



Towards Transdisciplinary Heritage Assessment: An Analysis of the Use of Landscape Study Methods as a Holistic Toolbox for Cultural Site Characterisation in the Spanish Context

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Article

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Abstract: This research work arises from the need to design specific techniques for the characterisation of cultural sites. Assuming the increasing complexity of the protection typologies, the expansion of working scales gives thanks to technology and the pursuit of social sustainability objectives. Thus, its main objective is to search for innovative tools that other disciplines can contribute to the work of architects specialising in heritage studies. To this end, the research explores the main methodologies, maps, guides, and registers of landscape and historic landscape characterisation developed in Europe, particularly in Spain, over the last 40 years. Considering this intense and profound evolution of landscape analysis, useful strategies for the assessment of cultural sites from their conception in the 21st century arise. Nevertheless, landscape characterisation methods have been mainly developed and applied by geographers and are absent in many urban and territorial heritage studies. In response, this article proposes a new methodological approach focusing on contextual values to be used in the assessment of architectural heritage at the territorial scale.

Keywords: cultural site; Geographic Information Systems; Landscape Character Assessment; land planning; sustainable development



Over the past two decades, cultural heritage studies have shifted from a focus on individual objects to the study of whole landscapes, posing new challenges for research, conservation, and legislation. According to Fernández Cacho, it is no longer sufficient to evaluate cultural heritage environments in isolation. Instead, landscapes (which incorporate natural, cultural, material, and immaterial values) must now be evaluated as a new entity [1]. In fact, a recent systematic review of academic production notes that the scientific paths between landscape and heritage are increasingly intertwined and that it is, therefore, necessary to achieve comprehensive working systems [2].

According to González-Varas, the undeniable socio-territorial component of cultural sites has led to a significant re-evaluation of their assessment and management in recent decades:

'[...] The range and variety of heritage have broadened in physical scale and extended their scope from buildings and cities to encompass landscapes and territories, significantly increasing the challenges involved in managing extensive, intricate, and diverse territorial systems. However, there is currently a shift in interest from objectivity to subjectivity. The discussion is no longer solely focused on the tangible and intangible assets that constitute cultural heritage, but rather on the way in which citizens and communities recognise, value, appreciate and integrate this heritage into their lives'. [3] (p. 33)

For example, in Spain, the latest additions to the UNESCO World Heritage List combine exceptional cultural and natural values in which the territory, whether urban or rural, plays a fundamental role¹. For instance, the Antequera Dolmens site (inscribed



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Copyright: © 2024 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). in 2016) and the Madrid Art and Science Landscape (inscribed in 2021) occupy areas of around 2500 ha and 200 ha, respectively; the former is in the so-called Vega de Antequera, and the latter is in the heart of Madrid. In view of these examples, it is undeniable that the scale at which cultural heritage has been evaluated and protected in recent years has increased (Figure 1).



Figure 1. The Antequera Dolmens Site (**upper left**), the Caliphate City of Medina Azahara (**upper centre**) and the Paseo del Prado and Buen Retiro Landscape of Arts and Science (**upper right**) are some of the latest Spanish additions to the World Heritage List (2016, 2018, and 2021, respectively). The three of them represent this new generation of cultural sites in which the territory plays a crucial role. On the other hand, the Burgos Cathedral (**lower left**) and the Monastery and Site of the Escurial (**lower right**) are some of the very first Spanish sites to be added to the List (both in 1984). Source: Unesco World Heritage Convention. Retrieved from: https://whc.unesco.org/en/list/ (accessed on 24 November 2023).

At a national and regional level, this is reflected in legal terms through diversification and an increase in the types of protection of heritage assets carried out by the Autonomous Communities. Additionally, there is a growing collective awareness of the consideration of heritage in achieving the Sustainable Development Goals² [4].

This new approach eliminates the a-spatiality of the assets to consider first the importance of their surroundings, then their role in the conformation of ensembles, and, finally, the existence of increasingly territorial, broad, and holistic figures, such as cultural landscapes [5] (p. 135). The significance of geography and landscape studies in cultural management has increased due to a new spatial implication. This requires the use of transdisciplinary tools and technologies in the analysis and characterisation of assets.

Despite this evidence, it is uncommon to find examples of studies using techniques from geographical disciplines in the characterisation of architectural built heritage. Numerous studies have incorporated Geographical Information Systems, but they are merely instrumental tools. Essentially, these studies aim to build asset inventories through the implementation of this software [6–8]. However, there is emerging research that utilises them to quantify historical changes in the landscape and the assets within it. This has led to the development of Historical Geographic Information Systems (HGIS) [9–11].

Another case is the study of the archaeological heritage, which traditionally includes the analysis of the surrounding landscape and the changes it has undergone [12–14]. This underlines the potential of reinforcing similar synergies in the field of architecture.

Twenty years after the adoption of the European Landscape Convention, many methods have been developed to characterise the landscape in Europe. This advance in knowledge has been reflected in the academic field, with the recent publication of articles and reviews reflecting this methodological wealth and analysing how the application of the Convention has evolved [15–17]. This study aims to integrate that knowledge and wealth into a methodology for characterisation that also considers the cartographic and landscape aspects of cultural sites, in addition to architecture. This will provide a comprehensive approach to characterising cultural sites beyond mere architectural features. For this purpose, this paper will analyse the scales, tools, and work units used to characterise and map landscapes in various European contexts. Further, it will do so under the firm belief that the future valuation of territorial heritage requires an inter-scale and transdisciplinary approach.

2. Materials and Methods: Towards Heritage Landscape Characterisation

Although landscape was incorporated into the discipline of geography in the 19th century by Humboldt, it is only since the early 1990s that work and research on landscape have evolved from concepts closer to beauty or scenography to a broader meaning. In this evolution of more than 30 years, different methods, tools, and techniques have been developed to give a practical rationale for the identification of landscape features. The main models, each in its own field, have been Landscape Character Assessment (LCA) and Historic Landscape Characterisation (HLC); both were developed in the UK [18]. These pioneering works establish a classification factor in themselves: the distinction between methods that analyse the characteristics of the landscape at one point in time and those that record its changes over time³ [19]. This is the division used in the present research.

