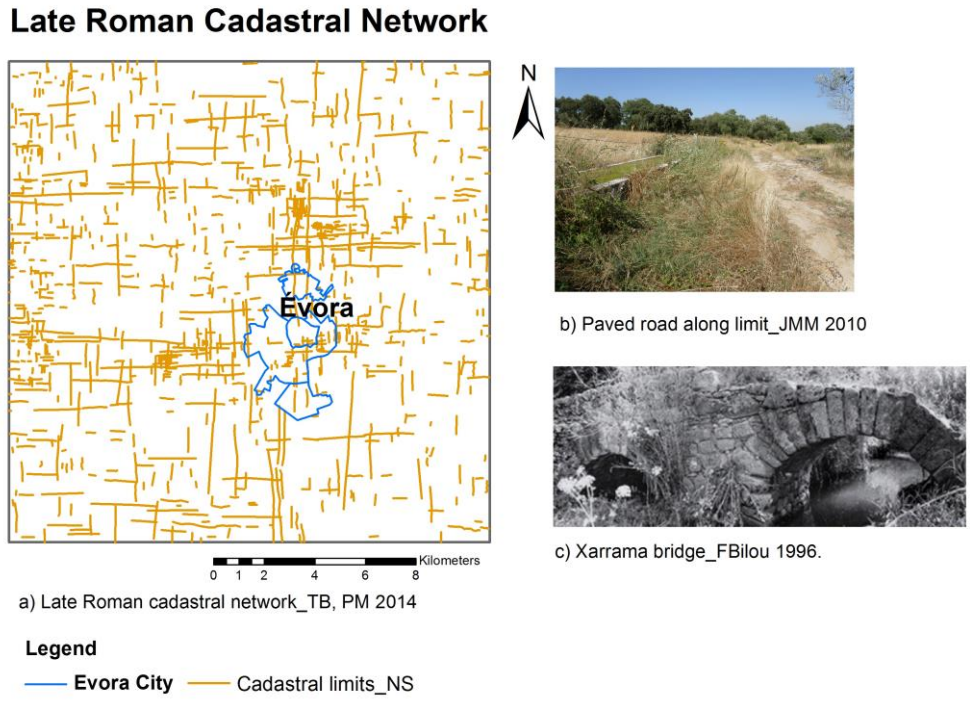

Fig. 4 – The Late Roman Empire Cadastral Network in Évora surroundings (map authors: Teresa Batista and Paula Mendes, 2014). Photo above: paved road along a castration limit of the Late Roman cadastral network (author: José Manuel de Mascarenhas, 2010); Photo below: Xarrama bridge (author: Francisco Bilou, 1996).

The Medieval cadastral network

After the Reconquest, from the XIII century on, the pattern of the agricultural fields, on Évora surroundings, are arranged in rings around the city (Fig 5). In 1995, Barata and Vilar distinguished four rings of agricultural systems (Barata and Mascarenhas 2002): in the first one, the nearest to the city, dominated the "ferragiais" (irrigated green provender fields), or in alternative, the kitchen-garden parcels under a rotation regime. In the second ring the vineyards prevailed and occupied the best soils near the streams margins. In the third ring were the farms enclosing various crop fields (extensive cereal culture) with grazing land. Finally, outside this last ring was grazing land. Several limits of the Medieval parcels network are coincident with those of the Roman period especially in areas near the city, in the East and Northwest quadrants (Mascarenhas and Barata 1997). Nevertheless the Medieval cadastral network could present parcels with irregular forms and various shapes (square, rectangular, long) depending more on the morphology of the terrain and the water access conditions (Barata and Mascarenhas 2002; Batista et al. 2011).

