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Mélanie Duval, Christophe Gauchon, Benjamin Smith

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Mélanie Duval

Laboratoire EDYTEM, CNRS/Université de Savoie Mont Blanc/Ministry of Culture, France;
Rock Art Research Institute GAES, University of Witwatersrand, South Africa

Christophe Gauchon

Laboratoire EDYTEM, CNRS/Université de Savoie Mont Blanc/Ministry of Culture, France

Benjamin Smith

Centre for Rock Art Research + Management, School of Social Sciences, University of
Western Australia, Australia; Rock Art Research Institute GAES, University of
Witwatersrand, South Africa

Abstract

Rock art tourism facilities at publicly accessible sites range widely from a total absence of
purpose-built infrastructure to multi-million-dollar interpretation centres, and from free and
unrestricted visitation to full fee-paying, highly mediated visitation experiences run by
tourism professionals. In this chapter, we address questions surrounding the principles and
practices of rock art tourism development in conjunction with issues of heritage management
and conservation. Approaches to developing rock art sites for tourism are neither unchanging
nor universal. As each site is different, development practices in one area cannot simply be
transferred to another, although common methodologies may be followed. The most
appropriate developments are constructed by first understanding the significance of places;
this is done through genuine consultative processes that include all interested parties. Using
examples from Europe, Africa and other parts of the world, we provide an historical overview
of rock art tourism in caves and open-air sites, and discuss integrated rock art tourism
management with a focus on conservation, interpretation, territoriality and cultural
connectivities.

Rock art plays a pivotal role in cultural tourism in all parts of the world. The Caverne du Pont d'Arc of southern Ardèche (France) – a replica of Chauvet Cave – attracted more than 600,000 visitors in its first year of operation, exceeding annual forecasts. Similarly, a complete copy of the cave of Lascaux (Vézère Valley), also in France, opened in December 2016, with projected visitor numbers in excess of 400,000 per year. Attractions with such high volumes of visitation cause transformations to their broader landscapes in a variety of ways, since associated tourism facilities need to be developed, and broader economic opportunities emerge in the process. Most World Heritage Sites that feature rock art, such as Altamira (Spain), Côa Valley (Portugal), Valcamonica (Italy), Tsodilo (Botswana), the Maloti-Drakensberg (South Africa), Twyfelfontein (Namibia), Kakadu (Australia), Gobustan (Azerbaijan) and Serra da Capivara (Brazil), require considerable specialised tourism planning and infrastructure.

Approaches to the development of rock art sites for tourism vary according to the type of rock art at stake. In this chapter, 'rock art' refers to all intentional human representations made on fixed natural rock surfaces – all paintings, daubings, drawings, scratchings, engravings and sculptures – regardless of the historical period at stake. Designs on buildings or urban street furniture are thus excluded, because they are not on natural rock surfaces. In a similar vein, engravings on transported megaliths and grave stones are excluded as they have been deliberately moved. Also included in our definition of 'rock art' are rocks that were marked in situ but that were later moved for purposes of preservation, tourism or private or institutional collections, such as rock art pieces in museums (e.g. pre-Colombian engravings of the Trois-Rivières area, Guadeloupe, French West Indies).

Tourism developments at publicly accessible rock art sites range from a total lack of infrastructure to multi-million-dollar interpretation centres, from free and unrestricted visitation to subsidised visitation, amateur local guided tours and full fee-paying tourism ventures run by professional firms, commercial operators or professional cultural interpreters. Since the beginning of the 21st century, leading heritage managers have understood the need to manage not just the physical fabric of sites and monuments, but also broader contexts including cultural values and experiences (Mason 2002). Given its potential to foster and enhance heritage values, tourism can play an important and constructive role in heritage management (Pearson and Sullivan 1995).

Approaches to developing rock art sites for tourism are neither unchanging nor universal. There will never be a single 'blueprint' for all sites, as the amount of money needed, the length of time required, the skills and number of people needed to prepare and maintain a site

for tourism will vary. Moreover, specific tourism practices need to be tailored to local circumstances, to consider the significance of a place, and to include all interested parties through genuine consultation: successful development tends to respond to the values and socio-political contexts in which the rock art is situated. Decisions need not be conservative or parochial; they can still take on activist, transformative agendas, if that is the desired aim.

Historical overview of rock art tourism strategies

Long before the development of rock art tourism, many caves around the world were already recognised as geological wonders that attracted visitors. The cave of Niaux in the Ariège region of France is one such example. The site has been regularly visited for its underground landscape since the 17th century, and the many inscriptions (historical 'graffiti') on the walls attest to such visits (Lamiable 2006). The location of these inscriptions amid pictures of bison and horses shows that visitors were aware of the older paintings. The prehistorian Félix Garrigou was the first to comment on these "odd drawings"[i] in 1866, and to note that "amateur artists drew these animals"[ii] (Lamiable 2006, 26), but they were not recognised and described as prehistoric until their rediscovery in 1906 by Commander Molard. Aware of what were then the latest advances in prehistory, such as expounded by Emile Cartailhac's presentation 'Mea culpa d'un sceptique' at the Association Française pour l'Avancement des Sciences held at Montauban in 1902, Molard recognised the great antiquity of Niaux's paintings. From that moment on, Niaux came to be visited primarily for its paintings (Clottes 1981). Similar stories can be told for the caves of Ardalès in Andalusia, Spain (Bahn 2007, 186-187) and Arcy-sur-Cure in Burgundy, France (Soulier 2015).

