

Comparative analysis of responses to COVID-19 in UNESCO Landscapes and World Heritage sites from Southern Europe and America

Learning from responses to COVID-19 in UNESCO sites

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Abstract

Purpose – Due to the global COVID-19 pandemic, UNESCO Landscapes and World Heritage sites have faced unstable situations. Both at the sites themselves and in the research centres, universities and even the homes of the people involved, they have acted and responded to the best of their ability. In this context, the aim of the comparative analysis of different cases carried out here is to understand the main effects of the pandemic in the short term. On the one hand, the purpose is to determine what the general response trends have been and, on the other, to measure the resilience capacity in each case.

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Design/methodology/approach – Up to eight cases studies representing different and diverse kinds of Heritage and Protected Natural sites from Southern Europe and America are compared.

Findings – In a context of uncertainty, new responses, unique opportunities and hitherto unseen weaknesses have arisen in research and management of natural and cultural heritage. In general terms, the dialogue between officials, technicians and researchers that have put together this article underlines the need to work towards a governance model that engages everyone in dialogue. Discrepancies between overlapping strategies and plans, which is the main conflict detected, should be avoided while a decentralisation of policies could be more operational. In this sense, situated knowledge may be of help in configuring practical management tools.

Originality/value – This paper compares and contrasts for first time the effects of the pandemic in Europe and Latin America. This exercise has provided a valuable diagnostic for present and future heritage management.

Keywords Cultural heritage, Comparative analysis, UNESCO, World heritage, Natural heritage, Heritage management, Pandemic

Paper type Research paper

Introduction: UNESCO landscapes and heritage as a focus of analysis against COVID-19

The aim of this article is to analyse the response given by UNESCO Landscapes and World Heritage Sites to COVID-19 and measure the horizon that looms over these spaces in such a context. For this aim to be achieved, the UNESCO Chair on Cultural Landscapes and Heritage of the University of the Basque Country (UPV/EHU) organised a virtual cycle of meetings between 2020 and 2021. These encounters brought together both managers and technicians working at Heritage and Protected Natural sites, with a view to carrying out a comparative analysis of different cases around the world.

The objective of the meetings focused on analysing the situation created by the impact of COVID-19 and response capacity in different scenarios (listed and described below). The specific period under analysis was from the outbreak of the pandemic to partial reactivation of the system under a new, changing reality. Therefore, on the one hand, the immediate responses given in the short term are considered, while on the other, we discuss new management systems and capacities that emerged in order to recirculate and restart activities, where the resilience of each that determined their ability to respond was discussed.

The methodology was based on the creation of virtual spaces in which participants could share their professional experiences and contrast them with other practices around the globe. The sample of cases was diverse enough to attend to different realities that occurred throughout the world; both natural and cultural UNESCO sites participated in the sessions. But there was also diversity in terms of participant profiles, including people representing the institutions they manage and university researchers, as well as technical staff associated with the sites under analysis. In fact, heritage professionals have the unique opportunity to assess and document places and structures associated with the pandemic (Spennemann, 2021). Regarding the organisation, the meetings that hosted those professionals were divided into two major sections: a first part focused on listening one by one to the leading voices of each experience, and then there was a second part that encouraged discussion between the participants and public attending the session.

As a result of the exchange of experiences in each scenario, general trends were identified, although many specific features were also noticed, in close relation to the specific nature of each place. Like this case, there are many other cases around the world that have considered studying how the collaborative approach and lessons learned from the industry's response to COVID-19 constraints can provide models for building resilience for the future and developing solutions to other problems (Guest, 2021).

In taking on this challenge, the aim of this paper is to collect and compare general data on the different case studies, and to establish some trends and guidelines that we consider central in

managing Heritage and Protected Natural sites in the context imposed by COVID-19. Therefore, the present work is an example of a collaborative and constructive network between researchers, stakeholders, social agents and managers of distant areas, all of them associated with cultural and natural protected areas, with a view to advancing in the path of knowledge to establish optimal guidelines with which to address their coexistence. Continuing with UNESCO's leadership, with this article we join one of the fields that was set as major pillar to develop after the crisis caused by the virus, *International and Scientific Cooperation*, based on the previous UNESCO Recommendation on Open Science (UNESCO, 2020a).

Learning from
responses to
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The case studies, from Chile to Alhambra

All the authors who have contributed to this paper work at several Heritage and Protected Natural sites scattered throughout the world. In fact, agents who took part in the aforementioned virtual meetings held between 2020 and 2021 are providing cases studies yielded here as the focus group. These meetings were held at a time of uncertainty, before knowing the guidelines and reports published by UNESCO (UNESCO, 2020b, 2020c, 2021) or ICOMOS (Kono, 2020). In this scenario, exchanges of fears and experiences provided a basis for comparison, guidance and mutual help.

Cases were selected by their chance to represent different and diverse kinds of Heritage and Protected Natural sites, but either due to their relevance at national and international level. In addition, there was a predominance of Spanish-speaking participants representing each site, which facilitated and enriched the discussion during the virtual meeting and beyond. Besides, even if all speakers shared a common ground, at the same time had different professional, technical and research profiles leading to an integral diagnosis of the situation.

