

# CONSERVATION AND MANAGEMENT OF ARCHAEOLOGICAL SITES

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ARTICLE

# Visitor management and the preservation of rock art

## Two case studies of open air rock art sites in north eastern Portugal: Côa Valley and Mazouco

ANTÓNIO PEDRO BATARDA FERNANDES

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### ABSTRACT

Since the opening in 1996 of the *Parque Arqueológico Vale do Côa* (Côa Valley Archaeological Park, PAVC) the visitation scheme implemented has come under intense scrutiny and criticism, mostly from Portuguese archaeologists and the local community. Considering these criticisms and some examples of different management strategies employed in other Open Air Rock Art Sites in the northeastern area of Portugal and also in the rest of the world, this paper aims to discuss visitor access systems from a preservation versus public access, socio-economic perspective. Since visitors are one of the main stakeholders in Cultural Heritage Resources management, their feelings and opinions on public access schemes will also be assessed by means of a survey that aims to determine visitor satisfaction levels in the Côa Valley. Likewise, other stakeholders' and local community's views on development and visitor management will be considered by means of interviews and articles published in the local and national press. The intent is to demonstrate that rock art sites, because of their special nature, especially the ones situated in this area of the Iberian Peninsula, require particular approaches, namely in the implementation of visitor access systems.

Groups of excursionists gather around their guides with their backs turned towards what they came to see. Others gaze at their own feet while listening to the audio tour as if they were there to communicate via mobile phone with Prehistory. The flashes of compact cameras cause continuous fireworks while trying to reach the stones at a distance that manuals repeatedly state are not suitable to obtain good results [1].

### INTRODUCTION: THE ART AND ITS OVERALL CONTEXT

The Open Air Rock Art Sites (OARAS) in the Côa Valley [2–5] and of Mazouco [6] are typical of the millenary tradition of open air rock art in this area of the Iberian Peninsula and France. The Spanish sites

of Siega Verde and Domingo García, the Franco-Cantabrian cave sites of Lascaux and Altamira, the open air site of Fornols-Haut, to name but a few, all belong to this Western European Upper Palaeolithic Rock Art tradition [7–9].

The discovery of the Côa Valley sites implied a 'Copernican change' [10] in what was believed to be the norm for European Upper Palaeolithic rock art sites in that most were located inside caves and only a few in the open air. Mazouco, discovered in 1981, was considered to be an exceptional, isolated find but, when the Côa Valley revealed its treasures, specialists quickly acknowledged the need to re-think the rule used to determine the places where Palaeolithic artists painted and/or engraved their motifs [11–13]. The fact that open-air sites are more exposed to natural and man-made weathering, and

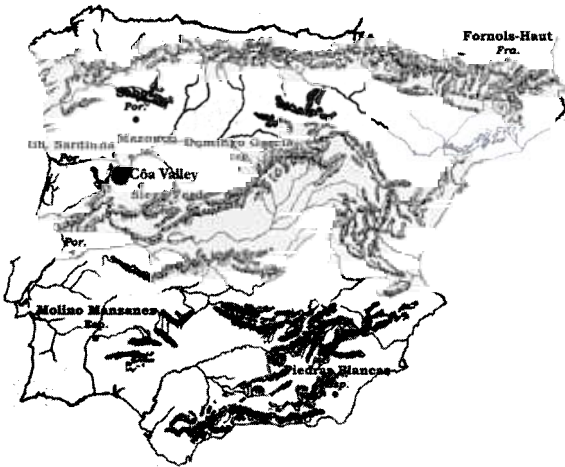


Figure 1. Map of the Iberian Peninsula showing some of the most important OARAS sites. (image: Luís Luís)

thus to complete physical disappearance, probably explains why more sites have not been discovered. Nevertheless, in 2001, Baptista described more examples of this art in the nearby area of the High Sabor River [14]. He believes the Côa Valley (the world's largest known concentration of open air Upper Palaeolithic rock art) to be the nucleus of an art complex, which he calls 'the artistic empire of North-eastern Portugal' [15]. A map of the area (Fig. 1) shows that other smaller and less significant (compared with the Côa!) places such as Mazouco, Siega Verde and the sites in the High Sabor all 'orbit' around the 'sacred' core valley of the Côa.

There are over 1200 individual motifs in the Côa Valley, engraved or painted on some 200 schist and granite surfaces distributed along both banks of the final 17km of the Côa River, and more on the banks of the Douro River of which the Côa is a tributary; in total forming more than 25 different rock art sites (see Fig. 2). Not all engravings were made in the Upper Palaeolithic period. In fact, one of the characteristics of the Côa Valley art is an almost uninterrupted tradition of the engraving of rock surfaces throughout time. Thus, Upper Palaeolithic, Neolithic, Iron Age, historical period and contemporary motifs are found engraved in the schist or granite, sometimes superimposing the older ones [16]. However, the Upper Palaeolithic artistic cycle that is believed to have begun some 25,000 years ago [17] is the most important and significant because of its age and the quantity of motifs. Furthermore, as was stated in the criteria used in 1998 by the World Heritage Committee (WHC) for

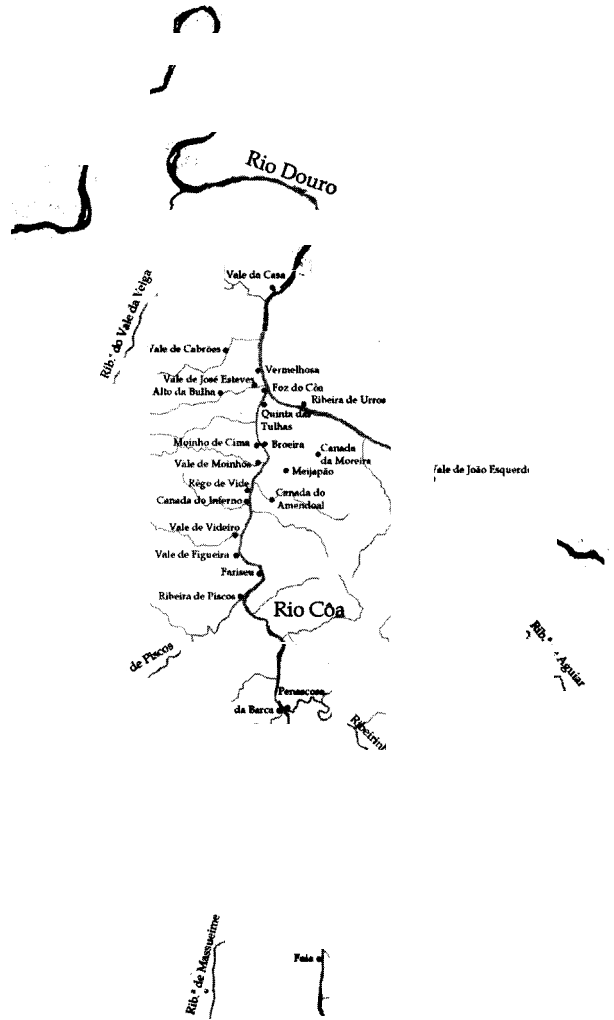


Figure 2. Rock art sites of the Côa Valley. (image: Luís Luís)