The method, therefore, focuses on identifying the evolution of landscape research methodologies in Spain in relation to key international benchmarks. This is done by studying their emergence and chronological development, their main contributions, differentiating elements or shortcomings. This is a non-exhaustive list of existing models. A selection of the main works developed in Spain after the proclamation of the European Landscape Convention [20] and its ratification [21], together with outstanding British, Dutch, Swiss, or French examples that have undoubtedly been a reference for national models⁴.

This list of methods, catalogues, maps, guides, and registers aims to explore the necessary progressive integration of the following:

- The cultural value of landscape as an integral part of heritage studies
- The methods, tools and scales of characterisation used in the discipline of landscape as a new prism of vision essential to the study of cultural heritage

Thus, this work focuses on a review of these two types of methods to highlight their main working scales, areas of application, and particularities which make them references for the Spanish context. Following chronological order, the list starts with international pioneering methods and then delves into national and more specific strategies related to cultural heritage.

2.1. Landscape Characterisation Methods

The method that leads this first group, LCA, was developed to identify and describe the distinctive and recognisable pattern of characteristics that distinguish one landscape from another. Landscape characterisation was initiated in the 1980s and is widely used in many latitudes. From this first method, others have been introduced, reflecting cultural differences and particular ways of looking at and studying the landscape in countries such as Germany, France, or the Netherlands.

2.1.1. The Pioneering Approach: (LCA) Landscape Character Assessment, 1980

Initially rural in nature, the basic study of this list was called Landscape Assessment Guidance, which became the Countryside Character Programme in 1990. In 2002, following the adoption of the European Landscape Convention, it was published as Landscape Character Assessment: Guidance for England and Scotland, including urban areas and landscapes. Its interest lies in its ability to identify problems and opportunities in landscapes of very different types, whether natural, rural, mining, industrial, or urban, whereas other methodologies are restricted to natural or rural landscapes [19].

Although the LCA methodology can be applied at any scale, it identifies three key scales: the national or regional scale of 1:250,000, the local or district administrative scale of 1:50,000/1:25,000, and the specialised scale of 1:10,000 or larger. From a methodological point of view, four steps are defined that constitute a progressive sequence: first, the definition of the purpose and objective of the assessment; second, the analysis of the baseline data; third, the field work; and fourth, the classification and description of the process. The identification also includes information on the perception, experience, and valuation of the landscape by the population. For this purpose, remote and field work are combined.

LCA is currently the most widely used method in Europe that continues to be the subject of academic reflection and review [22,23]. Due to its long history, it also includes historical characterisation, as it can be used to monitor landscape changes in areas that have been analysed in the past. Among the many actions that can be drawn out by its use are green corridor planning, visual impact and landscape sensitivity studies, and renewable energy plans [24].

2.1.2. Beginnings of Landscape Cartography: (MAP) Méthode pour des Atlas de Paysages, 1994; (APE) Atlas de los Paisajes de España, 2004 and (CUP) Carta das Unidades de Paisagem, 2004

Neighbouring countries such as France published the Méthode pour des Atlas de Paysages in the 1990s as a strategy for the identification and qualification of French landscapes. In a continuous evolution, the Ministère de l'Écologie du Développement durable et de l'Énergie published its update in 2015 [25].

In the case of Spain, the Atlas de los Paisajes produced, for the first time, a general cartography of all Spanish landscapes, analysing and evaluating them and serving as a basis for further landscape studies at regional and local scales. For this purpose, three levels or scales were established: the basic unit, the intermediate unit, and the larger unit [26]. These are represented by the landscape, landscape types, and associations of landscape types (Figure 2). Despite the importance of the natural component of the landscape in this study, the definition of the intermediate scale included territorial history as a characterising feature.



Figure 2. Atlas Nacional de España, landscape ensembles. Source: Instituto Geográfico Nacional, 2004. Retrieved from: https://atlasnacional.ign.es/wane/Tipolog%C3%ADa_de_paisajes (accessed on 24 November 2023).

In parallel, the Portuguese Direção-Geral do Território published the first landscape characterisation of the Portuguese mainland in 2004, developed by the Departamento de Planeamento Biofísico e Paisagístico of the Universidade de Évora. This characterises the landscape in terms of its biophysical components (geology, geomorphology, soils, and climate) in 128 units divided into 22 groups. All landscape units are identified by their own name, geographical location, and approximate area. They are characterised, including their singular elements, panoramic points, and lines or other peculiarities, their urban planning figures, if they contain them (municipal master plans, regional planning plans, etc.), and related bibliography. Finally, they are also photographed and mapped [27].

2.1.3. Conflict as a Defining Feature: (GMEPCV) Guía Metodológica de Estudio del Paisaje de la Comunidad Valenciana, 2006

Following the approval of the Valencian Community Landscape Regulation in 2006, this methodology was born to guide the technicians involved in the development of plans and projects that have an impact on the territory and that require a landscape study, such as the General Plans of the Municipalities [28]. Its clarity, organisation, and ability to summarise make it a reference document for this research. This method also includes conflicts (such as the disappearance and degradation of valuable landscapes, fragmentation, or the appearance of low-quality landscapes), together with development, organisation, or resources, as defining elements of landscape units.

2.1.4. Culture as Landscape Criteria: (MPA) Heritage Characterisation of Mapa de Paisajes de Andalucía, 2008

Following the approval of the European Landscape Convention, the Landscape Map of Andalusia defines a system of landscape indicators at regional and sub-regional scales. These are as follows: landscape richness, landscape diversity index, and landscape naturalness index. To this end, it defines landscape categories, areas, and zones. It is worth highlighting the attention that this method puts on the scenic characteristics of the landscape by defining physiognomic units responsible for certain formal characteristics, such as textures or colours [29,30]. A comprehensive body of classificatory work and satellite images were used to produce maps at a scale of 1:100,000 (Figure 3).