Firstly, with regard to Protected Natural Areas, we have considered three areas in Spain and one in Chile in order to establish a common framework, although without neglecting the prevailing cultural and socioeconomic differences between South America and Europe.

- (1) **Protected Wild Areas of Chile.** Most of the Protected Wild Areas in Chile are located in the southern part of the country and cover an area of 15.3 million hectares (Figure 1). Its protection is managed by the State of Chile through the National System of State Protected Areas (SNASPE), which is administrated by the National Forestry Corporation (CONAF), centralised in its office located in Santiago despite the fact that the largest area of Protected Wild Areas, as said, is located in the southern part of the country. In that protected surface, Chile has 10 Biosphere Reserves (Man and Biosphere – MaB – UNESCO Program) covering about 1/3 part of the area, and considered *laboratories for sustainability* (Moreira-Muñoz and Borsdorf, 2014) specially because of the remarkable biodiversity existing in those diverse habitats of Landscapes in Chile and its richness of endemic flora and fauna. The managed protected areas – regardless of the municipality they are in or each different reality – have been closed during pandemic, so there has been no contact, neither with visitors nor with researchers or managers. This has led to problems of lack of funding and control, but opportunities to see nature do it itself.
- (2) **Natural Park and Biosphere Reserve of Bardenas in Spain.** This protected natural area is a semi-desert area of 39 ha located in the southeast of the Spanish autonomous community of Navarra and part of Aragon, and has no human settlements as only traditional agriculture and livestock keeping are permitted. In 2000, UNESCO declared Bardenas Reales a Biosphere Reserve through MaB Program. This area constitutes a unique region because of its geological, landscape and ecological singularities, as well as because it is home to several emblematic species (some of them subject to conservation concern). Therefore, Bardenas has

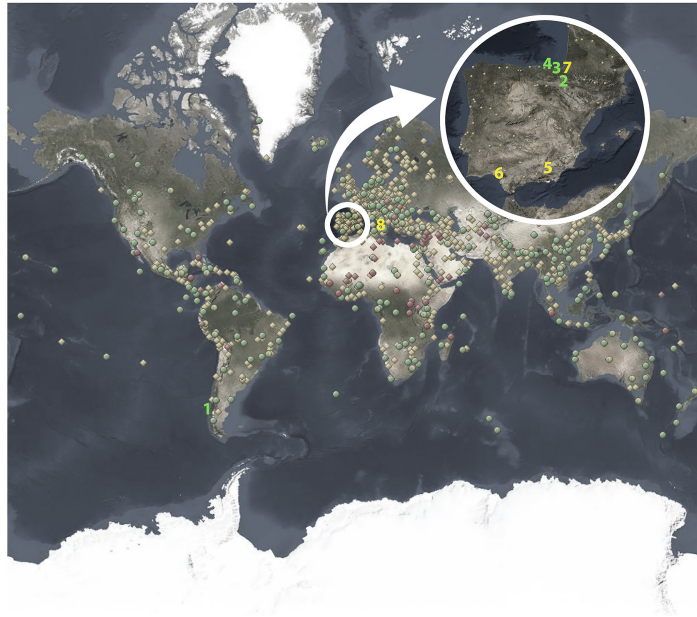


Figure 1. World Heritage List Map (UNESCO) where the case studies are located. (1) Protected Wild Areas of Chile, (2) Natural Park and Biosphere Reserve of Bardenas in Spain, (3) Basque Coast Geopark, (4) Urdaibai Biosphere Reserve, (5) Alhambra, Generalife and Albaicin, (6) Doñana Natural Park, (7) Ekain Caves and (8) Pompeii Archaeological City



Source(s): Figure created by author

turned into a first-rate international tourist destination. But although visiting protected areas contributes to human well-being and tourism favours the recovery of local economies after the pandemic, there are concerns about the direct and indirect impacts of the increasing number of visitors in all protected areas (especially when they do so it suddenly and massively).

- (3) **Natural Heritage of the Basque Country.** Among the places with “exceptional universal value” (UNESCO) in the Basque Country there are – in addition to its Basque own language – five places distinguished: The Hanging Bridge of Bizkaia, the Altzerri, Ekain and Santimamiñe caves and the Camino de Santiago, but also the Urdaibai Biosphere Reserve and the Basque Coast Geopark in terms of Natural Heritage and taken into account in this article. The monumental, artistic and natural value of these locations make it a geographical area worthy of visitation. The heritage of the Basque Country undoubtedly constitutes one of the main pillars and priorities of Basque society and politics. The historical trajectory of this region, together with its own unique language and folklore, has become deep-rooted among its population.

In the Atlas of the World's Languages in Danger (UNESCO, 2010) it is mentioned that the Basque language is probably the isolated language, or language that constitutes by itself a single, best-studied linguistic family, as well as one of the most widely recognised minority languages, despite its classification as “vulnerable”. So, both natural, cultural and also intangible heritage needs proper management of the services provided to satisfy the human need. In times of pandemic, it has been seen that the health and social restrictions adopted during COVID-19 have had a great effect on Intangible Cultural Heritage, with repercussions on the economy and society (Roigé *et al.*, 2021). And in the case of natural and cultural sites, we have needed non-massified recreational spaces where (re)connection with the environment and popular culture is possible. So how can this heritage be safeguarded and maintained after the COVID-19 period? It seeks to integrate tourism – currently one of the main sources of income for the community – in an adequate way in this equation of what is offered in terms of cultural, natural and immaterial contributions.