During the early 20th century, most French rock art sites were quickly, and often immediately, opened to the public following their discovery. This is the case at Les Combarelles, for example, which opened very soon after they were found in 1901; here the cave floor was lowered by the State in 1928, to install electric lights to enhance visitor access (Baritaud 1990, 87). The cave of Font-de-Gaume nearby was opened to the public soon after, in 1910, with electricity installed in 1920 (Blanchet and Cleyet-Merle 2005, 5). During these early years, major transformations to the fabric of rock art caves were enthusiastically made, with rock art tourism in mind. Public interest was so great that contemporary tourist maps featured six rock art sites as 'must-see' destinations of the Vézère Valley, such as can be seen in 1931 road maps, for example (Fig. 1).

By the time of Lascaux's discovery and public opening in 1940, in the southwest of France we begin to see a desire to balance tourism ventures against preservation concerns. On the one

hand, the cave of Lascaux arouses major public interest as a tourism venture: within six days of its discovery on 12 September 1940, the tourism office at Montignac erected a road sign signalling "Cave of Lascaux 2 kilometres away"[iii]; 300 people then sought to join Abbé Breuil during his initial visit to the site (Delluc 1979). On that same day, André Cheynier also noted that protection and conservation measures had been taken to mitigate against damage to the site in light of considerable interest and visitation by the public. On 24 September, Peyrony announced that the cave was "temporarily inaccessible to the public as building and protection work is in progress"[iv]. Here we see evidence of visitor impatience and concomitant concerns to reconcile public curiosity with conservation priorities.

Today, the onset of protection measures and tourism development following a site's discovery is very different from what it was then, especially in France and Spain. With the realisation that human visitation can have serious negative impacts on the condition of a site and its art – such as became evident at Lascaux and Altamira – the development and application of new and increasingly powerful techniques of archaeological science, and the growing interest of rock art sites for their heritage values, greater caution has come to be applied to the management of sites by decision-makers (Brunet and Vouvé 1996). Hence, a mere ten months after its discovery in December 1994, Chauvet Cave was listed as an Historic Monument by the French Ministry of Culture in October 1995. Soon after its discovery and prior to the commencement of scientific research, the decision was made to deny public access to the cave. This decision was made by the French government authority managing the cave as essential for its long-term conservation.

Nevertheless, some individuals and organisations questioned this decision: "At the Combe d'Arc [Chauvet Cave] there is a sequence of large galleries connected to a number of rather large chambers… The users' association thinks that the preservation of archaeological remains is not necessarily incompatible with public access" (Amirou 2000, 100)[v]. In fact, the cave's massive scale – it is far larger than Lascaux – means that conservation problems other than those evident at Lascaux are at stake. In reality, Chauvet Cave was not entirely closed to the public, as until 2009, 500 visitors were allowed to enter the cave annually; the annual quota was then reduced to 200. This decision to reduce the annual quota was made for occupational health and safety reasons following the identification of radon in the cave, a naturally occurring radioactive gas, and heightened levels of carbon dioxide. However, the idea of combining broader public visitation with ensuring the cave's conservation has never been broached. The negative experiences of Lascaux had put an end to any discussion of artificially altering the atmospheric conditions of Chauvet Cave prior to them even being

raised. Here an alternative answer was found: a monumental-scale replica of the cave, built to allow large-scale visitation without detrimental effects to the original site. This replica was opened to the public in April 2015 (Malgat et al. 2015).

The need to preserve the original fabric of a rock art site is compounded in contexts like Europe where the art has lost its ancestral links to Indigenous communities. In Australia, however, where Indigenous peoples usually retain ancestral links with rock art sites, faded images may sometimes be repainted or new images added. For example, Wandjina paintings of Western Australia are occasionally still repainted as part of a broader system of traditional Indigenous rock art maintenance and use (Frederick and O'Connor 2009, 165; Monney 2014, 388, 517-519). Such practices add new layers of pigment onto older paintings, to lesser or greater degrees modifying the underlying images as living expressions of culture. This contrasts fundamentally with the guiding principle in France, that once the 'original' fabric of the art is altered, the rock art is considered lost forever. Such a loss is judged to be unacceptable by those involved in conservation and heritage management in France; here the art may be considered beautiful and a valued expression of a distant cultural past, but it is thought to now be 'cold', devoid of life. This fear of irreversible loss of the artworks of a past long gone drives French conservators to limit visitor numbers, and often to ban visitation altogether. It is of interest that in France historical buildings and works of art are regularly restored to maintain their overall integrity – the original, weathered stonework or sculptures of cathedrals may be replaced with modern replicas; and paint may be added to damaged frescos as part of restoration practices. But this is not so of prehistoric works, as if those more recent historical creations have an ongoing, contemporary life, but cave art does not (Geneste 1999, 15-16). Although professional artists are able to recreate cave paintings in finest detail – as evident in the replica of Chauvet Cave – they are barred by conservators from any restoration within the caves. Paradoxically, the practice of experimental archaeology uses the reproduction of rock art to work out methods of production and the intentions of the artists (Cohen 1999), but the knowledge gained is never used in rock art conservation. French rock art has become so sacrosanct that no restorative action is permitted on the art.

Cave versus open-air rock art sites

Developing cave art for tourism

Several strategies have been applied around the world to manage tourism in cave art sites. These range from the complete closure of the original site, to the allocation of maximum

visitor quotas, to unlimited visitor numbers under the watchful eye of structured supervision, to 'free-range' tourism where visitors can freely walk into a site without any form of supervision (e.g. Geneste 1999). The chosen strategy at any given site may change through time as stakeholder wishes and management priorities change.