its inscription on the World Heritage List (WHL), the Côa Valley gives testimony to the dawn of Human-kind's creative mind and of 'the social, economic and spiritual life of our early ancestors' [18].

The area of Portugal (and to some extent Spain, since the Siega Verde site is only a few kilometres from the border between the two countries) where this art complex is located is one of the less socio-economically and culturally developed regions in the Iberian Peninsula. This factor also helps to explain the survival of the rock art motifs. In fact, this is a relatively isolated area, with a diminishing

and ageing population, as a result of the region's lack of public infrastructure such as roads, hospitals or schools, and of the absence of medium or large industries and the consequent shortage of jobs. Consequently, considerable abandonment of land has occurred, fuelled by large-scale emigration either to the developed cities of the Portuguese shoreline or to other countries [19]. The 2001 Portuguese census revealed that about four-fifths of the Portuguese population live in the developed strip of land near to the coast, some 50km wide and 400km long between the region of Setúbal (just south of the Greater Lisbon area) and the area immediately north of the Greater Porto zone [20]. The same census revealed that the average ageing index for Portugal is 94% while in Foz Côa county the same value is 200% [21]. Thus, the natural growth rate of the municipality had, in the last decade, a negative value of 8.8 [22]. Another striking characteristic of the area's population is a high level of illiteracy, especially amongst women [23].

The main economic activity of this dry and hot climate area is traditional agriculture based on vineyards and on almond and olive trees [24], Port wine being the most important export of the region. The centuries-old rural tradition has gently shaped a landscape that also constitutes a significant heritage feature (the cultural landscape of the High Douro Port wine-producing region has been included recently on the WHL [25]). In fact, the final 17km of the Côa is considered to be a monument with its 'dramatic landscape of granite and schist outcrops' [26], its traditional 'socio-economic' environment directly related to an enduring way of life and its unique rock art sites, altogether deeply tied within the symbolic universe of the valley's topography, geology and microclimate [27] (see Fig. 3). Thus, it is more than just a valley; it is, in many ways and on many levels, a 'living' entity. This applies, too, to Mazouço, with its Upper Palaeolithic engravings situated on one of the banks of the Douro, in an area of 'Mediterranean'-type landscape – also known as 'Terra Quente' (Hot Land) – atypical so far north in the Iberian Peninsula.

When the first engravings in the Côa Valley were discovered in 1992 a dam was being built near the mouth of the Côa river, and most of the rock art sites revealed throughout that year and in the following years were destined to be flooded. A lively and sometimes bitter battle then began between those



Figure 3. The area of the Côa Valley where the Penascosa and Piscos rock art sites are located.

who defended the construction of the dam and those who wanted to preserve the art *in situ* and display it for all. The battle for preservation spread worldwide as specialists everywhere were alerted to the exceptional importance of the sites being uncovered. After huge controversy and fierce confrontation at many levels, both in Portugal and abroad, the government, elected in 1995, decided to stop the construction of the dam and preserve the engravings *in situ*. The following year the Parque Arqueológico Vale do Côa (PAVC) was created and was charged with preserving and presenting the engravings to the public [28].

#### VISITOR MANAGEMENT IN THE CÔA VALLEY AND IN MAZOUÇO

##### *Côa Valley*

From the moment the PAVC was created, the recurrent 'Paradox of Managing Heritage' [29] between preservation and public presentation of that heritage was encountered. The main objective of the visitor management scheme was to reach a balance between those two aims. In addition to the visitor pressure issues that had to be considered, the



Figure 4. Visited sites in the Côa Valley. 1: Canada do Inferno; 2: Ribeira de Piscos; 3: Penascosa.

lack of information on the geological behaviour of the schist outcrops and the relatively untouched state of the more than 25 sites required a cautious approach. The system that was implemented is one of restricted access, in that a strict daily limit on visitor numbers was established, and also restricted in the sense that the public may only visit the three sites that are open on Park-organized visits or on visits organized by the private companies certified by the Park. Visitors, a maximum of eight people per group, depart from three distinct visitor centres established in different villages, to the three available sites – from Vila Nova de Foz Côa to Canada do Inferno, from Muxagata to Ribeira dos Piscos and from Castelo Melhor to Penascosa (see Fig. 4) – on a safari-type tour, aboard four-wheel-drive vehicles and accompanied by guides specially trained to describe and interpret the engravings, placing them in their historical, symbolic and landscape context. The guides give tours in English and French, as well as Portuguese. As there are strict daily limits on visitor numbers – 48 visitors to Penascosa (a figure that can rise to 52 when school parties are scheduled to visit this site, the only site that welcomes student visits), 32 to Piscos and 32 to Canada –

visitors are advised to book in advance. Visitors not part of either a Park-organized or authorized private company-organized tour are asked to leave by the security personnel, who are on duty all year round. The dusty and uneven rural tracks that were only slightly upgraded and not subject to extensive improvements, thus maintaining their rustic and bumpy character, also serve to dissuade individuals from 'spontaneous' visits. The Park is open from Tuesday to Sunday, except 25 December, Easter Sunday and 1 May and each visit costs €5 per person per site. Smoking is not allowed, nor are touching the engravings, collecting vegetation, carrying pets or carrying children under three years of age in the jeeps [30, 31].

