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Alicia Castillo *Editor*

Archaeological Dimension of World Heritage

From Prevention to Social Implications

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Foreword

Archaeological resources are the material remains of the past that are used to study and interpret that past. At the same time, the vestiges of the past may have a significance, a role or value attached that makes them archaeological heritage. Not every archaeological heritage is equally important, of course, but most nations nowadays have policies to ensure that they can benefit now and in the future from what they value, through the active management of archaeological remains in their territory. Internationally the most important remains, those considered to have outstanding universal value, receive special recognition by being inscribed in the World Heritage List.

On that list are inscribed the most important natural and cultural heritage assets of the world. Its variety illustrates that archaeology is only one dimension of cultural heritage. At the same time, archaeological resources are quite fragile and their continued survival requires appropriate management. To develop internationally recognized standards and best practices for that management is one of the main purposes of the ICOMOS International Committee on Archaeological Heritage Management (ICAHM).

That is why the ICAHM committee has supported the initiative of archaeologists from the Universidad Complutense de Madrid to convene on the island of Menorca in the Mediterranean the "First International Conference on Best Practices in World Heritage: Archaeology" in 2012. This book contains a selection of papers from that meeting. They illustrate diverse practices in various countries and from different parts of the world with sometimes quite innovative approaches and the use of new technologies. The conference also adopted what has been called the "Menorca Statement" in recognition of that island's contribution to the meeting, and this has been the starting point for an initiative to develop a best practices document by ICAHM, setting standards that can be used in the nomination of sites to the World Heritage List, but that at the same time may help archaeological resource management in the national or regional level.

I am sure that the present volume will be a source of inspiration on preventive archaeological work for its readers, and it may also help English speaking audiences to get acquainted with practices and ideas from elsewhere. As series editor, I am particularly pleased with this volume that contributes in such a direct and inspiring way to improving best practices in dealing with the remains from the past, remains that have such great potential to benefit the society in the present.

Leiden Willem J.H. Willems
1 March 2013

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Dr. Alicia Castillo is a postdoctoral researcher and lecturer at the Universidad Complutense de Madrid in the Prehistory Department. She is a member of the Scientific Committee of Archaeological Heritage Management (ICAHM-ICOMOS). Her research lines include Archaeological Heritage: Preventive Archaeology, ITC, Architectural Heritage and World Heritage. She has been leading the project "The Treatment of Archaeological Properties in the World Heritage Cities of the European Union & Hispanic America" for the past 4 years. She continues working on these same researches with other projects in the geographical area of study and with the focus in social perceptions, participations process and conflicts in the Cultural Heritage management context.

Chapter 1
Archaeological Dimension of World Heritage: From Prevention to Social Implications

A. Castillo and M.A. Querol

Abstract This chapter is more than an introduction to the present volume. It is based on the consideration and definition of the archaeological dimension in heritage properties, as well as on a broad concept of Archaeological Heritage, where not only the sites and properties situated underground but also any constructed element of historical character, and of course also cities, which can and should be read archaeologically, are included. This wide reading must be used to provide the sites with an archaeological dimension to make these sites more human, according to the changing meaning of any cultural manifestation of societies.

The selection of articles (chapters) has been made mainly with regard to the high quality of the papers, which were among those presented at the "First International Conference on World Heritage: Archaeology," held in Menorca in April 2012. They are representative of the main topics discussed during the conference (Architecture, Preventive Archaeology, Social Action, Land Planning, Information Technologies Communication (ITC), Education and Diffusion, and Protection), and most importantly, they show good and interesting examples of the pursuit of Best Practices at the sites.

Keywords World heritage • Preventive archaeology • Archaeological dimension of World heritage • Management cultural heritage

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Introduction

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In addition, the papers give the volume broad geographical coverage (Africa, America, Asia, Australia, and Europe). The kind of properties considered also has been an important factor in this selection of texts, because they clearly show the idea of archaeological dimension; there are sites, which have traditionally been considered archaeological, in contrast with others like the city of Havana or the natural heritage of the Willandra Lakes.

World Heritage and the Archaeological Dimension

Cultural Heritage is not always spectacular or impressive in its forms, but it can improve our day-to-day life because its values are part of the background to what we are as a human group and with which we identify ourselves consciously or unconsciously. We believe archaeology is a science which can collaborate with this possibility and is in its turn a channel for encouraging interest in a past with multiple readings to enrich it and heighten difference, one of the pillars of social sustainability.

However, is this message compatible with "successful" World Heritage sites? We believe it is, and this is the line followed by the book introduced here. In such a context, a clear example has to be set by the World Heritage, whose treatment is expected to be the best and which ought therefore to generate an experience that can be transferred to other places with less recognition from institutions, science, or individuals.

World Heritage properties are not always inscribed as such for reasons of an archaeological nature, but we argue here that an archaeological dimension exists in nearly all of them. As stated in the document of Best Practices that accompanies this publication (see last chapter), Archaeological Heritage is understood "not as an isolated category or compartment within Cultural Heritage but as a dimension within all cultural properties with historic interest, where reconstruction and reinterpretation are made possible by the practice and use of Archaeology. The treatment of these properties should be in accordance with that dimension, as should the social considerations which shape and give meaning to Cultural Heritage" (see Chap. 8).

In this way, we define the archaeological dimension as a focal point in our approach to Cultural Heritage, for archaeology is in reality just one of the many sciences which influence the creation, configuration, and treatment of heritage, including those cases where the properties are supposedly "archaeological" or inscribed as such. Being one among many does not mean being diminished. It means being aware that many other perspectives exist from which to appreciate and engage with Cultural Heritage. In fact, not all of them even pertain to the world of science, yet they are of great importance all the same. The idea of complex thought (Morin, 2007) in an approach to knowledge—in this case, the treatment of cultural properties—is the key to understanding our discourse. We believe that the challenge in coming years will be to balance scientific and technical scrutiny with the more popular, political, or administrative view. World Heritage, we think, is weighed down by a heavy political and sometimes popular load, above all due to tourism, with bureaucratization and few scientific standards, if any. When science does make an appearance, it is treated as a separate compartment in isolation from other subjects and categories, including other sciences, except inasmuch as it is a value, which may prove decisive for a successful nomination. This compartmentalization is also transferred to management of the heritage, when professionals, members of the public, companies, or organizations with concurrent interests affecting the Cultural Heritage sometimes fail to recognize or even to have any dealings with one another. Finally, it seems to us that the current models for the treatment of cultural properties lack the flexibility the subject matter demands, including adaptability to the current juncture and consideration of the context, both in the so-called "western" or "postcolonial" values they propound and in the standardized treatments they offer properties. To overcome all these slanted visions, accepting multivocality as a working procedure and assuming the challenges posed by constant change are necessary to create dynamic spaces of communication between different agents implicated in heritage management and to seek a way to channel the keys to the various forms of knowledge in a proactive fashion, moving beyond transference and comprehension to action—the constant regeneration and formulation of new ways of understanding and implementing heritage management. In Fig. 1.1, it can be seen how the dimensions are interrelated and overlap in three cases. A single person may represent or perceive all three, an example being an architectural restorer who lives in a city and works on the recovery of its heritage. The objective of the model is not its static use as a grid but its adaptation to the current juncture, remembering that many facets have to be borne in mind in managing cultural properties.

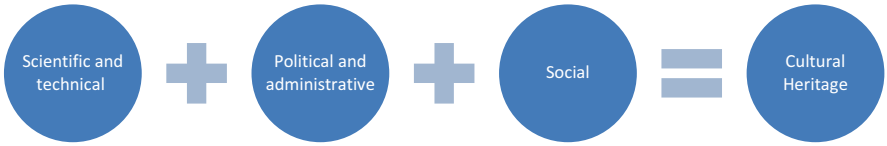

Fig. 1.1 Representative model of the dimensions of Cultural Heritage for assistance in the exercising of management (*Source*: the authors)

Scientific, technical	Architecture, town planning, *archaeology*, anthropology, restoration, landscape, law, sociology, management, enterprise, tourism, etc.
Political, administrative	Authority, revenue, protection/prevention, tourism
Social	Visitors (mostly tourists)
	Affected or implicated (citizens, communities, property, workers)

In what follows, we shall try to explain how we think the archaeological dimension should be treated with a view to acceptable heritage management, considering it, as we have said, as just one among many and knowing that the success of the strategy will depend upon consideration of all or many of the other possible dimensions. We also assume that the important thing is not this particular science or the Archaeological Heritage as such, but the way in which it forms part of the rest of the values and ways of understanding and treating Cultural Heritage and how we go about ensuring its maintenance and enjoyment by the whole of society. The essays we compile in this volume work along such lines. They are a selection from approximately 100 papers that were presented at the "First International Conference on Best Practices in World Heritage: Archaeology" (Castillo, 2012), held in Menorca on April 9–13, 2012, financed by the Government of Menorca, and directed by the two authors of this article, both from the Universidad Complutense de Madrid.

Although our prime criterion in selecting these essays was their quality, it must be said that many others of great interest had to be left out, since the selection was also influenced by our wish to cover a wide range of topics and geographical areas. We believe this enriches the volume and opens up different perspectives from which to address the matters we shall now be considering.

From Prevention to Social Implications

When we turn our thoughts to Best Practices in World Heritage: Archaeology, the first thing that is called to mind is inevitably prevention. This is not a matter of chance, for it responds to our own experience as researchers of management in the western context, as well as to the denunciations of World Heritage loss that are issued daily from both professional spheres and the citizens themselves.

Prevention is approached on the basis of two variables. An attempt is made to provide protection on the one hand from natural occurrences ranging from catastrophes to climatic patterns and on the other from the effects of human action, principally in the form of vandalism, pollution, and overexploitation of the Cultural Heritage. Prevention, then, is applied to places recognized for their cultural values, supposedly under protection, and subjected to a variety of environmental and social pressures.

At the Menorca Conference, the model proposed for Preventive Archaeology in the face of development work and earth movements was one based on the drawing up of archaeological charts prior to new territorial planning schemes or modifications to earlier ones (Querol & Castillo, 2012). In fact, the term Preventive Archaeology comprises a series of activities aimed at discovering and protecting the Archaeological Heritage before any type of incident may affect it. When this is impossible, the aim will be to review the impact as much as possible preventing the elements from being excavated or destroyed (Martínez & Castillo, 2007: 187). The plans would have to show sites considered untouchable, or "Reserve Zones," as well as those catalogued as land subject to "Archaeological Caution," or "Caution Areas," which are considered of minor importance or whose existence is supposition. In the latter case, whenever there is a chance they will be affected by a planned development, an archaeological survey has to be performed with tests and a characterization study in order to permit their conservation and, where necessary, excavation. The purpose of this Preventive Archaeology is to reduce the number of archaeological excavations, which in recent decades has reached record heights with barely any increase in historical knowledge.

For this book, two essays have been selected which examine this preventive facet of Archaeology applied to the treatment of properties inscribed as World Heritage sites.

The first looks at an urban area, Old Havana, in Cuba. The administration responsible, which set a benchmark for decades in the quality of its heritage work, now includes Urban Archaeology among its tools, recognizing it must have procedures of its own within the territorial planning and recovery of the city. The author, Sonia Menéndez, shows us how the first steps are being taken towards the application of Preventive Archaeology in this context and how it is hoped to move in the near future beyond emergency excavations, or those exclusively associated with restoration, to others linked with the recovery of the city's archaeological wealth and the revaluation of the city's heritage.

Measures of this type, which appear to have been relatively common in European cities since the 1980s (*Archéologie Urbaine,* 1980), have hardly been implemented in Latin America, where so-called Historical Archaeology is gaining importance, but where much remains to be done in terms of a complex patrimonial view of properties. Moreover, Menéndez's essay adopts the idea of prevention from the start. This is a new step forward, since it implies not only intervening whenever the historic city is affected but also preventing such effects whenever they are not really necessary. A strategy is also devised for identifying those spaces which permit the Historic Urban Landscape to be examined in more depth through Archaeology.

The idea of suitable documentation is the center of attention of another of the essays included here, dealing in this case with Cyprus. The "novelty" is the application of various complementary technologies to ensure a closer approach to scientific and technical knowledge of the island's archaeological properties. Although Cyprus has three sites with World Heritage status, two of which were inscribed as such for reasons of an archaeological nature (Paphos 1980 and Choirokoitia 1998), nobody would deny that the entire island is an immense archaeological site. As the authors emphasize, the idea is that the information captured should be useful both for management purposes and for investigation. In this way, and thanks to a combination of techniques that prominently features work with 3D technologies, an optimization of resources is achieved. Furthermore, none of these techniques is aggressive toward the materiality of the property.

There is a twofold objective in the consideration of the use of new technologies within this selection of essays. One is to report on novelties in the application of certain tools, and the other is to make clear that it is impossible nowadays to work without them and that we should therefore cease to regard them merely as applied tools, considering them instead as generators of knowledge and forms of interpreting the past in themselves. Yet to be explored, in the meantime, are the options offered by media like the Internet, social networks, and mobile devices for the diffusion and treatment of heritage. There is no doubt they are the future.

We have spoken so far of prevention and documentation in places with full legal and social recognition for their archaeological value. However, let us recall that we are also interested in those where the archaeological dimension is less evident because it is not a protagonist, but must be taken into account for what it may contribute to knowledge of places and the revaluation of the Cultural Heritage.

This archaeological dimension can be applied, for example, to all those sites affected by territorial development, whether through construction work, mining, or other cases where social criteria and values prevail over archaeological ones. This sometimes occurs even in contexts whose starting point is the revaluation of the Cultural Heritage itself, cases in point being restorations of buildings which fail to take the aforementioned archaeological dimension into account. Such a failure is often the result of poor organization and planning, leading to the destruction of archaeological evidence without it having at least been documented.

Indeed, this loss of Archaeological Heritage takes place even when that heritage is supposedly the object of investigation. Besides material destruction in itself, we would also include here poorly prepared documentation or an absence of scientific quality in archaeological research. Many voices have drawn attention to such issues over the years (see, e.g., the classic studies in Cleere (1984, 1989) or other more recent contributions like those Willems and Van Den Dries (2007).

To prevent such losses, it is of vital importance to establish a hierarchy of archaeological values and adopt measures in accordance with it. Decisions must be taken about what to preserve, study, demolish, or ignore. For this model to function, it is evidently necessary to possess exhaustive knowledge of the existing archaeological register, and this register has to go beyond the contents of the subsoil to include both the archaeological dimension in work of a historic character aboveground and also knowledge of the evolution of cultural landscapes, urban, or otherwise.

This register, which will be both fully documented and periodically updated, must form part of many other registers, above all those dealing with environmental values or land legislation.

For all these reasons, the link between archaeological management and territorial planning is unquestionable. In natural areas, however, the archaeological dimension is less evolved or treated less exhaustively. Bearing in mind that many of the sites with Natural World Heritage status are very large parks situated in areas whose resources have been of key importance for the development of human life, we wish to emphasize the need to take the archaeological perspective into account in their documentation, protection, and diffusion. It is very difficult on our planet to find a natural area that has not been anthropized, so archaeological study is both possible and desirable in all of them. Among the selection here, the essay on the Willandra Lakes in Australia follows this line. It shows how places that are emblematic of human expansion and evolution on that continent form part of the natural site and have been prevented from deteriorating despite farming activities in fragile zones with known archaeological remains. The park furthermore contains an important ethnographic and anthropological substratum, including even the presence of an aboriginal population that often establishes relations of other types, not only with the territory or the natural area but also with the archaeological sites themselves, which in some cases, like burials, are linked to their ancestors.

The involvement of these communities, through their elders, in decision-taking on matters concerning the park's management is proving extremely important, since it has modified the strategy for protecting these burial sites. Another outstanding feature of the work carried out is the search for solutions through the consensus of all the implicated agents, including people with private properties in the park, most of them associated with the cultivation of crops and pasture. Various plans are making it possible to adopt measures to prevent the zone from deteriorating, although the authors warn of the importance of continuing to foster these plans and measures and of investigating and monitoring the archaeological register, since the park remains very vulnerable.

The consideration of the communities who cohabit with World Heritage is one of the most burning issues of recent years. It is undeniable that great importance is now attached to immateriality, cultural expressions, identities, and respect for the same. The Menorca Conference devoted an entire session to what we termed "Social Action," understood as all those actions destined to incentivize citizen participation. This session, along with the one on policies of World Heritage protection, resulted in the presentation of a surprisingly large number of papers denouncing the way in which World Heritage fosters partial images of the cultures and peoples who live on the sites and proposing a search for alternatives. With some honorable exceptions, however, there were hardly any proactive presentations of actual attempts to find solutions or implement experiences. Among those few, one we find of particular interest deals with one of the most famous Jesuit missions, São Miguel in Brazil (Saladino and Wichers). Presented here is a project which tries to overcome the traditional view of Archaeology by inserting it in local life and establishing a process for assessing the results, something unusual in our field. The results of the assessment demonstrated that part of the aboriginal population felt excluded from

the discourse and had not even dared to work on the project. This meant that the team responsible felt obliged to modify the historic discourses in order to make them less exclusive of these sectors of the population, so achieving a reapproximation of the population to their Cultural Heritage. It is worth drawing attention to the fact that this initiative, supported by the theoretical framework of university research, had its origin in the world of private enterprise.

Another topic that was frequently dealt with at the Menorca Conference was that of the initiatives undertaken by different states for the protection of their World Heritage, with a critical vision brought to bear from the perspective of Archaeology. This matter, of course, has been the object of various reflections in recent years (Brattli, 2009; Coningham, Cooper, & Pollard, 2006; Labadi, 2001; *Norwegian Archaeological Review*, 2009; *World Archaeology*, 2007), and an essay has been included in this volume which, we believe, touches on many of the issues addressed in those texts and which also takes the form of a denunciation of the deterioration of the Archaeological Heritage of a particular country. Moreover, the context, the aftermath of a war, is a particularly difficult one for forward development. The case in question is Libya (di Lernia and Salinaro), a state with several World Heritage sites (Cyrene, Leptis Magna, and Sabratha) which largely represent the classical and traditional view of Archaeology. Nearly all are in the north of the country, and actions of recovery are being (or will shortly be) carried out in the wake of the conflict. However, opportune measures have yet to be taken for the conservation of the vast archaeological wealth of the south of the country, including a site (Tadrart Acacus) that was granted World Heritage status for its rock art. The essay includes a number of proposals and points to the need to treat this archaeological wealth from a broader perspective, such as that of a cultural landscape worthy of valuation and protection in its entirety. The idea of a landscape in opposition to that of a specific site, which is what most World Heritage properties are, is also interrogated owing to the importance of recognizing the value of archaeological interpretation beyond concrete remains. The challenge in a country under reconstruction, like the one dealt with here, will be to make the most of this new opportunity to devise better ways of managing the Archaeological Heritage, which can be given impetus as a resource for growth and the improvement of the inhabitants' quality of life.

This idea of overall treatment, based on protection through territorial planning and an understanding of Archaeology as also a landscape, is taken up again in the next essay, which is the last specific case study in this book. The text, however, has another particularity, which is that the place in question—the spectacular set of prehistoric sites of the island of Menorca—is aspiring to World Heritage status. Menorca's megalithic architecture, together with an ancient landscape and a natural history that led to its inscription as a Biosphere Reserve by UNESCO in 1993, makes it a special place that requires Best Practice for its management. The efforts made by the island's administrations to equip the sites with a legal framework for protection are beginning to bear fruit thanks to the systematic collation of archaeological information in municipal planning catalogues. This strong legal protection is also a good starting point that not only permits Best Practices in archaeological management but may also provide an impulse for the process of World Heritage nomination.

And becoming World Heritage, or being recognized as such, increasingly requires interaction with the people who live alongside the cultural properties. This is addressed in the document of Best Practices which ends this publication. We need an ordered corpus of tools and actions that will help us to situate the archaeological dimension in the most appropriate place within the treatment of Cultural Heritage.

Toward Best Practices

The initial draft of the document of Best Practices was introduced and published on the conference website, and criticisms and alternatives were invited. Moreover, it was discussed again at the last session of the conference in the original format of small groups. The text published in the final section of this volume appears exactly as it stood at the end of the conference. It has now become the starting point for the ICOMOS Scientific Committee for Archaeological Heritage Management (ICAHM)—UNESCO's advisory body on Cultural Heritage—to endorse its adaptation for use in the inscription and treatment of World Heritage sites (ICAHM, 2012).

In this context, we think it best to emphasize that the essays selected and published in this volume are guided by the spirit of Best Practice and were chosen for this very reason. Many of them are only proposals or studies for which results are awaited, and there are even some, like the one on Menorca, which refer to properties that have yet to be inscribed as World Heritage. This has to do with the proactive posture of which we spoke at the beginning of this introduction and with the importance of recognizing a reality while at the same time motivating its change. The ultimate objective of this book is therefore to encourage the implementation of these "Best Practices" and to incentivize work in this direction.

We therefore return to our initial contention: the fact that archaeological management cannot and should not be treated exclusively from the viewpoint of the science which precedes it adjectivally, even when this is taken together with other sciences and techniques or legal and administrative procedures, but also has a great deal to do with other variables and dimensions. Sentiments are of special importance in our view, including the way archaeological sites are perceived by the local population and the visiting public, the exact makeup of this whole body of participants, and whether or not they are genuine accomplices in the correct treatment of Cultural Heritage. Paradoxical as it may seem, given that this last aspect is intrinsic to all Cultural Heritage, and since definitions of the concept agree it is human groups who choose the assets to be preserved as representative of our past, nonspecialized people are seldom actively consulted on questions of Archaeological Heritage management. There is a greater abundance of pioneering experience with movable properties, especially in relation with public presentation and how discourses are understood, including the whole question of learning about the visitors' experiences (Hood, 1983). What is known today as Public Archaeology is making attempts to recognize these perceptions, but the fact of the matter is that we are still only just beginning. Faced with plenty of doubts and a shortage of studies on the actions we adopt to

integrate the inexpert public (Simpson & Williams, 2008), work of this kind is generally focused on spaces specially prepared for the visiting public. Other perceptions are barely taken into account, and it is rare for the Archaeological Heritage to be related to other values or social interests, or for there even to be acknowledgment of other discourses generating spaces that are more open than the officially inscribed archaeological site, such as cultural landscapes, or which recount alternative histories, or simply present an archaeological dimension that is unrecognized outside the purview of specialists.

If we accept this notion of the archaeological dimension of cultural properties, and the fact that the science of Archaeology advances and changes rapidly, as do the various discourses it generates and the question of which past is chosen and who it is for, then we invite readers to reflect whether the pyramids of Egypt or rock art is really reflecting what Archaeology is today. Do we believe that the exceptional and universal value that led to the inscription of these places as World Heritage sites allows archaeological science to perform a role concordant with what we understand by it today? Some of these places, it seems to us, offer a nineteenth-century romantic image of Archaeology, and there too we believe that Best Practices are very necessary from various perspectives. We think there is a need to reeducate the gaze, overaccustomed to monumental archaeological spaces, and make it more social, more "common" in a way, and more representative of historic spaces that evolve over time, not merely of spectacular material remains, chronological showcases, static photographs of other ages, or anecdotes used to adorn historical facts. Today, it is the consideration of the archaeological dimension which makes it possible to contribute that other information and create that new gaze. However, such efforts work in two directions. When understanding Cultural Heritage as something common, we need to also reeducate ourselves, learning from the people who live with and appreciate cultural properties.

Indeed, we sometimes wonder if we are not closer to the archaeological dimension today in other spaces, like cities and landscapes, than in those which have been granted heritage status for archaeological reasons, where nobody—not even the inexpert population—would question that dimension. This archaeological perspective thus becomes another type of added value for heritage sites, perhaps more closely adjusted to a humanist mentality, more sensitive to what moves us as scientists, and more discreet in its public appearance, but at the same time vital for reinforcing and discovering identities, and for bringing a new meaning and a new gaze to the World Heritage that would truly reflect a diversity we see as being lost. In short, Best Practice means preventing this loss from recurring, and Archaeology and its management can and must make a major contribution in this respect.

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Chapter 2
An Approach on the Application of Preventive Archaeology in Havana's Historic Center, Cuba

S. Menéndez

Development projects constitute one of the greatest physical threats to the archaeological heritage. A duty for developers to ensure that archaeological heritage impact studies are carried out before development schemes are implemented, should therefore be embodied in appropriate legislation…

Article 3, Charter for the Protection and Management of the Archaeological Heritage (1990) ICOMOS.

Abstract Archaeological endeavors undertaken under rehabilitation programs underway in historic urban centers have allowed us to approach the city from another perspective that goes beyond town planning and architecture, deeply rooted in those programs. Archaeology, seen as a discipline that contributes to the knowledge of the city, has developed under situations of emergency related to the restoration of the built heritage. However, the management of archaeological heritage is rarely planned. Today, there is clear-cut evidence on the need to develop more comprehensive working models to evaluate archaeological resources. This would help recording, studying, and integrating them within town planning schemes. In this way, archaeological practice within urban environments is scientifically planned from the standpoint of prevention. This issue is thoroughly addressed in this paper presented for Havana's historic center.

Keywords Archaeological heritage • Preventive archaeology • Historic centers

Havana's historic center and the fortresses therein are under protection schemes agreed upon at home and abroad, and this has given top priority to the management involved therewith. In 1978, the area was awarded the title of National Monument,

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the highest form of protection for Cuba, and in 1982 it was inscribed World Heritage Site by UNESCO. These awards have been the result of a hard work, which in turn has given rise to new plans and approaches within the dynamics of work and researches going on there.

Restoration and rehabilitation work undertaken by the Office of the Historian of Havana covers several disciplines intertwined under actual practice. It is in this regard that historical archaeology, a discipline that produces a wealth of knowledge on the development of the city, contributes with views that enrich other disciplines' views. They are all involved in the process and together complement each other.

Archaeological development in urban areas has gradually shifted towards the implementation of strategies that address the protection of archaeological soils within urban management plans. This issue is particularly dealt with by preventive archaeology (Bozóki-Ernyey, 2007; Castillo 2009, 2010), a branch involved with the efficient management and order of the archaeological heritage as found in soils endangered by disturbance caused by construction companies. The implementation of this form of archaeology within historic centers contributes to know, characterize, and protect archaeological values and proposes research topics on a short- and long-term basis. Likewise, it also helps with an effective planning of restoration.

Thus, this paper proposes the implementation of a management plan for the city's archaeological heritage that would be integrated into rehabilitation programs and thus would contribute to know and improve the treatment of the city's values within urban planning.

Historical Background

Old Havana contains in itself the original settlement of the former town of San Cristóbal de la Habana. It was finally settled there to the west of a pocket bay (Havana's bay, then known as the Puerto de Carenas by 1519). The town enjoyed the privileges of proximity to the port and the geographical position of the island (Fig. 2.1). This newly founded town served as the port of call during the conquest of Mexico and later to disembark and get fresh supplies for the fleets going back to Spain with the riches from various regions of continental America.