Caves that are closed to the public can still become tourist attractions. Some have even seen very high tourist numbers through innovative on-site visitor centres. Such sites are increasingly developed around impressive three-dimentional (3-D) replicas: Lascaux II and Lascaux IV, France; Altamira, Spain; Caverne du Pont d'Arc, France, for example. While replicas are sometimes situated close to the original site, some, for conservation, access or local development reasons, are positioned away from the original (Cachat et al. 2012). Replicas may be incorporated into more general rock art or archaeological museums; for example, panels recreating the closed Marsoulas Cave can be viewed at the Tarascon-sur-Ariège Prehistoric Park, France (see Fritz et al. this volume). Even without an interpretation facility or a museum replica, some sites take on tourist profiles through glossy publications, postcards, television documentaries and internet access that allow users to visit them as virtual tourists (e.g. Cosquer Cave, France). We will return to this concept of the 'virtual tourist' below.

In France, 16 original cave art sites could be visited by members of the public in 2016: ten are painting sites (Bédeilhac, Bernifal, Cougnac, Font-de-Gaume, Gargas, Merveilles, Niaux, Pech Merle, Rouffignac, Villards), six engraved or sculptured (Bara-Bahau, Cap Blanc, Les Combarelles, Grotte de Saint-Cirq/Grotte du Sorcier, Isturitz, Pair-non-Pair). Some of these are regulated by visitor protocols, for example at Niaux (Ariège), Pech Merle (Lot), Font-de-Gaume and Les Combarelles (Dordogne). Such visitor protocols are specific to each cave and restrict the number of groups, visitors per group, and visitation times, and some caves have weekly or seasonal closures as 'recovery time'. These decisions are partly made through the monitoring of environmental conditions (climatic, hydrological, physical-chemical) that determine how many visitors a cave can hold without seriously threatening its integrity, although such studies cannot provide any guarantees, as there are simply too many variables at work (Brunet and Vouvé 1996, 219-233). Protocols thus fundamentally express perceptions of carrying capacities by interested parties.

At Font-de-Gaume, in France one of the last caves with polychrome art to remain open to the public, 180 visitors were admitted per day, with numbers cut to 80 in 2012, then to 78 in 2015. These changes came in the wake of climate monitoring in the cave. Whilst this decision was taken on preservation grounds, it had ramifications in tourist attitudes: its effect was to

enhance tourist interest by creating the perception of a kind of 'last chance tourism' (Lemelin et al. 2012). For example, among the many posts on Tripadvisor, one dated August 2013 explains: "We tried twice [to get tickets to Font-de-Gaume]: On Wednesday at 8am, we were far down the queue of the ticket desk, which opened at 9.30am. We were not successful. The next day we arrived at 6am and were 9th in the queue. After a long wait, with tickets in our pockets we were able to go on the visit. The guide was not really needed, but I think he was there more to preserve the site. The paintings were preserved to varying degrees; most were impressive in their shades and tones, degrees of expression and mastery. It was like stepping back 13,000 years and well worth it. Some say the site will soon close to the public (it is one of the last of its type still open), so make the most of it!)"[vi] (https://www.tripadvisor.fr/ShowUserReviews-g187083-d219120-r173193408-Cave_of_Font_de_Gaume-Les_Eyzies_de_Tayac_Sireuil_Dordogne_Aquitaine.html#)

This concept of 'last chance tourism' applies not just to French caves: it is also evident at rock art sites elsewhere in the world, even where no limits have been set to visitor numbers. For example, in the Maloti Drakensberg Mountains UNESCO World Heritage Site of South Africa, tourists questioned about their reasons for visiting local Bushmen rock art sites mentioned, among other things, their desire to "see these sites before they disappeared" (Duval and Smith 2014a, 44).

The setting of limits to visitor numbers is widespread across the world. In China, the Mogao Caves, a UNESCO World Heritage site since 1987, have complex visitor access restrictions. The site is famous for its hand-carved caves containing Buddhist wall paintings dating between the 4th and 14th centuries AD (http://whc.unesco.org/fr/list/440/). The Mogao Caves have been open to tourists since 1979, witnessing a massive growth in tourism since the early 2000s. In 2012, nearly 800,000 tourists visited the site complex, 80% of whom were Chinese. Of the 492 caves within the site complex, 40 caves are today open to tourists on a rotational basis, including 10 that are permanently open. The permanently opened caves are those with high quality art and that are large enough to accommodate tourist groups; the most fragile sites, and those of greatest scientific importance, are now closed (Agnew and Demas 2014, 61-65).

Studies of visitor numbers and of the conservation status of the Mogao Caves have led site managers to set a maximum capacity of 3000 tourists per day since 2005. However, this cap on visitor numbers has not been strictly applied, with more than 18,000 tourists entering the sites dayly in October 2012 (Agnew and Demas 2014, 13). High CO_2 concentrations and humidity levels reached dangerous levels both for the preservation of the paintings and for the

health of visitors; these were the major reasons for restricting visitor numbers. A new protocol was introduced in 2014, strictly limiting tourist numbers to a maximum of 6000 per day (Demas et al. 2015). This doubling of the quota was facilitated by the opening of a new multimedia visitor centre in 2014, allowing explanations to take place away from the caves themselves. This reduced the average time inside the caves from two to just one hour and 15 minutes. Faster group rotations led to better air movement and a lowering of CO_2 levels in the caves (Demas et al. 2015). Ultimately, reduced visit times have helped increase the number of tourists per day while ensuring satisfactory environmental conditions to preserve the paintings. At the same time, visitor restrictions have added to the 'rarity value' of Mogao visitor tickets, and these are now highly sought after during times of peak demand, such as on Chinese public holidays (Demas et al. 2015).

Visitor protocols and an understanding of carrying capacity are essential to site management, but they are not simple value-free acts of administration. They represent complex management compromises between conservation needs and tourism development.