Burton has argued that recreational countryside areas have a perceptual carrying capacity, a limit that has more to do with human psychology than with the characteristics of the setting itself [32]. In that sense, the Côa Valley daily limits were set by resorting to what we can partly classify as perceptual carrying capacity constraints. In fact, the rule is that there should be no more than one group of visitors at any site at the same time. The maximum number of visitors per day was calculated by taking advantage of the optimal light conditions essential for best viewing of the engravings, by adjusting the departure times of the tours from the visitor centres and by taking into consideration the time needed to visit the sites. (As a result Canada receives tours only during the morning, Penascosa during the afternoon and Piscos the whole day) [33]. Setting visitor limits per day and per group promotes a holistic enjoyment of these 'sacred' sites, unspoilt by the presence of crowds; it also enables the guide (see Fig. 5) to more ably interpret and present the engravings to visitors, contributing to a more fulfilling experience. Furthermore, the relatively low daily limits established will, no doubt, greatly minimize visitor pressure, thus achieving a sensible equilibrium between the Park's preservation and public presentation aims [34].

### *Mazouco*

Mazouco is an altogether different case when considering visitor management strategies. When the schist surfaces that are host to the three different Upper Palaeolithic zoomorphs were discovered in 1981, there were only unconfirmed suspicions that



Figure 5. A group of visitors at the Penascosa site accompanied by one of the guides working in the Côa Valley Archaeological Park.

this could be the tip of a bigger iceberg [35]. Thus, although considered important, both in Portugal where it was the first Upper Palaeolithic OARAS discovered [36] and in Western Europe where many Upper Palaeolithic OARAS had not been yet identified [37], the discovery was not recognized beyond academic circles and did not have the impact on public opinion that the discovery of the Côa Valley had a few years later. Even if the site had been threatened in any way, public opinion at the time would not have been much moved. This was demonstrated in 1984 when the Pocinho dam on the Douro river, downstream of the mouth of the Côa, flooded at least one rock art site that was later confirmed by experts as being in the Côa Valley engraving tradition [38] but about which there was little public outcry. The fact that Mazouço is an isolated site with only one complete motif, and that Portugal in 1981 was somewhat indifferent to Cultural Heritage Resources (CHR), having other priorities, led to some neglect in the management of the site. In 1983 the *Instituto Português do Património Arquitectónico e Arqueológico* (Portuguese Institute of Architectonic and Archaeological Patrimony), the government body with responsibility to protect Portugal's cultural heritage, scheduled the site as an *Imóvel de Interesse Público* (the Portuguese heritage law classifies significant assets mainly into three categories: national importance, public importance – as for Mazouço – and local importance). Nevertheless, little else was done and, since its discovery, there has been free access to the site and no surveillance or visitor monitoring system



Figure 6. The access road to the Mazouço site.

is in place to protect it. Furthermore, in 1999/2000, following the local authorities' desire to make the site more accessible, the country road leading to the engraved surfaces was upgraded: tar was laid and signs giving directions on how to reach the site from the main road were erected (see Fig. 6).

#### THE IMPORTANCE OF ASCERTAINING VISITORS' SATISFACTION LEVELS

Since visitor management in the Côa Valley aims to achieve a balance between preservation and public presentation issues, it is important to ascertain the levels of satisfaction that visitors derive from the visit – after all, they are one of the main stakeholders in the Côa. As a public service, the Park has a commitment to society to show but also to preserve the engravings and, therefore, both matters deserve the same attention. Furthermore, the presentation of CHR offers a precious opportunity to raise the public's awareness of the issues encompassing the conservation and preservation of our collective patrimony and to illustrate suitable ways to achieve this goal. The visitor management system in use is innovative, both in Portugal and to some extent in the world, and establishes some strict rules (such as the limitation on daily visitor numbers). The evaluation of visitors' feelings and opinions on the system gives useful information on the degree of enjoyment the visit provides. It also gives some indications as to how to improve or adjust the system. Moreover, as we shall see, most of the criticisms of the management strategies implemented by the

Park are related to the visitation scheme, so it is significant to find out if those criticisms are strongly held by visitors. Therefore a survey intended to provide data on visitor satisfaction was carried out. There had been an earlier survey by Lima and Reis of 366 visitors in 1998 [39] but with the intent of establishing the sociological profile of the Côa Valley visitors and the importance these visitors would assign to the preservation of the engravings in particular and to Portuguese CHR in general [40].

#### **ANALYSIS OF THE DATA OBTAINED BY THE SURVEY PRESENTED IN APPENDIX I**

The first relevant fact that we can infer from our survey and from the Lima and Reis study is that the majority of visitors to the Côa Valley are young, active and highly educated individuals, well placed in the social hierarchy, coming, in the case of the Portuguese visitors, from the most developed and populated areas along the Portuguese coast and used to visiting cultural heritage sites or museums (Appendix I, Tables 6–11; [41]). Since the characteristics of this audience fit the profile of the urban group that most strongly defended the preservation of the engravings against the construction of the dam (see [42]), the results of our survey, expressing a positive view of the visitation scheme, are not a surprise. On the other hand, the lack of representation of locals (the visitor coming from the closest point to the Côa was from a small town 100km to the south) not only confirms the lack of value that locals confer on the engravings (see below), but also helps to explain why visitor satisfaction levels in our enquiry are so high, an indicator shared with the Lima and Reis study [43].

Thus, both enquiries report high visitor satisfaction. In the case of our survey, carried out immediately at the end of the visit to the engravings, we found that the intrinsic ‘eloquence’ of the art and of the landscape that surrounds it profoundly impress visitors. The 96% of visitors that rate the visitation system as good or very good (Appendix I, Table 15), the 70% that find the engravings or everything as the most enjoyable aspect (Appendix I, Table 13) and the 93% that think the art should be preserved (Appendix I, Table 18) may lead us to conclude not only that visitor satisfaction is high, but also that the visit, as it is structured, contributes to raise awareness of the issues of heritage preserva-

tion and is an agreeable and educational experience. In fact, all interviewees declared that the visit experience was good or very good (Appendix 1, Table 12). As 82% of visitors stated that they would like to return (Appendix I, Table 17), either to visit the other sites open to the public or to re-visit the sites already seen, this further confirms the high level of visitor satisfaction ascertained by our survey while also drawing attention to the need to develop additional cultural tourism opportunities in the area. The fact that the least enjoyable aspect of the visit for the majority of interviewees (52%) is connected with the environmental conditions (namely the climate, something unmanageable by the PAVC, and the condition of the rural tracks, which were only slightly upgraded) and that one-quarter of visitors do not find anything unenjoyable, further supports these findings (Appendix I, Table 14). Furthermore, the constraints and the shortcomings of the system identified by visitors (such as the lack of information or the lack of ability of some guides to speak foreign languages) are rated as the least enjoyable aspect of the visit by only 21% of interviewees (Appendix I, Table 14). We also must point out that a vast majority (96%) of visitors declared that the quality of the visit would be worse or much worse if the number of people present at the same time in the sites increased (Appendix I, Table 16).