When the town was declared the capital city of the country and the economic and political powers were strengthened, the urban layout followed the pattern of an array of perpendicular streets that started in a square that acted as the main axis.[1]

[1] According to the ordinances for urban layout in Spanish America, the cities should be structured like a checkerboard, arranged into rectangular blocs having a square as the axis. The streets started in this square, a criterion close to Renaissance ideas in force in medieval Europe and basically fuelled by the rediscovery of Vitruvius. As noted by the researcher García Santana: "*Together with the conquest of America with the means defined for the secular process of the Reconquest, the troops of Charles V met with the most advanced urban theories when they continued with the fight started by the Aragonese in Italy.*" This influence was reflected in the Legislation for the West Indies, contemplated in the Municipal Ordinances of Alonso de Cáceres of 1573.

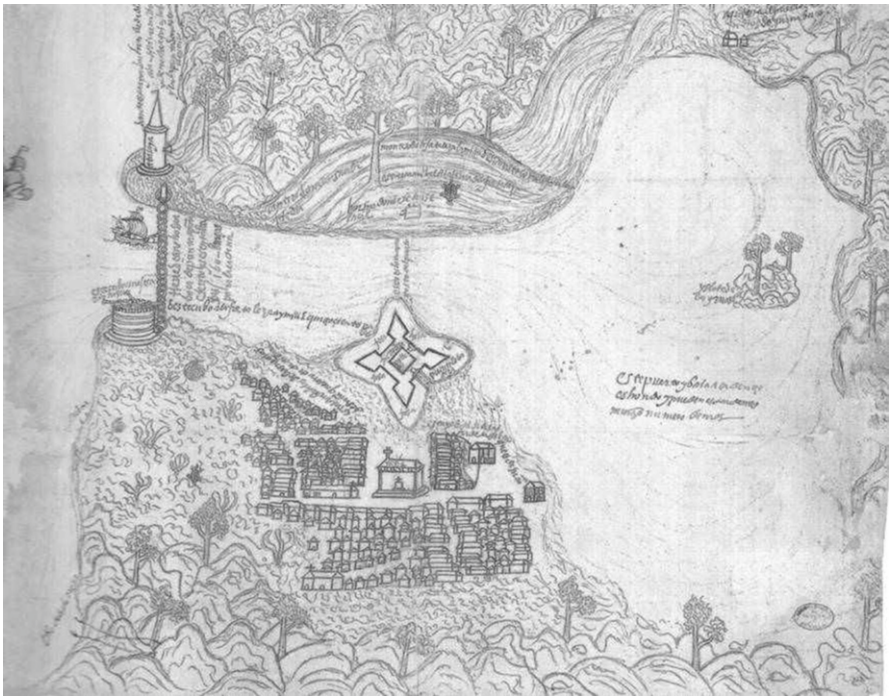

Fig. 2.1 A plan of the town of San Cristóbal de La Habana, sixteenth century. Author unknown

This layout would be reproduced after new lots were allotted to continue with the town development. So, by the second half of the seventeenth century, there was already a city with several centers having the civil, military, and religious powers arranged around a system of squares. The city was demarcated by military fortresses: to the west there were the banks of the bay where fortresses had been built in different points, and to the southwest there was a section of the wall surrounding the city in land. This was how walled Havana was shaped. Right into the eighteenth century, Havana had an urban and architectural layout made up by five main squares, eleven small squares, eight churches, seven convents, three monasteries, six hospitals, and two schools. At the time, the city had a population of 51,561. Out of this figure, 40,337 lived in 5,172 houses located in the walled area of the town (García, 2008).

The city expanded beyond the walls between the eighteenth and the nineteenth centuries for several reasons: the call to improve sanitation in the walled city contributed to move facilities dedicated to slaughter houses and raise animals out of the walls. On the other hand, an increasing population required new homes, and the rising bourgeoisie influenced by the latest in Europe had its homes for recreation and rest built far from the hustle and bustle of the center. Likewise, the existence of facilities involved with services and production that had been built out of the walls

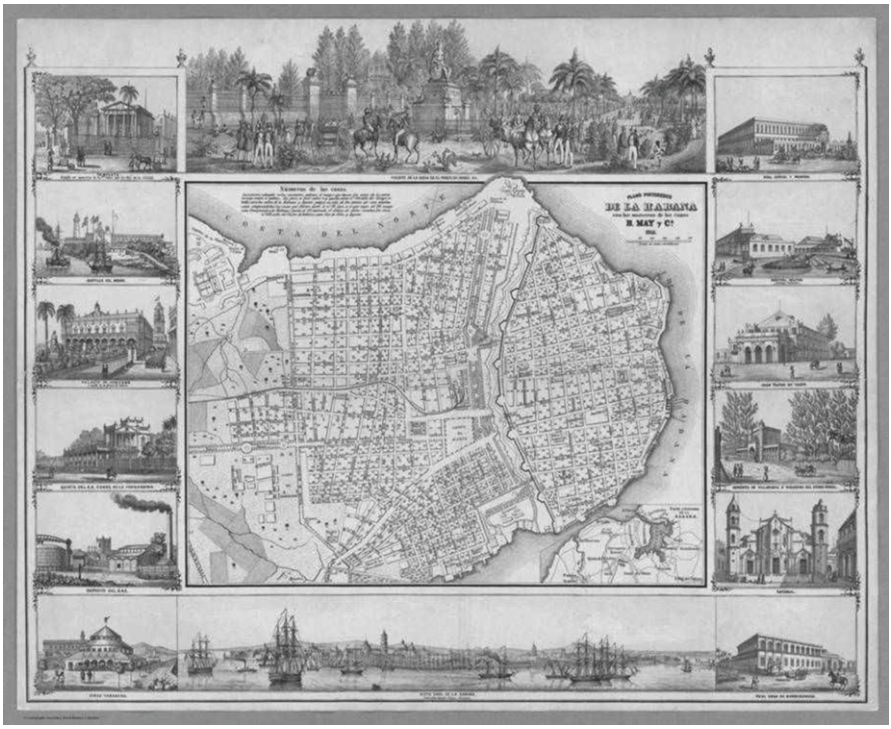

Fig. 2.2 Picturesque plan of Havana, 1854

also helped the construction of housing next to them. By 1863 the whole city wall had been almost demolished, so we are dealing with a city of more than 400 years of history, a city that developed horizontally and vertically (Fig. 2.2).

Institutional Framework

The Office of the Historian of Havana, hereinafter OHC, is the institution that studies and protects heritage. It dates as far back as1938, when praiseworthy actions were undertaken for the rescue and protection of civil and religious buildings threatened by the greed of foreign and local construction companies. There have been plenty of examples of the active participation of intellectuals and workers struggling for the defense of the historic heritage. They have turned into an evidence of a strong feeling of identity with the environment where this people lived. Following the endorsement of heritage legislations in 1977—*Law on the Protection of Cultural Heritage and the Law on Local and National Monuments* (Asamblea Nacional del

Poder Popular, 1977)—the city's historic center[2] and the system of fortresses there were declared as a National Monument, and a new stage of research and rehabilitation financed by the state began for the old center. Four years later, Havana's historic center was inscribed a World Heritage Site by UNESCO and was included in the WH list. At the end of the 1980s, the process of rehabilitation coincided with a deep economic crisis that almost stopped all the areas of production and had an impact on the State's policy of financial priorities. Eventually, this situation of crisis led to a change in the strategies followed by OHC, and new approaches closer to the free market economy had to be endorsed. In 1993, the Council of State endorsed Decree-Law 143 (*Gaceta Oficial de la República de Cuba*, 2011) which empowered OHC with financial and legal powers and legal personality. In this way OHC would have more freedom of action to find the financial resources required for the restoration of the city. Thus, new arrangements were agreed upon, and since then OHC has directly worked with the Council of State and any red tape is avoided. This Decree-Law is unprecedented and provided the organization (headed in a particular way with far reaching prospects) with the legal tools needed to carry out conservation work and research and disseminate historical heritage, whether tangible or intangible. Similarly, this new situation allowed the creation of new jobs, and professionals were occupied in several specialties. They were not only involved with the disciplines of restoration, and their frame of action was extended to the social management of communities living in these protected areas. The scope of restoration has consistently extended to several centers of the historic center. Following the pattern of the city's growth and its squares, a plan of rehabilitation for the historic center that covers 214 hectares has been designed (UNESCO-Plan Maestro, 2006). It is worth mentioning the creation of the Master Plan (MP) in 1994, involved with the comprehensive renovation of Old Havana (Fig. 2.3). The goals of MP are aimed at the preservation of the legacy inherited, but the residential character of the area has also been considered. Similarly, a balance between socioeconomic development and cultural values and also self-financing strategies to boost the local economy and promote sustainable development has been considered. In short, MP studies and proposes strategic development guidelines that make the city a lively entity and would not turn it into a city looking like a museum.

Foundation of Management Models

Historical archaeology is the branch of archaeology that studies social and historical process through the physical evidences left by former societies, right after the sixteenth century until industrialization and according to the specifics of each

[2] Historic center means the combination of urban buildings, public and private spaces, streets, squares, and the geography or topography of the surroundings where it is settled. At one point in history, it had a clear-cut appearance of a social community, particularized and organized. Havana's historic center covers the area enclosed by the former city walls and the sea.

Fig. 2.3 Zones envisaged for rehabilitation under the Master Plan in formerly walled Havana and out of the walls

region (Orser, 2000). The actual practice of this type of archaeology in urban centers has made its way close to the rehabilitation process. It is a discipline that has matured and expanded its scope since the study area includes both the subsoil and the structures built above ground. In this sense, historical archaeology in urban areas should focus on the study of the city as a single site, together with the changes and different construction stages along its development.

The archaeological work underway in the historic center of Old Havana since the end of the 1960s has provided the city with the basics of archaeology, formerly unnoticed (Romero, 1995). It has contributed to this dimension that goes beyond the city's rich architecture, one of its features. However, we believe that not only greater visibility of the archaeological heritage is necessary but also it should be better understood. This would allow the management of this heritage and set the

guidelines for effective management plans of resources within urban rehabilitation (Castillo & Menéndez, 2014). To do this, we must develop a management model to characterize, classify, protect, and disseminate the archaeological values of the city. The model should also serve as a reference within the work of restoration and validate, upon consultation, planning work prior to execution.

Theoretical Framework

Preventive Archaeology (PAC) provides a frame of concepts that extend the theoretical and instrumental horizon of urban archaeological practice.

> The goal of PAC is to avoid the impact of construction works and earthworks in archaeological sites, preserving them untouched for the future. (…) within the concept of PAC that we uphold, there are actions included such as those involving documentation and making a better use of remains for the benefit of History and society. These remains are destroyed because of social and economic reasons and very often, because of political motivation. Naturally, the main goal of modern PAC is that the number of "preserved" sites should be greater than the number of "excavated" sites and that the addition of both be greater than the number of those "destroyed without previous documentation (Querol, 2010, p 215)

The actual practice of this kind of work begins by giving priority to the sites. In this way, each site is rated according to its value. This is done based on a number of attributes previously established. In line with this plan of action, Reserve Areas are established. They have the highest values and are introduced in urban planning as "protected land" and would be untouched by the works. Caution Areas are those with an average degree of protection and are included in the plans as soils with a special treatment. Archaeological work would be conducted before approval of any construction project. So, actions would be conducted in the different areas so as to determine the degrees of protection and consequently be included in the plans for land use, whether general or territorial. Thus, the following is defined:

First stage preventive archaeology: This stage includes surveying and giving priority to the sites when there is a general plan for town planning or any other planning or change involved with respect thereof. It aims to establish lands of Reserve Areas and Areas of Caution. In this case, the procedure is performed through surface surveys, supported by background information on the sites listed or known—literature, photography, mapping, surveys, etc. Boreholes are not included in this stage. The result is a series of sites located and documented and areas where their presence is suspected. This will be delivered along with a list of sites with the corresponding degrees of protection (Querol, 2010).

Second stage preventive archaeology: This stage includes surveys and boreholes if required in Areas of Caution before any project is endorsed or earthworks are started which may damage the sites. Its aim is to determine the size and importance of sites so that they may be turned into Reserve Areas or be integrated or demolished with or without previous excavation. The procedure includes surveys and boreholes with the aims that construction disturbs archaeological remains the least possible (Querol, 2010).

It also provides for the integration of archaeological sites rated as Reserve Areas. They should be integrated within public spaces or green areas within the construction project so that they would not be disturbed by any earthworks. PAC "*endeavors to defend preservation versus intervention, integration of the archaeological heritage versus* "*free intervention of developers in the land*" … *in this way the remains of the past would have a future or vice versa, and the future would be able to enjoy the past*" (Querol, 2010, p 216). This can only be achieved if we investigate and evaluate the archaeological heritage before any planning. In this regard, the strategy should be arranged with the relevant parties involved with the management and rehabilitation plans of the city. The result is the knowledge and appreciation of archaeological heritage before any planning is done, and guidelines are timely introduced depending on actual needs.

PAC has given way to a new stage in the management of archaeological heritage. This will preserve the sites before the destruction implied by an excavation made without a plan for assessment and conservation when this excavation is not linked with a research project, and data would be gathered at the expense of historical knowledge. Likewise, the destruction of archaeological soils caused by construction works is prevented.

General Goals

For the implementation of our proposal, the following is required:

- Characterization of areas of archaeological interest
- Establishment of different degrees of protection
- Draw intervention strategies based on the historical knowledge of the city
- Present regulations which control implementation of the proposal within management plans for the rehabilitation of the built heritage

Specific Goals

- To prioritize the sites under investigation, defining the object of study, either by following chronological guidelines or space-time which may represent changes and development within the city
- To integrate the results into a database that includes these values, characterization, and possible variations

Procedure

According to PAC there would be a first stage to make the analysis and documentation of spaces, built or not, covered by the research framework mentioned before and defines the degree of protection. Then, there would be a second stage to determine the form of intervention depending on the degree of protection.

Havana's historic center has the highest degree for heritage protection in Cuba, and the area has been rated as an endangered archaeological zone, so:

> As long as urban archaeology continues growing and becomes troublesome for private and state developers, the need to integrate archaeology in a way that it does not become an

> obstacle for city development would be increasingly evident […] In this case, it would not suffice to point out areas with an archaeological interest. As it has been clearly put forth by V. Negri (1995:311 ss), there would be a change in the concept of archaeological zone. When it is applied in an urban setting it would mean "archaeological risk zone." By defining this zone we not only mean that there is an area where constructions are prohibited but also we are warned on the existence of risks and a high level of responsibility implied. Therefore, developers must not only consider that event, but also, they must guarantee reasonable management of the archaeological heritage, being there a mutually beneficial understanding among the parties involved. The archaeological risks implied (the need for the physical elimination of a large percentage of archaeological evidences) should be brought into a financial language or price payable by the developers, all of which would allow for the documentation of the archaeological site. (Rodriguez, 2004, p. 165)

This term implies a level of awareness and responsibility for the space or site proposed for intervention. Numbers corresponding to classification levels of the sites would be designated in this case.

Archaeological risk zone 1 (*ZrA-1*): On the suspicion of significance of this zone within the urban and social setting of the city, it should not be disturbed by the developers. Instead, it should be integrated within projects that do not disturb soils, walls, or surfaces which should be reserved for future archaeological works (the subsoil and elevations are included as well) according to the concrete goals of a research. The following are zoning examples: the layout of the city walls (the section facing the sea and the section right inland), religious spaces and possible burial sites, public spaces and buildings in the vicinity which feature the space, spaces devoted to the military, and remarkable urban infrastructure works.

Archaeological risk zone 2 (*ZrA-2*): Under this concept, zones apparently less important would be included. Before any development plan is started, they should be intervened (boreholes or surface surveys) to determine extent, integration, or change of category into ZrA-1. So, under the first stage of PAC, sites would be classified as ZrA-1 and ZrA-2, depending on the degree for protection. In the case of ZrA-1, these sites should remain undisturbed and be reserved for researches. There would be programs which would integrate and assess them for the benefit of society. In the case of the second stage of preventive archaeology zones under ZrA-2, they would be intervened before any earthwork is undertaken (Menéndez, 2010).

These works would be implemented through surface surveys or boreholes. Depending on the importance, the results may be integrated or not within the project of construction. If required, there would also be an archaeological assessment during the period construction takes place.

Defining Zones for Protection

The determination of zones for protection calls for an interpretation of the city as a single site where development and changes are closely linked to the people living there. The human landscape is structured actively and constantly, following patterns of space organization where the buildings are evidences of different periods of history.

Our work is then based on the study and analysis of historical and archaeological sources available on the development of the city's urban space structure and the buildings that have become landmarks of their time. This involves establishing assessment levels for the archaeological, architectural, and historical record. In this regard, the proposal includes different stages of work which will correspondingly interact.

- Study of documents representing the city's growth over time. Their analysis would contribute to clearly demarcate space and time in terms of historical and archaeological knowledge.
- Creating an inventory of archaeological interventions that have been made in the city. This data field will be recorded in forms containing information. They will also help in diagnosis.
- Assessment of those areas that have not been intervened but could possibly have an archaeological interest. Likewise, this evaluation would allow for a diagnostic study of a particular area and compare with the hypotheses and produce new approaches.
- Based on the information analyzed, classifications of Archaeological Risk Zone 1 and 2 (ZrA-1 and ZrA-2) would be proposed.
- Intertwining our results with urban management and rehabilitation plans of the city.
- Create joint work agreements and observe archaeological assessment before and during construction works.
- Computerization of results and creation of a database for search and reference which would make urban interventions viable and allow for the effective treatment of archaeological values of the city.

According to the first stage of work that has been planned, the studies that have been conducted up to date have focused on the area of foundation of the city (first sector). These have produced a data system that allows characterizing and evaluating the area with the highest degree for protection based on historical and archaeological significance (Fig. 2.4).

Conclusions

The implementation of the project establishes an initial town planning scheme, which will include a list with a number of sites listed and cataloged. The information may be consulted before the design of any rehabilitation plan, which eventually would contribute to manage and complement the said plan. In this way, damages that may result from the intervention itself in the subsoil and elevations would be minimal.

On the other hand, considering there is a plan for the protection of soils and elevations, long-term and short-term research strategies may be laid down. They will provide the answers for different goals, whether general or specific.

The implementation of this model would mark a change on the approach of archaeology, adding prestige to the discipline's social outlook, particularly when "salvage,

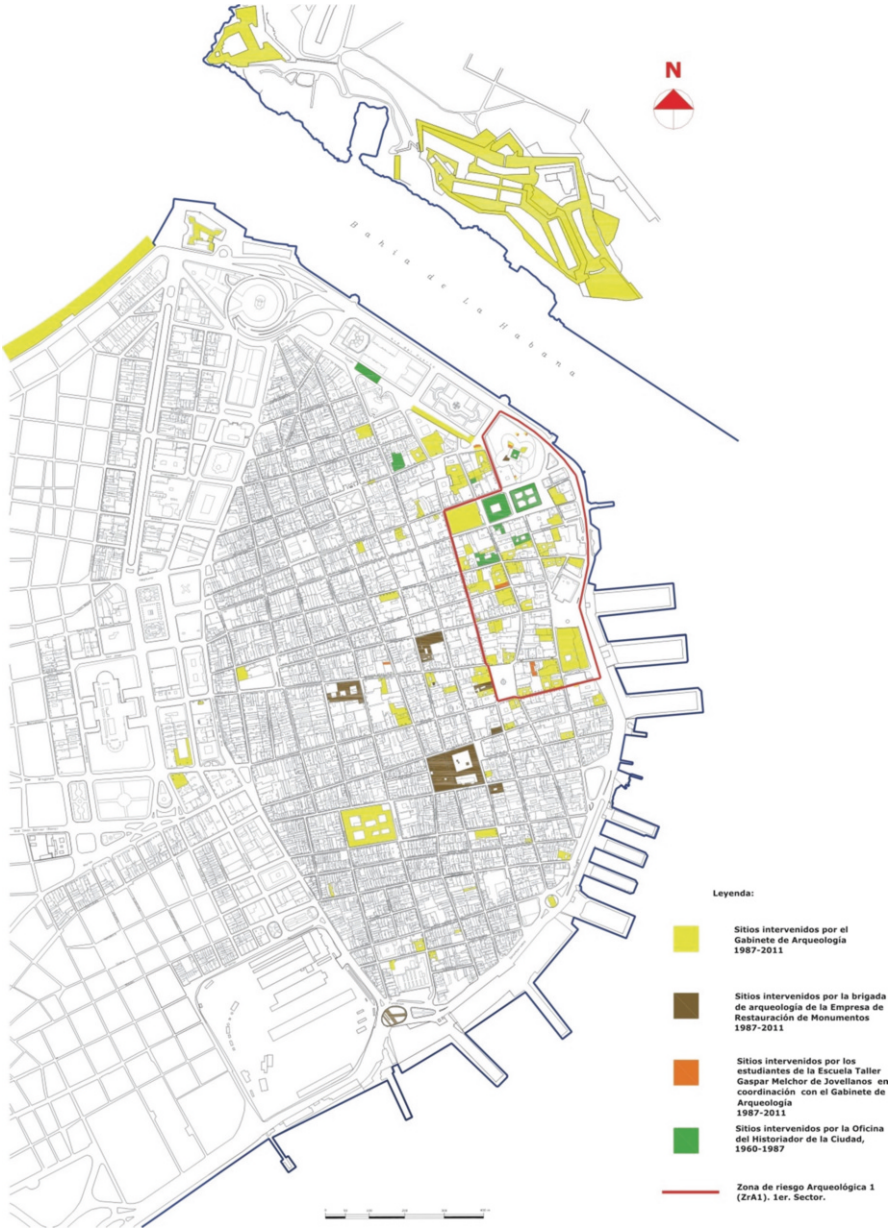

Fig. 2.4 Stage I: Archaeological map. Study and classification of spaces intervened. Demarcation of zones with the corresponding degrees for protection (ZrA-1 to ZrA-2)

rescue, or emergency excavations" would not be made anymore. Its application in line with the principles of preventive archaeology allows the organization of restoration works of heritage, thus making integral planning involved possible. Therefore, there is quality in the treatment of archaeological heritage, which is ultimately the quality of its knowledge, management and administration, and integration and preservation.

Town planning schemes should be submitted to the departments and organizations linked with the study, planning, management, and dissemination of rehabilitation work in the city. Likewise, a great importance is considered for the standardization of the plan's execution. This can be done through the National Commission of Monuments of the Ministry of Culture, which is the authority on archaeological issues in this regard in Cuba. By creating these protocols there would be a positive impact for the management of the archaeological heritage of historic centers in the rest of the island. Within this framework, we have created the Working Group for the Management of Archaeological Heritage in the Historic Centers of Cuba (GPACC). It is made up by teams from several departments within the country, entrusted with the study, discussion, and suggestion of alternatives to guide the archaeological work in urban areas.

Moreover, teaching is one of the fields where planning and building this type of archaeological practice should be done. Integral education and training under a multidisciplinary approach within the management of cultural heritage is increasingly demanded. On the other hand, we must bear and be aware of the social responsibility ahead of us as the producers and defenders of archaeological and historical knowledge. The implementation of any research in this field similarly implies a social, ethical, and scientific commitment. Therefore,

> … knowing that the concept of Historical Heritage (…) gathers several entities from past bestowed by certain qualities by our society so as to turn them into the means and foundation of current claims and desires, we say (…) Archaeology, History, the History of Art and other disciplines involved in historic heritage and its management are nothing but an interpretation, and as such triggers hermeneutic and cognitive dimensions and produces and manipulates intellectual values and knowledge, and involves different type and level instances. (Criado, 1996, pp. 73–78)

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Chapter 3
A Three-Dimensional Approach to the Documentation and Analysis of Heritage Sites: A Case Study from the Cypriot Cultural Heritage Landscape

S. Hermon, D. Pilides, G. Iannone, and N. Amico

Abstract Cypriot archaeology presents a challenging reality regarding documentation of cultural heritage: due to its exceptional archaeological richness, the island was subject to archaeological investigations as early as the eighteenth century. Archaeological sites present a complex stratigraphy, with many over layers of human occupation spanning over hundreds of years; historic buildings have a long history of construction and modification. This reality requires accurate methods of documentation and carefully planned management programmes for the preservation, restoration and presentation to the public. Since 2009, a team of researchers from the Cyprus Institute and the Department of Antiquities are experimenting digital and imaging technologies for the documentation and interpretation of archaeological and architectural remains aiming at defining the best practices for the documentation and management of cultural heritage in Cyprus. The paper presents first results of this research, integrating structure-from-motion with laser scanning for field registration and open source solution for analysis and interpretation

Keywords TLS (terrestrial laser scanner) • SFM (structure-from-motion) • CAD system • Software • Open source

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Introduction

A major challenge in recording archaeological field excavations or architectonic heritage is to obtain an outcome that accurately reflects the documented reality, in as short as possible time and with minimum economic investment. While traditional methods imply the use of hand measurements and drawings, recent years development gradually shifted the documentation work from analogue to digital (Hermon, 2012). The advantages of digital techniques for documentation are many; among them, the most promising is the possibility to use and reuse their outcome in a variety of media—archaeological research, archiving, site management, education or tourism (Hermon, 2008). For example, a hand-drawn map is by far less attractive to the untrained eye of a museum visitor than a 3D model of the same area. Moreover, a 3D documentation records a much higher amount of information, at high accuracy levels. Major obstacles in a full-scale of digital documentation are the relatively high prices of required equipment and training of professional staff operating it and analysing its outcome (Hermon et al., 2012).

During the last 3 years, a research group from the Cyprus Institute teamed up with the Cyprus Department of Antiquities in order to explore the best practices in archaeological field documentation, analysis of results and architectonic documentation for conservation/preservation and management of cultural heritage sites. The project focuses on testing various methods of digital recording of remains and their laboratory post-processing. Among them, the most successful are structure-from-motion on smaller-scale areas, integrated with 3D registrations of larger areas, obtained with a laser scanning technology. The fieldwork outcomes are processed in the lab, mostly by open-source software, in order to obtain a 3D outcome useful for further archaeological investigation, archiving and publication of results.

Description of the Case Study

The site of Agios Georgios (PA.SY.D.Y.) (Fig. 3.1) is one of the largest in the capital city of Cyprus, Nicosia, covering a time span of ca. 3,500 years (Pilides, 2003). Earliest evidences of human occupation date back to the late Chalcolithic period (the fourth millennium B.C.), while latest occupation dates to the Venetians of the fifteenth century. Notable remains from the Archaic and Classic periods are pottery workshops (Pilides, 2004), most likely connected to a sacred place (sanctuary). An urban area, with planned orthogonal streets, was identified, along with what are apparently the remains of public and administrative buildings. Another area, located further north, was occupied mainly during historic periods, from the eighth century A.D. and onwards, and contains the remains of several layers of construction and destruction of a church, with related buildings. Burial activities at the site were noted as well, all from the later historic periods.