Figure 3. Mapa de Paisajes de Andalucía. Source: Consejería de Sostenibilidad, Medio Ambiente y Economía Azul, 2003. Retrieved from: https://www.juntadeandalucia.es/medioambiente/portal/l anding-page-%C3%ADndice/-/asset_publisher/zX2ouZa4r1Rf/content/mapa-de-paisajes-de-a ndaluc-c3-ada/20151 (accessed on 24 November 2023).

Its importance in this study lies in its role as the basis for the characterisation of the Andalusian Landscape Map. This map is the starting point for the definition of the Landscape Areas, territories with a strong regional personality and with a clear cultural coherence in their landscape image. Based on the areas and spheres proposed by the Landscape Map of Andalusia, a new territorial reading is carried out and 32 demarcations are broken down according to territorial and cultural criteria [31,32]. The description of each of these demarcations according to their contents, grouped in seven information packages, combines the analytical intention with the practical vocation of their use in territorial and urban planning, and includes historical socio-economic processes and activities as part

of the characterisation (Figure 4). This is a reference point for this research, establishing the necessary correspondences with the Atlas and the Plan de Ordenación del Territorio de Andalucía.



Figure 4. Identification, location, and territorial articulation of the Axarquia-Montes de Malaga Landscape Demarcation (Malaga). Source: Instituto Andaluz del Patrimonio Histórico, Consejería de Educación, Cultura y Deporte, 2008. Retrieved from: https://repositorio.iaph.es/handle/11532/21? offset=0 (accessed on 27 November 2023).

2.1.5. Reviewing Analytical Resources: (MCMPE) Marco Conceptual y Metodológico para los Paisajes Españoles, 2010

Following the ratification of the European Landscape Convention by Spain in 2008, this publication offers a conceptual and methodological framework that values the usefulness of landscape for proper territorial governance. To this end, it proposes a simplified method for studying landscape in different territorial areas. This method is applied and calibrated through its testing across the three following scales (considered as reference scales for the Convention): local, county, and sub-regional [20]. Although it is applied to rural landscapes, this method is very illustrative in its practical application. Furthermore, its review of sources and attributes, that is, the analytical resources available for each category of LCA data in the Spanish context and the guidelines for characterising landscapes, is an important contribution.

2.1.6. Landscape Inside Cultural Heritage: (RPICA) Registro de Paisajes de Interés Cultural de Andalucía, 2010

This pioneering classification and registration of landscapes in Spain, initiated before the National Cultural Landscape Plan [33] and the Andalusian Landscape Strategy [34], offers a new scale for understanding the values of cultural sites. To this end, the defining criteria for their classification, in addition to the territorial scale and the representativeness of their cultural heritage, include the need for the selected landscapes to have unique perceptual-formal qualities. They must be recognisable, i.e., they must maintain conditions of adequate integrity, conservation, authenticity, contemplation, etc. [35]. For this reason, it does not include landscapes of cultural interest that could be in the Andalusian metropolitan areas, as it specifies that their complexity requires a specific methodological design.

This register is defined as a reconnaissance phase, so it does not define the boundaries of the landscapes, as it is not intended that the areas match the spatial consideration of heritage protection. It defines the scale of representation of the landscapes between 1:40,000 and 1:50,000. It also includes a 3D representation without analytical value, which makes it possible to visualise the main elements of each landscape from a new perspective, different from the zenithal and topographic sections. Another concept implemented by this methodology is the territorial scheme, which classifies the relationship with the environment.

2.1.7. The Provincial/County Perspective and Social Value: (CPPA) Catálogos Provinciales de Paisaje de Andalucía, 2014 and (CPC) Catálogos de Paisaje de Cataluña, 2010

The Provincial Landscape Catalogues are the result of a joint effort by The Regional Ministry of Environment and Territorial Planning and the Centre for Landscape and Territorial Studies, together with the Register of Landscapes of Cultural Interest in Andalusia. Currently, these are only available for the provinces of Seville, Granada, and Malaga.

These works, which include an important compilation of the bibliographical sources used, are divided into five general sections as follows: identification and characterisation of the landscape; historical construction and qualification of the territory; analysis of dynamics, processes and impacts; study of perceptions and public participation; and diagnosis and definition of landscape quality objectives. They also include the natural foundations, historical construction processes and historical representations of landscapes, including urban areas. In addition, a broad and complex social participation approach was developed, consisting of interviews with decision-makers and experts, face-to-face and online surveys, workshops, and discussion groups, which made it possible to identify the social values attributed to the landscapes identified and characterised in the different provinces [36].

In the following years, other Autonomous Communities in Spain have developed catalogues with similar objectives. Particularly noteworthy is the case of Catalonia, whose Landscape Observatory has published, between 2010 and 2019, the catalogues of 6 of its 8 landscape divisions (Terres de Lleida, Camp de Tarragona, Terres de l'Ebre, Comarques Gironines, Regió Metropolitana de Barcelona and Comarques Centrals). In 2016, they also published the methodology used in this cataloguing [37], a document of particular importance in the study of landscapes at the county level.

2.1.8. Sensitivity and Resilience: (LSA) Landscape Sensitivity Assessment, 2019

This is one of the UK's most recent methodological contributions, and it charts a new direction in the characteristics that define today's landscape. LSA studies are based on the detailed application of the LCA methodology and incorporate the evaluation of the sensitivity of the landscape. That is, its vulnerability to a particular type of development or change. It aims to help planners, architects, landscape architects, developers, and community groups understand the potential impacts of different development scenarios on the landscape. It can be used to inform plans, policies, or strategies for the change of the use of land in development, such as the construction of new renewable energy facilities or housing [38].