Second and additionally, we have also considered four UNESCO World Heritage Sites, all in Southern Europe, three of them in Spain and one in Italy.

- (1) **Alhambra, Generalife and Albaicín.** The Alhambra fortress together with the Generalife gardens and Albaicín neighbourhood are situated in the Andalusian city of Granada (Spain) on two adjacent hills. The Alhambra and Generalife were part of the residential complex of the emirs who ruled this part of Spain from the 13th to 14th centuries. For its part, in the Albaicín, we find unique landmarks of Moorish architecture together with a whole neighbourhood of traditional Andalusian architecture. The integrity of the zone, that covers an area of 450 ha and has a buffer area of 67 ha, according to WHC (World Heritage Convention) of UNESCO, is particularly noteworthy because it has been very well preserved over time. For this reason, it is one of the most popular tourist areas in Spain, insofar as it is a symbol of the different cultures that have lent their own character and identity to the site.
- (2) **Doñana Natural Park.** This Natural Site is located in the southwest of Spain and covers an area of 54 ha in the Andalusian provinces of Huelva and Cadiz. It is a flat area bordered by the Atlantic Ocean, and in particular is a sub-humid Mediterranean region characterised by a strong seasonality that shapes the water level, type of vegetation and local fauna. This mosaic of ecosystems, which is home to unique biodiversity, is of extraordinary importance as a stopover, breeding area and wintering site for thousands of European and African birds. Within this area, only traditional exploitation of some natural resources is allowed, and no permanent human settlements exist. In 2020 particularly, The World Heritage Committee requested in terms of adaptation to Climate Change, to create a strategic plan that defines the extent to which a reduction in water consumption to conserve and protect the OUV (Outstanding Universal Value) of the property and establish an official World Heritage buffer zone in the immediate water catchment of the property.
- (3) **Ekain Caves.** The site of Ekain Caves is located in the municipality of Zestoa (province of Gipuzkoa, northeastern Spain). Together with the *Santimamiñe* and *Altxerri* caves, it is inscribed on the World Heritage List as part of the Site named *Cave of Altamira and Paleolithic Cave Art of Northern Spain*. This cave is famous for its Palaeolithic cave paintings which are outstandingly well-preserved and contains around 70 animal figures, where horses are the most featured animals. The set of horses is one of the richest and most beautiful examples of Franco-Cantabrian art and is considered the finest wall painting of its type.

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- (4) **Pompeii Archaeological City.** This city is part of the *Archaeological Areas of Pompei, Herculaneum and Torre Annunziata Site* (98 ha zone and 24 ha buffer zone), undoubtedly one of the tourist gems of Italy, but is also a large-scale laboratory where archaeologists, scientists, curators and managers of cultural heritage converge. Its discovery and the first excavations in the 18th century resulted in an interest in the past, in addition to discovering a beautiful Roman city frozen in time. Thanks to this, it has been possible to study the way of life of the elites of Roman society, as well as the guilds that existed and provided goods to the luxurious villas.

Case analysis methodology

The methodology to achieve a comprehensive comparison of the different cases mentioned, and not a list of isolated realities, has been based on the establishment of a single script to be followed by all authors. This script was established prior to the meeting, re-established for the publication and modified during the process of writing this document. It followed a two-step procedure. First, it was intended to form a guide for the compilation of each contribution. Then, it provided a guide for structuring the general ideas considering the main contributions of each case study. Further detail is provided in [Appendix 1 \(Table 2\)](#), showing the questions/gaps of the script that were answered from each site and helped to structure the general trends, who responded to each trend, the role they had and the sources they used and when did data collection.

A trial to establish a common framework

Immobility and restraint: the incessantly changing guidelines

In March 2020, an order was received to cease all services offered by cultural and natural protected sites. To control the spread of COVID-19, many administrations established regulations, prohibiting or reducing mobility and closing the activity to all non-essential services. The pandemic was controlled via a gradual strategy according to the health situation of each municipality in particular. In fact, there were measures and restrictions that limited the mobility of the inhabitants according to epidemiological indicators and the capacity of the healthcare network.

Consequently, the plans altered the normality and regularity of people's rights and freedoms in terms of mobilising or meeting other people. Through the state of emergency – which extended uninterruptedly from March 2020 – administrative control measures were implemented and have repeatedly changed, giving rise to high levels of uncertainty about which activities could be carried out during this period. From the closing date to the time when these lines are being written – summer 2021 – the restrictions affecting the activities that could be undertaken on the sites varied over time and place. Therefore, work, research and service topics were stopped, reactivated and modified during this period according to the pace of regulations at any given time or in any given space, but also depending on the evolution of the pandemic in each country.

The first period of total closure. This is identified from March to June 2020. Lockdown sharply reduced traffic by land, sea and air but also the presence of people (mainly tourists) in many natural and cultural protected areas. That is why this period of Global Human Confinement Experiment ([Bates et al., 2020](#)) has been seen by researchers in ecology and conservation biology as an opportunity to understand and address new, multiple questions about human-wildlife interactions on our increasingly human-crowded planet.