The site was excavated using the Wheeler method, in a grid system of 5×5 m^2 squares, where a 4×4 m area was excavated in each square, leaving a “baulk” for

Fig. 3.1 Google Earth view of the site

stratigraphy control; whenever needed, these "baulks" were removed in order to level the area to a desired depth. All remains were collected and catalogued. Thus, the site presents many challenges in terms of documentation, with complex stratigraphic remains, a rich repertoire of finds of various types (architectonic decorative remains, pottery, stone objects, etc.), as well as monumental architectural remains.

Workflow Methodology

While planning the field documentation campaign, we have addressed several challenges: (a) definition of a methodology for the daily documentation of the excavation process (obtain a 3D "journal" of the excavation); (b) 3D registration of the entire excavated area with its architectonic remains, for further study of stratigraphy and analysis of walls; and (c) obtaining an outcome easily understandable and printable for final publication and archive a complete documentation of the site for further analysis needed for management and restoration works (the site is due to be opened for the public and integrated within a public park). An area of ca. 50 m × 40 m, with depths varying between 50 and 200 cm, which corresponds to the overall extension of exposed archaeological remains, was subject to digital registration (Hermon et al., 2010), using two different and complementary methodologies: the first, employed for the registration of large areas in the last phases of the excavation, is laser scanning (Jones, 2011; Peloso, 2005; Richter, Kuester, Levy, & Najjar, 2012; Scopigno, 2006; Sgrezaroli & Vassena, 2007), while the second, used for complementing areas not covered by the first and the daily registration of the excavated remains, is structure-from-motion (Callieri et al., 2011; Forte, Dell'Unto, Issavi, Onsurez, & Lercari, 2012; Kersten & Lindstaedt, 2012; Vergauwen & Van Gool, 2006).

The main device used for the laser acquisition is a phase-shift hemispherical laser scanner manufactured by Surphaser. This is a middle-range scanner with a horizontal view of 360° and a vertical view of 270° and with a speed acquisition of 1,200.000 points per second, covering an area with a radius of maximum 20 m. The obtained result is a point loud with different tonalities of grey, which correspond to the reflectance level of materials hit by the laser beam (Figs. 3.2 and 3.3). Targets were positioned along the scanned area, in order to facilitate the post-processing of alignment of the various scans. There is no maximum limit to the number of placed targets; the minimum number varies according to the positions of scans. In our case, we have positioned 36 targets along the subject area. Each scan overlapped by ca. 20 % with the other, in order to facilitate the post-processing phase of unifying the various scans into a single file. This process served to obtain an accurate (less than 1 cm error) 3D model, to be integrated with others made in previous campaigns and to rectify previously made measurements using analogue methods.

Fig. 3.2 3D model of excavated area, earliest layers

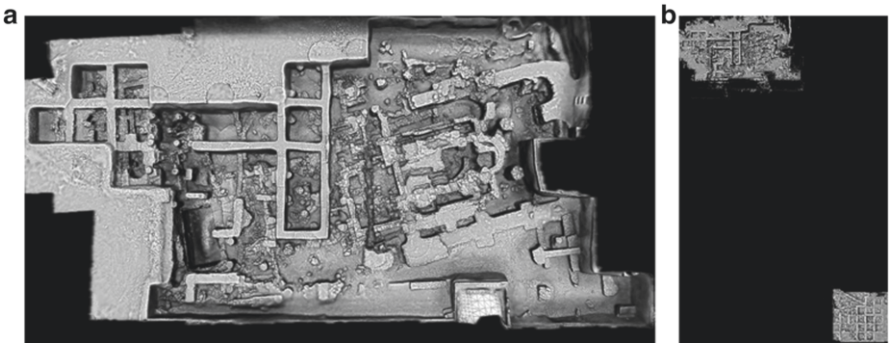

Fig. 3.3 (**a**) 3D model of the churches area. (**b**) Both areas integrated

It is important to mention that laser scanner is not affected by light conditions; it requires a constant supply of energy, which was delivered by external batteries (in our case regular laptop ones), connected to the scanner. Total station points and GPS readings facilitated the integration of the 3D point clouds from different areas into a single file and its geo-referencing and positioning on Google earth and local cadastral maps, with a margin of error of a few cm. Two days of fieldwork of laser scanning (ca. 20 scans from various positions) were sufficient to cover the target area of ca. 2,000 m^2. An additional area, which extends over ca. 2,500 m^2, where remains of overlapping churches were uncovered, was scanned in additional two days, using 26 scans.

Large architectonic remains and architectural decorative pieces were 3D documented using laser scanners (Surphaser for larger items, Next Engine for smaller

Fig. 3.4 3D models of architectonic fragments

ones) (Fig. 3.4). Overall, 24 pieces were 3D documented, either with the laser scanner or structure-from-motion. 3D models were further used for metrical analyses (various measurements and ratios), analyses of geometry (fragmentary pieces being virtually restored) or investigation of surface, a future detailed conservation/restoration analysis (e.g., identification of cracks), identification of chisels marks, etc.

The second technique implemented in the field documentation is structure-from-motion. This innovative technique requires a regular digital camera and adequate software or a web-based service for transforming sets of images into a 3D model. In our case, we have used a Nikon D3X camera with different lenses. This technique was implemented for the daily registration of the excavation remains in each square (Fig. 3.5) and to complement the registration of areas "missed" by the laser scanner (due to high depth differences within a small area, or in areas where we could not position well the laser scanner. Each selected square was photographed at intervals of every third day, and 3D models were overlapped in order to reconstruct the history of the excavation (Fig. 3.6).

We have shot ca. 20 images in average for each square, images being saved in raw format. Arc 3D web service (http://homes.esat.kuleuven.be/~visit3d/webservice/v2/) and 123D Catch (http://www.123dapp.com/catch) were used to obtain 3D point clouds from images. Since in each photo we have used the same targets as the laser scanners, we could easily align and integrate all separate point clouds together. Moreover, during the acquisition of images, standard scales were positioned within the squares, in order to scale the point clouds. This method registered not only the 3D geometry of the target area, but accurate colour information as well. The use of standard colour charts enabled the calibration of colours and rectification of possible deviations due to camera and lighting conditions.

Several software were used during the post-processing of fieldwork, the most common one, used for the creation of meshes from point clouds and for several further analyses, was Meshlab (http://meshlab.sourceforge.net/). This software was used for the alignment of various point clouds, their simplification (cleaning of redundant points) and transformation in meshes. Further investigations included separation of layers, overlapping of excavation events, extraction of relevant features and annotations on the 3D models and measurements.

Fig. 3.5 Alignment of 3D models of separate excavation squares

Preliminary Results

The integration of the two methods of documentation presented above proved efficient for the definition of a working methodology for a fast, efficient and accurate methodology of 3D documentation of archaeological excavations and standing monuments. We were able to create an "excavation journal" in 3D, to be integrated with other forms of documentation. Thus, observations on the excavated (and thus destroyed) archaeological layers could be made on the digital replica obtained. Moreover, the possibility to explore various levels of detail (zooming) and from different rotating angles proved that a 3D digital replica could be used in the archaeological reasoning. The 3D scanning of the entire excavation area with the means of

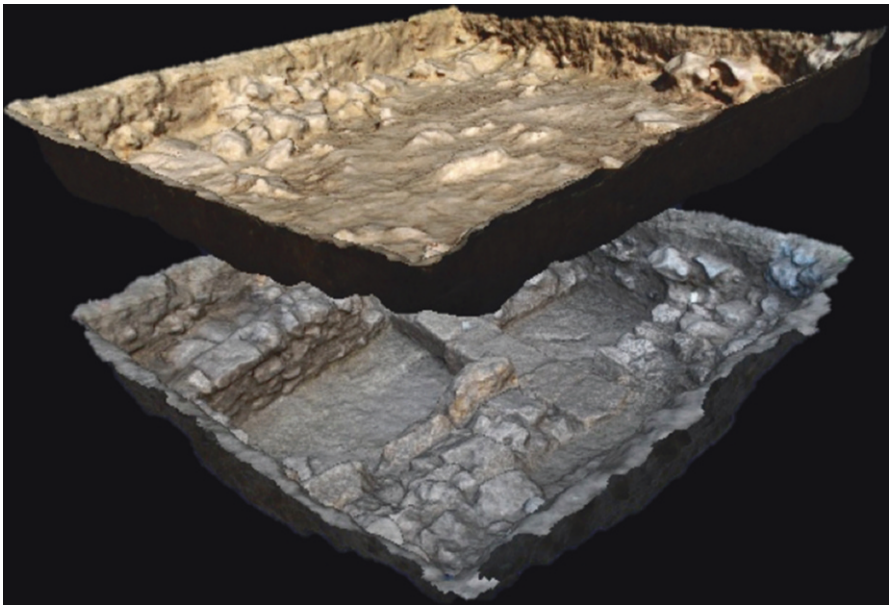

Fig. 3.6 Overlap of 3D models of same square at sequential excavation episodes

Fig. 3.7 Hypothetical virtual reconstruction of various construction phases

the laser scanner proved to be an efficient step in obtaining an accurate (maximum error of 1 cm) 3D plan of the excavation area. It contained information regarding any detail from the excavation area, such as geometry of stones, mortars used, scattered fragments, etc. Consequently, a 3D analysis of remains could be performed, for example, understanding the architectural history of the churches, their orientation, etc. (Fig. 3.7).

In order to understand associations between fragments of walls, we have analysed their position and orientation in the 3D space, their composition (shape and size of stones and mortars) as well as their foundations where visible. This stage was performed on the 3D model itself. The flexibility of the 3D model to be manipulated in the virtual space (rotating, zooming, slicing, etc.) proved to be extremely efficient at this interpretative stage.

Discussion and Future Work

We have presented above the implementation of 3D documentation methods for three distinctive tasks:

(a) Creation of a 3D "excavation diary", where the destructive process of an archaeological excavation was accurately recorded using the structure-from-motion technique. The digital outcome is a set of overlapping scaled 3D models, containing a high amount of information about the geometry of the excavated features and their layers, as well as calibrated colour information. This task was easy and efficiently executes with the structure-from-motion technique, easily comprehendible and applicable.
(b) Creation of a comprehensive 3D plan of the entire excavation area, containing detailed information on all features, walls and structures. This task was performed with a middle-range laser scanner, which proved to be efficient, accurate and cost-efficient.
(c) 3D recording of architectonic features to be analysed for conservation/restoration purposes, as well as for a tentative for their virtual relocation in their original place. Both laser scanning and structure-from-motion techniques were implemented on the documentation of architectonic fragments, depending on their size and mobility. Here again, the added value of the 3D model to the archaeological research is notable—for example, by evaluating the virtual repositioning of these pieces in their original location through simulations and measurements and visual investigation.

There are additional outcomes of 3D documentation—once the 3D model of the excavation is geo-referenced, it was localised on cadastral maps, a very important feature when there is a need, for example, to accurately delineate borders of various parcels. Moreover, once a 3D model is obtained, it can be used to simulate virtual restorations and evaluate overall impact. New research questions can be asked, such as simulation of lightning inside churches, delineation and extraction of streets or extension of fragmentary walls. 3D models can be used for the management of the archaeological site, including monitoring of remains (by periodically scanning and, for example, comparing alterations in the geometry over time), creating digital replicas at various levels of detail informing citizen about the site and enhancing their visiting experience or integrating the 3D models in educational programmes.

Future archaeological work will consist of an exhaustive archaeological analysis of remains, completion of the virtual reconstruction at the site and digital repositioning of selected artefacts within the 3D model, in order to perform a spatial analysis and visual investigation of relationships between them (3D spatial analysis). From a digital technologies perspective, further developments include new functions in Meshlab, improve robustness of online publication of 3D models and development of web-based tools for their investigation (e.g., changing light source direction, integration of various filters, etc.).

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Chapter 4
The Willandra Lakes Region World Heritage Area, New South Wales, Australia: Land Use Planning and Management of Aboriginal and Archaeological Heritage

H. Johnston

Abstract The Willandra Lakes Region is a series of dry lakes in southwest New South Wales, Australia, set within a semiarid landscape. The region covers some 239,000 hectares and was inscribed on the World Heritage List in 1981. Since world heritage inscription, the region has been transformed. Plans of management have been developed at the regional, property and individual archaeological site level. Mungo National Park has expanded significantly and now encompasses many of the key archaeological sites. Grazing and cropping continue on private lands in the World Heritage Region, but the pattern of land use in these areas has been extensively modified to reduce the impacts of grazing on the fragile soils and the archaeological values they contain. All of these actions have been designed to improve the conservation of archaeological values and have involved long-term and ongoing consultation and planning between private landholders, Aboriginal Elders, government land managers and academic researchers.

Keywords Australia • Willandra Lakes • Mungo • Last glacial maximum • Archaeological site management • Aboriginal heritage • Land use planning

Introduction

The Willandra Lakes are a series of 6 large and 13 small lake basins, set within a dry linear dune system in the southwest of New South Wales (NSW), Australia (Fig. 4.1). The lake basins range in size from 4 to 38,000 ha, and each is surrounded on its eastern side by a lunette or transverse dune. The Lake Mungo lunette is called the 'Walls of China'. The specific origins of the name are unclear, but the 'China'

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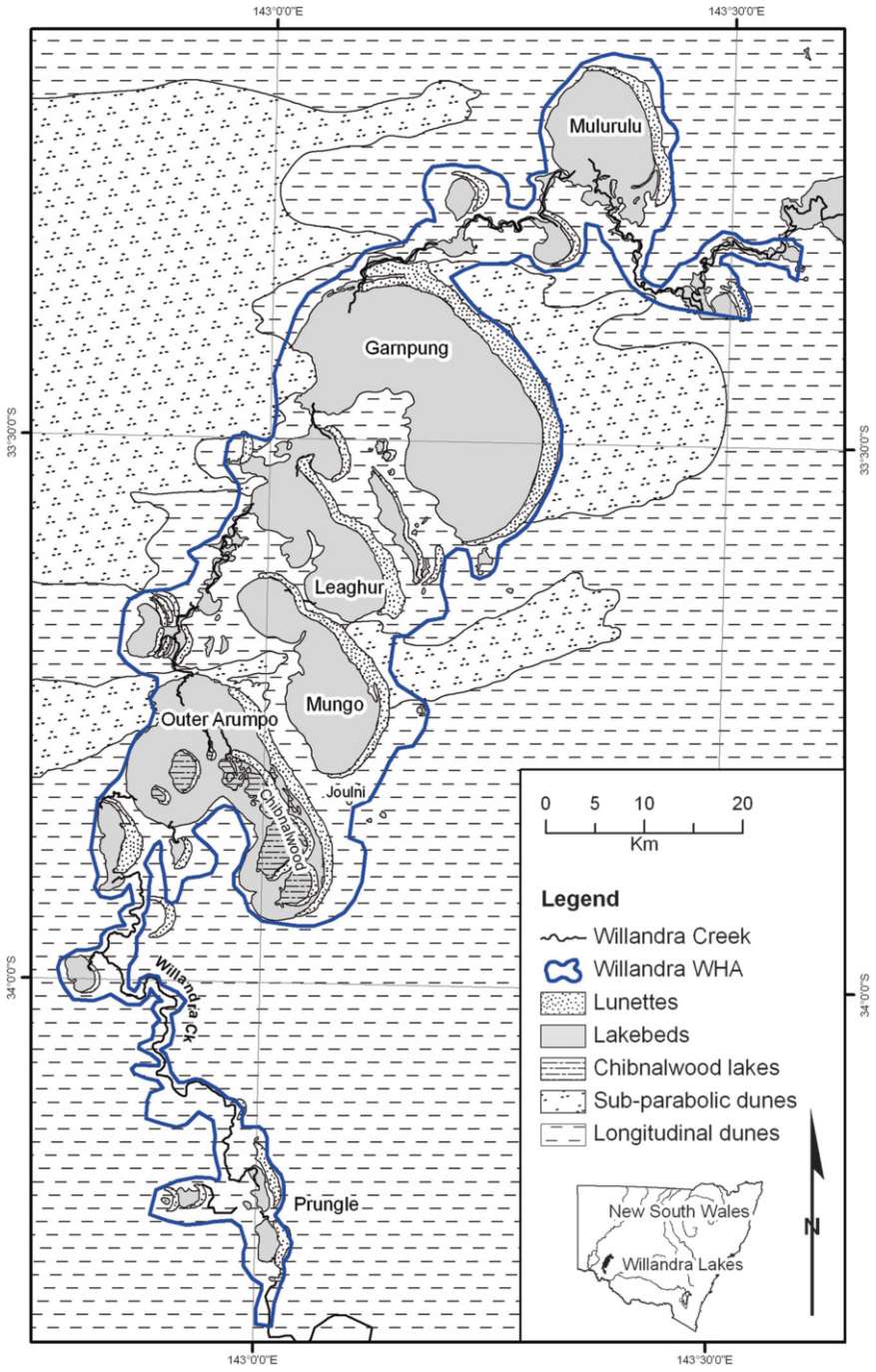

Fig. 4.1 The Willandra Lakes Region World Heritage Area and the landforms of dunes, lakebeds and lunettes that characterise the region. *Inset map* shows the location of the Willandra Lakes within NSW, Australia

referred to is possibly either a reference to porcelain and the extensive white sand dunes that cap the lunette or a label developed in association with Chinese labourers who worked at Lake Mungo in the 1880s.

The Willandra Lakes, and more specifically the Walls of China at Lake Mungo, were propelled into archaeological fame in March 1969 with the discovery of one of the world's oldest cremated remains, that of a young woman, Mungo Woman or Mungo 1. Her grave was situated in the archaeologically rich lunette on the southern margin of the lake (Bowler, Jones, Allen, & Thorne, 1970). Following this initial discovery Mulvaney (1972) reported that ochre was found on the Mungo stratigraphic unit and surmised that some artistic function had occurred on the site. Early in 1974 this speculation was confirmed with the discovery of another Pleistocene burial (Mungo Man or Mungo III) (Bowler & Thorne, 1976), this time surrounded by ochre-stained sands that indicated a ceremonial interment. This further enhanced the reputation of the region as an outstanding location for understanding the patterns of life, death, ceremony and burial within Australia's earliest Aboriginal people. These early discoveries were followed by further studies on the geology of the region and the archaeology of the first Willandra people (Allen, 1972, 1974; Barbetti & Allen, 1972; Bowler & Magee, 1978; Bowler, Thorne, & Polach, 1972; Shawcross, 1975, 1998; Thorne, 1971, 1976; Webb, 1989). Since the original discovery in 1969, the antiquity of Mungo Woman and Mungo Man has been hotly debated (Bowler et al., 2003; Bowler & Magee, 2000; Thorne et al., 1999), but the dating of this burial appears resolved at 41,000–42,000 years B.P. (Olley, Roberts, Yoshida, & Bowler, 2006). This age indicates that the skeletal remains of Mungo Man and Mungo Woman are some of the earliest modern *Homo sapiens* outside Africa. The significance of Mungo Woman has recently been summarised by Mulvaney (2011):

> In retrospect, "Mungo Lady" is the earliest evidence in the world for a cremation ritual. She was modern Homo sapiens. The burial practice establishes that symbolic thought and ritual behaviour existed at that time and, later research has revised the date even deeper into the past to some 42,000 years. For Aboriginal people, this evidence is inspirational; for archaeologists it dates Australia's first colonisation and the existence of abstract thinking. For the origins of modern society, this find is surely in the same league of significance as the evidence for earlier evolutionary human behaviour that was located by Louis Leakey at Olduvai Gorge. I feel honoured to have been present for its discovery. (p. 152)

The Willandra Lakes contain an archaeological record spanning the period from the late Pleistocene, through the last glacial maximum, and into the Holocene. The earliest archaeological indications date to between 46,000 and 50,000 years B.P. (Bowler et al., 2003). More extensive archaeological evidence in the form of burials, shell middens, fireplaces, fauna, stone artefacts and quarries exist from ca. 45,000 years B.P. through to recent times. Archaeologically the location has provided a forum for debate on the origins and physical characteristics of ancestral Australians (Brown, 2000; Pardoe, 2006; Thorne, 1976), contributed to the discussion on the extinction of megafauna in Australia (McIntyre & Hope, 1978) and on the development of Australian stone tool technology (Allen, 1974; Allen & Holdaway, 2009).

The lakes held water through much of the late Pleistocene, including the last glacial maximum, and dried ca. 18,500 years B.P. (Bowler, Gillespie, Johnston, & Boljkovac, 2012). An extensive research programme over more than four decades by Jim Bowler, John Magee and others have established lunettes as key archives for the interpretation of the late Pleistocene climates in southeastern Australia and the southern hemisphere (Bowler, 1998; Bowler et al., 2012; Bowler & Magee, 1978). For Aboriginal people the region has provided a key place of symbolic value in their claims for self-identity, assertions of native title and ancestral ownership and occupation of Australia (McBryde, 1995).

In recognition of these cultural and geological values, the Willandra Lakes Region (Willandra WHA) was inscribed on the World Heritage List in 1981. A fundamental characteristic of the Willandra Lakes Region is its dual listing; the region is inscribed on the World Heritage List for its outstanding universal value under both cultural heritage (iii) and natural (viii) criteria:

> (iii) Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.
>
> (viii) Be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features.

Sustaining the Willandra

The intertwining of geology and culture, so evident in the world heritage listing of the region, has antecedents in much earlier times. Geologically, lunettes are transverse dunes on the eastern or windward margin of lake basins; each lunette is composed of sediment derived from either lake floor clays or lake shore sands. However, when viewed from a cultural perspective, lunettes were formed not by geological processes but by Bookoomuri, ancestral beings that inhabited the land before Aboriginal people. One of the few early Willandra sources on Aboriginal creation stories comes from Cameron (1885) who published what he termed a local Aboriginal 'tradition' that described how the Willandra Creek and lakes were formed. The tradition recounts how two Bookoomuri chased a giant kangaroo south from Hillston along the Willandra Creek. The hills (i.e. lunettes) are the camps of the Bookoomuri as they followed the kangaroo. The Willandra Creek is the track of the kangaroo as it fled.

The juxtaposition of both cultural and natural values, evident in 'traditions' such as these, has carried forward into management measures for the region and has led to an emphasis on landscape management. The region's archaeological values are physically embedded within the geological landscape of the region. In particular, the lunettes that fringe each of the lake basins contain an extensive archaeological record, and the archaeological values of the Willandra are intimately connected to this geological landscape. This intertwined heritage provides the region's unique insights into the past, but has also resulted in a land planning approach that seeks to

conserve both landforms and geomorphology on the one hand and archaeology on the other. These aims are in many ways complementary; the soft aeolian semiarid landscapes of the region are susceptible to erosion, gullying and clay pan development (Green, 1987), and good land management will also benefit cultural heritage conservation. Left unchecked erosion will lead inevitably to increased dispersal of archaeological materials and reduced sustainability of the region's pastoral industry.

Within Australia, protection of archaeological features is largely, although not solely, administered by state law. In NSW a legal distinction is made between historic (non-Aboriginal) objects and Aboriginal objects. The former is controlled by the NSW Heritage Act (1977). Aboriginal objects, including archaeological deposits, objects, ancestral remains and material evidence, are protected by the National Parks and Wildlife Act (1974), and there are wide-ranging policies, guidelines and regulations in place to enforce this protection (Office of Environment & Heritage, 2012a). It is illegal to damage or disturb an Aboriginal object without a permit issued by the NSW Office of Environment and Heritage (OEH). This law has underpinned decision-making at all levels in the Willandra and provides legal certainty for the protection of Aboriginal and archaeological heritage in NSW.

In order to manage the Willandra Lakes Region World Heritage Area (WHA), a wide-ranging series of background studies were commissioned in the mid-1980s. These comprised various studies including archaeology, geomorphology, pastoral and Aboriginal history, fauna, flora and erosion. Of these, the most outstanding was Peter Clark's *Archaeology Resource Study* (Clark, 1987) which contains both invaluable summaries of the regional archaeological record and detailed inventories of locations, collections and excavations.

Since 1993 the Willandra Lakes WHA has been managed by a Community Management Committee (CMC) which is convened by an Independent Chairperson. This committee receives advice from a Technical and Scientific Advisory Committee (TSAC) and a Traditional Tribal Groups Elders Council (TTG). The CMC and TSAC are made up of landholders, Aboriginal Elders, scientists (archaeologist, geologist, rangeland ecologist) and local, state and federal government representatives. The traditional tribal groups for the area, the Paakantyi, Mutthi Mutthi and Ngyiampaa tribes, have been represented on the CMC and TSAC since these committees were formed.

In 1996 a Plan of Management (POM), *Sustaining the Willandra*, was prepared (Department of Environment, Sport & Territories, 1996). This POM included a strategic plan, an operational plan and an individual property plan (IPPs) for each of the private landholdings in the region. The development of the POM included extensive consultation with, and input from, landholders. As McBryde recognised in 1995, landholders were directly affected by world heritage listing and '*…Their involvement in conservation policy will be an essential element in its success'* (p. 12). Limits of time and space do not allow the full story of this process to be told in this paper; however, in summary the development of the POM was difficult; the world heritage listing of the Willandra in 1981 was done without consulting either the local landholders or Aboriginal people, and these key stakeholders therefore began to

participate in developing the POM from a position of scepticism and distrust. Over the period from 1993 to 1998, extensive resources and efforts were put into winning back trust and creating a positive view of the future for these stakeholders (Corbett & Lane, 1997).

The need for ongoing and long-term planning was further recognised in 2001 when a Regional Environmental Plan (REP) was legislated by the NSW government. The REP reinforces the need for appropriate planning to be in place at the strategic, operational and individual property level and more importantly has made it compulsory that all 'development applications', 'plans' and 'proposed activities' (as defined by the NSW Environmental Planning and Assessment Act 1979) are referred to the CMC, TSAC and the Elders Council for comment.

Individual Property Plans (IPPs)

Until the mid-1990s the region was dominated by pastoral land use, in particular sheep grazing with minor areas of wheat cropping. Following world heritage listing, several applications for land clearing and wheat cropping were rejected because the activity was not consistent with conservation of world heritage values. However, few other land planning decisions that actively conserved world heritage values were implemented. The 1996 POM ushered in extensive change for land planning and land use in the Willandra Region.