Cross-tabulation of the relatively small amount of data that was, more likely to produce interesting findings did not provide much relevant information since the results of the survey were very alike, with the vast majority of respondents giving the same replies. Nonetheless, we found that of the seven visitors who were indifferent to or did not agree with the preservation of the engravings, none found the art to be the most likeable feature of the visit. When we examined their educational background we realized that five of the seven had a university education in the Natural Sciences. Although the number of visitors with these views is not very significant, we may conjecture that the individual’s chosen area of expertise can influence their sensibility towards CHR preservation. Nevertheless when we compare how these ‘anti-preservation’ visitors rate the experience, we find that all of them liked the visit. This indicates that, despite personal mind frames and preferences, these visitors still enjoyed the overall experience, even if

none found the engravings as interesting as other features of the visit.

### VISITOR MANAGEMENT AND REGIONAL DEVELOPMENT STRATEGIES

In the Côa Valley region, the Park was seen by most of the population and local authorities as a substitute for the dam and for the development its construction would eventually bring to the area [44]. They also saw the creation of the Park as a process that was imposed on them by the government and by a group of people they perceived to be the urban cultural elite that played too large a role, as opinion and decision makers, in the preservation of the engravings against the construction of the dam that most locals favoured [45]. The fact is that the majority of the local population does not value the engravings at all, often referring to them as 'doodles done by the water millers', and would prefer the economical, though temporary, benefits that the dam's construction work would bring to the area rather than the *in situ* preservation of the carvings [46]. Local populations have an industrialist concept of development, of immediate and visible results [47] and the implementation of a Park destined to preserve and present something seen as 'worthless' was only valued (a view not helped by a somewhat inadequate institutional promotion [48]) as 'the golden goose's egg' that would develop the region. Within this industrialist logic of development, the Park, as its substitute, would have to live up to the expectations of progress promised by the dam, as illusive as these were. In fact, once the dam was built, all workers would have left the area, three employees being sufficient to keep it functioning [49].

The creation of the Park has always been seen by the national authorities that led the process and by the specialists who gave advice as (a nevertheless important) part of an overall sustainable strategy of development for the region – one that valued the permanence of all features that make the valley an extremely significant place [50, 51]. Alas, the local population found this model difficult to grasp, and its representatives, tired of what they felt and still feel to be the chronic underdevelopment of the area, wanted 'immediate development'. These misconceptions decisively shaped the community's and stakeholders' evaluation of the success of the Park and of the visitor system implemented.

Most of the unfavourable criticism of the overall project for the Côa Valley, mostly apparent at local and national level, is directed towards the visitation system. This criticism takes two forms: either disapproval of the restricted access system or, as a consequence of the former, criticizing the fact that visitor numbers are low and not 'enough' to develop the area. Examples of this kind of criticism in the Portuguese national press are recurrent, so we provide just a few that reflect this stance: 'The actual limitations on visitor numbers are too restrictive' [52]; '... [the visitation scheme] is too restrictive, there is too much control' [53]. Local communities and stakeholders who want more visitors bringing more money to the area, thus stimulating economic development, also feel that the current visitor management strategies are inadequate for the achievement of this goal. For instance, the Foz Côa Mayor declared: 'the scheme of visitation to the engravings doesn't serve the interests of the municipality' [54]. To a large extent expectations of development held by the local community and stakeholders were inadequately fulfilled because the former Portuguese government did not invest in the region as it had promised. The most flagrant example is the creation of the Côa Valley Rock Art Museum, the construction of which was announced in 1996 but is being successively postponed. Another is the institution of a 'credit line', mainly funded by the European Union, which had almost no funds because the required Portuguese government contribution was insufficient.

However, even though the two points of view are ruthlessly interconnected, there is a balance to be found between the development expectations of local inhabitants and the protection of the Côa Valley rock art. The development of the region should never be attained at the expense of the preservation of this heritage. In the medium and long term, if unsustainable or ill-thought-out development strategies are put into practice, there will be no rock art remaining to be safeguarded in all its integrity and authenticity for future generations – the ultimate argument for heritage preservation [55]. Visitors, particularly if they are present in considerable numbers, exert several kinds of pressure onto cultural heritage sites that can seriously endanger their preservation. Jacobs and Gale list some of the impacts of visitor pressure on rock art



Figure 7. 'Naive' motifs (a goat and a fish), a result of vandalism of a schist surface in Penascosa.

sites: graffiti and vandalism, souvenir hunters, touching of art surfaces and consequential wearing of these surfaces, dust accumulation and rapid hazardous changes in the microclimate of the sites [56]. To these we can add the accidental scrubbing of rock art panels, as described by Gale [57], the wetting of surfaces to better read the motifs, the accumulation of litter that visitors leave behind or soil erosion and damage to the vegetation that encompasses the sites. The nearby Siega Verde site was left barely supervised by Spanish authorities for several years. As a result episodes of severe vandalism occurred that damaged the rock art panels, and the authorities were forced to take more drastic measures (such as fencing the entire site and hiring a private company to implement a security system complete with surveillance cameras) to prevent further acts of vandalism [58].

Unfortunately, as in Siega Verde and in many other OARAS, the main problem posed by visitor pressure in the Côa Valley is vandalism. When the many rock art sites began to be uncovered and access to them was not regulated, some graffiti started to appear, mainly at the Penascosa site but fortunately not on the engraved rocks (see Fig. 7). These occurrences made the implementation of a restricted access visitor management system crucial to protect the engravings. Sadly, even after the system had been implemented, one serious vandalism episode occurred (see Fig. 8), further proving the need to maintain the current system in operation, with its fundamental features: surveillance and monitoring of 'spontaneous' visitors and of those



Figure 8. Recent vandalism engraved onto Penascosa's Rock No. 17. Note that the horse motif made by P. Matos (the name that appears in the signature!) superimposes an anthropomorphic figure, located near the neck of the horse, and believed to date back to the Neolithic Period and a barely visible fine line incised Upper Palaeolithic goat, located near the tail of the horse.

accompanied by the guides. Even if it is impossible, or unbearably expensive, to guard every single engraved surface in the Côa Valley 24 hours per day, if no surveillance and monitoring existed and there was no visitor access system greatly limiting the consequences of visitor pressure, the increased likelihood of damage could be disastrous.