In Spain, its use is almost exclusively limited to the energy sector. An example is the environmental zoning for the implementation of renewable energy and the creation of the Environmental Sensitivity Index, developed by the Ministerio para la Transición Ecológica y el reto Demográfico in 2020 (Figure 5).



Figure 5. Environmental Zoning Map for the implementation of renewable energies. Source: Ministerio para la Transición Energética y el Reto Demográfico, 2020. Retrieved from: https://sig.mapama.gob.es/geoportal/ (accessed on 27 November 2023).

2.2. Historic Landscape Characterisation Methods

Following the consolidation of landscape characterisation studies, protocols for the characterisation of historic landscapes were developed. The aim of these protocols is to reconstruct the changes that the landscape has undergone by studying its historical evolution. Based on LCA, the first characterisation methodologies emerged in England and spread to Scotland and Ireland, where they have been widely applied at regional and local levels. Since 2000, they have also been linked to the principles established by the European Landscape Convention [20]. These types of methodologies generate, for the countries or regions that have implemented them, a matrix of landscape information that can complement the specific assessment of their heritage assets. Below we explain the highlights of some of these methodologies.

2.2.1. The Pioneering Method, England: (HLC) Historic Landscape Characterisation, 1993

Launched in 1993, this methodology has been applied in 99% of the country by county, regional, and local authorities. All applications are part of the National Historic Landscape Characterisation (NHLC) project, undertaken by Historic England, which aims to provide a comprehensive picture of the historic landscape across the country, including urban and rural areas, and to provide an important context for understanding individual heritage assets. Geographic Information Systems, mapping and aerial photography are used to facilitate the reading of the layers of information collected. The working unit is a polygon of between 1 and 2 hectares, categorised under one of the 17 general types included in the Historic Characterisation Thesaurus. For each polygon, its current function, description, attributes, previous typologies, monuments, and sources of information are defined. Consequently, the material produced by this methodology can be complex for sites that have experienced multiple historical phases [39].

This type of characterisation allows for interrelationships between places, connections, and historical patterns, providing a framework for assessing people's views and perceptions, such as memories and experiences. It is also particularly useful for local planning tasks, as it can be used at different scales, reaching important levels of detail for design and planning processes.

2.2.2. A New Concept: (LB) Landscape Biography, 1990

In the early 1990s, a new concept of landscape studies was established in the Netherlands. Although not a methodology, Landscape Biography understands cultural history from a social perspective as the life course of a landscape seen through its layers. It thus includes material and immaterial dimensions and integrates knowledge from different disciplines. This concept, developed by Jan Kolen, Dean of the Faculty of Archaeology at the University of Leiden, responds to the societal need to integrate the knowledge of landscape and heritage into the planning and design practice, allowing for greater involvement by citizens in local and regional policies. In the Netherlands, it is increasingly used as a multidisciplinary and participatory approach to developing environmental visions at local and regional level [40]. This approach has been used in various contexts, one of the most important being the large-scale project 'Protection and Development of the Dutch Archaeological-Historical Landscape and its European Dimension' [41].

2.2.3. Towards the Characterisation of Urban Landscapes: (UC) Urban Characterisation, 1990

The first approaches to historic landscape characterisation in England are linked to urban landscape characterisation. Following the development of the LCA methodology in the 1990s, three types of strategy have been implemented.

The first, Extensive Urban Survey (EUS), focuses on local archaeological surveys in small towns. The second, Metropolitan Historic Landscape Characterisation, is applied in large urban areas, following the HLA methodology but using general types appropriate to urban areas, reflecting the complexity of urban development. Finally, Urban Archaeological Databases (UADs), implemented in 30 historic cities, capture the rich and complex

archaeological heritage. These databases collect and map the archaeological work that has taken place, as well as the features identified in that work [42].

2.2.4. Assessing Land Uses, Scotland: (HLA) Historic Land-Use Assessment, 1994

The HLA, also initiated in 1993, is the successor to the HLC methodology and has since been applied throughout Scotland. It uses a scale of 1:25,000 and includes, for each element, a brief description, current use, and previous use [43]. The main novelty and contribution of this method is that it includes the HLAmap open data viewer, which allows filtering by historical periods or specific land uses and recognises the current and historical uses of urban and rural land across the country (Figure 6). The data collected by Historic Scotland and the Royal Commission on the Ancient and Historical Monuments of Scotland, now Historic Environment Scotland, between 1997 and 2015, defines 80 landscape types grouped into 13 categories.



Figure 6. HLA Map Scotland's historic land use. Source: Historic Environment Scotland, 2021. Retrieved from: https://map.hlamap.org.uk/#zoom=7&lat=806763.29464&lon=392306.41619&laye rs=BTFFFTFTTT (accessed on 27 November 2023).

2.2.5. The Particularised Method: (HAAs) Historic Area Assessment, 2010

This practical tool by Historic England is used to understand and set out the historic and heritage interest of a particular area. It has been developed to help define the character of a particular area, highlight its significance, and identify issues that may lead to the alteration of its heritage value. This is its main difference from the HLC, a reduced and controlled scale of application and, therefore, a greater depth of work (Figure 7). In contrast to the historical characterisation methods described above, HAAs place great emphasis on fieldwork, emphasising data obtained through observation. It aims to provide a highly detailed and nuanced analysis of both the landscape and built elements [44].

It has three variants as follows: outline (level 1), fast (level 2), and detailed (level 3). All three can be used independently or in sequence to provide, for example, a general overview of a large area and a detailed analysis of parts of it.

This method is mainly used in historic urban environments, but it can be applied to a wide range of landscape models: small and medium-sized towns, neighbourhoods, villages, historic centres, harbours, industrial areas, dispersed rural areas, and historic linear entities such as canals or railways.