The reduction in a variety of recreational activities that tourists undertake in natural areas (hiking, climbing, cycling and camping, among others) and the decrease in number of motor vehicles required for their displacement reduced the production of noise and pollution and the

amount of wildlife roadkill and/or disturbances in breeding areas or nests (Driessen, 2021). By contrast, in cities, where most people were under lockdown and where the majority of human activities occurred during the pandemic, many urban spaces have been adversely affected, for example, by the lack of community use and technical maintenance of green urban areas. Thus, the importance of the daily enjoyment of these green spaces was highlighted not only because of people's health reasons, but also for the health of ecosystems.

The second period with reduced activity and intermittent lockdown. From June 2020 to June 2021, sites were constantly adapting to current regulations by taking into account so many limitations (COVID-19 regulations). Some of them greatly affected the type of services that could be offered at the sites because of the reduction in capacity, reduction in number of members per group, hygiene protocols and regulations, prevention of occupational hazards and mobility limitations for visitors, among others.

Nevertheless, above all, pandemic control measures have altered visits to protected areas. This fact has been especially notable in Chile, since during quarantine periods, the areas had to remain closed and visits could only be made with passes that demonstrated specific needs, or essential work activities. Therefore, it is estimated that for the National System of Protected Areas of the State of Chile (SNASPE) this fact can give rise to a problem, since a major part of funding is obtained via entrance tickets bought by visitors. In Chile, the tax contribution in the case of the SNASPE has decreased by 40% between 2015 and 2021. For its part, the increase in revenue from payment of entrance tickets has risen from 40 to 70% of the annual budget during the same period [1]. Consequently, since 2020, SNASPE revenue has stagnated because of the drop in number of visitors to protected areas.

Therefore, although at first the closure phenomenon partially benefited the environment – as it brought a stop to some of the massive visits to protected natural areas and provided a necessary enforced break – lockdown brought about other indirect damage such as economic problems. Likewise, in Spain, many of the 213 natural heritage sites endured significant budget [2] cuts; budgets for major tasks such as maintenance of facilities, research or protection against poachers, looters and illegal fishermen (UNESCO, 2020) were either reduced or eliminated.

Likewise, at cultural sites such as Ekainberri (Basque Country), revenues fell to historical lows during this period due to the drastic drop in number of visitors. The drop in income, together with the minimal presence of visitors during the second period of intermittent lockdown, meant an adjustment of the entire plan of activities. That is why emergency plans had to be designed and implemented in order to postpone short- and medium-term commitments. In fact, it is necessary to build a sustainable model that is not only based in the (dependent) growth of tourism (Roigé *et al.*, 2021).

A sudden halt in research

The pandemic situation has had a negative impact on new knowledge creation at UNESCO natural and cultural sites, further hampering the normal development of research and delaying strategic plans or activities. Although 2020 could be a key year to research into what a calmer world would look like (e.g. Bates *et al.*, 2020), ecological and conservation research during this period has been hampered by stricter measures established to deal with the pandemic and stop COVID-19 expansion. In addition, the bureaucracy required to conduct research in protected natural and cultural areas was affected or delayed because the person in chief was under lockdown. Apart from the regular compliance and development of protocols prior to any type of fieldwork activity, during this period of pandemic there were also major protocols directly linked to protection from COVID-19 (application for permits, insurance, etc.) in terms of field or laboratory activities involving research. Another common disadvantage noted is, for example, the fact of not being able to travel by plane, since

a long waiting time was required to obtain a Covid-negative test result and the certificates required to reach some of the areas subject to study in 2020.

All of these factors constituted a major difficulty and slowing down in the implementation and development of research into the period that has been called “*Anthropause*” (Rutz *et al.*, 2020). Although it might be too early to judge the success of the research carried out under these circumstances, the positive influence it had during fieldwork in some areas of research, such as biology, was manifest. In fact, some of the managers of natural areas have seen this opportunity to study this anthropic pause in a situation of absolute calm in order to elucidate future management decisions regarding better conservation of the areas and the species that inhabit them. This was the case, for instance, of Doñana National Park. Instead, other natural park entrance was totally restricted without exception as in the case of the Bardenas Reales Natural Park. Indeed, in Chile, the closure of protected areas has directly affected research that is not led by the National Forestry Corporation (CONAF, Chile’s forestry service). This was mainly because CONAF is not authorised by the Ministry of Health to allow visitors into Protected Areas despite compliance on the part of researchers who have taken health precautions.

In the Archaeological City of Pompeii – where the IBeA Research Group (UPV/EHU) has been working since 2011 – the onset of the COVID-19 global pandemic had a devastating effect on its research work. On the one hand, IBeA was not able to travel to Pompeii in 2020 as planned and so they were not able to renew or negotiate any extension of the agreement they had with the Parco Archeologico di Pompei that ended in 2020. Thus, IBeA currently has no legal cover to access the excavations in Pompeii. The renovation to be negotiated included ambitious objectives aimed at resolving certain conservation and restoration problems regarding the facades of some of the houses in the Archaeological Park. In addition, a patent of the Research Group was to be exploited and an international PhD thesis was to be developed, which is now suffering major setbacks. On the other hand, in 2019 negotiations began to sign a collaborative agreement with Parco Archeologico di Ercolano, which was finally done in 2020 for a 3-year, extendable period. Taking into account the needs of the Parco, which had to develop a series of major restoration work, the presence of the Research Group was requested to carry out on-site research work as soon as the agreement was signed. However, the global pandemic situation rendered the presence of the Research Group unfeasible.

