

Editors: Wolfgang Neubauer, Immo Trinks
Roderick B. Salisbury, Christina Einwögerer

ARCHAEOLOGICAL PROSPECTION

Proceedings of the
10th International Conference - Vienna

May 29th - June 2nd 2013



Ludwig Boltzmann Institute
Archaeological Prospection and Virtual Archaeology

Austrian Academy
of Sciences Press



OAW

Wolfgang Neubauer, Immo Trinks, Roderick B. Salisbury, Christina Einwögerer
(Editors)

Archaeological Prospection

**Proceedings of the
10th International Conference on Archaeological Prospection**

Vienna, May 29th – June 2nd 2013

Organized by
the Ludwig Boltzmann Gesellschaft,
the Ludwig Boltzmann Institute for Archaeological Prospection
and Virtual Archaeology
and the Austrian Academy of Sciences

in cooperation with
ZAMG Archeo Prospections[®], MALÅ Geoscience, Foerster Group,
Pico Envirotec Inc., Eastern Atlas GmbH, Riegl LMS GmbH, Wikitude GmbH,
the Archaeological Parc Carnuntum, Allsat GmbH, Beta Analytic Ltd.,
Interspot Film GmbH and Universität Wien.

ARCHAEOLOGY AND GEOGRAPHICAL INFORMATION SYSTEMS IN THE CONTEXT OF SPATIAL PLANNING

G. Branco, L. Rocha

1. INTRODUCTION

European regional/spatial planning Charter (DGOT, 1988: 9), approved in 1984 by the Council of Europe, states that spatial planning "gives geographical expression to the economic, social, cultural and ecological policies of society. It is at the same time a scientific discipline, an administrative technique and a policy developed as an interdisciplinary and comprehensive approach directed towards a balanced regional development and the physical organisation of space according to an overall strategy."

This document contains the guiding principles for spatial planning at its core, henceforth understood to be the implementation of public policy which is designed to be interdisciplinary and to improve people's quality of life and well-being.

The legal instruments for spatial planning in Portuguese territory establishes the compulsory act of identifying and establishing protection and appraisal measures for architectural and archaeological heritage, considered to be "testimony of the history of occupation and use of the land (...) relevant for the memory and identities of communities" (Executive Law no. 380/99 of 22 September 1999).

In this paper, we intend to deal with the possible interaction between the process of creating local council spatial planning programmes and identifying, protecting and appraising archaeological heritage, through the use of prospecting and geographical information systems.

2. ARCHAEOLOGICAL HERITAGE

Land, as we consider it today, is a product of the past: the result of successive acts of management and organisation, with social, symbolic and economic goals, which left material remains in the current landscape. Its current formation can date back as far as prehistoric times.

Archaeology, as a science which studies the past, plays a fundamental role in producing knowledge about the ancient human societies which have, since prehistory, interacted with the environment - shaping, constructing and de-constructing land - and it is up to us understand and organise its results.

Therefore, the field of knowledge known as landscape archaeology studies the origins and evolution of settlement patterns, and the occupation of the land by human communities, analysing and interpreting material remains (González Méndez, 1999). It is one of the disciplines best suited to understanding the long history of organisation and formation of current land.

The importance of archaeological heritage in spatial planning is recognised in the Basic Law on Spatial Planning (Executive Law no. 316/2007 of 19 September 2007) by defining the foundations for predictions, indications and determinations underlying the instruments of spatial planning, which should be based on systematically acquired knowledge about, among others, archaeological heritage resources.

The different types of spatial planning which currently

exist in Portugal allow, at different levels of analysis, for planning and managing heritage in order to obtain a good progress/preservation relationship. This interaction between archaeological heritage and spatial planning management should take place at several different levels:

- identifying and recording archaeological resources
- measures for protection and appraisal.