Developing open-air rock art sites for tourism

Around the world, most rock art sites open to the public are open-air sites rather than deep caves. Such sites tend to be readily accessible, so controlling access is more difficult. As a result, tourism control is usually aimed at controlling the space within and around the site, such as the building of physical and psychological barriers including fences, pathways and boardwalks, and information centres or reception areas. In Scandinavia (e.g. Tanum in Sweden; Bardal in Norway), North America (e.g. Deer Valley Petroglyph Reserve in the USA) and Australia (e.g. Mutawintje and Carnarvon Gorge), most public rock art sites are open access and visitor movement is controlled by walkways. In Africa and Asia, fences and access restrictions are more common. For example, at Game Pass Shelter, Battle Cave and Main Caves in the Drakensberg, South Africa, the sites have protective fences, and entrances are through locked gates many metres from the art itself. By contrast, Stadsaal Cave in the Cederberg Mountains, South Africa, is protected by an imposing metal barrier just two metres in front of the rock face (Fig. 2). In a more discrete way, Twyfelfontein in Namibia is organised in such a way that visitors access the site through a reception centre from which various paths lead outwards and onto walkways that then manage their circulation around the main tourist section of the site (Fig. 2). On all continents, walkways tend to be augmented with signage and interpretation panels (e.g. Serra da Capivara in Brazil; Cueva de las Manos in Argentina; Bhimbetka in India; Valcamonica in Italy). Visitor interpretation centres are

relatively rare at open-air rock art sites, being restricted to just a few major international sites that attract tens of thousands of visitors (e.g. Alta in Norway; Côa Valley in Portugal).

The construction of tourist facilities is often constrained by broader land management regulations, particularly when the rock art site is located in a protected area. For example, the Drakensberg in South Africa has regulations on what can be erected in different sections of this UNESCO World Heritage site. Here there is a complex zoning plan with A) recreational zones where some signage, seating, walkways and fencing are permitted; and B) wilderness areas where no construction of any kind is allowed, even if this is installed for conservation purposes. Natural heritage receives priority over cultural heritage, a common practice in decision-making around the world (Meskell 2012). It is particularly strange to see this in the South African Drakensberg, where the rock art sites played a decisive role in the World Heritage listing process (Duval and Smith 2013).

For those areas where it is difficult to control access to open-air rock art sites, such as in many parts of the Americas, Asia, Australia and Africa, a common strategy is to not divulge the exact location of the sites. These sites either remain effectively closed to the public, or access is allowed only through the services of local guides, usually or hopefully respectful of local Indigenous cultural protocols. Although such a strategy of keeping site locations confidential has its limits – for example, countering its effectiveness are factors such as local knowledge, the passing on of details by those in the know, and access to published details – it has proven broadly effective in keeping people away from unmanaged sites. Where local rock art guides are available, visitor experiences are usually enhanced while also aiding in the protection of sites (Deacon and Agnew 2014). It has been argued, particularly for economically developing countries, that if enough local guides generate their incomes from guided tours, a strong incentive for greater levels of protection of the art by neighbouring communities will ensue (Smith 2006).

A potential counter to this 'local guide' model is the development of new technologies. The internet and mobile apps are now providing easy access to heritage site locations, even on-site interpretations. In effect, the guide is becoming circumvented by mobile phones and tablets. It is far more difficult today to regulate information about site locations than in the past through guide books and the like; such threats to confidentiality undermine the local guide model of many public rock art sites (e.g. Kondoa in Tanzania; Drakensberg in South Africa; Baja California in Mexico). There is nothing to stop bushwalkers from independently accessing sites, and there this therefore an increasing danger of damage and vandalism at previously restricted sites.

Integrated tourism management

A common range of parameters needs to be considered when developing rock art sites for tourism today. One should start off by gaining a thorough understanding of the site, its surroundings and its history. This can be achieved by conducting archival surveys and by holding discussions with all interested parties. If done well, this will show why each person and each group considers the site to be important/significant, and what each aspires to see happen there. At many (all?) sites, the aspirations of the interested parties will likely vary considerably, and may even conflict. For example, local residents may enjoy the quiet seclusion of a site, whereas tourism operators may opt for significant infrastructure developments to allow increased numbers of visitors. The task of the ultimate decision maker(s) is to find the best compromise between interested parties. Decisions should aim to account for how and why a site's future is significant for its stakeholders, with a view to sustaining and enhancing those values towards successful and sustainable development.

Contrary to popular belief, low numbers of tourists do not necessarily mean sustainability, as evident for example in the Drakensberg Mountains of South Africa, where limited tourism infrastructure has been in place at the 20 or so rock art sites open for visitation. At each site, tourists must be accompanied by a certified guide (called 'custodian') who lives in the local Indigenous community. The custodian is paid a fixed fee by each tourist that visits the site. The sustainability of this system requires a minimum volume of tourist traffic to allow the custodian to make a sufficient wage. With no infrastructure development and no marketing of the sites, attaining sufficient visitor numbers in unrealistic, and custodians do not have the power to change this. In the south of the mountain range, for example, in 2012 a local guide hosted only three visitors per month, generating a monthly income of around 100 Rands (c. 10 Euros). Many custodians thus find alternative employment, and the sites end up unprotected and more exposed to vandalism (Mazel 2012). This example contradicts the assumption that there is a fundamental incompatibility between tourism development and rock art conservation: we suggest that under some circumstances the two may be mutually beneficial (Duval and Smith 2013).