In Alhambra (Spain), before the nationwide state of emergency was established, the Research Group PRINMA (*Producción, Intercambio y Materialidad*) from the University of Granada was immersed in several research projects. The workload was very high, and was unexpectedly paralyzed. Almost all projects, whether driven by public research or conservation bodies, or by heritage-based conservation institutions at a local level, were suspended. Most of the researchers in the Group had to leave project management, regardless of their status, and devote efforts towards carrying out a whole range of work that could be done either individually or remotely coordinated. Thus, after the immediate suspension of all projects following the declaration of the state of emergency, those requiring the concentration of many researchers – mainly archaeological interventions – were suspended, and only those that required just two or three members to meet were reactivated.

Changes in visit trends and visitor profiles

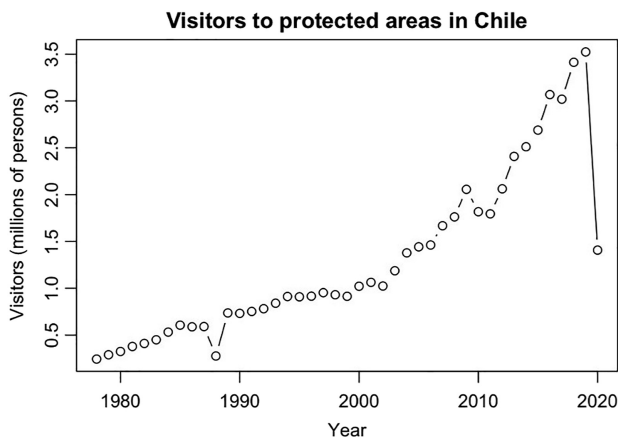
Above-mentioned mobility restrictions resulting from the pandemic had a direct impact on visits to protected areas. In this regard, two different situations occurred during the closure period and during temporary openings. On the one hand, during the closure period, the number of visitors to protected areas decreased dramatically compared to previous trends. This was the case with Chile, where visits to wildlife areas had increased steadily since 1979

(Figure 2). In 2019, visits reached a peak of 3.5 million visitors, while in 2020 this number decreased to 1.4 million.

In Spain, the drop in number of visitors was 100% during the period of total closure (from 14 March to 1 June 2020) because of mobility restrictions. During that period, the work carried out at a cultural site such as Ekainberri (Basque Country) was basically door-to-door, and related to logistics, maintenance, public service either online or by telephone, internal training of staff, planning of future activities and programming, albeit with an absolute absence of visitors. Then, during the brief opening periods, the number of visits gradually increased, but were subject to rules limiting capacity and services in general, to the extent that, 9,544 people visited the site from the outbreak of the pandemic until 1 June 2021. However, we should bear in mind that from March 2018 to June 2019, they received 48,119 visitors. Groups of schoolchildren were also absent during this period, confined to classrooms and without any chance to access the place. Tourists were also missed among visitors, both national and overseas. Without the chance to fly and with mobility limitations, the number of visitors was reduced to the bare minimum, except for the months of July and August 2020 during the summer period when some national tourists arrived. Those who did visit the site were local people from the Basque Country who, when restrictions allowed, enjoyed Ekainberri especially in family groups or with others from the same household.

On the other hand, it is worth considering the effects on natural protected areas during the alternate periods of opening and closing of municipal boundaries in Spain. Natural sites were pushed to the limit and were totally exposed without resources in terms of their ability to manage the flow of incoming people. During the first lockdown period, the inability of people to satisfy their physiological need to contact nature was restricted. This interrupted relationship between human and nature, perhaps because of the sudden way it occurred, gave rise to an increasing interest in natural environments, so that by the end of the successive periods of lockdown there were hitherto unheard of peak influxes of people visiting protected areas. Although the management bodies overseeing the areas were already aware of this in advance, many of them were overwhelmed when the state of emergency ended. Massive, uncontrolled crowds headed weekly to leisure areas, overflowing the capacity of the facilities and public infrastructures, such as parking lots (Garai, 2021).

Nevertheless, the behaviour of the population was not as expected. Systematically, visitors gave an image of irresponsible behaviour by throwing waste, parking vehicles in



Source(s): Figure created by author

Figure 2. Total number of visitors to Chile's protected areas according to official data from the Chilean Forest Service (CONAF)

prohibited (or private) areas, or making use of off-duty facilities (see [Plate 1](#)). These are just some of the examples of the fragility, ineffectiveness or even lack of an optimal environmental education system, which is needed to train a mainly urban population that does not actually know how to make use of or at the same time coexist in natural spaces where there are both humans and wildlife.