The Willandra posed a number of challenges in terms of the existing land use and the conservation of cultural heritage values. The region is highly susceptible to erosion. The soft aeolian sediments are protected by a thin cover of semiarid vegetation. The vegetation is susceptible to overgrazing, which, if removed, can lead to extensive erosion (e.g. during the 1937–1946 drought); impacts to cultural heritage then follow. Private land uses are largely concerned with sheep grazing, with minor areas of wheat cropping (Fig. 4.2). Before the IPPs were prepared, the general pattern of sheep grazing took place in large paddocks which lacked any natural surface water, and sheep were supplied with water from artificial watering points (bores, troughs and ground tanks). These watering points often made use of the sloping topography near lunettes, lake shores and creeks to catch, store and supply water. The subsequent stock activity near these archaeologically sensitive landforms accelerated erosion of the soft aeolian soils.

The IPPs, developed in 1996–1997, have provided critical direction for the management of the region over the last 17 years. The IPPs were produced by the Australian and NSW governments for each private land holding and were designed to allow sustainable multiple land uses while at the same time conserving the world heritage values of the region. The IPPs have also allowed landholders to manage private lands with certainty and with long-term planning. They contain detailed maps of each property outlining the existing and proposed infrastructure (e.g. fences, pipelines, watering points, roads, buildings, etc.). The proposed infrastructure is split into those that are designed to protect world heritage values and those that are for the benefit of the landholder operations. The former has been funded by the Australian government.

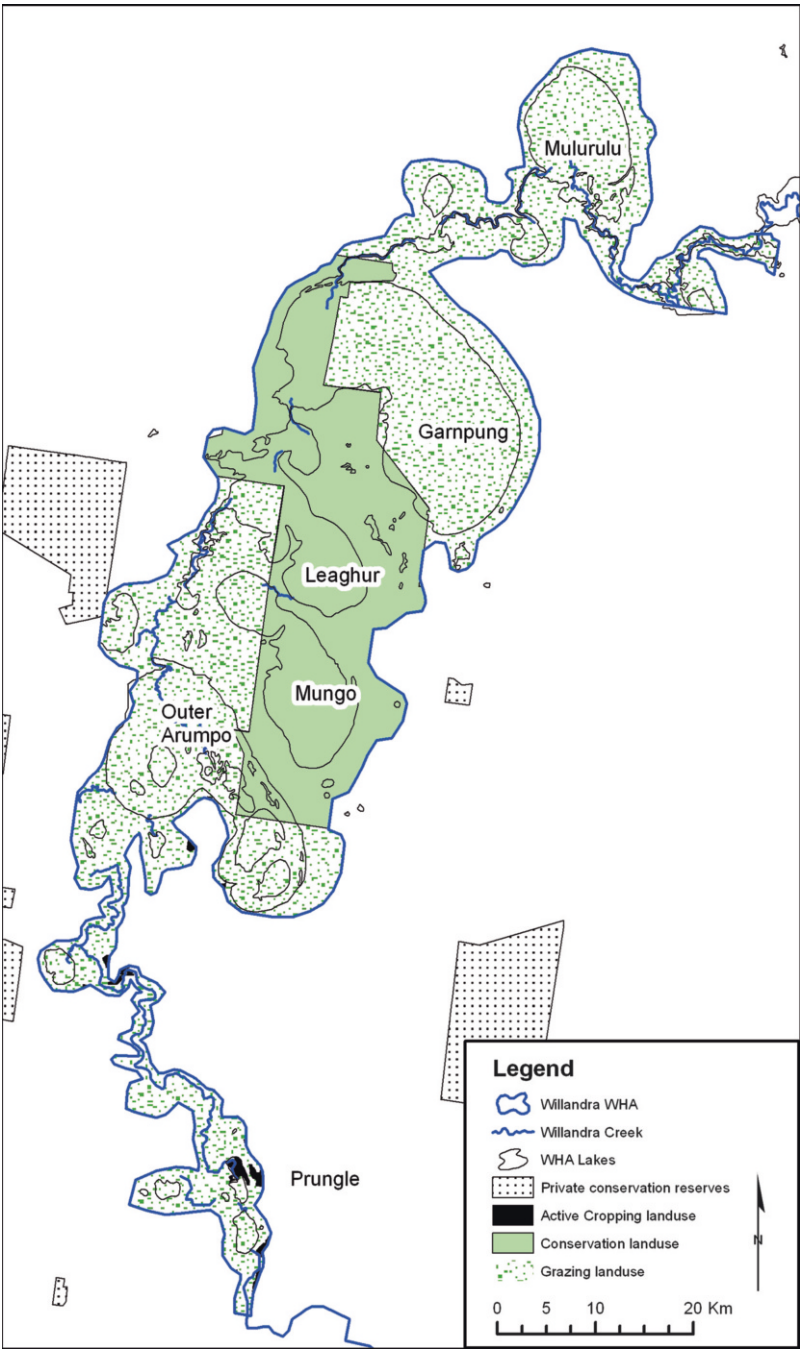

Fig. 4.2 Willandra WHA 2012 showing principal land uses: Conservation (including tourism within Mungo NP) comprises 29 % of the WHA. The remainder is pastoral grazing (sheep). Minor areas of cropping occur in the southern third of the WHA. Areas of private conservation reserves outside the WHA are also shown

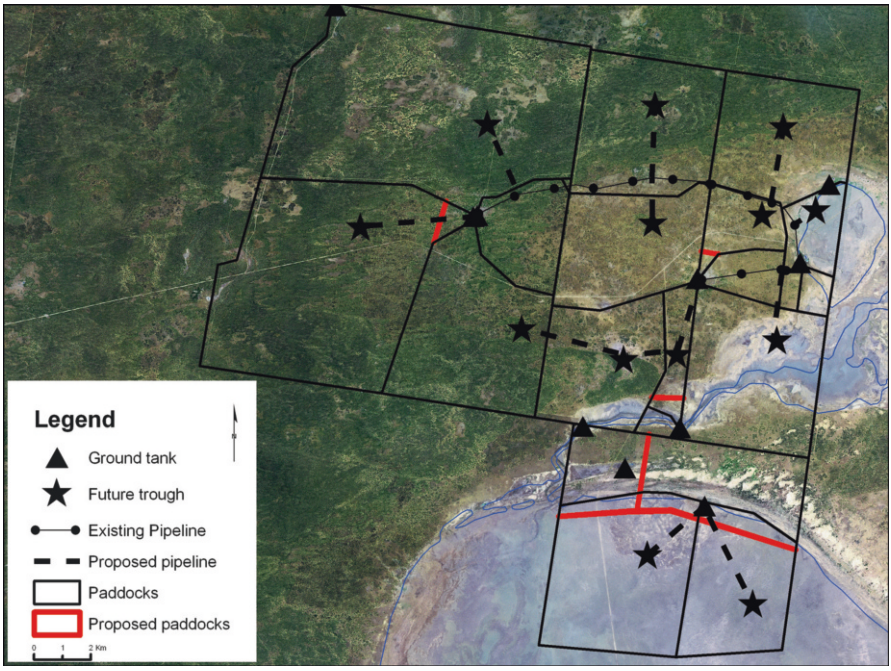

Fig. 4.3 'Lunette Downs' Station, a fictitious property created to illustrate IPP property modifications. In this example the IPP intends to extend an existing pipeline (proposed pipeline) and install new (future) water troughs. This will allow sheep grazing to be spread more evenly across the landscape

The IPPs have allowed grazing to continue in a sustainable pattern and have provided a more equitable distribution of fences and watering points across the landscape, thereby reducing stock impacts on sensitive landforms. The IPPs have also moved intensive farming activities (e.g. yards, paddocks, watering points) away from sensitive landforms.

An example of an IPP for 'Lunette Downs' is shown in Fig. 4.3. Lunette Downs Station was a fictitious property created by the late Peter Clark to demonstrate the principles of IPPs. The example shows a network of new watering systems (proposed fences, troughs, pipelines) that is characteristic of changes that have taken place on individual properties in the region.

Either as part of, or in addition to the IPPs, a number of landholders have entered into voluntary agreements to protect archaeologically significant areas. Between 1990 and 2011 approximately 2,300 ha of land has been fenced to exclude sheep grazing in voluntary agreements with landholders (Table 4.1). The fenced areas included the Mungo Woman and Mungo Man sites and other archaeological sites at Lakes Mungo, Leaghur, Garnpung and Mulurulu. The construction of these fenced areas has shown a commitment to both protect archaeological heritage on behalf of landholders and also a willingness to work co-operatively with other stakeholders.

Table 4.1 Private land areas in the Willandra Lakes WHA that have been voluntarily fenced to exclude sheep, 1990–2011

Location	Area	Year fenced	World heritage values
GL 1, Garnpang Station	36 ha	1990	Studied by Allen (1972, 1998) and Johnston (1993). Complex archaeological precinct on the western shore of Lake Garnpung containing shell middens, stone artefacts, fireplaces and burials. Dated to 18,700 years B.P.
GS 1, Gol Gol Station	15 ha	1991	Studied by McIntyre. Shell middens, artefacts, and fireplaces on the southern end of Lake Garnpung. Dated to 36,100 years B.P. (Johnston & Clark, 1998)
WOC 1, Joulni Station	812 ha	1996	Southern end of the Lake Mungo lakebed and the Mungo lunette. Mungo Woman and Mungo Man discovery location. Area extensively studied
Lake Mungo, Lake Leaghur, Top Hut Station	663 ha	2003	Northern end of the Lake Mungo lunette and western margin of Lake Leaghur. Various locations studied by Allen (1972, 1998) and Clark (1987)
MW-1, Spring Hill Station	774 ha	2011	Northern end of the Mulurulu lunette. Extensive exposure of shell middens and fireplaces. Just west of area studied by Allen (1972, 1998)

However, successful integration of IPPs, pastoral land use and conservation objectives has not been possible in all instances. Garnpang Station included the western margin of Lake Garnpung and an extensive interlake region between Lakes Garnpung and Leaghur. This area contains dense and rich Pleistocene archaeological material (Allen, 1998; Johnston, 1993) and includes numerous Aboriginal burials such as WLH-50 (Grun et al., 2011). In 1996 the landholder proposed an IPP that would have led to increased sheep grazing pressure on areas of outstanding archaeological value. These proposals were not compatible with long-term conservation of Aboriginal and archaeological heritage and would have led to increased erosion, over time, of an archaeologically rich landscape. The Garnpang Station IPP was rejected by the CMC and TSAC, and the property was subsequently acquired by the government in 1998. ALl of the archaeologically rich landscapes of the property have now been included in Mungo NP, and the remainder has been sold to adjoining landholders.

Mungo National Park: Changing Park Management

In 1981 Mungo NP covered an area of ca. 15,500 ha or 4.2 % of the WHA. Mungo NP has grown steadily in size and now covers some 30 % of the WHA (see section on ‘Recent Research’ for more details). The more significant change to Mungo NP concerns not the size or area of the park, but its management arrangements.

In 2001 NPWS and local Aboriginal people entered into a joint management agreement. The operations of Mungo NP are now supervised by a Mungo Joint Management Committee (MJMC), made up of a majority of Aboriginal Elders, with representatives of neighbours, conservation groups and local and Australian governments.

The MJMC provides a forum in which Aboriginal views on the management of the park are debated and the MJMC has overseen expansion of Aboriginal employment on the park, an expanded Aboriginal Discovery Rangers programme that provides guided tours of the park and extensive changes to visitor information via new educational displays and a website (Office of Environment & Heritage, 2012b). This latter resource brings together the Aboriginal, archaeological and natural heritage of the region and portrays the human elements of the region, including interviews with Elders, narratives on the recent Aboriginal history, time lines and reconstructed environmental history covering the last 100,000 years.

While there is an emphasis in this paper on land use planning in the pastoral industry, it would be erroneous to suggest that grazing and erosion are the only factors that adversely impact archaeological sites. Current data indicates some 32,000 people visit Mungo NP each year, and detailed study at the Walls of China has demonstrated that tourists and visitors have had a measurable and, in places, significant impact (Midgley, Spennemann, & Johnston, 1998). Illegal artefact collection is an ongoing management concern, and while tourists access only a small part of a very large conservation reserve, their impacts cannot be underestimated. In recent years the pattern of tourism at the Walls of China in Mungo NP has been modified to mitigate these impacts; the main visitors' area is now open only to guided tours, and park information reinforces the message that collection of artefacts damages the values of the area.

Individual Site Plans and Site Conservation Challenges

In Australia, World Heritage Areas are funded primarily by the Australian Government through competitive funding bids. In NSW the OEH provides management for and implementation of world heritage projects. Since world heritage listing there have been a wide range of projects undertaken in the Willandra on behalf of both the Australian and NSW governments. These projects have been broadly concerned with protection, presentation and mitigation of threats to the outstanding universal value of the region. The projects are reported through a system of MERI Reports (Monitoring, Evaluation, Reporting and Improvement Plan) that are used to feed back information to the primary funding body (the Australian Government).

Individual site conservation plans have been prepared for three locations, each under the auspices of different legislative or management arrangements. The 2003 Mungo Historic precinct Conservation Plan (Godden Mackay Logan, 2003) addresses the needs of the pastoral heritage of the Mungo homestead area. The Willandra Lakes WHA is listed on the NSW Heritage Register, and this plan has been formally endorsed by the NSW Heritage Council.

An archaeological site management plan was prepared by the Australian Museum Business Services (2006) for the Garnpang Pleistocene human trackways site (Webb, Cupper, & Robins, 2006). This report was prepared as an advisory document to NPWS and guides the management and conservation of this site. Recently a Cultural Landscape Management Plan has been prepared for the southern end of the Walls of China to guide NPWS management of this important cultural and natural precinct (Johnston, 2012).

Further protection of world heritage values has taken place through a rabbit control programme. Feral rabbits occur in high numbers through the region (Fatchen & Fatchen, 1989), and a programme of government funded rabbit control has been undertaken on private lands since 2008. The aim of the programme is to reduce the impacts of rabbits on the vegetative ground cover of the region, retain soil and reduce erosion. While rabbit populations have been reduced and sheep have been absent from certain parts of the Willandra WHA (for more than 30 years within Mungo NP), there is little indication that vegetative ground cover is expanding on landforms such as the Mungo lunette and erosion continues unabated. The bare devegetated lunette surfaces, in particular the Walls of China, are very hostile conditions for seed germination and vegetation growth, and the dune surfaces continue to erode in complex patterns of deflation and aggradation.

Aboriginal burials are given high priority for conservation and management. This approach acknowledges the spiritual and cultural significance Aboriginal Elders place on burials. There is a continuous cultural link and association between Elders and ancestral remains, and this is expressed in acceptance of responsibility to care for, and protect, the burial grounds of their ancestors. Irrespective of the chronological age of the human remains, human remains are seen as Aboriginal, as ancestors and as relatives. Aboriginal Elders have a conservative and cautious view on interfering with or excavating ancestral remains, and the agreement of the TTG is a prerequisite for any such actions under both the POM and NSW law (NPWS Act 1974).

Exposed archaeological materials, such as burials, are subject to ongoing wind and water erosion. There is a strong episodic pattern of change linked to peaks in either rainfall or drought; for instance, large-scale water erosion is linked with intense rainfall events (e.g. 1973–1974, 1981, 2010–2011), whereas wind erosion events are linked with drought (e.g. 1938–1946, 1964–1968, 1982–1983, 2001–2010). Some measurements of the rate of erosion are illuminating. Robinson found there was a vertical erosion of approximately 1 cm per year across a large area of the southern end of the Mungo lunette (1980, p. 56). At a site on the western side of Lake Garnpung, GG-16, the rate of erosion in the vicinity of several exposed burials was recorded from 1995 to 2002. The soft quartz sands in this area eroded at a rate of 7 cm per year. By 2002 the first burial recorded at this location (WLH 147) had deflated some 50 cm vertically and was dispersed over a 3 m diameter area. A second burial (WLH 148) that was not visible in 1995 had also been exposed (Fig. 4.4). This pattern of erosion is common through the region and creates challenges for recording and conserving ancestral remains such as these, which date to the late Pleistocene and are of considerable cultural and scientific significance.

Fundamentally, irrespective of the best practices in landscape management, broad land management cannot, by itself, ensure the conservation of all archaeological sites.

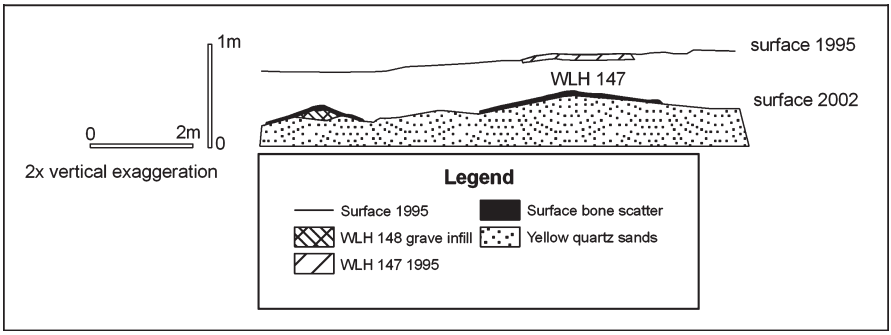

Fig. 4.4 Cross section through two Aboriginal graves, site GG-16, Willandra Lakes. The ground surface in 1995 and in 2002 is indicated. Monitoring in this period indicated an average of 7 cm of deflation per year

In some locations, such as GG-16, protection measures through either installation of erosion control measures (sand traps) or excavation, removal and reburial of remains are the most suitable way to mitigate the impacts of ongoing erosion and salvage valuable information about the past.

Changing Land Use Patterns

The initial boundary of the Willandra WHA was created in 1981 and was circumscribed by roads, tracks, local government boundaries and fence lines. The result was a boundary that encompassed a large region, but did not include all of the landforms associated with Willandra Lakes, and small areas of the lakes and Willandra Creek were not within the WHA.

In 1995 the boundary of the WHA was realigned to more accurately represent the areas that contained specific locations of outstanding universal value. Only landforms associated with the lakes, lakebeds, Willandra Creek and adjacent flood plain and dunes were included in the WHA, and some 132,000 ha of land, much of it linear dunefields that held very low cultural and natural heritage significance, were removed from the WHA. This can be seen in Table 4.2 where the total area of the WHA has reduced from ca. 371,000 to ca. 239,000 ha.

At the time of world heritage listing in 1981, some 4.2 % (15,525 ha) of the WHA was managed for conservation within Mungo NP. Since world heritage listing in 1981, the region has been transformed from largely private grazing and cropping properties to multiple land uses in national parks and private properties. The percentage of the Willandra Lakes WHA now within conservation reserves (Mungo NP) has risen to 29.9 % (71,624 hectares) (Table 4.2). In early 2012 an additional 663 ha was purchased by the NPWS. This area of Top Hut Station includes the northern end of the Mungo lunette and the western shore of Lake Leaghur. This area has now been incorporated into Mungo NP, and all of the 'Walls of China' lunette is now within this conservation reserve.

Table 4.2 Willandra Lakes Region WHA showing the change in land ownership between World Heritage Inscription in 1981 and 2011

	1981 area (ha)	%	2012 area (ha)	%
Area of Willandra WHA	371,373	100	239,216	100
Area of the WHA under private ownership/ management	355,873	95.8	167,592	70.1
Area of the WHA in Conservation/National Park	15,525	4.2	71,624	29.9

In 1995 the boundary of the WHA was realigned to more accurately represent areas of outstanding universal value, and some 132,000 ha of low heritage significance lands were removed from the WHA. Between 1995 and 2011 the percentage of the WHA managed for conservation rose from 4.2 to 29.9 %

The change of land management from private pastoral holdings into government managed conservation reserve has witnessed a reduction in the number of private landholdings from 16 in 1981 to 12 in 2011 as several landholders chose to sell their properties to the government rather than implement IPPs. Over time these properties have been added to Mungo NP (Zanci Station 1984, Leaghur, Garnpang, Pan Ban and Balmoral Stations 1998, and Joulni Station 2011) or have been split and joined to other private landholdings.

Today some 70 % of the WHA is in private ownership (down from 96 % in 1981, Table 4.2). Three broad categories of land use (conservation, grazing and cropping) are mapped in Fig. 4.2. The Willandra lies near the average minimum rainfall required to sustain cereal crops, and only 1,100 ha of the southern part of the WHA is subject to active/recent cropping. However within private lands, sheep grazing and wheat cropping are no longer the only land uses, and many properties throughout the Southern Mallee region now have private conservation reserves. These are areas of land set aside in perpetuity for conservation of biodiversity and collectively now make up a large proportion of the private land use in the wider region (Fig. 4.2).

The Murray Basin in western NSW and northern Victoria has also been subject to developing and expanding open cut mining. Mineral sand mines have been established or are planned to the east, southeast, south and west of the Willandra WHA. A mining reserve was placed over the Willandra WHA in 1990, and this prohibits mining claims in the area; mining exploration can occur only following consultation with the CMC, TSAC and TTG. These committees have vigorously and successfully opposed development of any mining exploration in the WHA, including ancillary activities (e.g. borefields for water extraction).

Recent Research

The initial study and collection of ancestral remains in the Willandra was conducted with little, if any, involvement of Aboriginal people (e.g. Bowler et al., 1970). An embargo on excavation and collection of Aboriginal ancestral remains was put in place by Aboriginal Elders in the late 1980s amid concern that their ancestral

remains were not being treated in accord with traditional practice and spiritual values. The ways in which science and archaeology are conducted have changed dramatically since the 1960s, and extensive Aboriginal Elders consultation, field participation and project direction now take place prior to, and during, all research projects.

In recent years new research projects have further reinforced the area's claim for world heritage status. Optically stimulated luminescence (OSL) dating has helped determine the age of the Garnpang fossil footprint trackway (Webb et al., 2006). This location has provided new and intriguing detail on the footprints and behaviour of a group of men, women, children and animals some 20,000 years ago. Further investigations into the physical anthropology of various ancient burials have taken place (Durband, 2011; Durband, Rayner, & Westaway, 2009), and a 3-year research project by Griffith University seeking to extract ancient Aboriginal DNA from the Willandra human skeletal collection has begun (Lambert and Westaway, personal communication).

The most exciting programme of research is a large and systematic project aimed at documenting and increasing understanding of the region's environmental and cultural record. This 3-year project (2007–2010) was funded with an Australian Research Council (ARC) linkage grant. This project, a co-operative venture between the NSW NPWS, Australian National University, La Trobe University and the TTG, has been followed by a second ARC Discovery grant. The outcomes of this research are only just beginning to emerge (Fitzsimmons, Stern, & Murray-Wallace, 2014; Stern, 2014; Long et al., 2014; Stern, Tumney, Fitzsimmons, & Kajewski, 2013; Tumney, 2011) and promise to radically expand our understanding of the late Pleistocene environment and Aboriginal society in Willandra.

Conclusions

The Willandra WHA was inscribed on the World Heritage List in 1981 for its Outstanding Universal Value under both cultural heritage and natural criteria. The region contains an archaeological record spanning the period from the late Pleistocene through the last glacial maximum and into the Holocene. The earliest archaeology dates to 46,000–50,000 years B.P. Extensive archaeological evidence in the form of burials, shell middens, fireplaces, fauna, stone artefacts, and quarries exists from ca. 45,000 years B.P. through to recent times. The area is established as a key archive for the interpretation of late Pleistocene climates in south eastern Australia and the southern hemisphere.

A series of land planning initiatives have taken place in the region since 1981. POMs and IPPs have been developed for each private landholding and are designed to allow sustainable multiple land uses while at the same time conserving the world heritage values of the region. The IPPs have also allowed landholders to manage private lands with certainty and with long-term planning.

In 1981 the region was dominated by pastoral and cropping land uses with minor areas of conservation. Today 29 % of the region is conservation, while pastoral and cropping land uses continue elsewhere. Planned property developments and planned site management are features of the region, and since 2007 several research programmes have commenced that promise to provide further insights into the lifestyles and environments of the first Willandra people.

Partnerships and co-operative working arrangements with key stakeholders, particularly landholders and TTGs, have been central to the successful implementation of these planning initiatives. Unfortunately, irrespective of regional land planning and best practice in land use management, erosion of the landscape and dispersal and damage to the fragile archaeological features continues to occur. The vision for the future of the region from the TTG perspective is to '… *conserve the world of our ancestors and ensure the future of our children'* (Sunraysia Environmental, 2008, p. 41). In order to attain this vision and conserve the region's unique archaeological record, there is a fundamental need to continue to work in partnerships that respect Aboriginal beliefs and values, and allow increased monitoring, conservation and study of its' vulnerable and eroding cultural heritage.

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Chapter 5
Is World Heritage a Heritage of the Community?

Strategies for the Socialization of São Miguel Das Missões, Brazil

A. Saladino and Camilla de Azevedo Moraes Wichers

Abstract The Jesuit Mission of San Miguel Arcángel, founded in the eighteenth century, had its heritage values recognized in 1938—when it was classified by the National Institute of Historic and Artistic Heritage (IPHAN)—and in 1983, when it earned the World Heritage title. We believe that the museological presentation of the archaeological heritage is a strategy of socialization that is crucial to establish a connection between the local community and these assets. During the years 2008 and 2009, a project of socialization of archaeological assets based on some challenges grounded on the chaîne opératoire (operational sequence) was established in the ruins of San Miguel. The objective of this article is to present the project "San Miguel de las Misiones: museological presentation beyond the classified monument" (by Zanettini Arqueología), highlighting its conceptual principles and the system of evaluation of its actions and also to reflect about this project's need for adjustments and updating.

Keywords Jesuit Mission of San Miguel Arcángel • Socialization • Archaeological heritage

Introduction

In the last 40 years, Brazil, a country with 15,719 km of terrestrial border and about 7,367 km of coastline, has been the setting for major enterprises of all kinds, such as hydroelectric and nuclear power stations or road and rail links of enormous length.

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This panorama was intensified with the implementation of a "Growth Acceleration Program" by the government of the former president Luís Inácio Lula da Silva. If the country's fate is bound up on the one hand with progress, development, and modernity, it is also committed on the other to the preservation and enhancement of the Brazilian cultural heritage.[1]

The challenge of balancing the force lines generated by the different interests and objectives of the various government ministries falls on the cultural heritage institution, understood in the light of historic institutionalism as a set of norms, conventions, laws, formal organizations, and different social segments (Saladino, 2010). The heritage institution in Brazil was given its initial framework in 1937 with the creation of a federal agency for the protection and management of public cultural heritage policies—the National Historic and Artistic Heritage Service (SPHAN)[2]—and the approval of a decree (number 25/37) which was to form the basis of public policies toward the cultural heritage. In time, other formal organizations were created within the country to consolidate its public cultural policies, such as the National Center for Folklore and Popular Culture (CNFCP) in 1946 and the Brazilian Institute of Museums (IBRAM) in 2009.