The development of rock art sites for tourism requires us to look beyond individual panels and sites. A comprehensive approach needs to be developed that allows for integrated regional development that takes into account the full complexity of socio-cultural processes in which the rock art sites are situated. This broader scale of approach forms one of the main

challenges to successful rock art management practices. Ultimately, the challenge of management is to find the point of convergence for conservation, interpretation, territorial dynamics and cultural rights and aspirations (Fig. 3). Rock art tourism ventures developed through careful consultation and that successfully position themselves at such points of convergence have foundations for sustainable development (Deacon 2006; Duval and Smith 2014a, 2014b).

Conservation issues and Indigenous perspectives

In many parts of the world, the appropriateness of rock art tourism first and foremostly need to consider local Indigenous cultural values, protocols and aspirations (which usually themselves enhance the visitor experience of the art as 'living culture'). Such cultural concerns may vary considerably between regions (Loubser 2001; Ndlovu 2011). With the exception of a few northern Scandinavian sites (e.g. Mulk and Bayliss-Smith 2006), this in marked contrast with the situation in Europe, where the art revolves around its visual qualities and as archaeological relics, rather than as living Indigenous sites.

There are often complex hybrid values attached to sites, and effective management should consider all these values rather than the art and associated archaeology as isolated phenomena. Rock art sites may have domestic uses (e.g. as living or camping spaces, or animal corralls), recreational uses (e.g. as aggregation, feasting or picnic sites), spiritual and ritual uses (e.g. as burial, healing, initiation, vision questing, totemic or ancestral veneration sites). Local communities often aim to sustain such uses while in some cases, and to some degree, also opening selected sites to tourists (e.g. the Drakensberg sites mentioned above). Some rock art sites may not be apt for tourism, such as at Uluru in Australia. Each region, and each site, has its own local needs.

For Indigenous communities, rock art sites are often part of living ancestral landscapes, with most sites valued and used for reasons greater than is evident from the art alone (e.g. Chirikure and Pwiti 2008; Jopela and Fredriksen 2015; Ndlovu 2011; Pearson and Sullivan 1995). Rock art management therefore involves more than "preserving what we see"; it also involves "preserving what we feel" and "preserving what we use" (Ndlovu 2011). This requires a more integrated and holistic management approach than that normally used in Europe (Ndoro 2006). Where such broader considerations have not been taken into account, the consequences can be disastrous. An extreme example is Domboshawa Cave in Zimbabwe where, in the 1990s, a small hole in a painted rockshelter was blocked by the site managers (the National Museums and Monuments of Zimbabwe), to prevent nesting bees from stinging

tourists. One night in May 1998, a local villager threw oil paint over much of the art (Chikiruke and Pwiti 2008). Subsequent investigations indicated that the hole had played an important role in local rain-making ceremonies. Those ceremonies involved lighting a fire in the shelter: for the community, the evacuation of the smoke through the hole to the top of the hill was a sign of the ceremony's success. The blocking of the hole was the final straw for a community already angry about being prevented from practicing their ceremonies at the site, and from being able to have a real say as to how the site would be managed: "if the community could not have access to their heritage then no one else could" (Taruvinga and Ndoro 2003, 8).

Interpretation

A virtuous circle between interpretation, tourism and preservation

Developing rock art sites for tourism inevitably involves site interpretation. Approaches can involve the construction of interpretation centres, interpretation panels and guided walks. There are also multiple audiences visiting most sites, and each requires information appropriate to its own needs: school children often need different interpretative approaches to elders, and incoming tourists need different levels of background explanation to locals.

Rock art sites belonging to another culture are usually difficult for tourists to comprehend, although their recognisable subject matter sometimes presents the allusion of understanding. Rock art tourism therefore requires the provision of interpretation. Commonly asked questions include "Who made the art?", "When?", "How" and "Why – what does it mean?". Answers to these questions take up most of the space on information panels, regardless of the form in which the information is presented. To provide satisfactory answers may require extensive new research, and so partnerships between interest groups and research institutions are common. There is often local sensitivity around what information should be presented, and so extensive consultation is necessary at all stages of the interpretative planning process.

Best-practice approaches for interpretation will vary massively between sites and even within different sections of the same site. Some highly innovative display techniques are now in use, and undoubtedly more will be developed in the future. In the Sierra da San Francisco in Baja California (Mexico), sign boards have been made from ceramic tiles and people use these to self-guide themselves around major painted sites. The ceramic material ensures they cannot be burnt and that they are heat, light and waterproof; they will 'never' degrade. In Northumberland, England, a mobile phone app guides visitors around dozens of cup-and-ring

sites, providing them with access to multiple levels of information depending on their interests and the time available to them (Mazel et al. 2012).

Successful interpretations assist in the conservation of the rock art. However, if the interpretation fails, then conservation may be compromised (through touching and scratching of art, graffiti, theft, etc.), especially in easily accessible, open sites. Insufficient or unsatisfactory interpretation creates a negative impression of a site and can trigger a downward spiral in tourist behaviour that is difficult to counteract. As tourist numbers decline, economic benefits fall, lowering the value of the site in the eyes of many stakeholders, making it difficult to find new investment to turn around the declining condition of the site.

An emerging example of this is Tsodillo Hills in Botswana, where the minimalist interpretation is being increasingly criticised by tourists who note their disappointment. Negative tourism dynamics can go 'viral' all too easily on social network and internet sites such as Tripadvisor. Recent comments about Tsodilo posted on Tripadvisor have been titled "dangerous campsite" (15 October 2015), "lame rocks" (3 August 2015), "beautiful art, terrible conditions" (1 September 2015). More detailed comments include: "The guide we had was terrible, spoke poor English and was not very knowledgeable. The paintings look fake, and the place is poorly maintained and poorly run. Not worth the trip. I was really excited to go, but it was piss poor all around". Some comments have gone as far as challenging the authenticity of the paintings: "It is interesting to see the presumed bushman paintings, I do however have my reservations as to whom actually painted the paintings, really … in the middle of a arid place ... why would there be a picture of penguins and whales ... made me think" http://www.tripadvisor.co.za/ShowUserReviews-g480161-d311243-r252289287-Tsodilo_Hills-Shakawe_North_West_District.html. In an era of online sharing of information, such comments emphasise the importance of a high quality, carefully mediated experience for every tourist. At Tsodilo Hills this has led to falling visitor numbers at what was once considered among the foremost rock art and Indigenous heritage sites in southern Africa.