Figure 7. Survey of Land Tenure in Eastbourne, Darlington, County Durham in 1854. Source: Historic England, 2017. Retrieved from: https://historicengland.org.uk/images-books/publications /understanding-place-historic-area-assessments/heag146-understanding-place-haa/ (accessed on 27 November 2023).

2.2.6. The First Andalusian Case: (GPHUS) the Guía del Paisaje Histórico Urbano de Sevilla, 2010

This guide is the first Andalusian exercise in characterising the historic urban landscape from the dual perspective of natural and cultural heritage. It is divided into two main blocks. The first characterises the historic urban landscape of Seville, and the second establishes a series of objectives for landscape quality and measures for its sustainable management. For its development, the work was divided into a series of thematic studies, grouped into the three following blocks: territorial, heritage, and perception, and impact. The territorial studies include those related to geomorphology, land use, urban planning, and the relationship between the city and the river (Figure 8). The heritage assets are divided into archaeological, industrial, gardens and public spaces, equipment, festiveceremonial, and commercial. Each of these processes, activities or histories contextualises the assets, reveals the existing relationships between them, and gives them a shared value that goes beyond their individual value. Finally, the last block includes perspectives such as the media and contemporary architecture [45].



Figure 8. Diagram of the territorial articulation of Seville, centralized and fortified pattern of the city-kingdom from 700 to 1492. Source: [45].

2.2.7. Plots, Lines, and Points: (PaHisCat) the Project Paisatge Històric de Catalunya, 2011

In 2011, the Observatori del Paisatge de Catalunya, in collaboration with the History Department of the University of Lleida, launched the PaHisCat pilot project to measure the historical evolution of the Catalan landscape. This project, a pioneer in Spain, is set in a rural context with the aim of understanding and disseminating the traces of the past visible in four landscapes of this community, as well as providing guidelines for territorial, heritage, and sectoral planning. Unlike inventories, it attempts to formulate a reading of those sets of elements that have a landscape explanation from a historical perspective [46]. Its methodology is based on the HLC but defines three types of units: parcels fields, orchards, scrubland, woods and pastures, urban or industrial areas, linear realities roads, irrigation channels or canals and boundaries and specific realities farmhouses, villages, buildings, sites, etc. The summarised results of its application are available in .pdf format, reflecting the different representative historical stages.

2.2.8. Landscape and Statistical Data: (PDLC) Picture Documentation of Landscape Change, 2020

In Switzerland, the documentation of changes, although relatively recent, uses a new method and is carried out through the regular collection of statistical data on land use. Specifically, through data collected between 1975/85, 1992/97, 2004/09, and 2013/18, and through the registration and georeferencing of aerial photographs during the 2004/09 and 2013/18 periods. The Federal Statistical Office provides more than 1500 image comparisons via an open data geoportal [47]. Land use statistics provide information on the status and changes of built-up areas, forests, arable land, grassland, pastures, water, glaciers, etc. (Figure 9).



Figure 9. Picture Documentation of Lasdscape Change Methodology Viewer. Source: Swiss Confederation, 2021. Retrieved from: https://map.geo.admin.ch (accessed on 27 November 2023).

2.3. Geographic Location of Cultural Heritage

Many of the methods included in this selection, especially those for the characterisation of the historical landscape, have viewers for georeferenced information or other tools that make the visualisation of the different layers of information easier and more intuitive. Although Geographical Information and Referencing Systems were initially developed in the field of environmental and military sciences and in support of cartography, their use has also been extended to the historical analysis of territory and to certain branches of human geography, so much so that the generalization of their use to store historical data and record territorial changes through the georeferencing of historical cartography is known as Historical GIS (HGIS) [9,48]. Again, one of the pioneering projects in this respect is in Great Britain, where the University of Portsmouth is working on the so-called Great Britain Historical GIS (GBHGIS), accessible through the website 'A vision of Britain Through Time' [49].

In line with these methodologies, maps, guides, and concepts, numerous viewers for the geographical location of heritage assets have been developed in recent years by national, regional, and local governments (Figure 10). They all use GIS technologies for data collection, management, interpretation, and dissemination. As a result, they make it possible to establish relationships between properties and their settings, whether protected or not, and bring a new geographical and territorial component to tangible and intangible heritage.



Figure 10. From top to bottom and left to right: Visualizador Naturaleza, Cultura y Ocio; Mapa dels béns arquitectònics de Catalunya; Atlas do património classificado e em vias de classificação; Guía

digital del Patrimonio Cultural de Andalucía; PASTMAP Exploring Scotland Historic Environment; Catálogo Geográfico de Bienes Inmuebles del Patrimonio Histórico en el municipio de Madrid; Geoportale Federale; Visor del Catálogo General de Patrimonio Histórico Andaluz en Sevilla; Bella Lombardia, Guide to the cultural heritages of Lombardy; Malakanet, Plataforma de información y gestión del Patrimonio Histórico del municipio de Málaga. Sources: Instituto Geográfico Nacional español; Generalitat de Catalunya; Direçao General do Patrimonio Cultural de Portugal; Instituto Andaluz del Patrimonio Histórico; Historic Environment Scotland; Ayuntamiento de Madrid; Ufficio federale della cultura suiza; Ayuntamiento de Sevilla; Regione Lombardia; Ayuntamiento and Universidad de Málaga.

3. Results and Discussion

The analysis in the previous section demonstrates that European countries have been working intensively for more than three decades to characterise their landscapes from a historical and contemporary perspective. While the UK has been the forerunner of methodological models, a significant body of applications has been generated in different countries and at different scales. To this end, several methodologies have been developed at regional and sub-regional levels.

Although there are many cases that could be included in this research, the selection below represents a broad spectrum that allows us to identify a growing knowledge of territorial value and a common matrix: they are all variations of a type and share the landscape characterisation established by the original LCA method as a basis. From this common starting point, their differences and complementarities are essentially based on the need to adapt to the context (urban, rural, peri-urban, etc.), the inclusion of specificities (cultural, national, regional and/or local) and the scale of the work (large areas or specific cases).