As previously mentioned, identifying archaeological resources, in the context of spatial planning, necessarily involves an exhaustive archaeological record of all the elements resulting from past human activity. This record can only be understood by using archaeological methods, specifically archaeological surface prospecting. This method, specifically identifying and describing heritage values based on field work, with a view to protecting and safeguarding it, is recognised by some management instruments, such as the Central Region Spatial Planning Programme (PROT Centro [CCDRC, 2010]).

Systematic archaeological prospecting should be accompanied by research and data processing, such as:

- Defining the area to be studied which, in this context, is restricted to the administrative area of a county (concelho);
- Compiling and appraising information beforehand, considering: analysis of specific maps; analysis of toponymy and archaeological information (bibliography);
- Field work in order to locate and georeference archaeological information, check toponymy, bibliography and topography evidence;
- Recording and compiling the data collected;
- Processing the knowledge obtained and making it available to others.

In all the methods to be used, Geographical Information Systems are an indispensable work tool. In the words of García Sanjuan (2005, 149), "one of the widest reaching technological revolutions for knowledge and the archaeological analysis of land, (...) the expansion of GIS in Archaeology has been dramatic, and they are currently a work platform as common and indispensable as processing, managing and analysing the spatial elements of archaeological data".

Some of the advantages of using GIS for the archaeological analysis of an area include:

- the possibility to use data and simultaneously view different levels of information, by comparing shapefiles;
- the possibility to use different maps which come together in the same work area;
- the possibility to map the field work data with precision (with GPS);

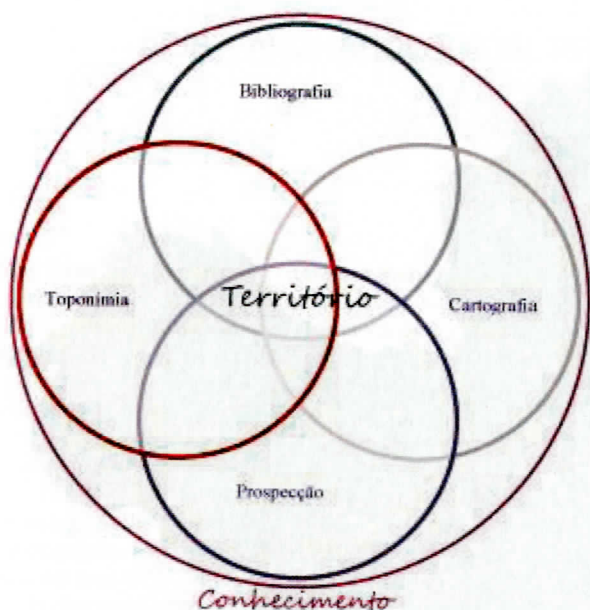


Figure 1: Interaction of knowledge.

- the possibility to map information which is intended to stand out in a different way (points, shapes, colours, schemes);
- the possibility to envisage the space, bringing together mapping and archaeological records.

The organised management of heritage values in an area and their integration in heritage maps allows us not only to identify and form a hierarchy of the value of archaeological heritage, but also to balance investment and projects in order to harmonise knowledge and progress.

3. MEASURES FOR PROTECTION AND APPRAISAL

Archaeological heritage is a strategic resource, a structural axis for collective memory which, in the face of its finite and non-renewable character, urges us to protect and safeguard it, in order to guarantee the real right to culture and cultural enjoyment expressed in the Basic Law of Cultural Heritage (*Law no. 107/2001 of 8 September 2001*).

Making archaeological heritage available as part of cultural enjoyment and leisure, can become important especially in areas where it is possible to align these resources with nature, gastronomy, and other types of heritage.

This availability includes the knowledge of existing resources, through proper management, and their integration at different levels of spatial planning, allowing us to balance investment and organise more important clusters, either in terms of scientific or tourist value.

In Portugal, these cultural and natural land resources remain unknown and underused, the result of several imbalances, in which archaeological heritage suffers. Sílvia F. Cacho, in her project on the management of heritage in Andalusia, states that "(...) *Archaeological Heritage (AH) is one of the land resources which is most affected by inadequate environmental management and whose integration into land planning documents is not efficient(...)*" (Fernández Cacho, 2008, 21). This underuse is coupled with legal specifications that favour classified monuments.