#### *Regional Development issues*

For the local community and stakeholders the idea of protecting the engravings is somewhat difficult to understand. If the development of the region is a reasonable expectation on which all agree, the proposed means of achieving it are more contentious. The misconceptions present in the process of implementation of the PAVC and unfulfilled government promises led to an atmosphere of distrust between the Park and the community. The aims of the Park are clear: protection and public presentation of the engravings. Of course, the flux of visitors generated by the Park and its rock art is already an important factor in development, but it cannot be the only one. It is not the role of the Park to build the hotels or roads that the region lacks – precisely what communities and stakeholders view as development priorities. In fact the Foz Côa Mayor stated

that 'no improvement to the roads has been made in the last five years' [59], the 'last five years' being the period of existence of the Park. Within this context, to which the lack of political decisions relating to the construction of the Museum adds more discontent, the restricted access visitation system is seen as a constraint to the development of the area, as most stakeholders and a vast portion of the community understand it. Most believe that 'opening up' the sites would be crucial to reach the desired level of development. On this issue again the Foz Côa Mayor has the opinion that 'some engravings sites should be visited more intensely' [60], also suggesting the creation of a 'sacrificial' site.

There is an important seasonal phenomenon in the annual distribution of visitors (see Appendix I, Table 3), meaning that in the summer (ironically just the time of the year when the conditions for a visit are more difficult because of the very hot and dry climate) and especially in August (the traditional holiday month in Portugal), some visitors that do not pre-book their visit are unable to get seats on the tours. Since most of these visitors express publicly their complaints (in the restaurants where they eat, in the hostels where they sleep, etc.), the local population, exposed to these protests, perceives the restrictions as too strict and as an obstruction to the development of the area. Not surprisingly, some of the stakeholders propose more flexibility in the limits imposed by the visitation system when these seasonal peaks of demand occur. When we interviewed town counsellor Rui Reininho, responsible for the tourism and cultural policies of the municipality and joint owner of one of the private tour companies, he called for the setting of higher visitor limits in the summer months to face this seasonal peak in demand. Reininho also appealed for a change in the way visitors are taken to the sites. He believes that a 'shuttle' system, in which the jeeps would always be transporting visitors between the visitor centre and the sites, where the guides would be waiting for the groups taking them only on a tour of the engravings in the site, would be more advantageous.

Nevertheless, the fact is that, with the exception of the first year of opening, visitor numbers have not approached the yearly maximum (roughly 30,000 visitors; see Appendix I, Table 1) allowed within the scheme. Whatever the access system is,

if visitors do not come to the Côa Valley, there will be little economic benefit to the region. Hopefully the 'right' number of visitors, a number determined by the compromise between preservation and public presentation of the Côa Valley rock art, will visit the area, thus so contributing to economic development. The Park officials believe that without the Museum, planned to welcome some 200,000 visitors per year, this compromise has to be kept as it is, with some minor adjustments if and when needed. When we interviewed Maia Pinto, the PAVC's director, he expressed his belief in the benefits of the construction of the Museum that will allow an increase in visitor numbers without compromising the kind of sustainable development that he and other government officers envisage for the area. Furthermore, according to Maia Pinto, it has been the policy of the Park, since its inception, to foster the area's traditional quality 'surplus' value products, by selling them to visitors in the visitor centres, thus trying to show the local community that traditional agriculture is viable within this context. Nevertheless, he also believes that the outcome of this development process is gradual, somewhat 'invisible' over a short period of time, and that it will take a while for the local population to wholly appreciate its benefits. He also stresses the important role this process has played and will play, namely with the construction of the Museum, in the creation of jobs and in the settling of young residents in the area.

Despite a certain atmosphere of distrust within the local community, giving the perception that investment in the creation or upgrading of private initiatives to promote and increase existing tourism activities is a big risk, in the last few years there have been some small but encouraging signs that something is changing in the region in terms of private initiative. The county's wine production cooperative experienced a 'boom' in sales after incorporating Côa Valley art in the promotion and labelling of its products [61]. Another successful case is a Port wine farm that has a small on-site museum dedicated to the wine production cycle and to the interpretation of a Roman archaeological site located on the property [62]. Quality hostels – some being 'rural tourism' hostels – and a quality restaurant were created, together with tour companies that also organize visits to the engravings. On the public investment level, besides the creation of the

PAVC, we have to mention the construction of a youth hostel and of a municipal Cultural Centre. Perhaps the foremost indicator of real change in Foz Côa, despite the abandonment process, still attracts new residents, as shown by immigration data. In the last decade, of 30 counties, Foz Côa county had the fourth highest migration growth rate in the Trás-os-Montes e Alto Douro region (the northeastern area of Portugal), surpassed only by the two district capitals in the area and by Chaves, the second biggest municipality in this region (43,558 habitants against the 8,397 of Foz Côa) [63].

As most of the above-mentioned investments are enjoying success, perhaps it is just a matter of time before the majority of the local population realizes that a holistic approach to tourism will provide the basis for sustainable development by taking advantage of traditional agricultural activities that deliver high quality products (Port wine, olive oil, honey, almonds), of the magnificent scenery in a landscape where some threatened animal species survive (the Griffon Vulture, the Black Stork or the Golden Eagle [64]) and of the rock art heritage. Such development would maximize the potentialities of the area, at the same time respecting the integrity and authenticity of the art in its landscape and maintaining the traditional ways of interaction between man and the 'human-made natural world'.

Instituting a completely open access system would not in itself guarantee a steady flux of visitors to the area. At its worst, it would result in a situation in which the visitors would have unlimited access to the sites with no one to monitor them: it takes only one ill-advised visitor to irreversibly damage rock art surfaces, whether intentionally or not. This is precisely what is happening in Mazouco. When we interviewed the president of the *Junta de Freguesia* (the smallest administrative unit in Portugal) of Mazouco, Mr Armando Lopes declared that whether or not there is free access to the site is irrelevant to the development of the area, since visitors do not stop in the village. Contrary to what happened in the Côa, where the approximately 50 employment opportunities created resulted in career opportunities mostly for local inhabitants, in Mazouco there was no investment in support facilities and human resources for presenting and interpreting the engravings to visitors and thus fostering local economic development and the creation of jobs. As there are no officials monitoring or presenting the

site, misguided visitors can freely leave traces of their visit behind. It does not require a detailed inspection of the horse motif to realize that its lines are being continuously 'recreated' and that several motifs were recently carved onto the body of the Palaeolithic horse (see Fig. 9).