However, there is no disputing the centrality of the Institute for the National Historic and Artistic Heritage (IPHAN). This organization is responsible for overseeing and supervising all actions affecting properties recognized as belonging to the Brazilian cultural heritage.[3] In other words, the IPHAN orients and authorizes any intervention affecting assets classified as part of the Brazilian Cultural Heritage.

In a country whose principal objective is growth in order to eradicate poverty, there is a very busy agenda of large-scale enterprises. The IPHAN is the agency in charge of allowing such interventions, since the archaeological heritage is under its protection. This type of cultural asset is governed by the legislation and regulations pertaining to the cultural heritage and also by environmental legislation. Another agency, the Brazilian Institute for the Environment (IBAMA), therefore plays a part in the proceedings too, since the environmental legislation requires archaeological prospecting to be carried out in zones affected by major developments (CONAMA Resolution no. 01/86).

One of IPHAN's instruments for regulating the protection of the archaeological heritage is a specific decree (no. 230/02) designed to satisfy current demands for the consolidation of preventive archaeology in Brazil. According to this decree, development projects that are liable to have any impact on the archaeological heritage, whatever the scale of the enterprise, must implement a series of measures or phases, among them the creation of a "Heritage Education Program" with a view to the socialization of the archaeological heritage.

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[1] The defense and enhancement of the Brazilian cultural heritage is guaranteed by the Federal Constitution of 1988 (Art. 216).

[2] From the 1970s on, the Institute for the National Historic and Artistic Heritage

[3] Among Brazil's various instruments for the protection of the cultural heritage, special mention should be made of the classification (in Portuguese, *tombamento*) of cultural assets of a material nature (movable and immovable), which is formalized through the inscription of the cultural asset in one of the IPHAN's four *Livros de Tombo* for the classification of cultural assets of recognized historic, artistic, archaeological or scenic value, etc., and the registration of cultural assets of an immaterial nature, formalized in the preparation of an extensive inventory and the inscription of the cultural asset in one of the IPHAN's four *Livros de Registro* for knowledge, celebrations, forms of expression, and places.

A decade after its promulgation, the potential and the inconsistencies of decree no. 230/02 have already been the subject of some debate. The decree guarantees society the right of access to the results of the archaeological research carried out and also assures it of the right to enjoy this category of cultural property. Nevertheless, defective institutional patterns and theoretical and methodological inconsistencies have compromised the quality of the "Heritage Education Programs" that archaeologists are under the obligation to undertake. According to the museologist and archaeologist Cristina Bruno, this leads to a peculiar situation marked by the dictatorship of prospecting, with lectures full of information but empty of meaning.

The purpose of this essay is to present a pedagogical action oriented toward appropriating and attaching value to the cultural heritage, the integrated educational project entitled "São Miguel das Missões: Musealization beyond the classified monument." We shall also reflect on possibilities for adjusting, updating, and optimizing this instrument for the appropriation of the cultural heritage by the local community. The project presented here was selected by IPHAN, which had issued an edict for an archaeological survey of the Fonte Missioneira ("Mission Fountain") area, on the immediate outskirts of the zone classified as a World Heritage Site, together with a number of lectures on the subject for local society. The team from Zanettini Arqueologia, however, went further than this and also devised a subsidiary project for musealization and integrated education. Even if this scheme was not directly related to an authorized project, we believe that an analysis of its form, development, and challenges might help to raise awareness of the importance of implementing even more robust measures of this type.

We feel it important to end this presentation by emphasizing that the analysis presented here was performed on the basis of both an "insider's" and an "outsider's" point of view. In other words, it is the result of reflection by someone from the Zanettini Arqueologia team who took part in the execution of the project and also by a professional university researcher working on the challenges confronting the preservation and enhancement of the archaeological heritage. We believe that this has helped us to attain a more detached perspective and perhaps a richer and broader one.

São Miguel das Missões: A Brief Overview

São Miguel das Missões is one of the seven missions[4] built by the Jesuits on the east bank of the Uruguay River with the purpose of evangelizing the indigenous people. Founded in the seventeenth century by Cristóbal de Mendoza, it was soon abandoned due to harassment by pioneering *bandeirantes*. In 1687, however, the people returned to the mission, and the project of building its church finally became a reality between 1735 and 1745 under the responsibility of the Italian architect Gian Battista Primoli, himself a Jesuit. It is worth mentioning that the project was never completed, since the church is missing the second tower, originally intended to house an astronomical observatory.

[4] The seven missions with their indigenous settlements had the original Spanish names of San Francisco de Borja, San Nicolás, San Miguel Arcángel, San Lorenzo Mártir, San Juan Bautista, San Luis Gonzaga, and Santo Ángelo Custodio.

The missions were set up in frontier zones between Spanish and Portuguese territories. An atmosphere of tension was prevalent throughout the eighteenth century, and there was a great deal of violent conflict involving the Portuguese, the Spaniards, and the Guarani Indians after the signing of the Treaty of Madrid in 1750.[5] The agreement to redraw the southern borders was not to the liking of the natives, who decided to remain on their lands. This led to the Guarani War, which ended in 1756 when Portuguese and Spanish troops launched an implacable frontal assault on the Guarani resistance.

After the expulsion of the Jesuits from the Iberian Peninsula (from Portugal in 1759 and from Spain in 1767), the Jesuit missions finally perished with the subjugation of the natives by the Spanish. At the beginning of the nineteenth century, Portugal reconquered the region and connected it with the territory of what was then the province of Rio Grande do Sul.

Memories of the Jesuit missions linger on in the everyday life of the inhabitants of many of the towns which grew under their auspices. Customs, traditions, legends, and heroes also form part of the popular imagination, just as the ruins constitute the cultural landscape. For all these reasons, the historic and artistic value of the mission of San Miguel Arcángel (in Portuguese, São Miguel Arcanjo) was recognized by UNESCO in 1983, when it was granted World Heritage status along with the missions of San Ignacio Miní, Santa Ana, Nuestra Señora de Loreto, and Santa María Mayor, all now in Argentina.

Studies show that the population of the area in the eighteenth century was about 4,000. Today, São Miguel das Missões is a city on the southern tableland of the state of Rio Grande do Sul, in the south of Brazil. With an area of 1,229.80 km^2, the census of 2010 shows it to have a population of 7,421 inhabitants, of whom 48 % live in urban areas and the remaining 52 % in rural zones. According to the 2000 census, the predominantly young and male population has scant resources, with only 20.01 % of families bringing in a monthly income equivalent to 3 minimum salaries (the minimum salary in Brazil is about €200.00).

Where educational indicators are concerned, the 2000 census also shows that 96 % of the population of São Miguel das Missões has attended school at the primary level of the Brazilian educational system. The city's principal economic sector, in the meantime, is farming.

"São Miguel das Missões: Musealization Beyond the Classified Monument": Structure and Results of the Project

The project presented here was structured very simply in three phases: reconnaissance and identification of community and heritage assets, execution, and assessment.

[5] The Treaty of Madrid decreed that the Spanish Jesuits were to vacate the region of Siete Pueblos de las Misiones, which was to remain in the possession of the crown of Portugal, in exchange for the colony of Sacramento, thenceforth in the possession of the crown of Spain.

Preparing the Ground

The object of this phase of the project was to perform a diagnosis of the local state of affairs and establish conventions for subsequent actions. It was especially important to embrace a concept that would generate material in support of these actions and to compile a list of heritage properties in the municipality of São Miguel das Missões from an emic perspective.

The premise of the project was the idea that the archaeological heritage must be inserted in a broader heritage panorama, with consideration also for heritage items pointed to by the community. The notion of the *city as heritage* was therefore chosen as a generating concept. In this respect, all the resources of the territory now identified as the municipality of São Miguel das Missões, whether associated with structures, individuals, knowledge, or material or immaterial assets, were regarded as of prime importance for the planning of educational strategies (de Varine-Bohan, 2002).

The reason for this choice was that the Zanettini Arqueologia team frequently found that the people of São Miguel das Missões referred in conversation to the Jesuit reduction as a cultural property separate from the community, in that it belonged to the State, to "Humanity," and to tourists, but not to them. They thus spoke of it as a tedious obstacle to the community's ambitions for development (Tavares, 2004), even though a museum had been created at the heritage site.[6] A strategy of incorporating other heritage assets into dialogues with the community was therefore implemented with the objective of stimulating appropriation of the city as heritage.

On the basis of this idea of the city as heritage, Zanettini Arqueologia made use of its team's cohabitation with the local people[7] to compile a tentative list of heritage properties and assets in the municipality. The inventory named 26 places that

[6] The Museu das Missões ("Museum of the Missions"), located on the site of the ruins of the Jesuit mission of San Miguel Arcángel, was created by IPHAN in 1940, 2 years after the monument was classified as a national historic and artistic heritage site. Since 2009, the museum has been under the administration of IBRAM.

[7] For more than 6 months, the Zanettini Arqueologia team was responsible for curating the archaeological material deposited at the IPHAN Office in São Miguel das Missões. It should be stressed that the project was undertaken on a minimum budget, since IPHAN was content with merely a series of lectures. In order for the subsidiary project for musealization and integrated education proposed by Zenettini Arqueologia to achieve wide-ranging results without incurring further expense, it was necessary to implement various strategies, and the curatorship of the archaeological material was one of these. The team gained its local knowledge through 6 months of insertion in the community before the beginning of the project described here, since the same team members had already assumed the curatorship of the archaeological collections at the IPHAN Technical Office in São Miguel das Missões, a project carried out under the terms of another edict. The team had thus worked on safeguarding the heritage, but there remained a gap in terms of museological communication within the scope of a balanced museological operating chain. The archaeological research being carried out at the Fonte Missioneira park appeared to offer an arena for such communicative action.

have yielded archaeological evidence,[8] eight sites recognized as historic and cultural edifices, seven edifices with a religious function, and six public facilities. These specifications were used to draw up a ludic map that was used throughout the course of the project. The map was included as an insert in an educational activity book for children and young people entitled "*Friends of the Heritage: Investigating São Miguel das Missões." Among other things, the book encouraged children and youngsters to investigate their own city through their family histories and by "rediscovering*" São Miguel das Missões. In a didactic and also ludic manner, it thus introduced the concepts of environmental, archaeological, immaterial, historic, and architectural heritage while drawing specific attention to the Fonte Missioneira, the object of the research project presented here. Furthermore, the activity book invited all its users to become "Friends of the Heritage" and so to view the heritage that makes São Miguel das Missões such a unique city as something dynamic and relevant rather than static and remote.

Implementing the Actions

The project for musealization and integrated educational action was implemented concomitantly with the excavations at the Fonte Missioneira park, as mentioned above. The fountain located in this zone provided the main water supply for the Jesuit mission. The objective of the excavations was to furnish data for judging proposals that the zone be transformed into a public park in accordance with community wishes. It is important to point out that such a purpose indicates a change of mentality in IPHAN, since in its seven decades of existence as an institution for the protection, control, and supervision of interventions on historic monuments, the agency had built up an image for itself as a highly centralized and sometimes even authoritarian body. Besides this, its attempts to spread awareness of the challenges facing it, and to implant strategies of heightened social awareness and cooperation, have all been very recent and remain asystematic.

The actions were implemented through lectures designed to heighten local sensitivity, Heritage Education workshops, and guided visits for children and young people. The goal of the workshops was the construction of a channel of communication between the researchers, the community, and IPHAN, with each interlocutor taken as a *multiplying agent* of the ideas discussed. The concept of a multiplying agent rests on the conviction that any educational process presupposes continuity and that the achievement of even a minimum degree of continuity requires the formation of agents who will continue the process of multiplying knowledge. Five Heritage Education workshops were held for different sectors of the public

[8] The identification of these places is the result of the organization of the deposits held in the IPHAN Office at São Miguel das Missões. The collections contain vestiges from both before and after the Jesuit Mission, collected in various parts of the city by both archaeologists and non-archaeologists.

(two with teachers and educators, two with members of the staff of the IPHAN Technical Office,[9] and one with tourist guides). The object of diversifying the public was to multiply knowledge on various fronts.

Every workshop was organized in four parts: (1) conceptualization of cultural heritage, (2) archaeology and archaeological heritage, (3) the investigations in the area of Fonte Missioneira and the Archaeological Heritage of São Miguel das Missões, and (4) ways of multiplying knowledge. Each part involved dynamic activities stimulating an exchange of ideas among the interlocutors and the joint construction of knowledge. Sets of questions sought to tap the various relations and tensions existing between institutional practices and the preservation of the city's heritage. For instance, the third part began with the following questions:

Can you recall any team of archaeologists working at San Miguel? How long ago?
Have you already seen the work that the Zanettini Arqueologia team is doing at the Fonte Missioneira park?
What image of archaeology have you been given by contacts like these?
Could such research lead to positive changes in the city? Why?
What suggestions do you have for helping this work to insert itself more fully into the city's everyday life? Write one down on a piece of paper and fold it up. We will then exchange them by drawing lots. Everyone will have to read out a companion's suggestion.

What was sought in this way was an understanding of the relationship between the archaeological researchers and the community in the conviction that greater proximity could still be fostered. During one of the workshops, a female participant said that when São Miguel das Missões was classified as a World Heritage Site, the "Center of Nativist Traditions,"[10] which had operated in one portion of the classified zone, was moved away by IPHAN to another area some distance from the town. The participant concluded by saying this had a negative effect on the Center, which lost both its functional impetus and its representative nature. Also etched on the social memory are various stories about the machines which deliberately entered the area of the cemetery of the old Jesuit mission, even though it was still used by the community. The cultural heritage of the community, in other words, was "erased" in favor of the heritage selected by the State. Such actions clearly interfered with the way in which the townspeople went on to regard and perceive their World Heritage Site.

It should be mentioned that there was a hiatus between the destruction of the mission in the eighteenth century and the occupation of the area by families who

[9] The institutional design of IPHAN is structured along the axis of decentralization. The agency for the protection of the cultural heritage thus has regional delegations in all the states of Brazil. The structure also includes Technical Offices in some monumental towns, like Paraty, Ouro Preto, Petrópolis, and São Miguel das Missões. For further information on the history and institutional structure of IPHAN, see Saladino (2010).

[10] The "Bells of San Miguel" Center of Nativist Traditions is a center where gaucho customs are preserved and handed down from one generation to the next, with a special emphasis on festivals, music, and cookery.

arrived from different parts of the southern region in the late nineteenth century. This contributed to a lack of any strong sense of identity between the ruins of the old mission and the community. The Guarani indigenous groups, the heirs to this history, still live in the region, but they are usually excluded from public policy and matters regarding heritage. In view of the complexity of the situation, the Zanettini Arqueologia team chose not to work directly with this social segment, since they considered that more time was needed to implement actions with them. Nevertheless, the project sought to use its work based on the *territory* of São Miguel das Missões to construct a critical vision of the processes in question and so stimulate the missing sense of identity.

It is worth pointing out that the workshops also included a visit to the excavations at the Fonte Missioneira park and to the Archaeology Laboratory of the IPHAN Technical Laboratory in São Miguel das Missões. 81 multiplying agents took part in the workshops.

The *Visitor Circuit* can be regarded as a "walk of discovery" in the sense employed by de Varine-Bohan (2002). A trip around different areas of the city materializes the concept that the territory has a diversity of heritage assets. The concept of cultural heritage was thus extended to natural spaces, landscapes, and cultural references, as well as to the meaning constructed for heritage assets by each individual. The purpose of this was to demonstrate that the territory now covered by the city has a variety of heritage segments, *among them the ruins of the classified monument*—that is, the World Heritage Site of the ruins of São Miguel das Missões. While the project was under way, 513 pupils from state schools took part in these Circuits.

The Circuits were previously agreed upon with the state schools in the municipality, and the pupils taking part were always accompanied by their teachers. The Circuit had a duration of 2–3 h, depending on the age of the pupils, the size of the group, and the complexity of the questions raised during the activity. It was organized as a bus outing with three stops to explore some of the areas shown on the ludic map. Whenever they reached one of these areas, the Zanettini Arqueologia team members would ask the pupils: "*Where are we? Are there any heritage assets near here? What else would you choose to put on our map?*"

All the groups were taken to (1) the Fonte Missioneira park, (2) the zone classified as a World Heritage Site and the Museu das Missões, and (3) the Archaeology Laboratory at the IPHAN Technical Office in São Miguel das Missões. When they reached the Fonte Missioneira park, the party was divided into two smaller groups, each accompanied by a monitor, since better results are achieved with smaller numbers. During this stop, the team of archaeologists responsible for the excavations next to the fountain gave explanations and answered questions. Observing the excavation always turned out to be a productive way of engaging everyone's interest.

The next stop was the classified zone and the Museu das Missões, where the participants were taken to see the church of San Miguel Arcángel and observe the spatial organization of the mission. A dialogue was established regarding the importance of the museum and the objects of sacred art exhibited there. With the youngest pupils, a game was played in the classified zone with the aim of provoking reflection on teamwork. During this phase, we saw that it was possible to advance a different way of perceiving the heritage, which often went unnoticed by those living in the town. The game was very positive in this respect, since children are generally kept away from the place by the local people's image of it as formal and boring.

The third phase of the Circuit was a visit to the Archaeology Laboratory, generally awaited by the children with some eagerness. It was not a place that could be visited every day, and this made it a special moment that was used for further demonstration of the archaeologist's work and reflection upon it. The explanations were given by the Zanettini Arqueologia team working in the laboratory.

Another important aspect of the last stop on the Circuit was that it emphasized the care necessary for the preservation of the collected objects and the importance of having a stable context to relate them to. The goal was to emphasize that besides the preservation of the ruins, objects and information about them and the surrounding area also have to be carefully preserved. The cleaning, marking, and photographing of the pieces were all followed with enthusiasm by the youngsters, who also enjoyed looking through the digital catalog of the contents.

The Circuit ended with a request to the teachers in charge of the group to have their pupils produce a small piece of work in class time, which could be a drawing, a text, or a combination of the two, showing what they had found most interesting about the activity. The Zanettini Arqueologia team also agreed with the teachers on a date when this material would be collected from the school. It was then used as one of the bases for assessing the results, as described below.

Identifying Some Results

The analysis of results is an essential part of any educational action, even if it is rarely carried out in heritage education programs in Brazil. In the specific field of educational actions related to the archaeological heritage, there are in fact no more than a handful of examples. While Bruno (1984) presents an assessment of the museological communication program at the Instituto de Prehistória over a period of 5 years, Cury (2005) offers an analysis of the perception of an exhibition by visitors to the Museu de Arqueologia de Ouroeste. In the meantime, Almeida (2002) carries out a detailed analysis of the reception and perception of a public archaeology project at a school in Rio de Janeiro.

For Almeida (2006), the main goal of an assessment is to produce quality information for decision-taking, whether at museums or other cultural and educational institutions. We concur with this affirmation. We believe that the educational action described here could provide inspiration for a program on a larger scale within the municipality of São Miguel das Missões, and our assessment therefore sought to articulate areas of reflection that might help to ripen decisions.

Of the 81 participants in the workshops, 43 were teachers, 23 were staff members at the IPHAN Technical Office, and 15 were tourist guides. Where the group of teachers is concerned, it is worth drawing attention to the fact that 36.5 % of the municipality's educational personnel took part in the project.[11]

[11] In 2007, according to the Brazilian Institute of Geography and Statistics, there were 118 teachers in the municipality of São Miguel das Missões.

At the end of the activity, a workshop feedback form was handed round to be filled out on the spot. Various points for discussion emerge from an analysis of the responses. The teachers' principal demand was to be able to participate in activities of a longer duration dealing specifically with archaeological practice. Nearly 30 years after the recognition of the ruins of San Miguel as a World Heritage Site, there is still no ongoing teacher training in heritage work, although there have been some isolated actions. Among the members of the IPHAN team, one fundamental point that emerged was a call for information to be divulged among the entire staff, since a large number of the participants had had no previous access to certain basic information on the patrimony, and many of them expressed pleasure and interest at "being informed" about the activities of the IPHAN Technical Office itself. It should be pointed out that most of these staff members are involved in security activities and in many cases turn into "informants" for the tourists who visit the ruins. Moreover, attending courses and lectures helps to raise the self-esteem of these professionals, who are crucial for cultural heritage conservation. The group of tourist guides also turned out to need more access to information, since many of them displayed a negative image of IPHAN as an institution, largely because they were unaware of the many different activities under way. In this case, there is also an information lag related to the division of authority for taking public policy decisions on tourism among IPHAN, the municipal authorities, and the national government.

The *Visitor Circuit* with the younger public yielded 416 responses, representing 81 % of all the pupils involved in the action. The qualitative analysis of this material soon became a challenge.

Observing a scarcity of bibliography on the subject, the model employed, as mentioned above, was the one presented in a project by the Museums, Archives, and Libraries Council of Great Britain entitled the *Learning Impact Research Project*.[12] According to this model, "*learning is a process of active compromise with experience (…) Effective learning leads to change, development, and the wish to learn more*" (Almeida, 2006). This tool seeks a broad evaluation of learning beyond mere "contents," suggesting for the purpose an approach known as Generic Learning Outcomes (GLO), which gives five results for learning processes in museums, archives, and libraries: (1) knowledge and comprehension; (2) skills; (3) attitudes and values; (4) pleasure, inspiration, and creativity; and (5) action, behavior, and process (Melo, 2007).

The compositions produced by the pupils were categorized into visual language, written language, or visual and written language. They were also divided into three groups corresponding to different phases in the educational system: (1) infant school, first, and second years; (2) third, fourth, and fifth years; and (3) sixth year upward. After analyzing the compositions, the themes appearing in them were classified as follows: Ruins of the church of San Miguel; Fonte Missioneira; Museu das Missões; Mission Cross; Reconstitution of the Jesuit Mission; Archaeologists

[12] See http://www2.le.ac.uk/departments/museumstudies/rcmg/projects/lirp-1-2

(male and female); Archaeology: Excavation; Archaeology: Laboratory and archaeological objects; Heritage and preservation; City, history, and tourism; Indigenous peoples; Legend; Free creation; Characters; and Bus.[13]

The most frequently repeated themes were the ruins of the church of San Miguel and Fonte Missioneira, followed by the laboratory and the archaeological objects. When the themes were analyzed in relation to the pupils' age groups, however, some interesting differences were noted.

The ruins, the fountain, and free creation were most recurrent in the lower grades (Groups 1 and 2) and can therefore generally be associated with the younger pupils. Such a result may be related to the fact that pleasure, inspiration, creativity, and skills are the most frequent learning results in this group. Clearly, the themes were more closely related to these GLOs.

Group 3 meanwhile showed a predilection for themes associated with the archaeological objects accessed in the laboratory and also for Fonte Missioneira. Archaeology as a specific science recurred often in this group, but so too did themes related to the preservation of the heritage, the history of the city, and tourism.

Toward an Analysis and Assessment of the Project

For an understanding of the theoretical and methodological choices involved in the activity presented here, and to be able to carry out an assessment of it, it is first necessary to state the underlying premises. These are:

1. *The archaeological heritage must be inserted within the heritage of the community as a whole, involving other segments of its patrimony* (Zanettini, 2008).

   This is taken as a basic premise because, as the historian Ulpiano Bezerra de Meneses notes, the preservation of the archaeological heritage as a contribution to the formulation or reinforcement of a cultural identity has no autonomy or nature of its own, since it flows together with general questions like the concepts of identity or memory (de Meneses, 1987).
2. *Museological theory and methodology have been adopted for the implementation of actions, with a dialogue established also with the concepts and methods of Heritage Education* (Zanettini, 2008).

   The consequence of adopting this premise was a consideration of the concept of Museological Pedagogy and of the educational ideas of Paulo Freire and the New Museology.

   Museological Pedagogy, it should be emphasized, is oriented toward the education of the memory on the basis of heritage influences, seeking on the one hand to support museological procedures from a technical point of view and on the other to broaden the prospect of accessibility and problematize notions of

[13] Many compositions contained more than one theme, and the value of 1 was imputed during the assessment phase to each of them.

belonging (Bruno, 2006). The concept is moreover linked to the idea that Museology studies the relationship between man and his reality (de Moraes Wichers, 2011).

Where Freirean pedagogy and the New Museology are concerned, one point worth stressing here is that the idea of education as a political act, one of Paulo Freire's key notions, is a starting point for an updated Museology whose documentary framework would be the 1972 *Charter of Santiago de Chile*, along with certain premises such as the idea of opening the museum up to society, the decentralization of museological actions, and the broadening of the concept of heritage and its use as a factor of integrated development (de Moraes Wichers, 2011).

3. *The preservation of the cultural heritage is associated with the qualified use of heritage assets and references and should therefore promote sustainable local development.*
4. According to Hughes de Varine-Bohan (2002), such development must be based on the active and creative participation of local communities, since without such participation, the only thing that is verified is the implementation of technocratic programs whose efficacy is founded on an ephemeral juncture of political determination and availability of financial and human resources (Zanettini, 2008).

As mentioned previously, the project presented and analyzed here was not conceived as a typical Heritage Education action, but neither did it stray too far from that methodology.[14] The project structured the means of personal interpretation[15] around the idea that Heritage Education is a bridge (Merillas, 2003a, p. 115), since the receivers were to adopt an active position vis-à-vis the object of learning, and a two-way link was to be established between society and cultural heritage, adding new senses to the latter. Heritage Education was also understood as educational diffusion (Merillas, 2003a, p. 123), since one of the project's strategic objectives was to *contribute to the training of teachers, tour guides, and the staff of the IPHAN Institute* (Zanettini, 2008). Finally, Heritage Education was viewed as a form of management (Merillas, 2003a, p. 123) of a nonrenewable resource, in this case the cultural heritage.

When the project was implemented, the Museu das Missões[16] was going through great difficulties, such as a lack of human and structural resources. It therefore collaborated very little beyond receiving the team from Zanettini Arqueologia who

[14] In Brazil, the concept of "Heritage Education," based on the English notion of Cultural Heritage, was introduced in the early 1980s after a number of experiments at the Museu Imperial. Even so, it must be recognized that there were certain earlier actions oriented toward the appropriation and use of the Brazilian cultural heritage, such as the activities carried out in the 1960s at the Brazilian Institute of Prehistory and also the appearance of ideas based on those of Paulo Freire in the 1972 *Charter of Santiago de Chile*. For a more extensive study of this subject, see Zanettini Arqueologia (2008).

[15] According to Romero Moragas, means of personal interpretation are *guided visits*, *demonstrations of manufacturing and other skills*; *period representations, workshops, and games*; and *theatrical productions, living stories, festivals, and events* (Merillas, 2003a, p. 123).