In this context, our considerations include ways of safeguarding and protecting cultural heritage and, specifically, archaeological heritage. Its importance as heritage is not questioned, either by national legislation or the numerous international conventions signed by Portugal. However, in contrast with the criteria established for the legal classification of cultural assets (national monument, property of public interest) there are currently no criteria made available by the Portuguese state that make it possible to appraise and create a hierarchy of archaeological heritage, establishing different levels of protection and ways of integrating land planning instruments.

The supervisory body for archaeological heritage should establish explicit, consistent criteria that allow us to define: which sites deserve to be safeguarded for future generations, based on their importance as heritage and for scientific reasons; which sites require intervention, preferably as part of research projects; which sites should have priority intervention as part of public enjoyment projects, among other categories.

Value and the need for safeguarding underlie the classification of cultural heritage. Nevertheless, not all elements have the same scientific importance or the same value as assets for public enjoyment. Establishing explicit criteria for appraisal makes it possible to create a strategy for managing integrated archaeological heritage, which makes it possible for us to focus our efforts for protection and safeguarding with specific goals.

In our view, these criteria for appraisal should be based on factors such as

- potential for information,
- state of preservation,
- exceptional nature in the chronological and cultural context,
- ability to be understood by the public.

This strategy, based on the categorisation of archaeological sites, necessarily includes creating a database. Linking the database with a Geographical Information System allows it to be integrated into spatial planning programmes, and at the same time make it available on institutional websites for consultation by different interested parties.

In this respect, GIS can be a dynamic tool enabling management of the underlying variables at the heart of an archaeological heritage database. Something that has been classified as a trail of scattered archaeological material can turn out to be, with archaeological intervention, an important Roman villa, just as a villa can turn out to be completely different from preserved contexts and bring about a change of category. It is also in this dynamic management of information that GIS are precious archaeological management tools.

4. CONCLUSION

The specific nature of archaeological heritage makes it a prime example of spatial planning. On the one hand, it can provide useful knowledge for understanding the organisation and structure of current land but, on the other hand, its consideration and appraisal in the context of spatial management instruments has a long way to go.

There is a legal framework and recognition of the importance of archaeological heritage, in terms of spatial planning. However, there is still a lack of proper interaction, due to an absence of practical guidelines to allow us to use these land instruments, a strategy for protecting and safeguarding archaeological heritage.