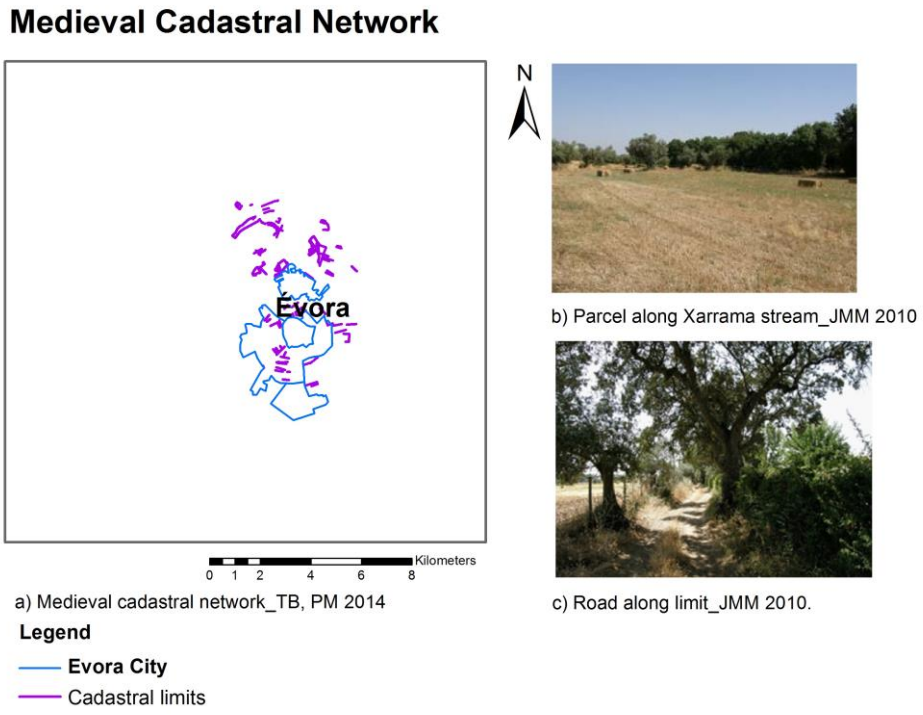

Fig. 5 – The Medieval cadastral network in Évora surroundings (map authors: Teresa Batista and Paula Mendes, 2014). Photo above: parcel delimited by Xarrama stream; Photo below: lane along a network limit (author of both photos: José Manuel de Mascarenhas, 2010).

Many of these three cadastral networks limits could be identified through the analysis of maps, aerial photographs and satellite images and are still materialized by various elements (road marks, slopes, old stone plain walls, property limits, canalized water lines and others).

Recent studies carried out by the authors, analysed the relations between Évora old cadastral networks and actual landscape structure (Batista et al. 2012). This study focused the relation between the old cadastral networks and the current land property boundaries, applying the plan persistence perception developed by Marchand in 2000, which allows in particular the understanding of the parcel networks resilience in a long-lasting context (Robert 2003). It focused also the contribution of old cadastral networks to the present ecological corridors mesh, since many ecological corridors are supported by ancient walls and fences. The results revealed that 53% of the Roman Augustan cadastral network NW-SE, 35% of the Late Roman Empire cadastral network N/S and 61% of the Medieval cadastral network are still today land properties limits and 41% of the total ecological mesh is provided by these old cadastral networks (Batista et al. 2012).

Archaeological and architectonic sites

The importance of Évora along the times is mainly related with its location near a remarkable landscape site: the Distribution Centre of the Sado, Tejo and Guadiana basins, and the relatively abundant hydric resources. These conditions help to understand why agricultural and shepherd activities took place in that area since long time, and why it was the main passage way of the center-south road of Lusitânia, particularly in the Roman, Medieval and Modern periods (Barata and Mascarenhas 2002). So, around this old city numerous traces of human intervention such as pre-historic habitats, megalithic monuments, hill forts, roman *villae*, convents, monastic and secular farms, can be found. During a project developed in Évora University (Mascarenhas 1995), a built heritage (archaeological and architectonic) survey was realized and the heritage value of each monument estimated through a linear combination function where several criteria and weighting coefficients were used (Mascarenhas 1995; Batista et al. 2010). Also the inventory made by the Évora municipality enriched the previous studies with more sites found around the city. The study area integrates more than 400 archeologic and architectonic sites. In the Évora municipality territory, one of the most important pre-historic cromlech in Europe: the Almendres cromlech is located (Fig. 6).