[16] Then tied to the IPHAN Department of Museums and Cultural Centers

were to execute the activity. In the meantime, the IPHAN Technical Office also proved unable to assist in the implantation of the integrated education project at São Miguel das Missões, since the function of IPHAN was solely to issue the edict. In our judgment, one measure that might increase the effectiveness of educational actions and consolidate public policies for the preservation of the cultural heritage is some form of interinstitutional articulation between IPHAN and IBRAM.[17]

It is important to point out that before the implementation of the project presented here, others had already been carried out in the area. However, they produced no records or analyses or assessments of results that could be consulted. Moreover, when the professionals arrived in São Miguel das Missões, as mentioned earlier, they quickly perceived the distance between local society and the World Heritage Site. We believe that much of the responsibility for this picture lies with the way IPHAN, the official agency for the preservation of the cultural heritage, has gone about things.

The symptom of this state of affairs, as noted by the members of the Zanettini Arqueologia team, was that the citizens of São Miguel das Missões did not regard the ruins of São Miguel das Missões as their heritage. The concept of cultural heritage therefore needs to be elaborated on the basis of a broader context. In other words, in order for the chain of procedures *know—understand—respect—value—cherish—enjoy—transmit* (Merillas, 2003b, p. 75) to function properly, it is essential to explore the emotional implications of an understanding of the heritage from a pedagogical point of view.[18] This meant it was necessary to arrive at the more universal heritage through the more individual heritage of the subject, as recommended by Merillas (Merillas, 2003b, p. 74). Such was the case with the reflections on the heritage value of places not classified as historic heritage sites, yet of great importance and significance all the same,[19] during the workshops and the visits to the classified sites. It is important to emphasize that the excavations outside the classified area—that is, at Fonte Missioneira, an archaeological zone which clearly demonstrated that the cultural heritage spread further than the area designated as a World Heritage Site—helped to provide material support for the arguments used. The material collected during this activity legitimized the notion that the heritage is not restricted to classified monuments. Working on the basis of the signification and appropriation of cultural assets, whether classified or not, was thus the strategy employed to bring the people of São Miguel das Missões closer to their World Heritage ruins.

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[17] IBRAM was created out of certain units of IPHAN: the former Department of Museums and Cultural Centers (DEMU/IPHAN) and 30 museums linked to IPHAN. For additional information, see Saladino, (2010).

[18] "*An understanding of the heritage from a pedagogical point of view allows us to confront all the processes that are regenerated around it, from emotional implication (desires, memories, affections) to cognitive implication (observation, analysis, discovery…)*" (Merillas, 2003b, p. 74).

[19] Examples include Evangelist churches, commemorative spots, the natural surroundings, and other heritage references mentioned by local people during talks with the Zanettini Arqueologia team and afterwards included on the ludic map.

All the actions were structured around a tone of provocation, in the sense that the individuals needed to form new concepts about the heritage and its possible uses. The experiments carried out and assessed in 2008 and 2009 were never capitalized on, since the results obtained and the suggestions made in the subsequent report were never taken up as guidelines for a new relationship between the IPHAN Technical Office and the community. On the other hand, although the Museu das Missões made little active contribution to the project during its execution, its staff afterward appropriated part of the material devised for the project in order to develop their own educational activities.[20]

We believe in the success of the strategy of broadening the concept of cultural heritage, although for various reasons, such as a lack of human resources, materials, and time, no specific actions were developed during this phase of the integrated education project in São Miguel das Missões for an extremely important segment of society that stands in direct relation to the World Heritage of the Missions: the Guarani Indians. There is much still to be done, but the concept underlying the project presented here enabled a new vision of cultural assets and made the World Heritage Site of São Miguel das Missões more accessible and full of significance.

Conclusion

This attempt to reflect from both an outsider's and an insider's perspective on a project carried out nearly 3 years ago ends here with the identification of certain needs for adjustment and revision, as well as certain conclusions on processes of heritage listing. We are well aware how important it is that the IPHAN Technical Office and the Museu das Missões should appropriate the contents of the project presented here and plan a project of articulated action to resume and extend the work begun in 2008. This seems to us to be fundamental to prevent the results obtained by the project from being lost, and to allow the multiplying agents to act effectively as multiplying agents, since the work of valuing and appropriating the cultural heritage has to be continuous. We are also very conscious of the importance of extending the project to the indigenous community under the perspective of Public Archaeology and Sociomuseology.

The project assessment report has already indicated a pressing need for the creation of spaces for continuous dialogue with different segments of the community, and especially teachers and tourist guides, multiplying agents *par excellence*. It also pointed out the lack of internal communication in the IPHAN Technical Office, whose staff knew little about the activities of the agency itself. Considering the

[20] The material in "Reconstitution of the Mission of San Miguel Arcángel," produced by the Museu das Missões, in fact forms part of the booklet produced by Zanettini Arqueologia. See http://museudasmissoes.blogspot.com/p/material-educativo_504.html

Fig. 5.1 San Miguel de Misiones, 2008. *Source*: Zanettini Arqueologia

limitations of resources and time during the implementation of the project described here, the action was regarded as no more than a first step along a very long road. Nevertheless, we believe that IPHAN has made very little further headway. On the contrary, the staff at its Technical Office in the city has been drastically reduced, and today it has no professional archaeologist. On the other hand, we feel that the Museu das Missões is going through a moment of synergy, permitting its transformation into a cultural institution of importance for the community of São Miguel das Missões and the surrounding area.

This analysis helps us perceive the complexity surrounding the processes of classifying monuments. This is because the recognition and appropriation of the cultural heritage lies beyond the scope of the State, and the interventions of agencies affect the way society appropriates it. Classification is not a certain guarantee that monuments will be valued as such. Finally, looking back on this project has shown us the need to create strategies to avoid distancing society from its heritage. For our part, we believe that the adoption of the idea of the city as heritage, along with the creation of our ludic map, resulted in an effective strategy for reapproximating the citizens of São Miguel das Missões to their heritage, coincidentally a World Heritage Site since 1983 (Fig. 5.1).

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Chapter 6
Libya Before and After the Conflict: What Future for Its Cultural Heritage?

S. di Lernia and M. Gallinaro

Abstract Before the conflict in Libya (March 2011), the major threats to its cultural heritage were represented by oil exploitation, infrastructures and tourism. From a theoretical viewpoint there is a great difference on how to deal with Libyan cultural heritage, considering the site-oriented, more 'northerner' perspective or the landscape-oriented approach well attested in the South. Considering the dissimilarities between the North and the South, as well as the different impact(s) that the war had on their respective cultural heritages, it is easy to imagine a two-tier approach by local stake-holders and international organisations for handling the post-conflict situation. If in the North, funding will be invested for the restoration of damaged areas—very likely the coastal towns of classical age—the 'cultural landscape' in the South runs serious risks of remaining barely considered; it is necessary to define the potential of this heritage and to isolate the best practices to guarantee its future.

Keywords Libya • Cultural heritage • Post-conflict • Sahara • UNESCO WH list • Holocene • Management plan • Rock art • Cultural landscape

Introduction

Libya extends over 1,760,000 km^2, between 20 and 33° of latitude North and 10 and 15° of longitude East that is from the middle of the Sahara to the Mediterranean coast.

It hosts a rich and varied heritage: tangible evidences of ancient and current societies that inhabited its different regions since Early Stone Age to the present, as well as the intangible heritage built on the living tradition of Saharan populations.

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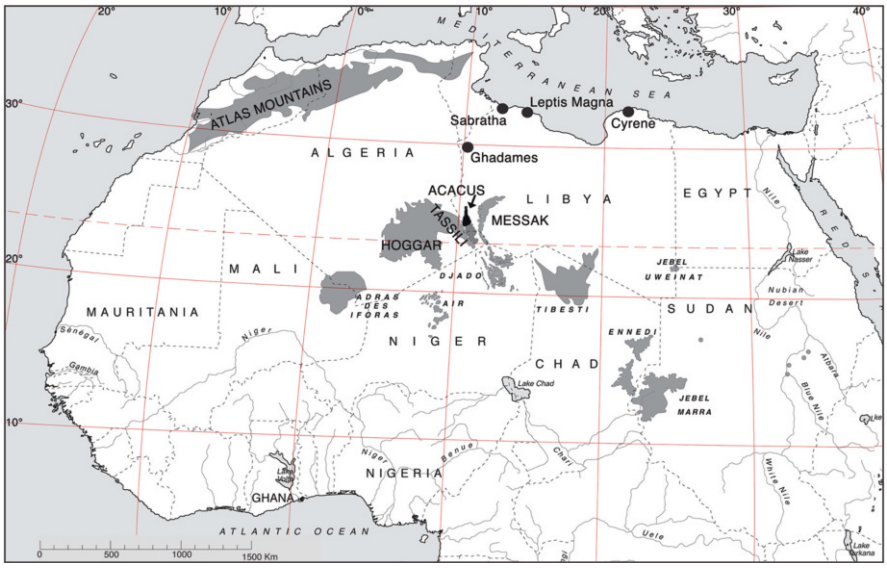

Fig. 6.1 Map of North Africa showing main Saharan massifs and UNESCO World Heritage sites in Libya (*black dots*)

The reason of Libya's remarkable richness largely derives from its location, as it has always been a strategic crossroad between the heart of the Mediterranean basin and Africa's core. Its variability is bound to its different environmental niches, and to the further variations through time, which took place under climatic pressure and through continuous contacts with external populations.

The main division inside Libya occurs between the narrow coastal and subcoastal belt, directly exposed to Mediterranean seaborne contacts, and the wide extent of the nowadays desert area, where the climatic oscillations have always had stronger impact on population dynamics. Further differentiation, still evident in recent political contrasts between subregions, depends on the demographic concentration of the population, and its social structure, bound to the different urban contexts and their surroundings.

The UNESCO WH list is representative of a variety of situations, although depending on a strongly site-oriented perspective, where the monumental built heritage is more represented than other forms of heritage (archaeological sites, cultural heritage, intangible heritage, etc.); the issue has been widely emphasised and tentatively contrasted in recent years (Willems & Comer, 2011). This long-lasting tradition is strictly connected with a 'Western' approach often exported to the rest of the world, especially in areas with a colonial past, as in the Libyan case.

Five archaeological sites have been listed as World Heritage in Libya, so far: three towns of classical age (Leptis Magna, Sabratha and Cyrene) on the coast, the historic pre-Saharan city of Ghadames and the rock-art sites of Tadrart Acacus in the South (Fig. 6.1). While the site-oriented perspective can be suitable for the

specific urban sites, like the coastal and oasis ones, it is evident that the comprehension of the Acacus art is inextricably bound to its surrounding, mutable environment; this should hold true also for the oasis settlement of Ghadames, as settled life and oasis environment form a unity as well.

Instead, after the 1980s no modification of the defining criteria has taken place. Just a recent UNESCO mission in the Acacus—paradoxically published few months after the civil uprising (UNESCO, 2011)—suggested a new definition of the cultural property encompassing natural and cultural values, finally embracing the repeated calls done in the last years (di Lernia, 2005, 2008; di Lernia & Gallinaro, 2011).

The critical state of Libyan cultural heritage in terms of safeguard and preservation has been repeatedly stressed by scholars (Liverani, Cremaschi, & di Lernia, 2000; di Lernia, 2005; Mattingly, McLaren, Savage, al-Fasatwi, & Gadgood, 2006; Bennet & Barker, 2011) and, in part, by international bodies such as ICOMOS and UNESCO (UNESCO, 2011; ICOMOS, 2007). This is particularly true for the remote desert regions in the South of the country or, seen from a different perspective, to all non-classical archaeological evidence. It is probably no accident that recent major studies and restoration projects in the country have focused on the historical cities of the coast (www.mpstorica.com), essentially neglecting much of the Saharan area—so important to the legacy of Libya's people.

In this article, we aim to keep focusing attention of the scientific community on the Libyan cultural heritage. We will discuss challenges for the management of a specific trait of this heritage, the Saharan one—with a major focus on the UNESCO World Heritage site of the Tadrart Acacus. The main features of the heritage will be briefly synthesised, as well as the main threats affecting it before the conflict, and some best practices adopted before the conflict will be presented. The present challenge is the identification and construction of a new scenario, which taking into account the transformation produced by the conflict, enables the scientific community to both establish medium- and long-term actions warranting the integrity of the heritage and to set a new improved agenda.

The Libyan Saharan Heritage: Key Issues

The Sahara has not always been a desert. The area that is today a harsh and dry landscape, one of the warmest arid lands, in the course of the African Humid Period (roughly between 10,000 and 5,000 years before present), was greener and more suitable for animal and human life. The evidence of these ancient occupations dots the massifs and the dune fields that characterise the present landscape. Open-air sites, in the form of isolated findings, scattered artefacts or megalithic structures, as well as rock shelters and cave contexts, in the form of stratified deposits or rock paintings and engravings, represent the traces of a long history of cultures that developed over the millennia from the most remote prehistory to the current Tuareg occupation. While the historic sites, well evident for their monumentality, and located in still favourable landscape, fit easily with a usual concept of cultural property,

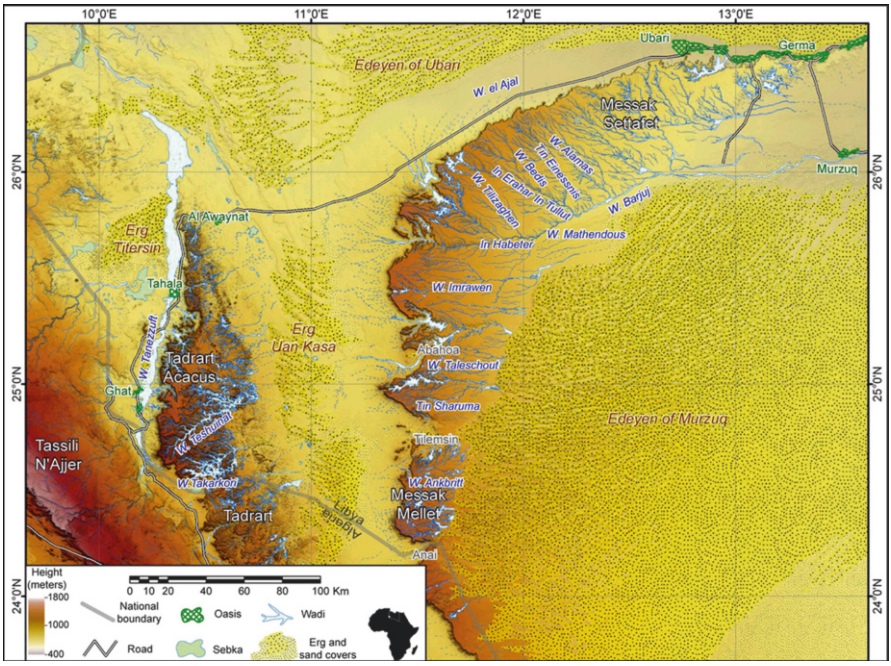

Fig. 6.2 Map of the south-western Libyan region

the prehistoric and marginal historic life produced a fragile heritage, highly diffuse, virtually fading into immateriality. As a matter of fact, prehistoric rock-art is easily perceived as a part of the World Heritage, as testified by the inscription in the WH list of both Tadrart Acacus (Libya) and nearby Tassili N'Ajjer (Algeria), while the other evidence is often underestimated.

In fact, southern Libya is one of the cores of Saharan heritage that is highly represented in its heterogeneous landscape of massifs, dune fields and small oases extending from the easternmost area of Jebel Uweinat, to the north-eastern foothills of the Tibesti, to the Tadrart Acacus massif towards the Algerian border.

We refer here in detail to the south-western extension of this Sahara region, an area of about 100,000 km^2 including the massifs of Tadrart Acacus and Messak and the wide field dunes of the Erg Titersine, Erg Uan Kasa and the Edeyen of Murzuq (Fig. 6.2). Here the archaeological research was developed since the second half of the 1800s until the most recent inter- and multidisciplinary research programmes (Mori, 1965; Cremaschi & di Lernia, 1998; di Lernia & Manzi, 2002; Mattingly, 2003; Cremaschi & Zerboni, 2011).

As previously quoted, the area is internationally renowned mostly thanks to the rock-art evidence of Tadrart Acacus, which in 1985 was inserted in the UNESCO list of World Heritage sites as an example of 'a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared' (Criterion III: http://whc.unesco.org/en/criteria/). The research carried out in the whole

Fig. 6.3 Detail of Pastoral paintings in the rock-art sites of Tadrart Acacus, Tagg'n Tort

area recorded more than 2,000 rock-art sites and about 12,000 archaeological contexts. These data allowed the detailed reconstruction of the environmental and sociocultural dynamics occurring during the Pleistocene and the Holocene: from the early hunting-gathering communities, to the emergence of the first Pastoral society, the development of the early Garamantian state (Mori, 1965; Cremaschi & di Lernia, 1998; di Lernia 1999; Barich, 1987; Le Quellec, 1998; Muzzolini, 1995; Mattingly, 2003; Liverani, 2005) until the recent Tuareg occupation (Biagetti & Chalcraft, 2012). It is clear that even if the diversity, abundance and historical depth of Acacus artworks are indeed 'outstanding evidence of vanished cultures', they cannot be considered as isolated elements, but as part of an interconnected history of climate changes, cultural dynamics, social and ideological beliefs that cannot be tackled without a multidimensional approach. Rock-art is embedded in a social and cultural landscape that is perceivable and should be recognised, protected and preserved as a whole (Fig. 6.3).

Threats to the Property Before the Conflict

Also before the conflict, a range of natural and human actions, which required the assumption of targeted interventions, threatened this impressive cultural and natural heritage. Natural threats depend largely on desert environment, including erosion,

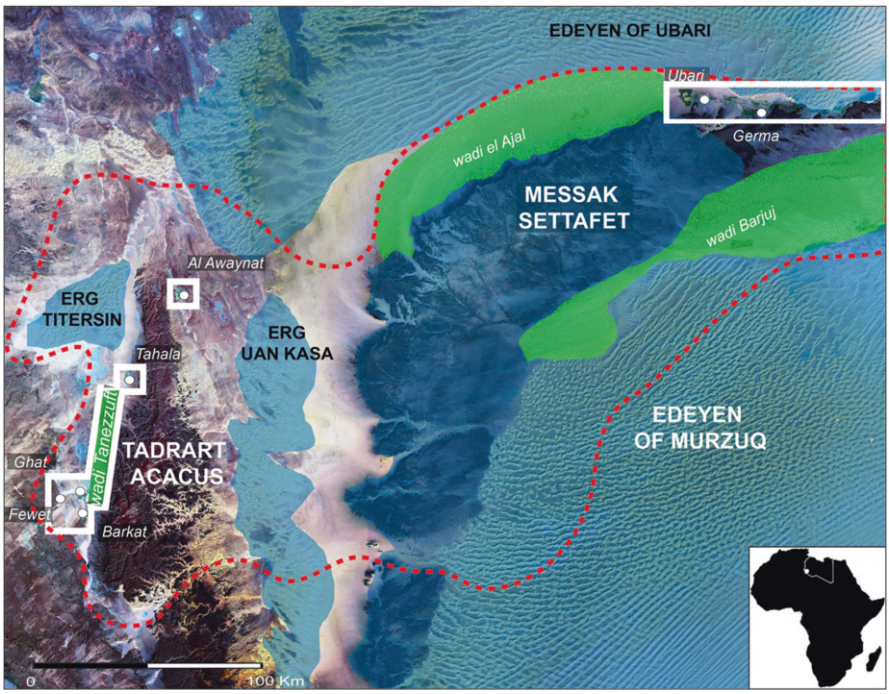

Fig. 6.4 Map with the plotting of all the threats affecting the region (before the conflict). *Blue* areas: oil activities; *green* areas: agriculture activities; *white squares*: building activities. The *dotted red line* defines the area with major tourism flows (after di Lernia, Gallinaro, & Zerboni, 2010)

thermic and chemical effects, bacterial and insect damage, etc., while human impacts are generally related to the economic development occurring in the country, mostly after the long period of cultural and political isolation caused by the embargo during the 1990s.

Human impact has had a significant increase in the last 20 years and could be specifically contrasted with planned actions. A combination and overlap of distinct factors took place in the last decades: (1) the increase in the reclamation of desert for agriculture, (2) oil prospection and extraction, (3) the development of infrastructures, (4) the increase in tourism (di Lernia, 2005; Khol, 2009; Semplici, 2009) and (5) vandalism, locally connected with tourism (di Lernia, Gallinaro, & Zerboni, 2010). The land that once was the centre of the great pastoral societies of the Holocene and later the core of the Garamantian kingdom, the Libyan Sahara had become, in recent times, one of the hot spots of the country's development.

Were we to plot all these threats on a map, the picture would be as follows (Fig. 6.4):

1. Agricultural land reclamation in the Wadi al-Ajal, as well as on the Wadi Barjuj and Wadi Tanezzuft, has increased. Some small-scale reclamation was connected to the urbanised areas, but more projects of irrigated fields in the middle of the

desert resulted in the total disturbance of archaeological surface evidence; these activities have also a heavy environmental impact, as they result in the overexploitation of the fossil water reservoirs.

2. The Messak massifs and the sand seas of Ubari, Uan Kasa and Murzuq suffered massive threat and/or damage from a repeated series of oil research activities carried out until recent times. In the black varnished plateau of the Messak (Hamada), seismic prospecting has caused irreparable damage to the landscape—in the form of a grid of tracks visible even from the satellite—and at the same time to the cultural heritage (Cremaschi & di Lernia, 2000; Anag, Cremaschi, di Lernia, & Liverani, 2002; Kroepelin, 2002).
3. Oil-related infrastructures had a heavy impact both in the direct extraction areas and in the area of Sahara, where the oil collection plants gather oil from the Messak plateau and Ubari sand sea field, in order to channel it into the pipeline heading North. Non-oil-related residential infrastructures, in the whole country, have boosted since 2008. Several thousand new houses were built in the villages of SW Libya. The result is a diffuse damage of the peripheries of the residential villages, with traditional houses often abandoned and hundreds of new buildings waiting for the accomplishment. Some of the new housings directly impacted or surrounded preserved archaeological sites, like the Garamantian village of Fewet (di Lernia, 2010).
4. The increasing influx of tourists—last estimates before the conflict showed figures of several thousand people—caused several kinds of damage: (a) the archaeological sites are destroyed or displaced by the passage of 4WD cars; (b) rubbish of all sorts is left everywhere with no respect for neither the environment nor the cultural heritage; (c) archaeological artefacts (e.g. lithics, grinding stones, pottery sherds, ostrich eggshell beads) are looted for personal purposes or for sale (online auctions often include Saharan artefacts); and (d) the artistic evidence of rock-art sites has been frequently touched, scraped and wetted, just to take some pictures, and in some cases parts of the rock panels have been removed and stolen. Some spots of the comprehensive southern Libyan heritage were more subject to such threats, as mass tourism mainly affected the most relevant and famous sites, like Wadi Mathendous; individual ‘adventure’ tours have unpredictable effects, as well.
5. Intentional destruction of rock-art paintings and engravings took place in April 2009 (di Lernia, Gallinaro, & Zerboni, 2010) when ten rock-art sites in the northern area of Wadi Awis and along the course of Wadi Senaddar have been severely damaged with spray-paint patches (Fig. 6.5). This action, probably carried out by a guide fired by a touristic foreign company, seems to open a new scenario in the perception of the rock art as instrument of contention, involving a complexity of factors (local and non-local guides, domestic and foreign tour operators, organised or idiosyncratic actions) responding to market contradictions.

It has indeed been observed that large areas of the Sahara are in danger of being ‘sterilised’ (Keenan, 2007) by visitors, scholars and industrial companies: the Tadrart Acacus and surroundings are certainly no exception at all.

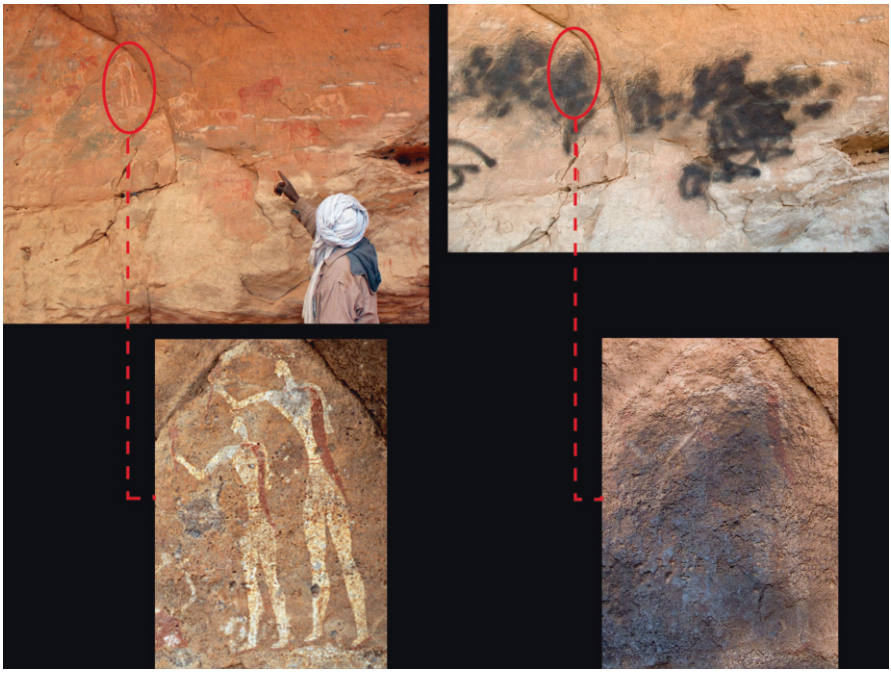

Fig. 6.5 Example of one of the rock-art sites of Tadrart Acacus (Ti-n-Lalan rock shelter) vandalised in 2009

Pre-conflict Actions

As it has been remarked by different foreign bodies of research, the activity of the Libyan institution in charge of heritage study, protection and conservation (Department of Archaeology) has been—despite its efforts—limited, even facing a body of law which theoretically gives significant power of control and intervention to the institutions themselves (di Lernia & Gallinaro, 2011; Bennet & Barker, 2011). Factors affecting this limited capacity have been identified as inadequate financial support and lack of specialised personnel. Control is insufficient for the major archaeological sites, which are furthermore suffering from deterioration of infrastructures and monuments. At the same time, rescue archaeology as well as restoration and museum building projects have been generally transferred to foreign missions and specialists, and even if local personnel has been trained during such missions and interventions, this has had only a limited effect on their capacities and represents a concentrated but ephemeral flow of money and skill.

Another consequence of the reliance on special projects and foreign interventions is that instead of enforcing local law and protection structures, the measures adopted were limited to mitigating the effects of threats and did not end in a wider management perspective.