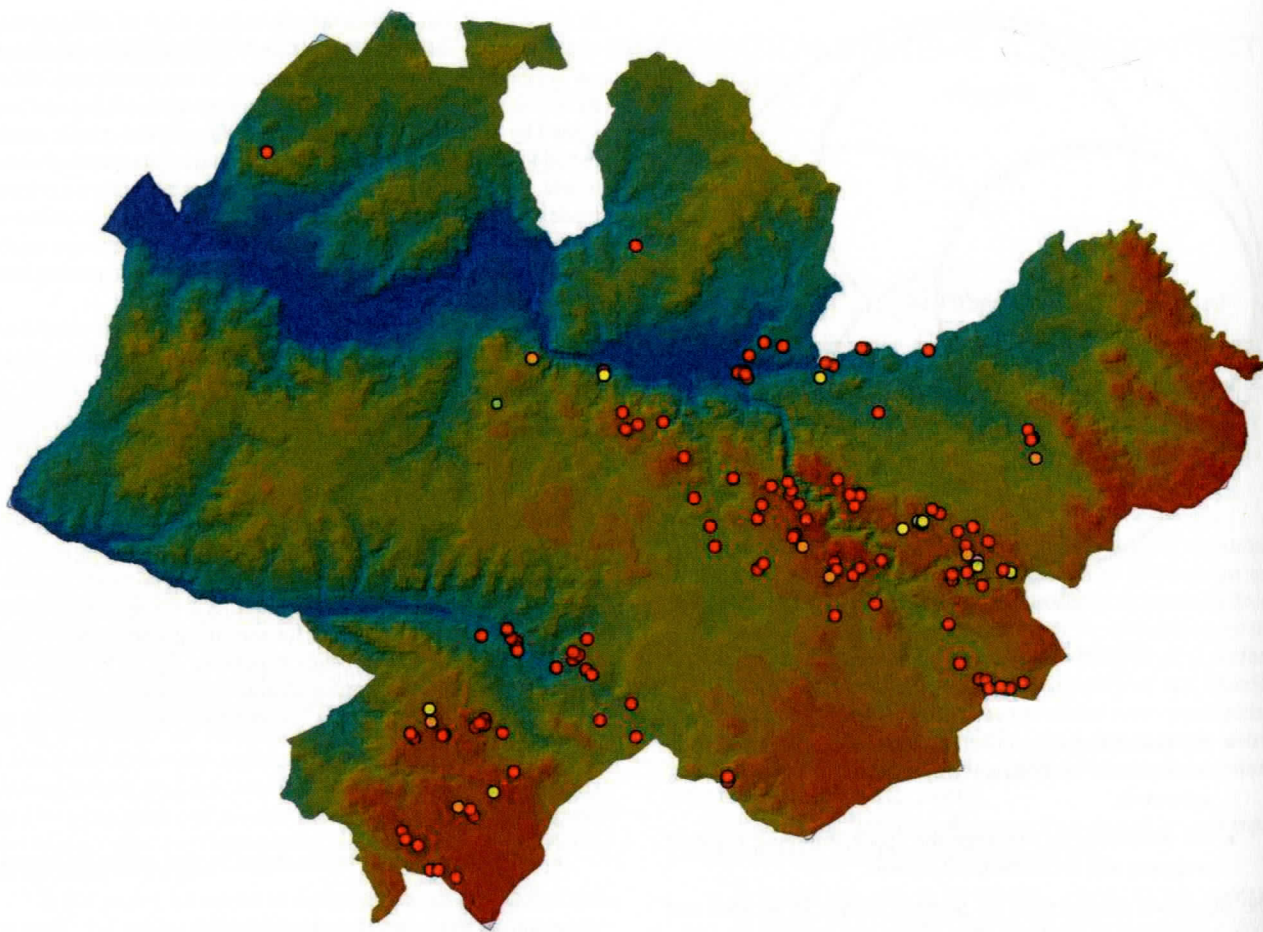


Figure 2: Location of archaeological sites using GIS technology (county of Mora).

As we have said, this strategy necessarily includes establishing value categories, based on exhaustive knowledge of the archaeological sites in the country, to allow efforts for safeguarding and protection to be directed based on real values and with specific objectives. In this context, geographical information systems are indispensable tools for properly managing heritage, since they allow all the essential tasks to be performed, from compiling data to the dynamic management of information.

REFERENCES

CCDRC. 2010. Proposta de PROT-Centro [online]. [Consult. 5 March 2011] Available at: https://www.ccdrc.pt/index.php?option=com_content&view=article&id=156&Itemid=230&lang=pt

- DGOT. 1988. Carta Europeia do Ordenamento do Território. Direcção-Geral do Ordenamento do Território: Lisbon.
- FERNÁNDEZ CACHO S. 2008. Património arqueológico y planificación territorial: estrategias de gestión para Andalucía. Junta de Andalucía e Universidade de Sevilla: Seville.
- GARCÍA SANJUÁN L. 2005. Introducción al Reconocimiento y Análisis Arqueológico del Territorio. Editorial Ariel: Barcelona.
- GONZÁLEZ MÉNDEZ M. 1999. Investigación y puesta en valor del Patrimonio Histórico: Planteamientos y Propuestas desde la Arqueología del Paisaje [Tese de Doutoramento em CD-ROM]. Universidade de Santiago de Compostela: Santiago.