As shown in Tables 1 and 2, all these methodologies have been developed by public bodies (in most cases of a governmental nature), have involved universities and research centres, and could provide a broader context for other studies, such as heritage assessment ones. This compendium of categorised methodologies and the hyperlinks for their consultation are the first outcome of this research.

Table 1. Categorisation and hyperlinking of methodologies, maps, and guides to landscape characterisation according to scope, organisation, and publication period. Source: Author, 2022.

Main Landscape Characterisation Methods								
	Name	Te	rm	Nature	Public Body	Origin		
LCA	Landscape Character <u>Assessment</u>	1980	2014	Methodology	Natural England	UK (England)		
LSA	Landscape Sensitivity Assessment	20	19	Methodology	Natural England	UK		
	Methodologies derived applicable to both urban and rural contexts							
МАР	Méthode pour des Atlas de Paysages	1994	2015	Methodology	Ministère de l'Écologie du Développement	France		
MPA	Caracterización patrimonial del Mapa de Paisajes de <u>Andalucía</u>	2003	2011	Map	Consejería de Medio Ambiente & Universidad de Sevilla	Spain (Andalusia)		

Main Landscape Characterisation Methods							
Name		Term		Nature	Public Body	Origin	
APE	Metodología para el Atlas de los Paisajes de España	2004		Map	Ministerio de Medio Ambiente	Spain	
CUP	Metodología para la Carta das Unidades de Paisagem de Portugal Continental	2004		Map	Direção-Geral do Território	Portugal	
GMEPCV	Guía metodológica de estudio del paisaje de la Comunidad Valenciana	2006		Methodology	Generalitat Valenciana	Spain (Comunidad Valenciana)	
CPC	Catálogos de Paisaje de <u>Cataluña</u>	2010	2019	Catalogue	Observatori del Paisatge	Spain (Catalonia)	
CPPA	Provinciales de Paisaje <u>de Andalucía</u>	2014	2015	Catalogue	Centro de Estudios Paisaje y Territorio	Spain (Andalusia)	
	Methodologies	derived ap	pplicable e	clusively to rural	contexts		
MCMPE	Marco conceptual y metodológico para los paisajes españoles.	201	10	Methodology	Centro de Estudios Paisaje y Territorio	Spain (Andalusia)	
RPICA	Metodología para el Registro de paisajes de <u>interés cultural</u> <u>de Andalucía</u>	2010	2019	Register	Instituto Andaluz del Patrimonio Histórico	Spain (Andalusia)	

Table 1. Cont.

Table 2. Categorisation and hyperlinking of methodologies, maps, and guides for characterising the historic landscape according to area, organisation, and publication period. Source: Author, 2022.

Main Historic Landscape Characterisation Methods							
	Name	Terr	n	Nature	Public Body	Origin	
LB	Landscape Biography	1990	2015	Book	Centre for Global Heritage and Development	The Netherlands	
HLC	Historic Landscape Characterisation	1993 2003		Methodology	Historic England	UK (England)	
	Methodologies de	rived appl	icable to l	both urban and rural	contexts		
HLA	Historic Land-Use Assessment	1994	2020	Methodology	Historic Environment Scotland	UK (Scotland)	
HAAS	Historic Area Assessment	2010	2017	Methodology	Historic England	UK (England)	
PDLC	Picture documentation of landscape change	202	0	Map	Federal Statistical Office	Switzerland	
Methodologies derived applicable exclusively to rural contexts							
PaHisCat	Paisatge Històric de Catalunya	2011	2015	Methodological Project	Observatori del Paisatge de Catalunya & Universitat de Lleida	Spain (Catalonia)	
Methodologies derived applicable exclusively to urban contexts							
UC	Urban Characterisation	199	0	Methodology	Historic England	UK (England)	
GPHUS	Guía del Paisaje Histórico Urbano de Sevilla	2010	2017	Guide	Instituto Andaluz del Patrimonio Histórico	Spain (Andalusia)	

As a consequence of all these studies, the dissemination of this knowledge has taken place, as Table 3 shows, through institutional cartographic viewers at a national and international level. All of them are oriented towards a new way of identifying, cataloguing, and consulting cultural heritage wealth.

Table 3. Categorisation of cultural heritage web viewers. Source: Author, 2022.

European Context Examples (National and Regional)						
Scale (N/R)	Public Body	Viewer				
Portugal (N)	Direção General do Património Cultural	Atlas do património classificado e em vias de classificação				
Scotland (N)	Historic Environment Scotland	PASTMAP Exploring Scotland Historic Environment				
England (N)	Historic England	Map Search				
Switzerland (N)	Ufficio Federale della Cultura	Geoportale federale				
Lombardy (R)	Regione Lombardia	Bella Lombardia, Guide to the cultural heritages of Lombardy				
Spanish Context (National, Regional, Municipal)						
Scale (N/R/M)	Public Body	Viewer				
Spain (N)	Instituto Geográfico Nacional	<u>Visualizador Naturaleza</u>				
Catalonia (R)	Generalitat de Catalunya	Mapa dels béns arquitectònics de Catalunya				
Andalusia (R)	Instituto Andaluz del Patrimonio Histórico	Guía Digital del Patrimonio Cultural de Andalucía				
	Instituto de Estadística y Cartografía de Andalucía	Datos Espaciales de Referencia de Andalucía (DERA)				
Madrid (M)		Catálogo Geográfico de Bienes Inmuebles del Patrimonio Histórico				
Mauria (M)	Ayuntamiento de Madrid	en el municipio de Madrid				
Seville (M)	Ayuntamiento de Sevilla	Visor del Catálogo General de Patrimonio Histórico Andaluz en Sevilla				
Malaga (M)	Ayuntamiento & Universidad de Málaga	Malakanet, Plataforma de información y gestión del Patrimonio Histórico del municipio de Málaga				

Based on the previous analysis, the second result of this contribution is shown in Table 4. Here, the main confluences and differences between the analysed methods are summarised.