Experiencing the hyperreal

In Europe, the restricted access to rock art sites has led to the employment of display methods rarely seen at other heritage sites. Foremost among these are 3-D reproductions, both physical and virtual (Pinçon and Geneste 2010). As noted above, many of these incorporate interpretation facilities close to the original site (e.g. Lascaux, Roc-aux-Sorciers, Chauvet Cave, France), others in museums some distance away (e.g. Marsoulas, France). In a few

cases, major pieces of rock art have been moved to museums for 'safekeeping', with the originals having been replaced by accurate copies in the sites themselves. This is the case at the Vallée des Merveilles, in the Mercantour National Park of France, where more than 40,000 engravings are scattered across a number of river valleys. In October 1988, the "Chef du Tribu", an engraved rock weighing around one tonne, was relocated to the Archaeological Museum at Tende (24km as the crow flies). As the former centrepiece of the engravings at the Vallée des Merveilles, the Chef du Tribu has been replaced by an accurate facsimile (Dinkel 1997, 218-219). This raises questions as to the 'real' versus the 'fake' and the hyperreal (Baudrillard 1981; Eco 1985). To what extent has the heritage value of the Chef du Tribu been transferred to the copy, made with such accuracy that the visitor cannot tell the difference?

This sense of transfer of heritage from the original applies also to the Caverne du Pont d'Arc, the replica of Chauvet Cave, which opened in April 2015. Here there may even have been a status reversal between the two entities, with the original cave taking the status as the 'reference object' and the copy the 'heritage place and asset' (Malgat et al. 2015). Visitors are prepared to be regaled by a replica that immerses them "in a world so strange seemingly still inhabited by humans and bears"[vii] (SMERGC 2012, 9). The aim is to transport visitors back to the Aurignacian, and to put them in contact with their Palaeolithic ancestors. Paul Bahn (2007, 141-142) notes that at Altamira, "in many ways, the replica outdoes the original"[viii]. Replicas can be shaped in ways that make them easier to navigate; they can be made wheelchair-friendly, given better lighting and ambient temperatures, have historic damage undone and paintings restored, and innovative displays (touchscreens, projections etc.) can be installed to facilitate understanding what the art is all about.

Many of the interpretative techniques used in physical 3-D replicas are also employed in digital renditions. Increasingly, virtual exhibitions offer the internet user the chance to discover rock art sites from their armchair. In France, for the 25 "major archaeological sites" listed in the Ministry of Culture's multimedia catalogue in June 2015, five websites are dedicated to rock art in caves (Lascaux, Chauvet Cave, Font-de-Gaume, Cussac, Cosquer), with a sixth website covering four engraved rockshelters (Le Roc-aux-Sorciers, La Chaire à Calvin, L'Abri Reverdit, Cap Blanc). Using techniques of 3-D immersion, "engaged interpretations" involving soundscapes and differential lighting help create a sensory space that evokes strong visitor emotions (Fèvres-de Bideran 2014). By eliminating physical distances between the viewer and the art, 3-D models allow virtual visitors to look for 'hidden' aspects of heritage (Fèvres-de Bideran 2014), surpassing what a visit to an original

or replica site could offer due to restrictions of movement. Such immersive digital experiences bring new levels of empathy to the viewer: "it transforms the internet user into a believer and, as such, an individual persuaded of the importance of safeguarding these sites as monuments to the first humans. Through the course of their discovery, roaming through digital galleries, the visitor changes from seeing to believing and the meaningful space becomes a space of living proof"[ix] (Fèvres-de Bideran 2014).

Territorial dynamics

Most countries of the world have rock art, but the extent to which it is valued as a tourism resource varies widely both at regional and local levels. There are several reasons for this. The number and density of rock art sites is one factor. In Western Europe, the concentration of sites in the Vézère Valley (France), Cantabria (Spain), and Valcamonica (Italy) partly explains why rock art tourism is so prominant in those areas. But the density of artworks or sites is not the only factor behind a site or region's popularity in the public imagination: there are many engravings in the French Alps, for example, but the region is not a popular rock art destination. The ability of rock art to function as a tourism draw-card depends on the prominence given to the art in local tourism marketing, the manner in which rock art sites are presented, and the levels of investment made.

In the Vézère Valley, rock art holds a prime position for the region's tourism. Palaeolithic rock art sites attract more visitors than any other type of heritage site; they are thus seen to justify significant cultural and tourism investments by a range of stakeholders. Here the National Museum of Prehistory was refurbished at Les Eyzies in 2004, an international prehistory centre (Pôle International de la Préhistoire) was created in 2010, and a new replica of Lascaux (Lascaux IV) was opened at the end of 2016. Prehistory and rock art have been important draw-cards for tourism in this area for more than a century (Geneste 1999), so the 'brand' is well established, and this has been further enhanced by strong recent efforts to coordinate tourism stakeholders and to promote the region to the public.