New local biorhythms

During this “Anthropause” period of reduced human mobility on land, sea and air, we witnessed several amazing wildlife encounters (e.g. dolphins in Venice, pumas in the city of Santiago de Chile, [Silva-Rodríguez et al., 2021](#)) that demonstrate, for example, that a reduction in noise pollution could encourage the recovery of certain areas over which particular species were previously distributed. The amount of wildlife species harmed during the pandemic also decreased, this being linked to an obvious reduction in traffic volume and the associated reduction in wildlife-vehicle collisions ([Shilling et al., 2021](#)). A possible explanation for these patterns is that the absence of human activities made these areas safer for a wildlife comeback.

As we said above, much research work and particularly fieldwork has been halted because of COVID-19 restrictions. Therefore, multiple large-scale data sharing and methodological collaborations have arisen worldwide. In addition, particular technologies such as camera traps or telemetry have resulted in major opportunities for growth in our research on wildlife ecology and preservation (e.g. [Blount et al., 2021](#); [Demšar et al., 2021](#)). In Chile, for example, despite all the limitations mentioned, park rangers – who did not have to focus on public control tasks – have carried out monitoring activities and infrastructure improvements. Although empirical information is not yet available, observations by park rangers and researchers who have visited protected areas point to a recovery of vegetation and increased frequency of wildlife sightings.

In the case of Heritage sites, collaborative enterprises that focus on fieldwork have also been reinforced. For example, initiatives such as those taken by Forensic Architecture have achieved greater outreach, and have become easier to implement thanks to the widespread use of telephone devices [3]. Additionally, the growing development of remote sensing techniques has



Plate 1.
Irresponsible use of
facilities in Izki
Natural Park

Source(s): Figure created by author. Provincial Council of Alava

reached a new level in this scenario in which virtual access to everything has become the rule. This is how, for instance, researchers from Oxford have performed their “field work” on Mauritania in 2020 (Linares Matás and Lim, 2021) or how the historic Klodzko Fortress in Poland’s Lower Silesia was converted in the scenario for a game engine aimed to provide a real-time virtual interaction to the tourist (Franczuk *et al.*, 2022). It is another brick in a wall whose construction COVID-19 has enhanced, while paving the way towards “remote science” (Scerri *et al.*, 2020) and “secluded” heritage experiences (Naramski *et al.*, 2022; Samaroudi *et al.*, 2020).

Strategy overlapping and uncertainty

The case of protected areas in Chile is an example that helps to visualise the consequences of the uncertainty experienced during the first months of the pandemic. The aforementioned SNASPE is centralised through its office in Santiago de Chile, despite the fact that the largest area of protected wild areas is located towards the southern end of the country. It is this office that centralises resources and redistributes them throughout the system, which generates uncertainty about the future budget that each Protected Area (PA) [4] will have to deal with once the country is reactivated after the pandemic. This is important, since each municipality or region where the Protected Areas are established has different requirements and challenges in terms of conservation relevance, threats to biodiversity, ecosystem restoration needs, citizen participation processes and development goals. The incessant changes in COVID-19 control strategy (when a municipality where the Protected Areas are located enters or leaves quarantine), were decided centrally from Santiago by the Ministry of Health. Decision-making, however, did not necessarily consider the diversity of territorial needs. Thus, the repeated closures of Protected Areas triggered tensions in neighbouring communities, due to the difficulty in maintaining tourism activities because of the shortage of visitors.

Returning to a cultural site, the example of the Ekainberri neo-cave is illustrative. It is a site museum rooted “at the scene of the events” and, thus, is located in the same valley as the original cave of Ekain. Therefore, their cultural offer is grounded in the Sastarrain Valley itself, and so the user must visit the valley. During the first months of the pandemic, many cultural initiatives had to migrate online to be able to continue developing and offering activities. On the contrary, Ekainberri decided not to migrate its activity online, but instead continued counting on the presence of and experience to be gained for its visitors. The problem was that demand for face-to-face activity was limited and, consequently, it plummeted. Besides, even though it is a public museum, it is managed by Arazi, a contracting company, insofar as they are not public servants but *are* subject to public regulations.

From a management point of view, due to the drop in income and reduction in demand for service, the team concentrated on managing and resizing general expenses and supporting working groups. Staff management has been one of the aspects that has been reinforced and dealt with care and detail, through an awareness of the extraordinary situation that needed to be managed and the new requirements that arose. With the aim of caring for and accompanying staff during the worst months of the pandemic and always working to emerge from it stronger through a cohesive attitude the team was committed to maintaining the working groups and all the staff. Supported by the employment regulation plans and by the Ekain Foundation, it can now be said that they managed to maintain the entire working group. In Ekainberri, as in many museums, the potential and capacity for development of the services it offers is based on the capacity of its working group that makes it possible for Ekainberri to develop its work and fulfil its mission. The guides, educators, information, management and administration staff, store, ticket sales department, communication, maintenance and the management area, all got to stay together on site, at least thus far until June 2021.