#### **MISSED OPPORTUNITIES OR OPPORTUNITIES THAT SHOULD BE MISSED?**

##### *Opportunities That Should Be Missed*

Taking into consideration all CHR preservation issues and the socio-economic questions that in our profit-seeking society (where cultural tourism aims to be – or is already? – yet another revenue-generating industry) surround this activity, we are left with the dilemma of how to reach the ideal compromise. This compromise is delicate to achieve in OARAS, especially if one agrees with Soleilhavoup:

... doivent être préservés de toute profanation. [...] A trop consommer le patrimoine d'art rupestre en plein air dans les zones protégées de parc naturels, par un tourisme extensive, on finira par détruire, non seulement les équilibres naturellement fragiles entre l'art rupestre et son environnement, mais aussi l'esprit de cet art dans la nature, ce qui lui confère sa valeur spirituelle et son authenticité. [65]

Therefore, the opening of the Côa rock art sites, with or without visitor monitoring and surveillance procedures, would result in the negative impacts mentioned above. In addition, loss of authenticity



Figure 9. The Palaeolithic horse at Mazouco.

through the temptation to implement 'sacrificial' and/or 'hardening' measures, such as establishing on-site backup facilities (toilets, car parks, restaurants, etc.) or upgrading the picturesque country roads, would have a devastating impact on the landscape. Although the sacrifice or hardening up of the Côa sites is something that cannot be recommended without serious reservations, if such a strategy is considered its implementation should be confined to the Canada do Inferno area since the unfinished dam has already hugely disfigured the area and any approach that could help to restore the area to its former condition would be welcome.

Other unbalanced development strategies could result in loss of integrity through the effects of visitor pressure, such as vandalism or the total or partial damaging of the art surfaces caused by touching or other incidents. Within this context the calls for more flexibility to face seasonal peaks and the 'need' to establish higher visitor limits in the summer would result in those negative impacts. It would be illogical to have in place a preventative scheme operating for nine months of the year while, in the remaining three, a less restrictive access system would be in operation, resulting in the predictable negative consequences the rise in visitor pressure would imply.

As for the suggestion of the implementation of a 'shuttle' system, the main problem is that it would be viable only if the limits on visitor numbers were higher. Besides the inevitable visitor pressure problems arising from the predictable peak-period crowding, as the concept would be based on the maximum possible logistical utilization of this cultural resource motivated by pure economic reasons, it would have a prejudicial impact on the quality of the visit experience. Visitors would be rushed from one engraved surface to another, since there would be more people waiting to see the art and the system would have to keep moving. It is worthy of note that the visitors interviewed in the survey reacted negatively when confronted with a hypothetical rise in the numbers of visitors present at the same time in the sites open to the public and thought that the quality of the visit experience would drop significantly.

Apparently, one of the strategies suggested by local stakeholders – the opening of more sites – would be quite consensual. However, offering access to more sites would have to be accompanied

by an increase of the PAVC's resources (guides, jeeps, visitor centres, security guards), since the only way this option would be plausible is if those sites were integrated into the existing public access system. We need to approach this matter with caution since there is the risk that current resources will not be able to maintain the access system if more sites are open to the public. This strategy will also subject almost 'virgin' sites that have been in a 'low stress environment' to the impacts of visitor pressure, even if limited by a restrictive access system.

Considering all the above points, we must conclude that there are only two ways of viewing the problem: the sites in the Côa are either protected with the kind of restrictive access system that has been implemented or the door to them is freely open to visitors and to the negative impacts that result from their presence – acts of vandalism, loss of authenticity, accelerated weathering and, finally, complete erosion. We must also consider that, today, the tendency in CHR management in general and in rock art management in particular, is to try to stabilize or greatly limit the numbers of visitors [66]. In fact, some specialists are questioning the inscription of sites on the WHL without the national authorities' guarantee that the increased flux of tourists motivated by that inscription will not endanger the preservation of the site and that measures will be taken to minimize possible harmful impacts [67]. In addition, the WHC has decided periodically to examine the state of conservation of the rock art sites inscribed on the WHL, to establish if visitor pressure or other factors threaten the endurance of the values that motivated their classification in the first place [68].

Ideally, all sites should be protected. Nevertheless, rather than paying attention only to World Heritage Sites, governments should devise coherent protection strategies to safeguard all significant places, even if they seem important only at a regional or local scale. Besides being a part of a nation's identity, they are a part of Humankind's global heritage. Perhaps one of the best ways to protect CHR, especially rock art that exists in a delicate state of conservation because of geological or biological forces at work [69, 70] and that has been subjected to the impacts of human actions throughout history, is to implement preventive conservation management strategies. If there are weathering dynamics at work in rock art sites that

we cannot control and cannot influence (such as the consequences of the Earth's regular movements), and if visitor pressure causes the hastening of some decay mechanisms or directly damages the integrity of the art surfaces, the logical and sensible attitude is to manage and control what we can. If well managed, visitor pressure is precisely one of the aspects that will have less negative impact on a site's preservation. The presence of visitors will have negative impacts on any heritage site whatever the specific situation of that site. Must we wait for those impacts to manifest themselves, providing ironically, a way to determine their consequences, in order to take (the then-needed, but perhaps less effective) radical protection measures, such as 'closing' the sites? If sensible visitation systems are not implemented when a site is open to the public, the consequences of ill management may take a while to become visible. Yet, it is only a question of time until irreversible impacts start destroying sites and leading to the loss of this invaluable heritage.

### *Opportunities*

Establishing management strategies for these sites must always begin with a defensive stance. Most of the opinion-makers' negative criticism or the suggestions of the local stakeholders represent ('non') opportunities that must be forsaken if the Côa is to maintain the idiosyncratic values that motivated its inscription on the WHL. As the discussion of the different visitor management strategies implemented in this area of the Iberian Peninsula has demonstrated, these 'non-opportunities' should not be mistaken for missed opportunities, whatever the shortcomings of the envisaged and implemented sustainable development process are. However, managers must be aware of the feasible and sound opportunities that can arise to enhance or adjust visitation systems that are in place, and should not consider those systems to be static or set in stone. Many dynamics can influence or determine adjustments to overall policies, especially to the access systems, and these must be taken into consideration.