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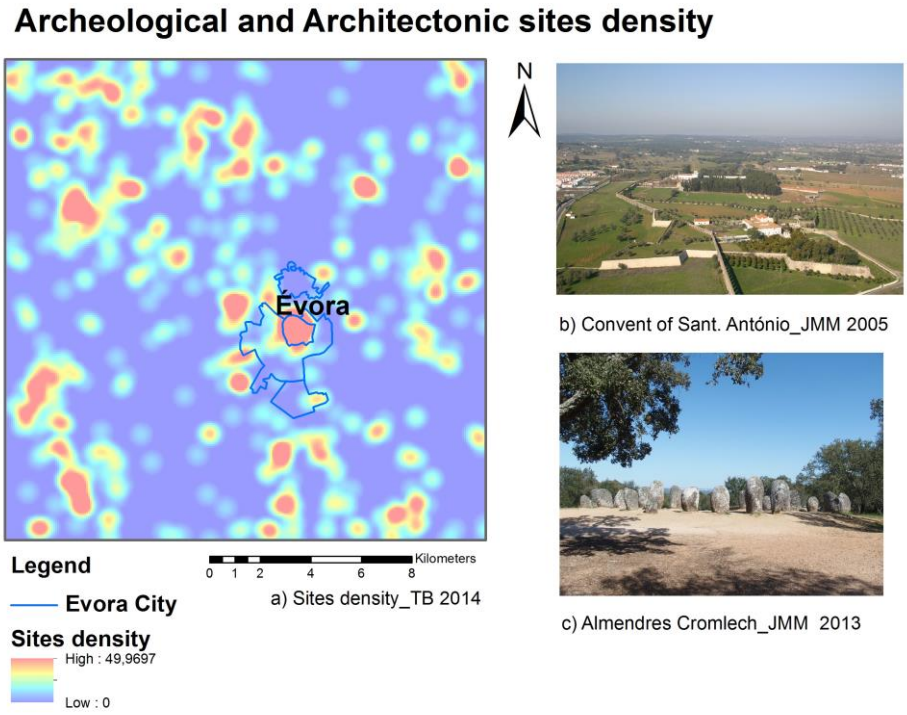


Fig. 6 – Archaeological and architectonic sites density in Évora surroundings and examples (map author: Teresa Batista, 2014). Photo above: Fort and Convent of Saint Antony of Mercy, and Évora Aqueduct (author: José Manuel de Mascarenhas, 2005); Photo below: cromlech of Almendres (author: José Manuel de Mascarenhas, 2013).

Ecological Corridors

Ecological corridors are considered as one of the most important features in landscape, because of their important role in connecting patches, reducing fragmentation and isolation, transporting water, energy and materials. Forman and Godron (1986) define corridors as 'narrow strips of land which differ from the matrix on either side'. Hoechstetter (2009), argue that corridors can be regarded as a special case of a patch: a 'longish' patch, which is separately considered because of its important functional role in landscapes. Corridors can also be defined according to their functional character as 'narrow strips of habitat surrounded by habitat of other types' (Farina 2006). Corridors are especially characterized by the connectivity over large distances and sharp environmental gradients from one side to the other (Forman and Godron 1986). Corridors can be classified as: line corridors (such as roads, hedgerows, propriety boundaries, drainage ditches and irrigations channels); strip corridors; stream corridors (border water

courses) (Forman and Godron 1986). Especially important are the vegetation corridors associated with habitats and connectivity. The most important ecological corridors in the study area are riparian, line hedges along walls, fences and roads corridors (Fig. 7). These can be composed by trees (arboreal), shrubs and grass in several different compositions. As we seen before, 41 % of these corridors are coincident with the old cadastral networks (Batista et al. 2012).