The pandemic period has left the working team face the future without any security. What was foreseen was not accomplished, resulting in a period of great uncertainty. For this reason,

the great capacity that the working team showed in adapting to different scenarios that occurred should be highly regarded. The capacity and strength to unite the working team that was demonstrated proved essential, despite their having suffered from the pandemic at all levels. Besides this, the short-termism in planning marked the day to day of many places. Insecurity in terms of the regulatory framework regarding the constant changes in regulations and restrictions meant many hours of negotiation with no short-term benefit or commercial return. This fragmented and case-by-case response is inversely proportional to that developed elsewhere, such as in England, where collective action led to a successful case in producing online resources and advice (Guest, 2021).

New entrepreneurship initiatives

By way of the fruits of this considerable slowing down of human activities that led to the aforementioned “Anthropause”, many research studies have emerged worldwide. This experiment in nonhuman presence has allowed the positive or negative effects that human activities may cause on wildlife and their environments to be examined (Driessen, 2021). The shocking images that months of lockdown left us, where animals took to the streets of cities around the planet, gave rise to a feeling of guilt and remorse in a significant part of the population. People saw the symbiosis between natural spaces and wildlife, as well as its inability to coexist in areas where humans directly play a disruptive role.

In many regions, this scenario has been seen as an opportunity to perform experiments and develop observational studies in order to understand how wildlife and environments respond to the absence of direct and indirect human pressures. The consequences of a calmer scenario in terms of noise, pollution and traffic have been seen as an opportunity to shed light on future management decisions in conservation biology (Nepal *et al.*, 2019; Driessen, 2021). In fact, based on the information obtained from multiple data collected, including anecdotal observations, systematic censuses and/or monitoring, environmental scientists and conservation policy managers are currently making a great effort to build comprehensive understanding both at local and global scales.

Likewise, regarding cultural sites such as Alhambra, although the outbreak of the Pandemic meant a sudden stop in research activity, this did not mean that research stopped. Research activity was categorically rescued in those areas where meeting and mobility restrictions of the team allowed it. The presentation of scientific results, either as publications or technical reports, was even accelerated.

In contrast, the phenomenon of de-escalation and reactivation of economic activities worldwide resulted in a clear lack of awareness about and adaptation capacity to the ecological needs of the planet. In months, global CO₂ emissions returned to pre-pandemic standards (WMO, 2020) and waste pollution would have a new protagonist: the facemask. To deal with this situation, a large part of the population began to organise themselves to pursue courses of action out of a moral duty to protect natural environments. At a local level, there are many examples of projects set in motion by inhabitants, ranging from training activities geared towards recognising the value of natural and cultural sites, to mass gatherings to help pick up waste in protected areas. In fact, groups of volunteers have been vital in influencing change but, above all, in encouraging other communities to develop similar activities. Additionally, Citizen Science movements extended their activities to cover aspects not previously considered by helping with monitoring and data collection, as we have seen in the case of Forensic Architecture.

It is also worth highlighting the start-ups during the months of lockdown developed by centres and organisations, who adapted what they normally offer to the digital medium, thus giving continuity to their service. A clear example of this is the Urdaibai Bird Center (in the Urdaibai UNESCO Biosphere Reserve), where livebroadcasts were made to view the avian

fauna in the reserve. With a total of 300,000 registered users and daily connections of up to 4,000 viewers, the platform’s creation was a success, as it connected households with nature during the harshest months of lockdown. As happened in the case of this Natural Site, there are other cases around the world where technology made it possible for elements of cultural heritage to also be present in the digital space with great success during the pandemic (Naramski *et al.*, 2022).

Conclusion and final remarks

Throughout this essay, we have sought to compare and contrast the effects of the pandemic in Europe and Latin America. However, we have found that all the case studies have several points in common, constituting diagnoses of the situation caused by the virus regarding management of UNESCO World Heritage landscapes and sites. Beyond the differences between the countries considered, the points gathered in Table 1 are those that bring one case closer to the other – those that equate the effects anywhere in Europe and Latin America.

From this common diagnosis and in broad terms – without distinctions between Sites –, we could say that it is possible to learn from the situation and provide some key proposals and conclusions that should be considered in different terms:

- (1) **Research and teaching network:** Lockdown and mobility constraints have provided the opportunity to create research networks and establish collaborations with *a priori* distant actors, in order to design novel strategies to ensure the preservation of wild species and their environment (Chowdhury *et al.*, 2021; Bates *et al.*, 2020), thanks to the involvement of local actors in *in situ* tasks. In this sense, the public use of natural and cultural spaces must be well analysed and managed.

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- 1 Work, research and service provided by sites was stopped, reactivated and modified according to the pace of regulations at any given time or in any given space, but also depending on the evolution of the pandemic in each country
 - 2 As a result of COVID-19 regulations, prevention of occupational hazards and mobility limitations, visits to protected cultural and natural areas were altered, and insofar as they depend on entrance tickets bought by tourists, the financial contribution of sites decreased and therefore, they suffered significant budget cuts
 - 3 Because of the inability to travel to sites, research stopped and consequently many agreements could not be renewed or negotiated
 - 4 The bureaucracy required to conduct research in protected areas was affected or delayed because the person in chief was under lockdown
 - 5 The closure phenomenon partially benefited the environment during the “*Antropause*” when the slowing down of modern human activities took place
 - 6 Many people devoted efforts towards carrying out a whole range of work that could be done either individually or remotely coordinated (scientific dissemination, logistics, maintenance, planning, programming, etc.)
 - 7 People managing, researching and working at those sites had to face the future without any security or certainty, and so they had to adapt to a large range of scenarios
 - 8 During the alternate periods of opening and closing municipal boundaries, natural sites especially were pushed to the limit and exposed without resources in terms of their ability to manage the flows of incoming people
 - 9 The necessity of people to satisfy the physiological need to contact nature was dramatically noted
 - 10 The repeated closures of protected areas triggered tensions in neighbouring communities
 - 11 Citizen Science movements extended their activities by helping with monitoring and data collection for researchers who were unable to reach the site