 Table 4. Categorisation of cultural heritage web viewers. Source: Author, 2024.

	Landscape Characterisation Methods				
	Scale	Units	Tools	Dissemination	
LCA	Any scale	Ensembles, Zones	All the necessary tools can be employed	Digital booklet	
MAP	National, Departamental, Regional	Ensembles, Zones	Georeferenced maps, photographs, Spatial graphic codes, Three dimentional views	Digital book	
MPA	Regional	Ensembles, Zones	Georreferenced map	Digital booklet, shapefile	
APE CUP	National National	Ensembles Ensembles	Georeferenced map Georeferenced map	Book, shape file Digital book	

	Landscape Characterisation Methods				
	Scale	Units	Tools	Dissemination	
GMEPCV	Regional, Subregional	Zones	Photographs, Georreferenced maps, diagrams	Digital booklet	
CPC	Regional, Subregional	Zones	Photographs, charts, Georreferenced maps	Website, Video, Digital booklet	
СРРА	Subregional, County	Zones	Photographs, charts, Georreferenced maps, historic views, panoramic views	Digital book	
LSA	Any scale	Zones	Georreferenced maps, charts	Digital booklet	
MCMPE	Local, County, Sub-regional	Zones	Photographs, Georreferenced maps, orthophotographs, charts	Digital book	
RPICA	Regional	Points, Ensembles	Georreferenced maps, Spatial graphic codes, photographs, orthophotographs, sections	Digital booklet	
	Historic Landscape Characterisation Methods				
	Scale	Units	Tools	Dissemination	
LB	Any scale	Any unit	Photographs, texts	Book	
HLC	Any scale	Small areas	Georreferenced maps, orthophotographs	Digital Booklet	
HLA	National	Small areas	Georreferenced maps, photographs	Website, online viewer	
HAAS	Local	Small areas	Georreferenced maps, photographs	Digital Booklet	
PDLC	National	Points	Georreferenced maps, photographs, historic views	Online viewer	
PaHisCat	Regional, Subregional	Zones	Georreferenced maps	Website, Digital Booklet	
UC	Metropolitan, Local	Small areas	Georreferenced maps	Website	
GPHS	Local	None, thematic studies	Photographs, Georreferenced maps, tables, text	Book	

 Table 4. Cont.

The analysis of all these methodologies has revealed basic strategies for landscape characterisation which, in line with the reasons given in the Introduction to this paper, should nowadays be part of any work on cultural sites. These strategies are divided in terms of data collection, scales, work units, tools, and dissemination as follows:

- To carry out fieldwork and to obtain data by observation; to control the sources of natural and anthropic data available; to allow social participation regulated by agents and experts in some of the stages; to establish correspondences with previous landscape studies; to recognise landscape as a dynamic element in which data is constantly changing.
- To define different scales of application; to propose adaptive levels of depth; to consider limitations in data quality or availability when defining scopes and scales.
- To work with areas or polygons rather than elements; to use layers of information; to group areas or polygons into families; sometimes it may not be necessary to set specific boundaries.
- To give great importance to graphic tools; to georeference data; to map; to take photographs; to create three-dimensional views and sections; to include diagrams of territorial dynamics.
- To make this characterisation accessible through website viewers; to combine the landscape characterisation future viewers with the existing cultural heritage web viewers, when applicable.

Considering the preceding strategies, the final result of this research is the outline of a basic methodological framework to approach the adequate characterisation of cultural assets from an integral perspective. As it has been explained, among the methodologies studied, the following needs have been identified: to establish different scales of work [18,19,44], to recognise the physical environment [36,45], to study its historical context [36,43–46], to take into account socio-economic resources [18,35,36,45], and to include social perception [28,36].

Thus, according to the rules of LCA, in order to characterise the landscape that contextualises the cultural site, we must establish at least three scales of approach, from the most specific to the most general as follows: the scale of the cultural site itself, Medium/Small (architectural and human scale, how the property is perceived constructively and how it is perceived by the population and institutions); the landscape scale of the cultural site, Large/Medium (administrative scale, considering the landscape regulations and the socio-economic context in which it is inserted, and what historical context preceded its current landscape); and finally, the territorial scale of the cultural site, Large/Extra Large (ecosystem scale, both environmental and geographical, of the territory in which the asset is located). Although the numerical scales will vary according to the size of the asset to be studied, (as it will be different to study engineering works, monuments, or sites of ethnological interest), in general they could be established around M/S 1:25,000, L/M 1:50,000, XL/L 1:150,000.

Within these three major scales, the research will define different dimensions according to the subjects to be studied. Similarly, the specific data that make up each of these themes will constitute the different categories of data that will be needed to compose each of the working dimensions. For example, to characterise the normative dimension (D) of a specific cultural property, one will need access at least to the urban or territorial planning applicable to it (D1), to the figures of land protection or other properties that may coexist in this landscape (D2), and to the precedents that exist in the study of this specific landscape (D3).