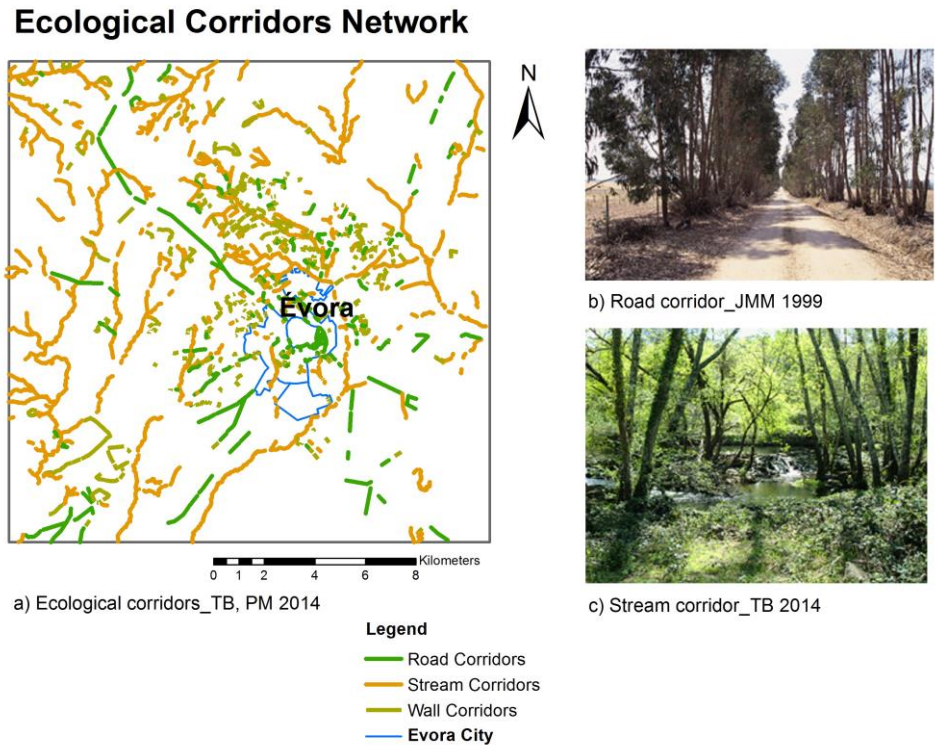


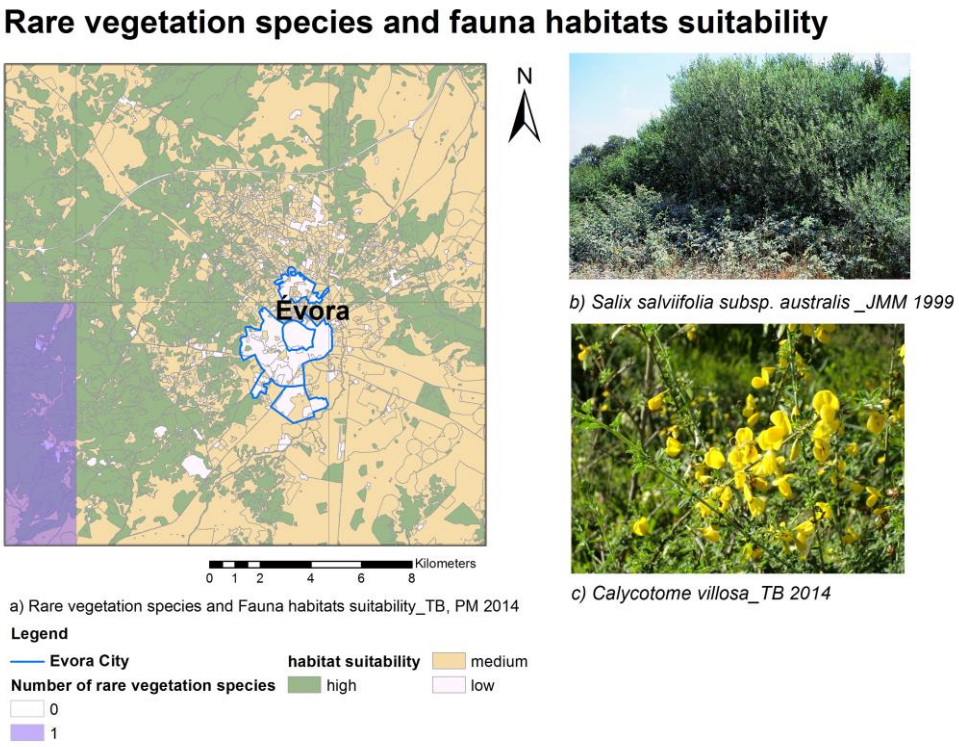
Fig. 7 – Stream and road vegetation galleries: localization map and examples (map authors: Teresa Batista and Paula Mendes, 2014). Photo above: trees alignment along a cadastral limit (author: José Manuel de Mascarenhas, 1993); Photo below: riparian gallery along a stream (author: Teresa Batista, 2014).

The vegetation corridors contribute to the ecological networks effectiveness. Bennett and Wit defined in 2001 such type of network as 'a coherent system of natural and/or semi-natural landscape elements that is configured and managed with the objective of maintaining or restoring ecological functions as a mean to conserve biodiversity while also providing appropriate opportunities for the sustainable use of natural resources' (Jongman 2008).

Vegetation rare species and fauna habitat suitability

Évora districts presents several ecosystems included in the Natura 2000 network, with emphasis on *montados* (Habitat 6310), with a sparse cover of oaks evergreen (*Quercus suber* and *Quercus rotundifolia*), grassland and fallows, forming a diverse net of habitats with high conservational value namely *Poetea bulbosae* grasslands (Habitat 6220 *) and other valuated vegetation as mediterranean temporary ponds grasslands (Habitat 3170*) and chasmophytic vegetation (Habitat 8220) existing on siliceous rocky slopes. On marginal, abandoned or declivous slope areas the scrublands evolve to serial *maquis* communities such as strawberry-tree (*Arbutus unedo*) shrubland (Habitat 5330).).There are also some important riparian forests that contact with *montado* like small leaf ash (*Fraxinus angustifolia*) thermophile woodlands (Habitat 91B0), willow woodlands of *Salix salviifolia* subsp. *australis* (Habitat 92A0), European alder (*Alnus glutinosa*) (Habitat 91E0), and intermittent streams communities like tamarisk communities (Habitat 92D0). Finally rare, endemic or menaced taxa can be found associated to these habitats like: *Limodorum abortivum* (L.) Swartz, *Narcisus Jonquilla* L., *Halimum verticillatum* (Brot) Senen, *Narcisus bulbucodium*, *N. fernandesii*, and *Ruscus aculeatus* (Costa et al. 2012; Ramirez et al. 2013).