Note(s): Points in common regarding the reality faced by cultural and natural sites from the outbreak of the pandemic (March 2020) to partial reactivation of the system under a new, changing reality (summer 2021)

Source(s): Table created by author

Table 1. Comparative synthesis of each case study, highlighting commonalities

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- (2) **Education and cultural and natural awareness:** This prior involvement of local stakeholders favours their recognition and helps to ensure a healthy relationship between human recreational activities and the preservation of wild species and cultural heritage. An understanding of a shared habitat on which both activities (recreational and preservation) take place should be fostered. This is especially key when some of these populations are considered to be of high conservation interest and inhabit these areas attractive to human interests. They can become a very important regulating factor. Therefore, it is important to reactivate research projects, fieldwork, and training with schools or awareness-raising activities among others. It should be noted that a new type of visitor has been detected, who has come to stay and needs basic environmental education and awareness measures.
 - (3) **Understanding nature for its own sake, avoiding regression and managing flows:** We should note that it is well known that this Anthropause or period of calm will reverse soon, and it is expected that it will occur suddenly. The mass arrival of tourists (previously locked by pandemic restrictions) is expected in many protected areas and natural parks as visitors seek recreational activities outside of cities (Usui *et al.*, 2021). To date, hundreds of research works have shed light on how human presence directly affects population dynamics, reproductive output and mortality, as well as foraging behaviour, and/or shapes the stress responses of many wild populations.
 - (4) **Emerging economy:** The social, cultural and natural initiatives that have emerged during this unique period are not only intended to encourage populations to reactivate and mobilise. It is necessary to value and publicise the new entrepreneurship, by developing an attractive offer to distribute the flux of visitors.
 - (5) **Influence in public policy:** We must look at the ways in which local site managers have been able to cope with the situation and analyse their needs. The solutions found in a situation of uncertainty can play an important inspirational role for public institutions and local governments, which are primarily responsible for implementing actions to combat the problems faced by natural and cultural sites. Among others, through policies that ensure the protection of these spaces, but also allow for local management, coordination of strategies, improved governance between administrations, more adaptable management tools, easier bureaucratic procedures and, at the same time, the promotion of an adequate coexistence with humans.
 - (6) **Funding:** We must realise the vulnerability to which these sites have been exposed because many of them depend on the payment of tourists. The payment of visitors should not be the only source of livelihood; budget allocations must be invested to protect both fauna and *in situ* research. Once again, the importance of sectoral associations and networks is repeated: information, training, procedures and new promotions.

Our *Homo sapiens* ancestors who painted the Ekain caves 14,000 ago faced situations with far more uncertainty than we do today, situations that, thanks to scientific knowledge, we can actually control. The *H. sapiens* of the past was probably also confined, for example, to escape the cold. And we, *H. sapiens* from today, 14,000 years later, are still here – living proof of the ability to adapt to the environment. Thus, we do not believe that the post-COVID-19 era represents a new challenge for human beings, but rather, one more challenge along the way.

Notes

1. Data obtained directly in consultation with the national budget law between 2015 and 2021. Available at: <https://www.conaf.cl/centro-de-documentacion/corporativo-conaf/>. Visited: in March 2021.

2. In the case of the Basque Autonomous Community, the cuts applied to natural protected areas were around 30% (Garai, 2021).
3. <https://forensic-architecture.org/category/heritage>. We are grateful to Sarah Newman (University of Chicago) and Felipe Rojas (Brown University) for their talk in which they talked about several of these initiatives.
4. Private Protected Areas (PA) in Chile are not part of SNASPE.

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Table A1.

	Protected Natural Sites		UNESCO World Heritage Sites			
	Natural Park and Biosphere Reserve of Bardenas in Spain	Natural heritage of the Basque Country (Urdaibai Biosphere Reserve and Basque Coast Geopark)	Alhambra, Generalife and Albaicin	Doñana Natural Park	Elkain Caves	Pompeii Archaeological City
1. DYNAMICS						
<i>Movement patterns (flux) and consequences in time perspective (rhythm)</i>						
1.1. Immobility and containment/new mobility guidelines	X	X		X		
1.2. Halts in investigations (and resumptions)	X		X			X
1.3. Changes in visitation trends: abrupt closures/openings	X		X		X	
1.4. New local biorhythms (Anthropopause)		X				
2. SYSTEMS:						
<i>(Lack of) resilience of management and governance systems, and new realities</i>						
2.1. Overlapping of territorial strategies	X				X	
2.2. Uncertainty and hesitation in decision making					X	
2.3. Parallel initiatives, entrepreneurship		X				X