Thus, Figure 11 shows the general scheme of working scales, dimensions and data categories that are currently considered fundamental for the characterisation of the territorial, landscape, and architectural context of a given Asset of Cultural Interest. These are as follows:

- Cultural site territory (scale XL/L): this first scale refers to biophysical characteristics and the ecosystem services present at the territory of study. Climate, hydrology, and geology, which are closely linked, will determine the soil types, which in turn will determine the dominant vegetation. A number of environmental units can be defined on the basis of these data categories. These units are related to the following scale, which helps to delineate the landscape area units.
- Cultural site landscape (scale L/M): the intermediate scale demarcates the landscape
 of the site as a morphological unit. The characterisation of the cultural site landscape
 is organised in three working dimensions as follows: historical, socio-economic, and
 normative. The historical and socio-economic dimensions, in a continuous relationship,
 characterise the main processes that these landscape areas have undergone and the
 variations that the landscape has undergone to reach its current use and subdivision.
 At the same time, the normative dimension examines the existence or non-existence
 of study, planning, and protection measures in this respect. If the assett studied is in
 an area already characterised at this landscape scale, we can use the results of that
 landscape characterisation for this heritage assessment.
- Cultural site (scale M/S): the closer scale to the assets characterises their architectural, archaeological, and cultural dimension. The architectural analysis includes their level of integrity and state of conservation, their continuity and visibility, and their accessibility. It is also analysed whether the assets have influenced their cultural environment, reflected in toponymy, artistic manifestations, or cultural activities. Finally, the impact on citizens and institutions will be considered and possible development scenarios will be identified.

					A1	Climatology
					A2	Hidrology
					A3	Geology
	1	Scale XL/L,		D: 1 · 1	A4	Geomorphology
1	1	Cultural site Territory	A	Biophysical	A5	Soils
					A6	Vegetation
					A7	Fauna and environment
					A8	Environmental units
		Scale L/M, Cultural site Landscape		Historical	B1	Interpretative keys
			В		B2	Processes, periods and landscape patterns
			_		C1	Land use
2	2		C	Socio-economic	C2	Plots and cadastral information
			D	Normative	D1	Planning
					D2	Protection figures and regulatory framework
					D3	Precedents and correspondences in the landscape study
			Е	Architectural	E1	Architectural work
					E2	Roads and infrastructures
					E3	Accesibility and visibility
					F1	Toponomy
	3	Scale M/S,			F2	Artistic manifestations
		Cultural site	F	Human	F3	Uses and activities
			F		F4	Perception and social repercussion
					F5	Institutional projection and information
					F6	Development and resilient scenarios
1						
	SC.	ALE	DIME	INSION	I DAL	A CATEGORY

Figure 11. Diagram of the proposed methodology. Source: Author, 2022.

4. Conclusions for a Methodological Proposal

This study was prompted by a reflection on the increasing scale of heritage assessment and protection over the last decade. The conclusion is the need for more transdisciplinary and subdivided technical studies to cover all the complexities of the current scenario. Thus, this study has contributed to this necessary interdisciplinary body of knowledge through the analysis of tools from geographical disciplines that bring an updated logic to architectural and archaeological heritage studies.

The result of the analysis of the main methodologies for the characterisation of landscapes and historic landscapes has been a compendium of methodologies categorised with hyperlinks for their consultation; the identification of the main similarities and differences between the methodologies analysed; and a first draft of a methodological diagram for the characterisation of cultural sites from a holistic point of view, rather than focusing only on the architectural components. The proposed working diagram approaches the characterisation of cultural sites in an integral way, together with their territorial values, by defining three spatial scales, called Cultural Site, Landscape, and Territory and three levels of data, called scales, dimensions, and categories.

In light of the analysis carried out, some conclusions can be drawn about the evolution and trends of the methods for characterising the current landscape and the historic landscape, which have been considered in the methodological proposal.

The first is the difference in scale used in the methods for characterising the historic landscape compared to those used for current scenarios. Many of the methods derived from HLC use small areas as units, even specific points in the landscape. On the other hand, those derived from LCA use ensembles or more general areas as units for characterising the current landscape.

The second is the scarcity of current landscape characterisation methods exclusively applicable to landscapes of an urban nature. However, there are specific methods for historic landscape characterisation in urban environments. While landscape is understood here in terms of its definition in the European Landscape Convention, these methodologies tend to distinguish between urban and rural, as has been pointed out throughout this research. This scarcity may be due to the greater complexity of change in cities. In urban environments, the physical component of the landscape has greater continuity and characterisation is meaningless if the heritage and historical components are not included. In fact, it is by qualifying the urban landscape according to its cultural interest that different areas of material elements, layouts, and historic uses can be assumed to provide a certain character and represent a particular environment [27]. However, due to continuous human activity in urban areas, these defining aspects are more diffuse and therefore require more complex methods of analysis.

A third conclusion is the lack of dissemination through viewers that characterise the landscape according to LCA models, while those that follow the precepts of the HLC are beginning to implement them. Perhaps because they were developed later, or because they do not address current issues that may conflict with certain public or private interests, being fully visual and accessible.

Finally, in relation to the characterisation of cultural sites, it is important to note that there is a disconnect between the evaluation studies of heritage architecture and the landscape studies that concern them. Nevertheless, such characterisation is the basis for any study of the architectural heritage. To adequately assess a cultural site from a 21st century heritage perspective, it is necessary to start from a much broader scale than the purely architectural. It is only by carrying out this type of study on a large scale that it is possible to obtain a complete characterisation of the heritage, which avoids a biased and outdated view of its values and effects and provides implications for its context. This also helps to define more appropriate protection environments and to identify the intangible values associated with it.

Hence, future research on this topic should seek to identify good practices in architectural heritage assessment that take landscape characterisation methods studied into account, as well as further developing and application of the methodology suggested in this paper.

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Notes

- ¹ The country ranks fourth in the world in terms of the number of sites inscribed on the UNESCO World Heritage List, after Italy, China and Germany.
- As indication of this at the international level, UNESCO established the Interagency Platform on Culture for Sustainable Development (IPCSD) in May 2021. The IPCSD aims to encourage organized discussion and collaboration on the topics of culture and sustainable development.
- ³ It is necessary to clarify that there are other method classification factors that have proved less appropriate for this research. These are the specific methods for natural, agrarian, urban or rural landscapes, referred to by Gómez Zotano and Riesco Chueca as 'adjectival methodologies' [19]. It is understood that, in contrast to the Florence Convention, all territory is landscape and these fragmentary understandings must be overcome.
- ⁴ Other methods referring exclusively to agricultural or natural soils have been excluded from this list.

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