On other side, the *montado* biocultural landscape is a fauna heritage hotspot, hardly related with agriculture and forestry-pastoral activity in the region. The most emblematic species are *Streptopelia turtur* and steppe species, like *Tetrax tetrax* and *Otis tarda*. Mammals like *Genetta genetta* and *Lutra lutra* are also important and related with these type of landscape. It occurs also some less frequent reptiles like *Macroprotodon cucullatus*, and *Hemidactylus turcinus* e *Emys orbicularis* species, which have indeterminate status. The Évora region has a medium to high fauna heritage value and habitat suitability (Fig. 8), which needs to be preserved (Batista et al 2010).



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289 **Fig. 8** – Rare vegetation species richness and fauna habitat suitability map and examples (map authors:
290 Teresa Batista and Paula Mendes, 2014). Photo above: *Salix salviifolius subsp. australis* (author: José
291 Manuel de Mascarenhas, 1993); Photo below: *Calycotome villosa* (author: Teresa Batista, 2014).

292

293 **RESULTS**

294 **The landscape as a *biocultural interpretative set***

295 The interpretation of a territory should be approached as a process through which such territory is
296 understood as a *biocultural product*, i.e., a physical space where contributions of the different cultures
297 related to it are present and which, consequently, should be considered a biocultural resource (Izquierdo
298 Tugas et al. 2005). Such resource needs data collection, or *interpretative set*, which gives sense to its
299 communication and interpretation (information centres, explanation devices, etc.). Through these
300 elements, the visitor can approach and enjoy the territory by choosing the *heritage fragments* that he is
301 interested in, which were not presented before in a very coherent way.

302 The concept of *interpretative set* is an integrated model showing the biocultural heritage of a territory,
303 perceived as an organization and presentation system of the heritage resources. According to Sánchez de
304 las Heras in 2002, this *set* allows to understand the territory as an inhabited and open museum in a

continuous transformation (Izquierdo Tugas et al. 2005). His concept can indeed be extrapolated to the landscape level, a *phenosystem* of the territory (González Bernáldez 1981). The syntagma *to interpret a landscape* can be understood as *to explain a landscape*. The landscape is equivalent to a text that one tries to turn readable, so it requires the explanation of the adopted point of view, the reading grids used and the philosophical presuppositions on which the analysis is based. This means to be exposed to critics as the approach to the matter is subjective (Partoune 2004). However, according to this author, the interpretation can also be considered in a linguistic sense, as commonly observed in the environment visitor/interpretation centres and other similar structures, where a *translation into the visitors' language* is recommended. Such method based on a simple availability of information does not permit to exchange the message; it is needed to stimulate the public through animation actions to understand landscape dynamics, hoping that it lead to a behaviour of care and protection among the visitors. However landscape is a privileged domain for the emotional communication, to share emotions, thanks to the intervention of field interpreters, which are in general more efficient than self-interpretation tools as boards, leaflets, slideshows, and others. The best results of an interpretation work are obtained in a collective sensitisation and learning context (Partoune 2004).

The heritage interpretation (HI) contribution to the touristic sustainability of a territory

Presently there is a strong debate about the HI potentialities as a tool not only for sustainable tourism but also for environmental sustainability of a territory (Martin Piñol 2011b; Martin Hernanz and Martin Gil 2013). According to these authors, HI contributes to conservation through the change of visitors' behavior and the consequent impact reduction, through a better preservation of the resources and a better visitors' flow management, restricting the access to sensitive areas.

As a tool for the sociocultural sustainability of tourism, the HI allows to increase the visitors' satisfaction, by offering interesting experiences and better opportunities to enjoy the heritage and the landscape. It also contributes to create a feeling of pride and belonging in the local population, promotes the authenticity of the cultural manifestations and passes the territory values onto the visitors (Martin Piñol 2011b; Martin Hernanz and Martin Gil 2013).

As Montesellin referred in 2006, on the economic point of view, HI can help sustainability by stimulating the creation of new niches and work opportunities, mainly qualified, by furthering a balance between the economic benefit and the desirable visiting levels and by boosting the local communities to take

advantage of the resources to create business-related activities of high added value (Martin Hernanz and Martin Gil 2013).