Given this unsatisfactory state of archaeological preservation and the specific role attributed to foreign missions, in the last years (well before the conflict), our mission began to include various types of 'active conservation' practices in the course of our 'routine' archaeological activities. As a first step, we assumed a regular restitution of monuments to minimise the impact of excavations, especially when related to 'sensible' contexts like burials.

Major and minor specific actions have been carried out. Several attempts have been made to achieve a shared management plan of the natural and cultural heritage of this area with Libyan agencies and authorities. A first preliminary project for a National Park, in order to better regulate visitor flows, access and the patrolling of the whole area of the Acacus and Messak, was presented in 2000 (Liverani, Cremaschi, & di Lernia, 2000) to the Libyan authorities, and although the project has been resubmitted several times (UNDP on 2001; MAE on 2002; EGA on 2009, to mention only institutional attempts), it has never been implemented. The same fate was suffered by the project of a new museum in Ghat (2002), as well as by the proposal of a renovation of the museum of Germa (2007). Most of these projects addressing local issues have been systematically stuck, in spite of their relevance for the whole Libyan heritage. Probably these were not considered so attractive, but perhaps it is no coincidence that several wide projects lacking in expertise but highly rewarding in economic and political issues have been developed instead.

In the Acacus, we managed to protect the rock-art sites and their surrounding archaeological contexts. The leading criteria have been directed towards simple actions, possibly featuring a low impact on the site, easy implementation and modest maintenance: this approach proved to be sufficiently suited for the southern Libyan context. Under request of the Libyan authorities, some sites have been closed to vehicular access by means of fences, and a very few particularly endangered sites have been closed to tourists as well (Fig. 6.6). The fences take the form of concrete bases and iron uprights, covered by traditional palm netting. Information panels with signs on major cultural and archaeological features have been placed in the vicinity of selected sites, in accordance with the main international treaties for the protection and management of cultural heritage sites (Venice Charter, 1964; ICOMOS, 1990; ICOMOS, 2008).

An open-air museum, the first in the region, was performed in 2004 in the oasis of Fewet, as a result of the excavation and restoration of the Garamantian village (Castelli, Cremaschi, Gatto, Liverani, & Mori, 2005). These activities were developed following the main principles of the restoration Charter of Venice and the ICOMOS guidelines.

Both salvage and preventive projects were carried out in the areas of Messak, Murzuq and Kufra, in 2000 and 2006, under the auspices of the Department of Archaeology (Cremaschi & di Lernia, 2000; Anag, Cosentino & di Lernia, 2007; di Lernia, Mori & Zerboni, 2008). These projects enhanced the archaeological knowledge of the area, with the recording of thousands of new sites; it marked also the production of the first maps of the archaeological risk, in the Sahara, more specifically of the Murzuq region.

Fig. 6.6 Example of protective fence and information panels at Uan Afuda

In 2010 we started a 3-year programme of heritage research and management of the Messak plateaux. The project, despite of being interrupted by the civil uprising after the first year of activities, had relevant results in terms of survey of formerly unknown areas and of implementation of a comprehensive database of the heritage resources. Other products include the first geomorphological and archaeological map of the Messak region, as well as a thematic map synthesising the state of the environmental and cultural heritage as at February 2011 and a map of the potential risk to the natural and archaeological heritage (Gallinaro et al., 2012).

GIS technology has been employed in performing statistical analysis of the distribution of field checked rock-art sites, referring to the database of Tadrart Acacus, created since 2005. The analysis of the distribution, relevance and state of preservation of the artwork results in the proposal of priorities in restoration and preservation programmes (di Lernia & Gallinaro, 2011).

Post-conflict Situation

The Libyan uprising started in February 2011 and civil turmoil has not totally ceased yet. The death toll amounts to many thousands; several villages and cities have been bombed and ruined by conflicting armies, and wide parts of the country still remain highly unstable. The whole country has been deeply affected, and the

process of reconstruction will be long and uncertain. There is great concern about the integrity of Libyan cultural heritage and its future role (http://whc.unesco.org/en/news/730). The armed conflict involved several archaeological sites, and acts of looting of archaeological materials have been reported, the most evident affecting the Benghazi Treasure. Two recent missions of the Blue Shield international organisation ran the first assessment of the main archaeological sites of Tripolitania and Cyrenaica, reporting a low level of damages (http://www.blueshield.at/). Anyway a detailed survey of the state of the archaeological heritage of Libya has not yet been undertaken, and it will require careful evaluation, as the inventories of archaeological museums are often incomplete, and the local staff is rarely specialised. We have been in constant communication with colleagues from Tripoli, Germa and Ghat. Even if the information is fragmentary and partially contradictory, it seems that at least the area of the Acacus Mts. has not suffered any damage yet, and the same applies to other surrounding areas such as the Messak. According to the official information of the Museum of Germa staff, preserving the archaeological and ethnographic collections of half a century of local and foreign research in SW Libya, the situation is safe and under control. It is worth underlining that all the information from the South, however, did not receive a foreign, independent verification. It is clear that important distinctions do exist between the North and the South, as the ancient Greek and Roman towns of coastal Libya are more easily controlled, at least inside their presently fenced extension. The international activity of heritage monitoring was more rapidly deployed, and the evidence itself of monuments and archaeological remains makes an assessment more reliable. A future challenge is that the existing divide between northern coastal territory and southern desert will not be enhanced and will not result in the abandonment of formerly controlled sites, as the positive activities of foreign mission are still pending.

In fact, it is easy to imagine a two-tier approach by both local stakeholders and international organisations for handling the post-conflict situation. If in the North resources and funding will be invested for the restoration and rehabilitation of damaged areas—very likely the coastal towns of classical age—the South runs serious risks of remaining barely considered left behind: it is therefore necessary to define the immense potential of this heritage and to isolate the best practices to guarantee its future.

Future Practices

Among the best practices and possible actions to be taken in the short and medium term, we would briefly discuss a series of issues, with specific reference to the southern/Saharan archaeological evidence, in particular (a) museum and storing spaces, (b) tangible and (c) intangible heritage and (d) training:

(a) *Museums*. The prehistoric, protohistoric and ethnographic collections housed in the Libyan museums are barely known and unevenly catalogued. Virtually no qualified staff is presently available to manage the materials. This greatly exposes the prehistoric artefacts, artworks and masterpieces to an increasing risk

of theft and illegal trade. The archaeological materials collected and stored in the rooms of the Department of Archaeology are even under a greater danger. Freshly excavated, unstudied masterpieces are presently stored in remote places, such as the Museum of Germa in the far South, but the knowledge of their existence is confined to the local representatives: neither an electronic catalogue nor a hard copy archive is available. Efforts should be therefore addressed to create an electronic, illustrated database to be stored in a GIS platform.

(b) *Tangible Heritage*. The scarce knowledge of Saharan archaeology has already heavily impacted the integrity of the properties. This is true for prehistoric rock art and funerary monuments, as well as for the Garamantian evidence, consisting in large necropolises, forts and settlements. This occurred also at sites where excavations were followed by restoration and restitution to the local communities, such as the Garamantian village of Fewet. A scarce emphasis on the prehistory of the Libyan cultural heritage—in terms of awareness and investments—might have disastrous effects. The involvement of local communities must be sought for raising a new-shared awareness and consensus and drawing effective management plans. This was one of the targets of the recent Messak Project, started in 2010 and terminated at the beginning of the conflict.

(c) *Intangible Heritage*. Some foci of documented enduring occupation by specific ethnic groups can be envisaged throughout the 'desert', and among these we shall mention precisely the Tadrart Acacus. Here, a small group of Tuareg lives featuring a resilient approach to desert environments. Their 'traditional' way of life represents important evidence of nearly vanished cultures. In particular, their deep knowledge of the desert is made of several intangible elements, from the management of water, plants and animals, to the use of a desert landscape and mindscape (di Lernia, Massamba N'Siala, & Zerboni, 2012). They are also of the utmost relevance for the safeguard of the rock-art sites: not by chance, they consider themselves the custodians of the area. Furthermore, the geographical position of the Acacus Mts., at the disputed border with Algeria and close to Niger, makes the area particularly critical from a military (and safety) viewpoint. This might have serious effects on local Tuareg community. These problems are likely to be present in other parts of the country and should be seriously addressed.

(d) *Training*. The persons devoted to the management of Libyan cultural heritage are few and barely trained. This is even worst for people engaged in prehistoric study and, more in general, on Saharan archaeology. A programme of training and education should start locally, possibly engaging schools and universities, and should be extended to the officials and military people involved in the protection and control of the region and its heritage.

Conclusions

We would like to conclude by saying that we believe there is a great difference, at least from a theoretical point of view, on how to deal with the cultural heritage of the coastal belt of northern Tripolitania and Cyrenaica, as opposed to the

inland southern Saharan territory. In the desert, the archaeological record—either prehistoric or historical—is uninterruptedly dispersed over large regions and consists of veritable archaeological landscapes rather than sites; it is often located in remote regions. It can be remarked that the Acacus Mts in the WHL does match all the above points and therefore can be appropriately considered as representative of the larger Saharan scenario.

Just to give an example, we were in great difficulty in March 2011 when we had to communicate to NATO the 'Protected Target List' in our research area. In fact, we sent a map with large regions and a few dots on it, rather than GPS coordinates of a single site. Paradoxically, in a site-oriented perspective, the Acacus World Heritage site would have been excluded from such list. What is true, however, is that the rock-art of the Acacus, and the cultural heritage of desert regions more generally and already under threat, deserves greater protection. New efforts in communicating this kind of Saharan heritage should be made to disseminate knowledge and awareness, both among locals and foreigners. As such, the irreparable damage of these magnificent paintings and engravings may help to shake our conscience and raise new awareness.

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Chapter 7
The Protection of the Archaeological Heritage in Minorcan Urban Planning: Forward-Looking Management Models

S. Gornés and J.M. Gual

Abstract The Law for the Protection of Historic Heritage of the Balearic Islands (Ley 12/1998) gave all the municipalities of the islands 2 years for the approval of an inventory of their heritage. In the case they did not meet the deadline, they could do it within the first revision or modification of their general planning tools.

Some of the specific measures approved in Menorca for the protection of the archaeological heritage that have been included in the urban legislation for each town hall are analyzed in this paper.

Also some of the criteria and guidelines to achieve a good management will be explained as well as a proposal, which will be necessary for a better dialogue between the heritage stakeholders and the community. This mutual understanding is essential for the inscription of Menorca as World Heritage.

Keywords Menorca • Territory planning • Management Model • Inventory • Urban legislation • Heritage • Cultural Heritage • Archaeology

Introduction

The island of Menorca is the easternmost island of the archipelago of the Balearic Islands, and it is just over 700 km^2; concentrating on more than 1,500 archaeological sites, most of them date from the prehistory of the island. Although belatedly

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Menorca was permanently occupied by human communities (estimated from 2300 B.C.), the number of settlements and therefore archaeological remains is high: 2 km^2. This situation has brought up complex problems and situations when trying to reach a proper heritage management by government agents on the island, mainly, the Consell Insular de Menorca and the eight municipalities currently constituted.

Therefore, this paper shows the main strategies developed so far, for a better treatment of archaeological properties. These strategies are based on current legislation, so the approach to it will allow the reader to understand the measures taken in this island in order to manage its incalculable archaeological wealth.

The regional law for the protection of the historic heritage in Minorca, Illes Balears, Spain, was passed 13 years after the National Law of 1985. Entitled the *Ley 12/1998 de protección del patrimonio histórico de las Illes Balears*, its third transitory article gave each municipality in the autonomous region of the Balearic Islands 2 years to obtain approval for its official Catalogue of Protection of the Historic Heritage. If unable to comply in that time, the municipality was required to do so jointly with the first modification or revision of its general planning instrument. After another 13 years, not every municipality in Minorca has had its catalogue approved, but the enactment of the Island Territorial Plan (*Plan Territorial Insular*, PTI) in 2003 obliged all the municipalities to adapt to it through a revision of their planning instruments. This accelerated the drafting of the catalogues in those municipalities where it was pending completion. The eight municipalities can be divided into three groups overall. The first consists of those which had their catalogues approved before PTI, like Ciutadella, Es Castell, and Es Mercadal, with approval granted between 1991 and 1994, and Ferreries, approved in 2001, all of which are now supposed to update their content. The second consists of those which have obtained recent approval, like Alaior in 2009 and Mahón in 2011. In the third group are the municipalities whose catalogues are still in progress, such as Migjorn Gran, which was granted initial approval in 2011, and Sant Lluís, provisionally approved in 2012 (Table 7.1).

Although the mandate of the regional law was clear, subsequent legislation successively prolonged the deadline for approving the catalogues:

Ley 11/2002 de Medidas tributarias y administrativas, an administrative law of 2002, repealed the 2-year limit established by the heritage law and set a new deadline of January 2005.

Ley 1/2005, *de reforma de la Ley 12/1998* reset the deadline at January 2006.

Ley 2/2006, *de reforma de la Ley 12/1998* reset the deadline at January 2008.

Ley 4/2008, *de 10 de marzo*, *de medidas urgentes para un desarrollo territorial sostenible en las Illes Balears*, a law of March 10, 2008, enacting urgent measures for sustainable territorial development in the Balearics, established another new deadline of January 2009.

Recently, a new *Decreto-ley 2/2012 de 17 de Febrero*, *de medidas urgentes para la ordenación urbanística sostenible*, a decree-law of February 17, 2012, implementing urgent measures for sustainable urban planning, quashed the obligation to submit the catalogue along with the first modification or revision, leaving it as mandatory only with the first revision. As we have seen, this change in the law was not to affect the

Table 7.1 Current state of approval of the municipal Catalogues of Protection of the Historic Heritage in Minorca

Historic heritage	Archaeological	Architectural	Ethnological	Paleontological
Es Mercadal	Approved 1994	Approved 1994	Approved 1994	Drafted (CIM)
Ciutadella	Approved 1991	Approved 1991	Approved 1991	Approved 1991
Es Castell	Approved 1992 Update drafted	Approved 1992 Update drafted	Approved 1992 Update drafted	Drafted (CIM) Incorporated in update
Ferreries	Approved 2001	Approved 2001	Approved 2001	Approved 2001
Es Castell	Approved 2009 in PGOU revision for adaptation to PTI	Approved 2009 in PGOU revision for adaptation to PTI	Approved 2009 in PGOU revision for adaptation to PTI	Approved 2009 in PGOU revision for adaptation to PTI
Mahón	Approved 2011 in PGOU revision for adaptation to PTI	Approved 1992 in PGOU revision for adaptation to PTI	Approved 2011 in PGOU revision for adaptation to PTI	Approved 2011 in PGOU revision for adaptation to PTI
Es Migjorn Gran	*Initially approved* 2011 NNSS adaptation to PTI	Initially approved 2011 NNSS adaptation to PTI	Initially approved 2011 NNSS adaptation to PTI	Initially approved 2011 NNSS adaptation to PTI
Sant Lluís	*Provisionally approved* 2012 Revision for adaptation to PTI	Provisionally approved 2012 revision for adaptation to PTI	Provisionally approved 2012 revision for adaptation to PTI	Provisionally approved 2012 revision for adaptation to PTI

municipalities of Minorca because all of them have already drawn up their catalogues, notwithstanding the fact that some of them have yet to update or complete them.

The management of the archaeological heritage carried out by the Island Council of Minorca (*Consell Insular de Menorca*, CIM) cannot be dissociated from the process of having Minorca inscribed a Biosphere Reserve by UNESCO (Gual, 2002, 2005, 2009). From the very beginning, the archaeological heritage was taken into account in two fundamental documents. The first, published in 1992, was presented at the *Jornadas sobre conservación y desarrollo en Menorca*, a conference on conservation and development in Minorca held in 1989 at the Lazareto in Mahón and organized by the Spanish committee of the M&B Program and the Institut Menorquí d'Estudis (IME). The paper in question (Rita, 1992) dealt with the conservation of the archaeological sites on the island. Shortly after the island was proclaimed a Biosphere Reserve in 1993, another document was drawn up with the aid of a European LIFE program grant awarded to the IME in 1994. The result was a viability study for the sustainable development of the island, the *Plan de desarrollo*

sostenible de Menorca. Estudio de viabilidad, with a chapter devoted to the historic heritage in which, among other proposals, we advanced (Gornés & Gual, 1995) a management model for the archaeological heritage whose structure and organization were articulated in three areas: the archaeological park of Torre d'en Galmés, the network of visitable sites, and museums. This structure has been maintained in some areas and consolidated and amplified in others Gornés et al. II. (1996).

Archaeological Chart of Minorca

Under the administration of the CIM, the archaeological chart of Minorca was formally registered in 2000 on the basis of the archaeological charts made in the late 1980s. Town halls have periodically been sent the catalogue fiches of new sites that have been discovered and inventoried in the course of nearly 17 years, leading to the inclusion in the latest catalogues, though not the older ones, of a further 269 (44 in Alaior, 50 in Ciutadella, 3 in Es Castell, 8 in Ferreries, 32 in Mahón, 33 in Es Mercadal, 5 in Es Migjorn Gran, 14 in Sant Lluís), with a prospect of more to come.

At present, the island survey lists a total of 1,806 inventoried sites, 242 of which are submarine. 1,401 are included on the island register of "Assets of Cultural Interest" and therefore enjoyed the highest degree of protection provided for by law. The island's sites may be classified by type of monument, as follows:

Naviformes (houses in the shape of an inverted boat)—93
Navetes (collective tombs in the shape of an inverted boat)—21
Talaiots (truncated conical towers)—230
Taules (religious precincts with T-shaped monuments)—33
Hypostyle halls (rooms with a roof of stone slabs sustained by columns)—54
Fortified mounds—31
Talayotic settlements (settlements with a *talaiot*, circular houses, a *taula* or religious precinct, wall, streets and courtyards)—129
Inhabited settlements (settlements with no visible urban layout but with significant architectural structures)—375
Necropoles (cemeteries of more than three tombs or caves)—263

Rock shelters—91
Natural caves—195

Kiln-shaped artificial caves—89

Artificial caves—547

Early Christian basilicas—6
Indeterminate inhabited sites (with no visible architectural structures)—93
Indeterminate funerary sites—14
Dispersed remains—196 (Fig. 7.1)

Fig. 7.1 Taula Sanctuary in Torralba d'en Salort (Alaior). Cultural Heritage Service of Menorca (2012)

Catalogues and Municipal Regulations

Three of the town councils on the island approved their catalogues long before the regional legislation and its third addendum, mentioned above, came into force. They did so in compliance of the land law (*Ley del Suelo*) and their own town planning regulations and also in accordance with the Spanish Historic Heritage Law of 1985 (*Ley 16/1985*). When the regional legislation was enacted, they were therefore spared the extra obligations which were imposed on the rest after the approval of PTI in 2003, to which they all had to adapt. Despite these marked procedural inequalities, we shall see that the regulations for heritage protection repeat themselves from one municipal council to the next, largely through the perpetuation of two documents which date back to 1966. These have functioned as an equivalent of, or substitute for, the special plan or instrument for heritage protection that was referred to in article 36.2 of *Ley 12/1998* and article 20.1 of *Ley 16/1985*.

Municipality of Ciutadella

This was the first municipality on the island to incorporate its Catalogue of Protection of the Historic Heritage (archaeological, architectural, ethnological, and paleontological) into its General Town Planning Scheme (*Plan General de Ordenación Urbana*, henceforth PGOU) in April 1991. The results of the archaeological survey

conducted by Joan de Nicolás include rules for protection in specific cases. In article 1.1, it establishes that as long as the special plans referred to in the Spanish Historic Heritage Law of 1985, *Ley 16/1985*, have yet to be drafted and approved, the sites are to be governed by the stipulations of a 1966 decree, *Decreto 2563/1966*, and by a document entitled *Instrucciones para la defensa de los sitios arqueológicos y científicos* ("instructions for the protection of archaeological and scientific sites," henceforth *Instrucciones*). The decree conferred the status of Historic and Artistic Monument upon the entire Inventory made by J. Mascaró Pasarius of the prehistoric and protohistoric monuments of the island of Minorca, and the accompanying instructions described how to delimit the areas of the monuments by means of three perimeters or "polygons": a "circumscribed polygon" (the lines formed by the perimeter or contour of the monument), an "enveloping polygon" (projected 2 m from the former, producing an outer protective ring with a width of 2 m), and a third "polygon" projecting a second outer ring with a width equal to the mean of the longest and shortest diagonals of the "enveloping polygon." This third "polygon" would constitute the "respect zone," and was to have a minimum width of 10 m and a maximum of 70 m. Only in cases of poor and/or very poor conservation was it admissible to delimit the protected area with the "enveloping polygon" alone (Gornés Hachero, 2008).

In article 1.5, developers with plans that affect an "Asset of Cultural Interest" (*Bien de Interés Cultural*, BIC) are required to submit a plan or project for protection that will guarantee the conservation of the affected heritage site. On rural land, such a plan is required for any earth movements or alterations of the terrain that are to be carried out less than 200 m from the "enveloping polygon." On urban land, any development, no matter how minor, is subject to the ruling of the CIM and must be permanently monitored.

Furthermore, article 116 of the general stipulations of the PGOU implements the measures relating to the catalogue.

Municipality of Es Castell

In 1992, 1 year after Ciutadella, Es Castell incorporated the archaeological chart drawn up by C. Rita and J. Murillo in 1986, along with its specific rules for protection, in the Catalogue of Protection of the Historic Heritage that was included in its PGOU In Chapter five of its town planning regulations, reference is made to the monuments mentioned in the attached inventory/catalogue and to the application of the 1966 decree, *Decreto 2563/1966*, and of the *Instrucciones*, as in the case of Ciutadella.

Municipality of Es Mercadal

The archaeological chart and specific rules for protection included in Es Mercadal's Catalogue of Protection of the Historic Heritage were incorporated into its Subsidiary Rulings (*Normas Subsidiarias*, NNSS) in 1994. Article 65 of these rulings lays down

that listings for protection will be completed with those included in the catalogue of protected archaeological and architectural properties appended to the NNSS. Also drawn up in 1991 by Joan de Nicolás, the catalogue includes exactly the same guidelines as found in the case of Ciutadella, bearing an identical relationship to *Decreto 2563/1966* and the system of delimitation laid down in the *Instrucciones*.

Municipality of Ferreries

Although the archaeological chart was drawn up by Joan de Nicolás in 1990, it was not until 2001 that it was incorporated in the PGOU by means of a specific modification (no. 10). The regulations approved in 2001 contain a chapter (no. XI) devoted to the historic heritage whose article XI.3.1 establishes that zones, sites, and elements of archaeological interest are subject to the provisions of the regional law of *Decreto 2563/1966* and of the aforementioned *Instrucciones*.

Municipality of Alaior

The protection of the archaeological heritage was established in a list of 50 sites (covering the 141 inventoried in 1966) reproduced in article 214 of the regulations compiled in the revised text of the 1994 PGOU. Also included were a number of areas that had previously been wrongly mapped. Article 213 laid down that the monuments on the list would be governed by *Decreto 2563/1966* and the *Instrucciones*.

The new PGOU., revised and adapted to the Territorial Planning Directives and PTI, came into force in January 2010 and included the requisite Catalogue of Protection of the Historic Heritage. The archaeological chart incorporated under the revision is the one drawn up under the auspices of the Balearic regional government in 1989 by A. García-Argüelles and Joana M. Gual, with the addition of the new fiches prepared by the Historic Heritage Service of the CIM. The regulations contain a section (*Título VI*) devoted to the historic heritage, while the archaeological heritage is deemed to fall under the protection determined by the regional legislation. In paragraph 7 of article 104, it is stipulated that if any intervention is planned on an archaeological site, the municipal council will require the developer to delimit its surrounding area of protection, which will have to be approved in accordance with the terms of the regional legislation.

Municipality of Mahón

The first archaeological chart of this municipality was drawn up in 1987 by Jaume Murillo and Cristina Rita. It too included the guidelines of *Decreto 2563/1966* and the *Instrucciones* among its norms. Nevertheless, it was not incorporated into the

planning regulations until the new PGOU, revised for the purpose of adaptation to PTI, was approved at the end of 2011. This included a new and updated chart drawn up by Joan de Nicolás and accompanied by specific regulations on the application of the regional legislation and on the obligation to require any type of development to be preceded by a report from a professional archaeologist with reasoned conclusions on the application of the *Instrucciones*. The town planning regulations contain two articles, 317 and 318, defining and regulating the archaeological heritage. Reference is there made to compliance with the regional legislation and to council support for the drafting of special plans and governance by the norms established in the catalogue.

Municipality of San Luís

Until the provisional approval of its Catalogue of Protection of the Historic Heritage in February 2012, this municipality had no archaeological chart incorporated in its NNSS. All it had was a very incomplete list of sites for protection under the provisions of the 1966 decree and the *Instrucciones*. Under the new regulations, the archaeological heritage is subject to the same guidelines as those defined for the municipality of Mahón, with the application of the regional legislation and the obligation to demand a report, prior to any development, from a professional archaeologist reasoning and explaining the application of the *Instrucciones*.

Municipality of Es Migjorn Gran

Although its archaeological chart had been drawn up in 1990 by Joan de Nicolás under the program subsidized by the regional government, the municipality did not secure initial approval for its Catalogue of Protection of the Historic Heritage until 2011, and the proceedings have yet to be finalized at the time of writing. This catalogue contains a set of regulations, with those referring to the archaeological and paleontological heritage included in the first section (*Título 1*). In paragraph 6 of article 3, it is stated that developers with plans affecting catalogued sites will be required to delimit the protected areas and submit them for approval in accordance with the procedure established by regional legislation.

In summary, it can be said that all the municipal councils require any intervention that might affect a site or its immediate surroundings to be preceded by the establishment and approval of its protected area.

Special Plans for the Protection of Natural Areas of Special Interest

Enacted on 30 January 1991, *Ley 1/1991 de 30 de Enero de espacios naturales y régimen urbanístico de las Áreas de Especial Protección de las Illes Balears* was a law governing natural areas and urban planning in the "Areas of Special Protection" of the Balearic Islands. It articulated the need to draft and approve "Special Protection Plans" (*Planes especiales de protección*, PEP) for "Natural Areas of Special Interest" (*Áreas Naturales de Especial Interés*, ANEI) that would establish "the necessary measures and conditions for the protection, conservation, management, and amelioration of assets related to nature, the landscape, and historic and artistic values." Of Minorca's 19 ANEIs, five have had their PEP approved, each containing a catalogue of the historic heritage that includes not only the architectural and ethnological patrimony but also the archaeological heritage. The first PEP to be approved was that of ANEI Me-14 (south coast of Minorca), passed in 2002, while the remaining four—ANEI Me-2 (La Vall), ANEI Me-13 (from Binigaus to Cala Mitjana), ANEI Me-18 (El Toro), and ANEI Me-3 (from Els Alocs to Fornells)—were approved in 2003.