Diversification of the types of tourism on offer or the creation of well planned, low-impact backup facilities are examples of such opportunities. In the

Côa Valley such opportunities are being pursued, for example by the planned construction of the Côa Valley Rock Art Museum, crucial if the region is to welcome more visitors while still providing them with the chance to see the art. It will also enhance the economic dynamics of the area, both through the increase in numbers of tourists and by the direct and indirect jobs it will create.

Another opportunity lies in further increasing the dialogue between the PAVC and the local community and stakeholders. If an atmosphere of fruitful and positive discussion were established, the management practices implemented by the Park can be better understood, especially if the community feels that its participation is welcomed. Together with education, establishing good communication channels with all stakeholders and with the community is one of the tools available to reach society as a whole and to convey the issues related to CHR preservation. Holding open days, when the local population would not only visit the engravings at no cost but would also be also invited to see for themselves the PAVC headquarters and to pose all questions they might feel pertinent, could prove to be very helpful in explaining the philosophical and practical approaches to the management of the Côa Valley rock art. It would also help to clear up any misunderstandings that might exist between the Park and the local community.

The PAVC must also pursue education and interpretation issues further, expanding the protocols of cooperation with the Portuguese Ministry of Education that allow high-school students to visit the engravings free of charge. Reaching individuals when they are in their formative years, alerting them to the issues that surround the preservation of CHR, is a key factor in the creation of a society in which our collective legacy is respected and cared for. For this purpose, special school days, designed for the local, regional and national student community, should be created, directly involving PAVC elements in the pedagogic preparation of the visit. Likewise 'older' citizens must be alerted, in a well targeted fashion, so that the delivery of the message of the importance of preserving the engravings is ensured.

Since most visitors and the local community find that the visitation system in the Côa is not well explained, better information on the pre-booking

system is yet another measure that could prove to be very useful. Furthermore, since visitor levels approaching the maximum yearly limit were only attained in the first year of opening, there is still the possibility of welcoming more visitors each year. The promotion of the Côa Valley as a cultural tourism destination should be enhanced so that, even before the construction of the Museum, more visitors will come to the area. The steady rise in non-Portuguese visitors (see Appendix I, Table 1) also seems to suggest that increasing the promotion of the Côa Valley in foreign markets could prove to be very useful in raising the number of ('added' value) visitors to the Côa. The external and especially the internal promotion of the Côa Valley should also encourage a more even distribution of visitors throughout the year and over the three sites open to the public, since seasonal demand peaks or excessive use of any one site can increase visitor pressure and its negative impacts. A strategy to encourage evenness in the distribution of visitors can be more effective if incentives are created, such as fee reductions in the low season or complementary and diversified cultural tourism offers taking place all year round.

## CONCLUSION

The implementation of preventive surveillance measures, although essential to the preservation of these sites, cannot, in itself, avoid all possible vandalism episodes and other visitor pressure consequences. Therefore education, information and promotion have to form an important part of the overall CHR management practices of any institution involved.

Public access to such delicate cultural resources as rock art sites is a double-edged sword: it can benefit society globally but at the same time endangers the endurance of the heritage we choose to value, protect and present. That is why it is so important, as the WHC stresses [72], if we want these significant places to endure in their full meaning and context, to employ defensive practical approaches when managing our relationship with the 'natural human-made world' – after all, 'there is no pristine nature left' [73], if there ever was. In the end, this critical compromise, the 'Paradox of Managing Heritage', is only a part of a

much deeper conciliation process: the constant reorganization of human ecology and economy and of the tools that allow us to live in an ordered society. Thus, the more immediate compromise between preservation and market-oriented dynamics on one hand and public interest on the other will always be a pure political decision that weighs non-economic values, significance and visitor pressure against revenues, profit and *development*. Let's hope that these decisions may be more than yet another sign of a growing feeling of uneasiness in our societies. This uneasiness manifests itself through the acute structural contradictions between immediateness versus sustainability, capital versus intangible values and disposability versus memory.

## ACKNOWLEDGEMENTS

In London, I would like to thank Drs Gaetano Palumbo, Paulette McManus and Tim Schadla-Hall. In Portugal I would like to thank the Instituto Português de Arqueologia (IPA), its current president, Dr Fernando Real, and its former president, Professor João Zilhão, for their support. In Foz Côa I would like to thank all the people that work and believe in the PAVC Project. Thanks also to Dr Guilhermina Mota, to Dr António Tavares Lopes and to Dr Fátima Tavares Lopes who checked the typescript and made useful suggestions and comments on earlier drafts. I also wish to thank Alexander Gall who helped me with the proofreading and also made some useful comments.

This paper forms part of the dissertation submitted in partial fulfilment of the requirements for the degree of MA in Managing Archaeological Sites of University College London in 2002: 'Visitor management and the preservation of rock art. Two case studies of open air rock art sites in North Eastern Portugal: Côa Valley and Mazouço', António Fernandes, University College London, Institute of Archaeology.

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## APPENDIX I: METHOD AND RESULTS OF THE VISITOR INQUIRY

### *Method and Sample*

The survey was carried out in the months of June and July 2002 by a method of direct interviews. The sample size was 100 individuals, representing less than 1% of the Park's visitors in 2001 (Table 1). Since approximately one-eighth of the visitors in 2001 were not Portuguese (Table 1), the sample reflects that reality (Table 4). Also, the sample reflects the distribution of visitors to the three available sites (Table 2), the interviews having been conducted in the three Visitor Centres. Other than these considerations, the sample was selected randomly, paying attention to gender and age issues so that the widest representation of Côa Valley visitors could be attained. The youngest individual interviewed was 10 years of age and the oldest 78 years. Owing to lack of space we are unable to compare here the results of our study with the results obtained by Lima and Reis in their 2001 survey. The results of both studies are, however, quite similar in the characterization of visitor profiles and in the evaluation of the visit experience, further emphasizing and validating the findings of our survey [74].

### Visitor Figures

Table 1. Total visitor numbers[AUQUERYI I] since opening (August 1996) to December 2001. Source: PAVC.