In Europe the HI has been used mainly as a heritage development tool but its potentialities as a management tool for public use have been little seized. So it seems necessary to change planning and management processes substantially, by adding new criteria permitting to apply more strictly the HI principles.

What are Visitors and Interpretation Centres of a biocultural landscape?

Visitors and Interpretation Centres are equipment's supporting the management of the tourist activity with different characteristics and functions generally linked within a same welcome structure.

In the Visitors Centres (also called reception centres or welcome centres), landscape information is given by a qualified staff, who often presents the synthesis of the local heritage values (natural and cultural) and motivates the wish of better know the referred landscape. In order to facilitate the visit and the correct use of the heritage resources, leaflets, web pages, and other information material, should be provided (Martin Pinõl 2011a). According to this author, it is also important for the visitor to receive a personalized attention in order to clarify doubts, especially about what to observe and how to reach the most interesting sites. As a complement to this support, interactive computer systems often provide additional information regarding the services, times, geographical context, routes, tracks and trails, recommendations, access limitations to some places and heritage elements particularly sensitive in which the visit is conditioned.

In general, this kind of centres has also a merchandising space where the visitor can buy publications as well as other articles and very often typical regional products.

Finally, unlike the interpretation centres, these visitors centres give no keys for a right heritage interpretation, as stated by Carolina Martin Piñol (2011a).

On the other hand, the interpretation centre should be conceived as a *reference point* which allows to read the interpretative set and works as a central nucleus permitting the distribution of the visitors among the different heritage elements spread over the landscape. A strategy to present the landscape is developed in this centre; it consists in placing the more relevant heritage under a common conceptual marker (concept of *interpretation key*) and under a presentation unit (interpretative set or *landscape-museum*) (Izquierdo Tugas et al. 2005).

To transform natural and cultural (intangible inclusive) heritage resources into highly potential tourist products, they must be presented to the visitors in an understandable way. Therefore, according to Morales Miranda, the main function of an interpretation centre is to offer the required keys and reading tools for these heritage resources and the respective context (Martin Piñol 2011a).

This kind of centre aims not only at bringing knowledge to the visitors but also at leading them to take interest in the structures and passing its values onto them (Chaumier and Jacobi 2008; Bessard and Robine 2008). This is done through a specific museum planning and promotion actions, including field circuits with explicative thematic panels adapted to several means of locomotion and integrated in the landscape and orientated visits by guides. During these visits there is an attempt at giving the sensorial and emotive aspects the same importance as to the cognitive ones. In the peculiar case of a biocultural landscape, it is also a matter of understanding its history, its cultural and natural heritage values.

Then, the Visitors / Interpretation Centre (IC) concerning the Évora biocultural landscape should be physically composed of two main different parts:

- the main reception centre settled in a building selected among the main important areas;
- field circuits that integrate the main natural and cultural values.

Finally, the IC should be considered a place where the argument lines of an interpretative speech about a biocultural landscape meet. It is the space where a whole vision is given, as well as cultural, education and tourist proposals (Izquierdo Tugas et al. 2005).

Integration of cultural and biological values

The perfect way to integrate biological and cultural values in the same area is to apply the holistic perspective of landscape. As we refer before, rural areas are man managed landscapes that integrates both natural and cultural values in the same region.

The central issues of a heritage landscape are historical identity, connecting man and society with nature, natural values, identified and managed by society, cultural values, built up and managed by society and that are recognizable, intangible values, lived and recognized by community and the connection with local community. The Fig.9 shows a schema where different heritage values existing in the same area are integrated. These values are the following:

Cultural heritage – built heritage from different epochs, composed by archeologically and architectonic sites, old cadastral networks, old farms, old hydraulic systems, historical features and others;

Natural heritage – composed by fauna and vegetation heritage (biodiversity and rarity), protected species and communities, vulnerable ecosystems (stream corridors), geological, geomorphological and paleontological formations, as well as other important biotic and abiotic structures in landscape;

Historical identity – cultural values of local communities, battlefields and other historic events sites, traditional arts, ethnic values and others;

Intangible heritage – like the sense of place, the sensorial values like colours, smells, breeze, noises, spiritual and others. In most of the cases this type of heritage integrates the cultural heritage.

Many authors integrate historical identity and intangible heritage values in the cultural heritage domain.