The presence of exceptional sites like Lascaux or Altamira has the capacity to draw large-scale tourism to a region. The development of the idea of 'must see', 'bucket-list' sites in the popular mindset is of crucial importance. In this respect, the path taken to develop rock art tourism in the Ardèche Gorges is instructive. Although 15 caves with rock art have been known in the Ardèche since the late 19th century – and here there are many other kinds of prehistoric sites, such as megaliths – tourism has historically developed around the sunshine

of summer holidays and attractions of the natural landscape (Gauchon 2009). It was not until Chauvet Cave, one of the oldest known rock art sites in the world, was discovered in 1994 that rock art began to feature prominently in the visitor mindset. The building of the Caverne du Pont d'Arc, replicating Chauvet Cave for the public, was seen as providing a means to diversify tourism themes and attract a new clientele. It also allowed tourists to visit locations away from an overcrowded river environment and extend the tourism season beyond a few overly busy summer weeks. These efforts were further enhanced by the prestige gained when UNESCO listed Chauvet Cave as a World Heritage site in June 2014. Chauvet Cave and its offspring the Caverne du Pont d'Arc are now a paired centre-piece of regional development.

Cultural identity

Rock art can also be valued for how it gives us a sense of local identity. In France and Spain, the development of rock art caves for tourism has fed a cultural rhetoric that presents the peoples of Aurigacian and Magdelenian times as unifying ancestors. These rock art sites portray a sense of common heritage and, with this, an identity that transcends modern ethnic divisions. On the other hand, in other parts of the world where authorship can be traced to particular cultural or social groups, rock art signals and promotes cultural specificity and rights to place.

Issues of authorship, cultural ownership and ancestry are particularly potent in postcolonial contexts. There is the need to address past inequities while also recognising the new complexities of postcolonial identities (Ndlovu 2011). Independent, former colonies also have the difficult task of uniting diverse cultural groups within a new national framework that also respects cultural pluralism (Hampson 2013). Developing rock art sites in postcolonial contexts therefore sets up inevitable tensions between national, regional and local government, between dominant and minority cultural groups, and between different levels of identity narrative. An example of this is the case of the Kondoa Rock Art World Heritage sites in Tanzania. The area contains more than 400 rock art sites, surrounded by a forest that holds sacred values for some local inhabitants. Certain sites continue to be used in local rain-making and healing ceremonies. During colonial times, the rock paintings were protected by the Colonial Monuments Preservation Ordinance of 1937 and in or around the sites local people were restricted from conducting any activity that was seen as potentially damaging to the art. This included fencing of some sites and stopping many aspects of the traditional usage of sites and their environs – integrated uses that had ensured the conservation of both the sites and their sacred environs in the centuries before colonisation (Bwasiri 2011). Colonial

government land management practices were not linked to the broader values of the 'sites and monuments', and so large swathes of the sacred forest were cleared and burnt in an effort to exterminate tsetse fly. This exposed the sites to degradation, led to soil erosion and the silting of rivers, encouraged the expansion of pastoralists within the area, and irrevocably changed the character of the landscape.

After Tanzanian independence in 1961, people expected these colonial dynamics to change, but heritage governance continued to be administered centrally under the new Antiquities Act of 1964 (and as amended in 1979). This was in line with the nationalist agenda of the time that sought to unify the multiplicity of language-speakers in Tanzania within a coherent national framework that avoided the kind of tribal fractiousness that could come from allowing too great a level of power at local government level. The first president, Julius Nyerere, implemented a nationalist policy know as Ujamaa, that sought to supplant older tribal identies with a new Tanzanian identity. This involved the implementation of a national language (Swahili), the undermining of traditional chiefly authority, and the breaking down of older conceptions of tribal territory. People were relocated on a massive scale and resettled in new multi- (inter-) ethnic villages in which agricultural production was collectivised and food redistrubition administered centrally. Major industries were nationalised and indigenised. Promotion of ancestral heritage was counteractive to this nationalist cultural, political and economic revolution. It seemed to hark back to older conceptions of place and to 'tribal' traditions and values.

The history of management of the rock art sites of Kondoa mirrors this nationalist framework. The sites were mostly produced by former hunter-gatherer groups who have all been moved out of the Kondoa landscape. The rain-making ceremonies that are still conducted at the sites are run by pastoralist and farmer groups and, while probably of relatively recent origin, are still of great importance to those communities (Bwasiri 2011). Issues of authorship, ownership and ancestry are therefore highly emotive at Kondoa. The national Department of Antiquities has continued to manage the rock art sites since Tanzanian independence, as the national authority responsible for the management of all Tanzanian heritage. Issues of traditional authorship, ownership and use rights continue to be downplayed because they run counter to Tanzanian nationalist agendas. The ongoing ritual use of the sites (and intangible heritage in general) remains completely ignored by the management structure who claims that their sole management mandate relates to the tangible heritage of the sites (i.e. the protection of the rock paintings). The managers therefore operate as if tangible values are the only ones that matter, and as if tourism is the sole use. They have even gone so far as

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to forbid ongoing ritual uses of the rock art sites that are seen as potentially damaging to the art (Bwasiri 2011).

Several crucial questions arise from this case study in terms of developing rock art sites for tourism. For whom and how do rock art sites constitute heritage? How does their development for tourism take into account (or not) their multi-faceted heritage reality? To what extent does the tourism development of rock art sites also work like an arena in which various stakeholders vie for recognition and power? And who has the authority and legitimacy to develop rock art sites for tourism and to define the roles of each stakeholder involved? These choices are far from neutral and they influence, *de facto*, the presentation of particular values and types of rhetoric at public rock art sites. They serve to privilege certain values and to supplant others, which, in return, legitimises the role and authority of those making the decisions.

Conclusion

Rock art tourism raises many questions: Why rock art tourism? Who does it aim to attract? Who does it benefit, and how? How will developments at rock art sites help secure and enhance the heritage values of those sites? Who should have a say in developments? Whose views are most important, and why?