	1996-1997	1998	1999	2000	2001
Portuguese	27.733	16.661	16.561	16.077	13.273
Foreign	429.000	1.411	1.642	2.262	2.763
Total	28.159	18.072	18.203	18.339	16.036

Table 2. Visitor distribution, in 2001, across the three sites (in %). Source: PAVC.

Penascosa	Canada do Inferno	Ribeira de Piscos

Table 3. Total monthly visitor distribution, 2001. Source: PAVC.

Month	J	F	M	A	M	J
Month	J	A	S	O	N	D
Visitor numbers	1909	2831	1571			

Table 4. Provenance of the interviewed visitors (in %)

Portuguese	European Union (EU)	European non-EU	Rest of the world
82	16		

### Visitors' Socio-Economic Profile

Table 5. Gender of interviewed visitors (in %)

M	F

Table 6. Age of visitors (in %)

Less than 30	31 to 50	More than 51

Table 7. Provenance of Portuguese visitors (in %)

Greater Lisbon area	Greater Porto area	Medium-size towns	Rural areas
42.6	19.5	26.8	

Of the Portuguese visitors only approximately one-tenth came from the interior areas (for this purpose, not the same as rural areas) of Portugal.

Table 8. Level of education of visitors (in %)

Primary education	Secondary education	Higher education
11	46	

Table 9. Work situation of visitors (in %)

Employed	Student	Unemployed, retired or stay-at-home
72	19	9

Table 10. Social grouping of the interviewees in employment (in %)

BPB	PDB	TSSB	ESB	Other categories
8.3	15.2	52.7	19.4	4.1

To place the employed interviewees in their social context we followed the suggestion of Almeida et al. [75], which we believe to be more relevant to the reality of Portuguese society. They subdivided social classes into fractions of class, such as the ones most represented in the sample: Business and Property Bourgeoisie (BPB), Professional and Directive Bourgeoisie (PDB), Technical and Support Small Bourgeoisie (TSSB) and Execution Small Bourgeoisie (ESB). Other categories represents by Agricultural and Industrial Workmanship and Propriety Small Bourgeoisie categories [76].

Table 11. Interviewees' visits to museums and archaeological sites in 2002 (in %)

None	1-2	3-10	11+

### Visit Experience and Visitation System Evaluation

Table 12. Overall rating of the visit experience (in %)

Very poor	Poor	Neither	Good	Very good

Table 13. Most enjoyable feature (in %)

The engravings	56
Everything	14
The landscape	13
The guide's performance	12
PAVC's organization structure	4
Freedom provided by the natural environment	

Table 14. Least enjoyable feature (in %)

Visit environment (heat, dust and lack of shade; access roads to the sites)	52
Nothing	25
Guide's competence in understanding and speaking foreign languages	8
Constraints resulting from the visitation scheme (restricted access, supervision, smoking prohibition, duration of the visit and strict timetables)	6
Directions to the visitor centres and pre-visit information	5
PAVC's organization structure	2
The art itself and lack of visibility of some of the engraved motifs	2

Table 15. Rating of visitation system (in %)

Very poor	Poor	Neither	Good	Very good

### Gestion des visiteurs et préservation de l'art rupestre: deux cas d'étude de sites d'art rupestre à ciel ouvert du Nord-est du Portugal: la Vallée de Côa et Mazouco

#### Résumé

Depuis l'ouverture en 1996 du Parque Arqueológico Vale do Côa (Parc archéologique de la Vallée de Côa, PAVC), l'organisation des visites mise en place au a été soumise à un examen et à de vives critiques, surtout de la part d'archéologues portugais et de la communauté locale. Au vu de ces critiques et d'exemples de stratégies de gestion différentes en vigueur dans d'autres sites d'art rupestre à ciel ouvert de la région Nord-est du Portugal et également du reste du monde, l'article envisage de considérer les systèmes d'accès des visiteurs au site dans une perspective socio-économique du rapport entre la préservation et l'accès du site au public. Comme les visiteurs représentent une des principales parties prenantes dans la gestion des ressources du patrimoine culturel, leurs sentiments et leurs opinions sur les modalités d'accès du public au site seront aussi soumis à une évaluation par une étude qui permettra de déterminer les différents niveaux de satisfaction des visiteurs de la Vallée de Côa. De même façon, les points de vue d'autres parties prenantes et de la communauté locale sur le développement et la gestion des visites seront étudiés dans le cadre d'interviews et d'articles publiés dans la presse locale et nationale. Le but est de démontrer que les sites d'art rupestre, vu leur nature particulière, surtout ceux qui sont situés dans cette région de la péninsule ibérique, requièrent des approches spécifiques, en particulier dans la mise en place des systèmes d'accès des visiteurs aux sites.

Table 16. Opinion on the effect of an increase in visitor numbers on the visit experience (in %)

Much worse	Worse	Neither	Better	Much better

Table 17. Intention of visiting the PAVC again (in %)

Yes	No

Table 18. Agreement with the question: 'The rock art heritage of the Côa Valley should be preserved?' (in %)

Strongly disagree	Disagree	Neither	Agree	Strongly agree
	2	5	13	

### Manejo del turismo y la preservación del arte rupestre. Dos casos de estudio de arte rupestre al aire libre al nor-este de Portugal: Valle de Côa y Mazouco

#### Resumen

Desde la inauguración del *Parque Arqueológico Vale do Côa* (PAVC), se ha analizado y criticado considerablemente el manejo de los visitantes, tanto de parte de arqueólogos portugueses como de la comunidad local. Considerando estas críticas y algunos ejemplos de estrategias de administración diferentes empleadas en otros sitios de arte rupestre al aire libre en el área noreste de Portugal y otras partes del mundo, este artículo discute los sistemas de acceso de visitantes con una perspectiva de preservación, en conflicto con la perspectiva socio-económica que promueve un amplio acceso del público. Dado que los visitantes son uno de los principales grupos que deben ser tomados en cuenta en la administración de recursos del patrimonio cultural, sus sentimientos y opiniones respecto a los sistemas de acceso público también serán evaluados en una encuesta que trata de definir los niveles de satisfacción de los visitantes del valle de Côa. Asimismo, las opiniones de grupos involucrados y de la comunidad sobre el desarrollo y el manejo de visitantes será evaluado a través de entrevistas y artículos de la prensa nacional. El objetivo es demostrar que – debido a su naturaleza especial – los sitios de arte rupestre requieren proyectos particulares en la implementación de sistemas de acceso de visitantes y especialmente los sitios situados en la región de la Península Ibérica.