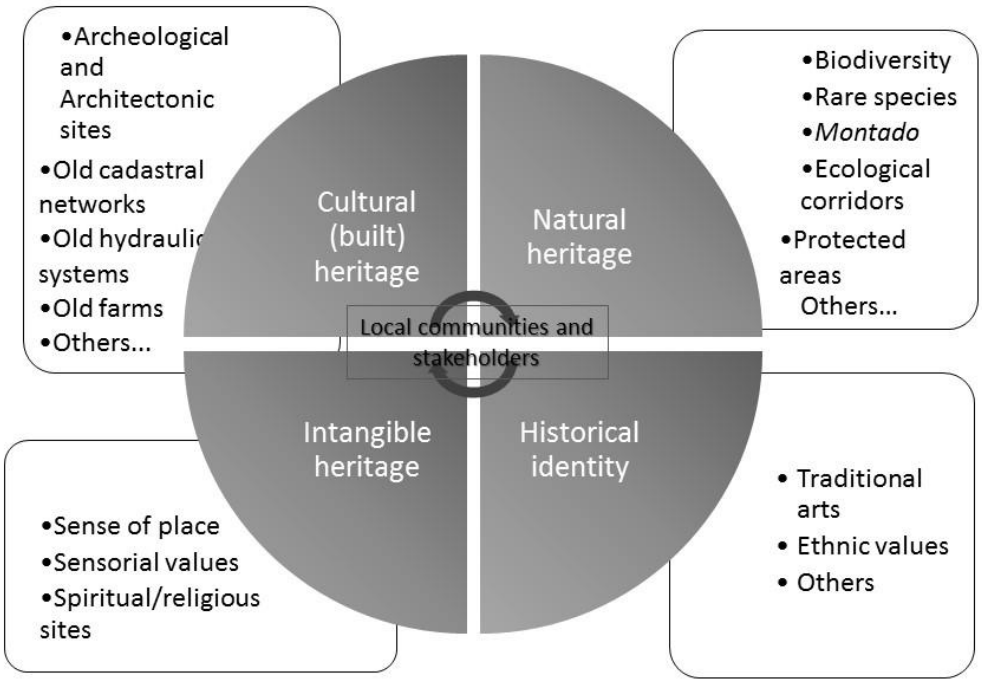

Fig. 9 – Guidelines schema for the integration of biological and cultural values in to an Interpretation Centre (author: Teresa Batista, 2014).

Creation of a biocultural landscape interpretation centre in Évora surroundings: some guidelines

The creation of an interpretation centre concerning the Évora biocultural landscape should be developed through a sequential process with the following main phases (Morales Miranda 2002):

411 *1st phase:*

412 Contribution of the interpretation process to a better management of the biocultural heritage.

413 Account of the project strengths and weaknesses; cost-benefit analysis.

414 *Interpretative planning*, a rational process consisting in:

415 • formulating aims,

416 • analysing human and financial resources and their potentialities,

417 • analysing the targeted publics and the touristic context,

418 • defining the messages to be passed on,

419 • defining the interpretation means and the required equipment and services,

420 • giving recommendations to execute the programs and suggestions to evaluate the efficiency of
421 the intervention.

422 The result of this process is an *interpretation plan*.

423

424 *2nd phase:*

425 Specific delineation of means, equipments and programs according to the guidelines of the interpretation
426 plan.

427

428 *3th phase:*

429 Execution of the works and implementation of the programs according to the interpretation plan and
430 specific delineations.

431 Detailed museography and scenography program (Drouguet 2005):

432 • Programming a museology for which the subject, limits and transversal themes will be defined;

433 • Structuring circuit contents;

434 • Documentary and iconographic selection;

435 • Creating interactive sceneries.

436 Concerning the promotional material (Drouguet 2005): internet site; reproduction of maps, inscriptions,
437 pictures and old films of the landscape, and assessment of their multiple values; elaboration of flyers and
438 field guides, for internet use inclusive; geographic applications to GPS and mobile phones. Along the
439 trails: explanatory thematic boards and signs.

440

4th phase:

Presentation of the biocultural heritage to the visitor: an action that gives sense to all the previous effort.

5 th phase:

Evaluation based on the plan recommendations or on other strategies considered appropriate by the experts of the interpretation service.

6th phase:

Feedback by incorporating the evaluation results in the programs, since the whole system should be fed by its own analysis, in order to better captivate the public.

DISCUSSION

The strategy to select the best sites to the IC implementation (most interesting areas) and to install field circuits, is based on a synthetic map integrating the old cadastral networks limits density, the archaeological and architectonic sites density, the ecological corridors network, the presence of vegetation rare species, the fauna habitat suitability and the *montados* land cover. Through GIS *combine* function, all the layers were integrated in order to obtain the best locations for the development of all cultural and natural values.