What is abundantly clear is that the development of rock art sites for tourism is complex, extending far beyond how to balance conservation against visitation. While there can be no universal solution to competing claims, there is a need to find middle ground between conservation, access, public education, local cultural issues and other interests. A useful moment in articulating such middle ground is the preparation of management plans. The sustainability of such plans is strongly linked to the ability of heritage managers to inspire favourable working relationships between stakeholders. The challenge for the heritage manager is to mediate a set of compromises that can allow for cooperation, in the understanding that not all stakeholders necessarily have an equal claim (McNiven and Russell 2005, 234-242).

The ways in which rock art sites are developed for tourism should therefore not only reflect the vision of the management authority, but it should embody the particular values and aspirations of all the parties involved. It is almost never possible to exactly meet the wishes of all interested parties, and so the development of rock art sites for tourism can never be politically neutral. It will always involve value judgements. In most instances the wishes of different interest groups will conflict to some degree, each party expecting their voices and

their wishes to be given prominence. The job of the manager is not to act as a judge who determines that one set of views and wishes is right and the others is wrong. The job of the manager is to find a mutually acceptable compromise that best meets the aspirations of all, and in postcolonial contexts more particularly the aspirations of the cultural groups whose heritage is at stake (McNiven and Russell 2005).

The key management skills required therefore centre around communication, facilitation and mediation. The task is not so much to propose innovative management solutions as to help these to evolve progressively out of negotiations between interested parties. A core aim is to carry what is often a highly fractious and divided group of stakeholders through a planning process and to bond them together into a coherent team, built around mutual respect and focused on working together for collective self-interest. The role of the manager is therefore not to manage in the traditional authoritative sense of the word, but to facilitate the development and implementation of broadbased stakeholder-driven heritage outcomes.

But no matter how effective, such outcomes cannot be permanent solutions. They will need to be reviewed regularly. As stakeholder needs and wishes change, so too will chosen solutions also need to adapt. Rock art tourism developments must therefore expect and thrive on change through the course of time.

Acknowledgements

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Captions for Figures

Figure 1: "Prehistoric Les Eyzies" (France) double-sided tourist brochure, 1931 (courtesy of the South African Rock Art Digital Archive (SARADA) collection).

Figure 2: Examples of controlled access to open-air sites: A: Stadsaal Cave in the Cederberg Mountains, South Africa (20 February 2011). B: Twyfelfontein, Namibia (3 May 2010) (photographs by Mélanie Duval).
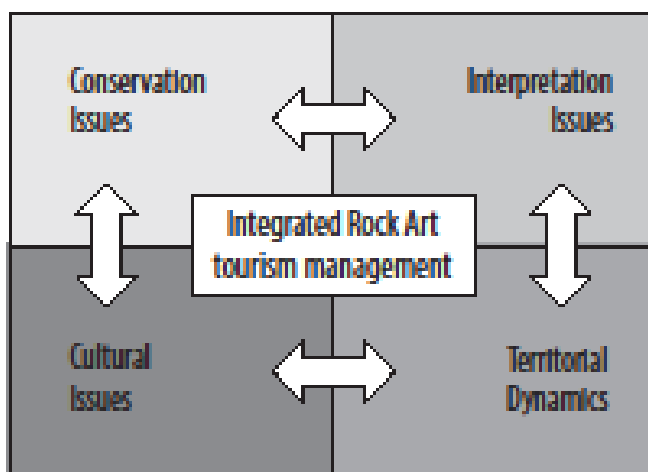

Figure 3: Integrated rock art tourism management: the convergence point between conservation, interpretation, territorial dynamics and cultural issues.

[i] "drôles de dessins"

[ii] "amateurs artistes ayant dessiné des animaux"

[iii] *"Grotte de Lascaux à 2 kilomètres"*.

[iv] *"momentanément [la grotte] n'est pas accessible au public, des travaux d'aménagement et de protection étant en cours"*.

[v] «*À la Combe d'Arc, il y a une série de larges galeries, joignant plusieurs salles assez vastes [...]. La préservation des restes archéologiques n'est pas nécessairement incompatible avec l'ouverture au public, estiment les associations d'usagers*»

[vi] *"Nous avons tenté 2 fois [d'obtenir des billets pour visite la grotte de Font-de-Gaume] : un mercredi à 8:00, nous étions loin dans la queue devant le guichet qui ouvre à 9:30. Échec. Le jour suivant nous sommes arrivés à 6:00, nous étions 9emes dans la file. Une longue attente puis les billets en poche, nous avons pu faire la visite. Le guide n'avait pas vraiment d'intérêt, mais je pense que sa présence est plus de l'ordre de la préservation du site. Les peintures sont plus ou moins bien conservées, et la plupart sont impressionnantes de nuance, d'expressivité, et de maîtrise. Un pas de 13 000 ans en arrière, qui vaut vraiment le coup. Des rumeurs disent que le site fermera ses portes au public sous peu (c'est l'un des seuls du genre encore ouvert), donc il faut en profiter!"*

[vii] *"dans cet univers si particulier, qui semble encore habité par la présence des hommes et celle des ours"*

[viii] *"le fac-similé, à bien des égards, surpasse l'original"*

[ix] *"L'expérience de visite virtuelle, en délocalisant le lieu patrimonial pour le transformer en espace d'interprétation et de réception, transforme l'internaute en croyant et donc en personne convaincu de l'intérêt de sauvegarder ces sites mémoires des premiers hommes. Le visiteur passe ainsi au cours de sa découverte, en arpentant ces mises en scènes, du voir au croire ; l'espace explicité se traduit en espace prevue"*