While the *Instrucciones* still form the basis of the method for delimiting archaeological areas in the rules on protection laid down by these special plans, some changes are also introduced to facilitate its application. According to the method described here, the boundary is to be determined in relation to the existing physical limits (dry stone walls, paths, houses, gradients), with a minimum distance of 12 m and a maximum of 70 m.

The Island Territorial Plan of Minorca

The Island Territorial Plan of Minorca (PTI) was approved in a plenary session of the CIM on April 25, 2003. Among the objectives it establishes for the protection of the "historic-artistic and cultural" (sic) heritage of Minorca, the following are specified in article 11.2:

2.1. To assume the general objectives articulated by the different programs making up the *Plan de gestión del patrimonio histórico* (Plan for Management of the Historic Heritage) of the island of Minorca and the relevant actions proposed therein, the foremost being:

- To complete the island Catalogue of the Historic Heritage
- To complete the island Register of Assets of Cultural Interest and to delimit their areas of sensitivity
- To draft and update the municipal Catalogues of the Historic Heritage and include them in planning instruments

These principles are invoked in the tenth section (*Título X*) devoted to rulings on the preservation, amelioration, and sustainable use of the "historic-artistic and cultural heritage," whose article 67 establishes basic guidelines for all urban development plans and special plans.

Fig. 7.2 Taula sanctuary and talaiot in Talatí de Baix (Mahón). Cultural Heritage Service of Menorca (2013)

The fact that the "Plan for Management of the Historic Heritage" is linked in with PTI is an absolute novelty where regulation is concerned, and this is indeed the only island territorial plan to make such a provision. Plans for the management of the historic heritage are regulated under article 99 of *Ley 12/1998* on the historic heritage of the Balearic Islands. Every Island Council has to approve a plan every 2 years establishing the set of public actions and priorities aimed at organizing and facilitating preventive measures, intervention, conservation, and dissemination of the historic heritage.

Article 60.2.3.7, which regulates the organization of public use for ANEIs (natural areas of special interest), ARIPs (rural landscapes of interest), AANPs (areas with high-level protection), and AITs (areas of territorial interest) as an overriding and binding directive for urban development, makes provision for the creation of interpretation centers within the framework of the island's great scenic and ecological environments. Among these, three are of special prominence. The first is related to the wetlands and agroforestry of the east of the island (S'Albufera des Grau, already completed), another is related to the hills and shoreline of the Tramuntana Range, and a third is related to the ecosystems of the gullies, platforms, and beaches of the south. Since the centers are envisaged as facilities with the public utility of "welcoming visitors with the mission of providing information of interest on the characteristics and ecological and cultural values of the protected area," there is room too for a hypothetical development of centers devoted to the diffusion of the historic heritage (Fig. 7.2 and Table 7.2).

Table 7.2 Chronological synthesis of the approval of the principal urban planning instruments for the protection of the historic heritage of Minorca

Year (1998 *Ley I.B.*)	Approval of the municipal catalogue	Approval of the PEP for ANEI
1991	Ciutadella	*Ley 1/1991*
1992	Es Castell	
1994	Es Mercadal	
2001	Ferreries	
2002		Me-14
2003		Me-2
Island Territorial Plan (PTI)		Me-3
		Me-13
		Me-18
2009	Alaior	
2011	Mahón	
	Es Migjorn Gran (initial approval)	
2012	Sant Lluís	

Looking to the Future: What Management Model Do We Want for the Archaeological Heritage of Minorca, a World Heritage Nominee?

As a result of both the Minorcan population's high awareness of its historic heritage and the dynamics generated by the declaration of Minorca as a Biosphere Reserve, it was already being proposed before the 1990s that the prehistoric monuments of Minorca should be granted World Heritage status.

Institutional proposals and agreements on the need to have certain Minorcan monuments listed as World Heritage sites have a long history stretching back to the declaration of Minorca as a Biosphere Reserve. The dossier that was put together for the purpose contained a large amount of documentation relating to heritage of all types and itself constituting a proposal to be explored in time. Some initial documentation was even processed by the Ministry of Culture's World Heritage Committee, which agreed on June 18, 1997 to change the title from "*Taulas*, *Talayots,* and *Navetas* Megalithic Monuments and Artificial Caves of the Island of Minorca" to "Prehistoric Monuments of Minorca as Cultural Landscape."

However, it was not until a proposal was put forward by the History and Archaeology Section of the Institut Menorquí d'Estudis (IME) that the initiative started to take shape, at least at the level of institutional agreements. The first of these was in June 2006, when the CIM resolved in a plenary session, with unanimity among all the political groups represented in that body, to urge the executive to continue the task of recovery, conservation, investigation, and diffusion of the island's historic and archaeological heritage with a view to its presentation in the near future as a candidate for World Heritage designation by UNESCO.

In the last legislature, there were three other agreements:

In the first, at a plenary session held in April 2010, all the political groups of the CIM expressed their readiness to work together with the IME on furthering the nomination of the prehistoric assets of Minorca for World Heritage status.
In the second, at a plenary session held in July 2010, the CIM approved three important agreements on the monitoring and financing of the nomination and the conservation of the assets.
In the third, at a plenary session held on December 14, 2010, the Parliament of the Balearic Islands ratified the plenary agreement reached by the Island Council of Minorca (CIM), pledging its support for the initiation of the formalities to have the archaeological assets of the Talayotic Culture included as a candidate for World Heritage listing.

In short, there is general agreement on the World Heritage project among all political groups and among the main administrative bodies of both the island and the autonomous region as a whole. The political foundation thus constituted is solid enough to allow the nomination project to go ahead.

During the current legislature, the CIM agreed in a plenary session on February 20, 2012, to create a committee to advise on monitoring the progress of the nomination for World Heritage listing of the archaeological properties of the Talayotic period in Minorca. Intended to gather information and provide a site for debate, the task of the committee will be to draft the overall outline of the nomination dossier and subsequently submit it to UNESCO.

As we have seen in previous sections, the judicial basis for the protection of the island's archaeological heritage is endowed with the basic instruments for guaranteeing its conservation, without which the World Heritage listing would be unthinkable. Let us now consider the challenges posed by its future management. It should moreover be stressed that work needs to begin immediately on channeling efforts in a planned and coordinated manner through the committee set up to monitor the nomination. It is true, however, that some of the issues raised here are recurrent ones resulting from a variety of different approaches adopted some years ago (Gornés & Gual, 2002). An analogous path has already been traced out for us by the island's listing in 1993 as a Biosphere Reserve, a status also granted by UNESCO. The basic "components" defined for the Biosphere Reserve are (1) wealth of heritage (natural and historic), (2) capacity to reconcile use and conservation, (3) active social fabric with links to the territory, and (4) organ of local administration endowed with authority (Comas, 2007: 21). These provide a basis for formulating our objectives with regard to the nomination and its process of gestation. To these, we must add the series of guidelines and criteria given below, without which we believe the nomination has little chance of prospering.

1. In 2010, the Historic Heritage Service drew up a proposal on which to base the project for World Heritage listing. An initial selection was made of 25 archaeological sites, which were presented to the Technical Advisory Committee of the CIM as typologically representative of the prehistoric archaeological heritage

of the island (*talaiots*, *taulas*, *navetas*, settlements, etc.). This first selection of monuments was carried out with due regard for the protocols required by UNESCO for World Heritage listing and was intended to constitute the main basis for giving initial shape to the nomination. The sites included in the proposal can be categorized in three groups or levels of interest, as follows:

(a) Torre d'en Galmés, So na Caçana, Torralba d'en Salort, and Biniac in Alaior; Trepucó, Talatí de Dalt, and Cornia in Mahón; and Montefí, Son Catlar, and Tudons in Ciutadella
(b) Torrellafuda, Torretrencada, Torrevella d'en Lozano, and Cala Morell in Ciutadella; Son Parc in Es Mercadal; Trebalúger in Es Castell; and Calascoves, Comerma de Sa Garita, and Rafal Rubí in Alaior
(c) Binimaimut in Mahón; Bellaventura in Ciutadella; Biniguarda and Torrellisà in Alaior; Toràixer in Es Castell; and Puig de s'Ermita in Ferreries

Nevertheless, the final selection will have to be the result of greater reflection and social consensus on the island, since there are monuments at every level with various aspects that call for improvement, and some lack even the most basic facilities for a profitable visit. Very few are in public ownership—in fact, 99 % are privately owned—so management formulas will have to be applied in accordance with UNESCO directives in order to arrive at various categories of agreement.

2. In response to the initial selection of prehistoric archaeological sites making up the first "list," it has also been suggested that there should be reflection and debate on the best form in which to present the World Heritage nomination:

Selection of monuments? From all of prehistory? Cultural itinerary of the archaeological heritage, whatever its period? Cultural landscape? Only for the period between the tenth century BC and 123 BC, which would correspond strictly to the Talayotic Culture? Only those exclusive to the island, i.e., *navetas* and *taulas*?

3. Listing as a Cultural Landscape would include the archaeological monuments together with the landscape created over the centuries, and this seems very appropriate given the links existing between them. However, the most characteristically traditional features of this landscape—cultivation of pastures for cattle, division of the land into plots separated by dry stone walls, natural vegetation of wild olive and mastic forming a mosaic with the cultivated fields, farm buildings constructed with the same technique, and typology as the scattered houses built in often prominent positions alongside prehistoric monuments—are currently endangered by the progressive abandonment of farming activity, a situation by no means unique to the island. On the other hand, the fact that approximately 40 % of the island's territory is under protection adds considerable value to a joint consideration of the monumental remains and their surroundings.

Another factor to be considered, embracing the theoretical concept of the multidimensionality of the landscape/space (Criado Boado, 1993), is the organization of the archaeological space of the Talayotic society. The prehistoric societies

Fig. 7.3 Funerary monument of Naveta des Tudons (Ciutadella). Cultural Heritage Service of Menorca (2013)

are not articulated only around the settlement, with its *talaiots*, shrines, houses, and encompassing walls, but their concept of territorial space also includes other sites, like their cemeteries, their water sources, their pastures, and other symbolic spaces like mountains, ravines, or caves (Criado Boado & Mañana Borrazas, 2003).

It is these considerations which lead us to advocate reflection on the category in which the World Heritage nomination should be presented, with that of "Cultural Landscape" gaining ground to our mind over other alternatives (Fig. 7.3).

4. The common denominator of the criteria used to make the selection was that the sites should have no discordant or unsuitable elements and be equipped with basic visitor services (accessibility, washrooms, parking, visitor center, maintenance service, information, etc.) offering guarantees of an enjoyable and profitable cultural visit. Such criteria also imply that the public administrations invested with authority in the matter will have to make annual sums available for improvements and maintenance.
5. The administrations must take a clear and permanent political decision to invest the necessary resources for the management of the archaeological heritage and must promote a management policy based on equilibrium between the three key areas of conservation, investigation, and diffusion.

6. The public administrations, and particularly the CIM, need to join with the tourist industry in confronting two challenges. The first is to accept that Minorca's archaeological heritage is a feature that differentiates the island as a cultural and tourist destination. The second is to identify and prevent the negative effects that use by tourism might occasion. We must not forget that Minorca lies within the autonomous region of Spain that receives the largest number of tourists and that while tourism has on occasions brought economic growth, it has also had a negative impact in certain cases on the landscape, with an untidy proliferation of infrastructures, advertising, shopping areas, and recreational zones leading to a clear loss of authenticity (Mallarach, 2007: 206). The recognition of the potential for tourism of the archaeological heritage forming part of the island's landscape will mean having to adopt preventive, corrective, and compensatory measures to ensure its maintenance. As Nogué points out (2007: 212), "to guarantee the future of tourism in a given territory, a territorial culture is required which truly believes that the landscape is a prime resource of both heritage and tourism, and which acts in consequence." One of the objectives of PTI, it should also be recalled, is to develop a "Monumental Minorca" network in which the archaeological heritage is destined to play a major role.
7. The CIM, in collaboration if necessary with other public administrations, must design and establish a model of management of the archaeological heritage that includes the necessary technical and managerial staff; an open network of properly maintained museums; a well-organized, well-managed, and structured network of archaeological sites; self-generated archaeological research programs; and encouragement for local and outside research teams to carry out stable long-term work on the island, whether on a permanent or periodical basis.
8. Long-term research projects should be promoted and guidelines or protocols established for such interventions, the aim being to ensure the quality of the programmed research and contribute to a broader and fuller diffusion of the heritage than at present.
9. The municipal town planning and territorial organization of the island must aid and facilitate the real protection of the archaeological heritage, with formulas for reaching agreements with site owners (since most are privately owned) in consonance with the public interest.
10. The CIM should commit itself to compliance with the provisions of *Ley 12/1998* regarding the regular approval of plans for the management of the historic heritage, since this constitutes the most important political and economic commitment of all.
11. A debate needs to be opened on the suggestion of setting up an interpretation center on the island's Talayotic Culture next to one of the major Talayotic settlements.
12. Thematic networks should be established for visitors among the archaeological sites chosen for World Heritage listing.
13. A specific plan for special action, or a complementary PTI ruling, should be drafted for the management of the sites or zones that are specifically nominated, with rules to establish swifter and more effective methods for approving the surrounding protected areas.

Conclusion

By way of a conclusion, we should like to highlight the following points:

Minorca has both a sufficient judicial basis and suitable territorial and urban planning regulations to protect its archaeological heritage. The municipal councils that drew up their catalogues in the 1990s must update and enlarge them to ensure that the legislation is fully applied.

As for the beginning of proceedings to present a possible nomination for World Heritage status, there is currently a need to debate and specify the category in which it would be nominated.

Thirdly, it is essential to raise awareness of the nomination project among the whole social and entrepreneurial fabric of Minorca so that it will be encouraged to take part in it.

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Chapter 8
Best Practices in World Heritage: Archaeology

A. Castillo

Abstract This document contains a series of proposals intended to be a reference for a proactive and dynamic practice of archaeological property management. It is planned for a wide audience of people, specialists and institutions interested or related to the treatment of Cultural Heritage.

It is therefore an open report, which strives to present key actions and tools to be applied in the field of management of World Heritage Sites with an archaeological dimension and which will be transferable to the management of other places.

This document originated in the "First International Conference in Best Practices on World Heritage: Archaeology", which was held in Menorca, from 9 to 13 April 2012. It gathers comments and suggestions based on the experience and knowledge from both the Scientific Committee and of more than 200 scholars and heritage practitioners who participated in the Conference.

Keywords Cultural Heritage management • Archaeological and socioeconomic dimension • Transdisciplinarity • Proactive and feedback methodologies • Monitoring and social participation

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Introduction

This document contains a series of proposals intended to be a reference for a proactive and dynamic practice of archaeological property management. It is planned for a wide audience of people, specialists and institutions interested or related to the treatment of Cultural Heritage.

It is therefore an open report, which strives to present key actions and tools to be applied in the field of management of World Heritage Sites with an archaeological dimension and which will be transferable to the management of other places.

This document respects the main international conventions and agreements dealing with management and treatment of Archaeological Heritage. It was originated by the initiative of the scientific direction of the "First International Conference in Best Practices on World Heritage: Archaeology", which was held in Menorca, from 9 to 13 April 2012. It gathers comments and suggestions based on the experience and knowledge from both the Scientific Committee and of more than 200 scholars and heritage practitioners who participated in the conference.

The main aim of this text is to become a practical working tool facilitating the planning of archaeological projects as well as their modification or their inclusion in other types of projects not specifically designed to research this type of properties or sites or to infer knowledge through them.

The topic of World Heritage has been selected because of the manifold significance of such sites across the globe in terms of domestic national pride, international prestige and economic development through cultural tourism. Consideration of World Heritage at this moment is necessary, as evidenced by the increasing competitive drive among countries to inscribe their sites on the World Heritage List. We believe that the most important aspect of these World Heritage Sites is not so much their "Outstanding Universal Value" as what these sites mean or should mean to the people who live with or in them and want to enjoy this heritage, as well as those who come from afar to participate in them. Consequently, the crucial issue is how World Heritage should be managed.

UNESCO is aware of the qualitative and territorial imbalances in the World Heritage List, which its Global Strategy and other initiatives, including those being undertaken by some of the ICOMOS committees, are seeking to correct. Beyond this—and coinciding with the fortieth anniversary of the World Heritage Convention—we wish to express our shared concern with the increasing loss of value that inscription on the World Heritage List means as the number of sites rapidly approaches 1,000, as inappropriate sites are listed and as the World Heritage Centre comes under increasing negative scrutiny because of the politicization and lack of transparency of its decision-making process.

Thus, a review of the World Heritage Convention and its operationalization through its global strategies is urgently needed so that the cumbersome "technocracy" and political interests dominating the treatment of the properties can be reduced and so that the process becomes more transparent and more open to participation of local communities and of additional qualified experts.

This document is divided in three sections. First, a declaration of principles is set.

Second, there is a section on Best Practices analysing contexts in which these practices should be developed. Third, comments on actions and tools are offered.

Declaration of Principles

1. The treatment and management of the World Heritage properties should be so outstanding as to be a model that can be followed in the treatment of other cultural properties, whether in this category or not. World Heritage site management should become a reference in Best Practices promoting and enhancing protection and assessment policies on Cultural Heritage.
2. Many agencies, UNESCO, the different States-party and various public, private and nongovernmental organizations are involved in the management of cultural property, as are the people working in them or representing them as staff serving social interests. Many of these interests are not homogeneous nor can they be standardized. Participation, interaction and social involvement of living communities in Cultural Heritage management must be the main reasons for this field's existence.
3. The key to the success of any management initiative is the transversality in the treatment of cultural property, so that it is developed in line with other social values, among which the quest for environmental sustainability and social justice must be highlighted.
4. Not every remain, sample or activity of human past (considered up to yesterday) falls within the concept of "Cultural Heritage". Therefore, prioritizing, ranking and selecting property "assets" need to reach a consensus. Among the factors to be considered are the state of conservation of the site or monument and its contribution to scientific knowledge or its situation in a depressed or poorly communicated area. These factors together are one of the basic principles for the management of Cultural Heritage.
5. By Archaeological Heritage, we do not mean a category or isolated compartment within Cultural Heritage. We understand Archaeological Heritage as a dimension that all cultural properties with historic interest have, in which the practice and the use of archaeology enables its reconstruction and interpretation. The treatment of these assets should be in agreement with the previously stated archaeological dimension, as well as with the social considerations forming and giving meaning to that Cultural Heritage.
6. The archaeological profession must go beyond historical interpretation and, like any human science, it must assume social commitments. In this way, it should be reminded that Cultural Heritage is a changing construction of contemporary times for which the past is used.

Best Practices

Management of archaeological properties must be carried out according to the particularities of the site, that is, it must be based on knowledge and move from the specific to the general and not vice versa. From an archaeological dimension perspective of inscribed World Heritage properties, we can distinguish three types of contexts in which these best practices are produced:

1. Sites in which the archaeological dimension has significantly more weight than other values, for example, sites in which their archaeological character is the origin of the inscription of the World Heritage property itself.
2. Sites where the archaeological dimension is one more added value enriching the comprehensibility and enjoyment of World Heritage. In these cases the archaeological dimension is not the subject that motivated the site inscription, for example, as in the case of a "natural" property.
3. Sites subordinated to other values or interests affecting World Heritage. These values range from the environment to social mobilizations. Examples include sites affected by construction works, natural disasters, economic displacements, political and social conflicts, etc.

Actions

Knowing

Any action of management must be based on prior knowledge. In the case of archaeology, this knowledge must be less destructive and should incorporate not only the evidence but also well-founded doubts. Retrieving information about the archaeological property should be accomplished through the application of social theory, archaeological methodology and scientific procedure. The territory where it is located and legislation for its protection will have special importance, as well as the perception local population has about the same.

This collection of information must equally consider the different historical periods, promoting when possible research of the lesser-known periods.

Preventing

Any archaeological intervention should diligently follow a preventive planning and should ensure the preservation of the greatest number possible of sites for the future generations. Decisions about what to do with an archaeological asset should be made prior to any project or plan affecting it, preventing its damage, avoiding surprise, casual discovery or specific influence of the political and economic situation.

As part of this preventive action, selection, delimitation and establishing reservation areas—understood as those sites, or part of them, which are not subject to any action or intervention, preserving for the future—are essential.

Working Through Transdisciplinarity

Assume that the archaeological dimension of properties, as already defined, is one more dimension to be taken into account and that all of the values are equally important and necessary for the adequate treatment of Cultural Heritage. Therefore, we must:

Respect and consider in any intervention other ways to understand Cultural Heritage coming from other disciplines, interests or knowledge, for example, enrichment through perspectives emanating from art, architecture, politics, bureaucracy and tourism as well as popular or community appreciation.

The role of the archaeological profession must be focused on recovering, evaluating and understanding any cultural property, integrating it into the management strategies.

This will allow a positive image of the archaeological dimension to be built, which will not be imposed but shared and which will add value and social recognition.

Socioeconomic Dimension

All actions should include the socioeconomic aspect, since it is not realistic to consider interventions, studies or works without human and economic resources. However, we must remember that more money does not equal greater success or better results, and optimizing resources and generating sustainable projects are fundamental.

The economic aspect is one more, and accordingly, it is not the most important or priority of the values to take into account within management and treatment of assets.

Proactive and Dynamic Acting

Based on the assumption that we live in a world in constant flux, our own notion of archaeology changes too and so does the concept of cultural property and its role. Therefore, this contextual change requires a dynamic practice of management. All projects, plans, programmes or actions carried out will have to consider flexible working variables. Especially important variables that will generate change are:

- The limits of what is intended to be managed: spatial and, consequently, the measures and actions
- New discoveries to be considered
- Risks and natural disasters, wars and looting, etc.

- Imposition or prevalence of other needs and social values on the archaeological dimension
- Political and socioeconomic realities of the management sites

Counting on and Promoting Social Participation

Getting society involved, especially local communities, in the archaeological treatment and management of cultural properties is a priority. Therefore:

- Actions of collaborating, cooperating, educating, disseminating, sharing, enabling and mediating must be a constant element in archaeological management.
- Transmitting, disclosing, disseminating, training and educating—at different levels intrinsically related, with special emphasis on the aforementioned local population, and also in professional fields beyond archaeology—in respect and knowledge of the archaeological dimension of cultural property.
- Encourage tourist activity generated around sites to be an exercise of social justice, to enable sustainability of communities coexisting with the archaeological sites.

Implement Feedback Methodologies

Any action to innovate and improve practices should be subject to monitoring and control of its effectiveness and of the application risks. It will also require an analysis and assessment of the results, so as to rethink, correct, perfect and generate new actions and future uses.

Tools

Professional Ethics

Professional ethics is a key tool in the success and good practice of any activity. These ethics are codified in a number of relevant professional societies around the world, not just the ones corresponding to the archaeological profession, but also to other sciences, arts or techniques, as well as the ones properly originating in the profession of Cultural Heritage management.

Training Programmes

Training programmes in archaeological heritage management or social values at a scope that transcends technical skills for the archaeological-historical area are needed. The profession of "manager of Cultural Heritage" is a specialty in itself that goes beyond the objectives of archaeological science and requires a broad education and expertise.

Trans- and Interdisciplinary Working Teams

This document has placed emphasis on the importance of situating the archaeological dimension as one more and just as important facet in management, in addition to other ones attached to the value and respect for cultural property. Today, best practices cannot be achieved without considering multiple points of view on the facts or actions to be developed.

Didactic Material, Guides, Workshops, Etc.

Development and organization of didactic material, guides, workshops, etc. on the nature and management of Archaeological Heritage are of great interest and need to be included in compulsory education, museums, places open to the public and other spaces of social communication.

These materials should take into account the interpretations made of the past so as to avoid social exclusion, political supremacy or social injustice.

Rules and Norms

The knowledge and use of rules is to be the basis of every management operation, and it should not be an end in itself or a measure to standardize the rest of actions carried out on cultural property. To the contrary, legal rules and norms should serve to solve situations and speed up proceedings, not to hinder them. In addition to laws, treaties or conventions of Cultural Heritage, we must take into account many other national and international laws, including those establishing intellectual property rights, laws of the land, environmental laws, agricultural laws, laws concerning tourism, etc.

Analysis and Social Studies

Development and generation of analysis, participation and social collaboration on the archaeological dimension of properties should be developed. The application of theories from philosophy of science, sociology, ethnography, social psychology and among others, such as educational projects, public perception, analysis and resolution of conflict studies, participatory action research methodologies, should be applied when possible.

Plans, Programmes or Projects

Management plans, directives, guidelines, special plans, etc. must be dynamic working instruments, with a solid and defined base and a scientific and technical objective. They should include the previously mentioned tools and be integrated within other plans with different aims and within global management systems

beyond Cultural Heritage. In addition, they should be agreed upon by consensus and be open to partial amendments. Breaking with the rigid and conservative structure of such plans, programmes and projects is one of the remaining challenges in best practices. Such plans must develop strategies in the short, medium and long term. They should be as autonomous as possible from power or political situations. They must have clearly defined human and economic resources. These programmes should have plans for attracting new resources or maintenance thereof, their own strategies to control risk and follow-up activities to be addressed, such as indicators as well as a series of preventive measures to ensure their implementation and success.

Inventories and Catalogues of Properties

Inventories and catalogues of properties are basic tools to be used at different scales (a site, a region, a state, etc) and need a constant updating. It should be reminded that the World Heritage Tentative List is based on the registration of the different heritage sites, and presently, many of these "potential" properties in some States or regions are not well known. As a result of this, there is an urgent need to compile these inventories and correct them periodically.

Information and Communication Technologies (ICTs)

As in any other sector, ICTs are the basis of multiple actions on Cultural Heritage, from the digitalization of information to virtual reality, data bases, etc., which are vital for management. Among them the ones referring to the following issues should be used:

- Education and diffusion allowing for knowledge internalization: We particularly emphasize the use of mobile technologies, social networks and the Internet as platforms for essential communication and social awareness, especially for young people and future generations of professionals in the sector.
- Archaeological research and interpretation: ICT offer a new, interdisciplinary dimension by providing the possibility to examine the context and landscape in which the Cultural Heritage property is embedded, which allows a better understanding and interpretation of the asset.
- Nondestructive methodologies that increase knowledge with minimal impact on cultural property.

ICT should be used with caution, since in many cases they are subject to rapid deterioration or become obsolete, and therefore they have a high cost of maintenance or renewal. Therefore, four factors need to be considered: for whom, what, how and where are ITCs used.

However, it is important to promote and encourage funding for the development of appropriate technologies, with a specific interest in the archaeological heritage, not only in its tourist aspect but also as a tool for conservation, interpretation and presentation in situ and extra situ, without devaluing the content.

Menorca, April 13th, 2012

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