The Fig. 10 presents the synthesis map, with the identification of the most interesting areas from the point of view of the integration of multiple natural and cultural values. However:

- The areas where there is a greater concentration of archeological structures will not have always the vocation for installing visitor trails. Actually, if some of the structures are very sensitive, it is not advisable to direct many visitors to these spots; the same question arises when rare vegetation species and formations or some fauna habitats are concerned; in both cases, the visits should be organized and guided by experts;
- it may happen that areas with few heritage elements have some cultural or natural (biotic or abiotic) structures which are highly attractive and very suitable for visits;
- this last aspect is relevant and shows the need to develop this study in a near future in order to estimate the heritage value of the elements existing in the different spots. This can be done

through methodologies already applied by the authors (see in particular Batista et al. 2014; Barata and Mascarenhas 2002; Mascarenhas 1995).

- also other cultural values as ethnic, religious, spiritual, sensorial (smell and soundscape) and others intangible values will be included in future analysis.

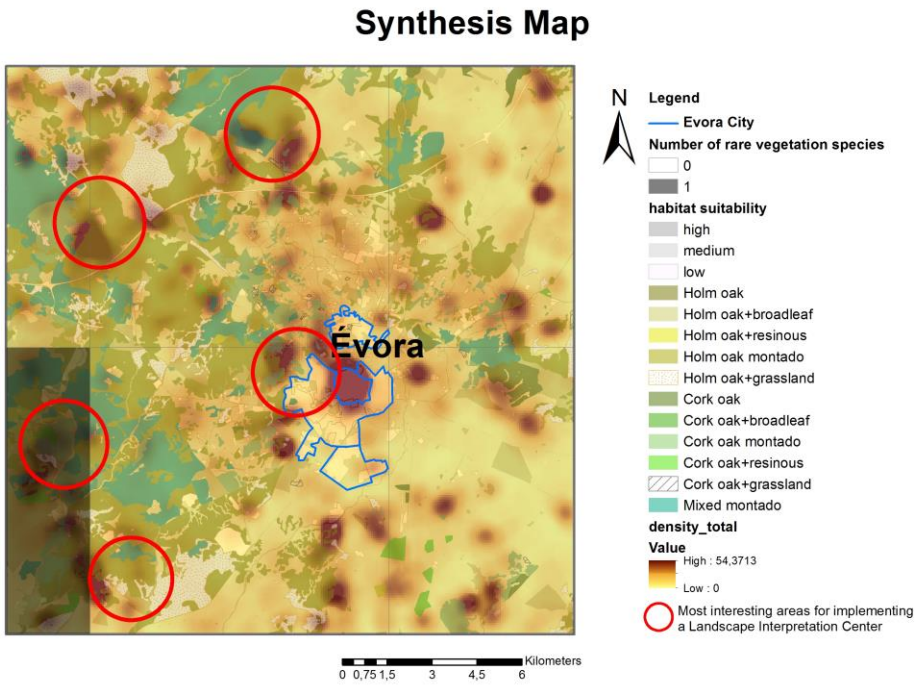

Fig. 10 – Synthesis map, integrating biological and cultural values (author: Teresa Batista, 2014).

CONCLUSIONS

The study developed by the authors in the Évora surroundings landscape has allowed to define the most interesting areas where to settle the Visitors / Interpretation Centre main building. Nevertheless several problems are still to be solved and some conditions to be fulfilled, in particular:

- the Évora municipality, on its own or associated with other public or private entities, or as part of a foundation, will necessarily have to approve the enterprise, in particular since it will have to acquire plots and possibly buildings which will receive the Visitors / Interpretation Centre, and will have to find financing for the project;
- the main nucleus of the centre should be settled preferably in an old farm building with heritage value;

- the success of the interpretation centre as an enterprise comes not only from the quality of the scientific and cultural project but also from the project management which must be carefully prepared and highly detailed. According to Carolina Martin Piñol (2011b), most failures which have taken place in Spain during the last years result from unacceptable management programs, due to the poor or null cultural profitability and to the functioning and maintaining costs of the centres.
- the success of the enterprise depends a lot on the municipality commitment and on the tourist equipment's of quality existing in the area, as hotels and restaurants, as referred by Martin Piñol (2011b). Évora city satisfies this aspect as it is classified *UNESCO World Heritage Site*, is a member of the *Most Ancient European Towns Network*, and presently attracts an important tourist flow.

As final conclusion, only the integration of biological and cultural values gives landscape all its multifunctional dimension and brings the visitor the complete experience of landscape interpretation.

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