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Connecting Research in Security to Practice

Archaeological Site of COLONIA CLUNIA SULPICIA Peñalba de Castro, Burgos, Spain

Presented by the ASIS Cultural Properties Council

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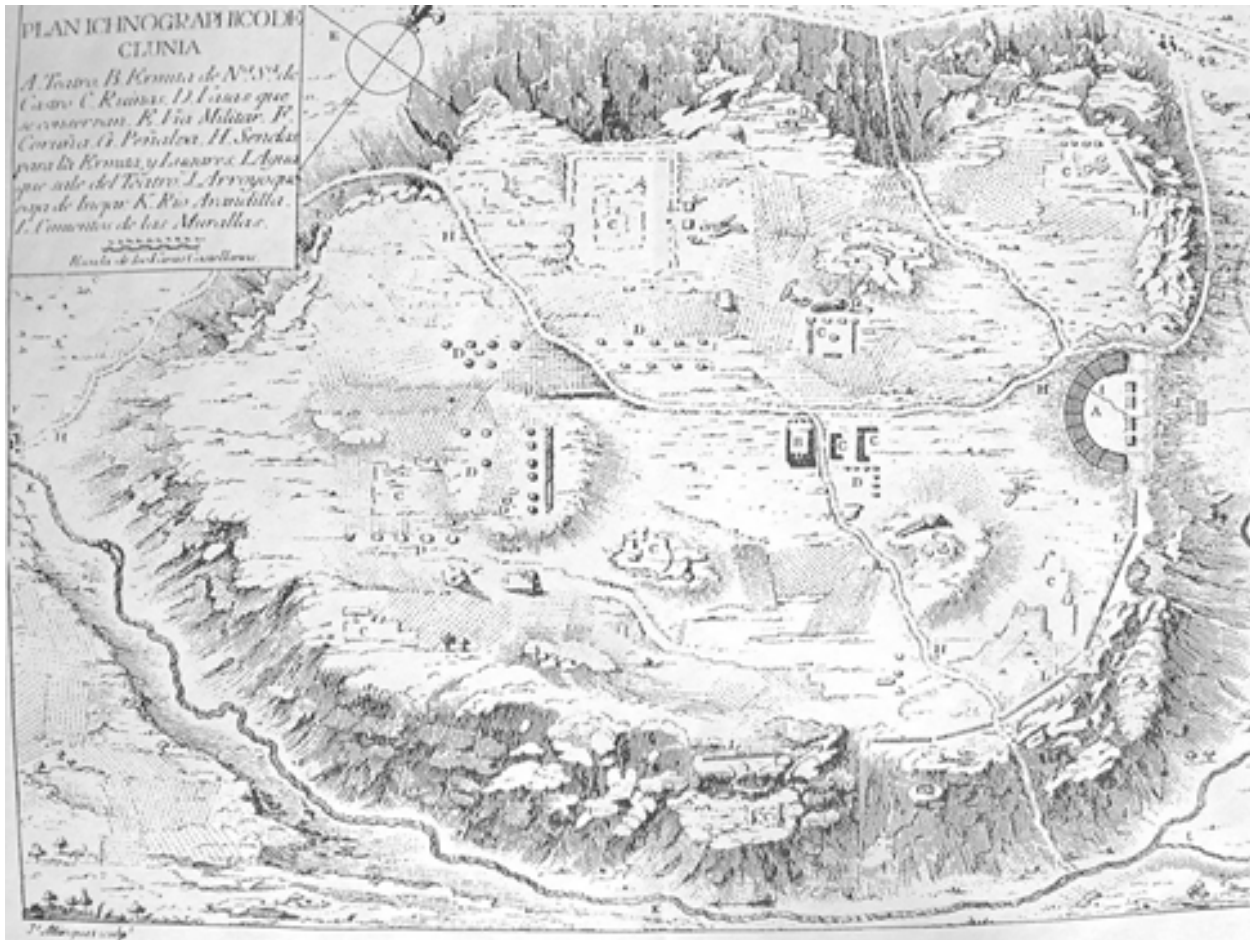


Cultural Properties
Council

Archaeological Site of **COLONIA CLUNIA SULPICIA**

Peñalba de Castro, Province of Burgos, Spain

January 10, 2018



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Scholars believe that the site of Colonia Clunia Sulpicia (Clunia) is the most representative of all of the archaeological ruins that have been found from the Roman period in the Northern Iberian Peninsula. Excavation at Clunia began in 1915, and work done there over the following decades revealed that the site was a significant Roman city of the Iberian Peninsula. Clunia researchers have uncovered a Roman forum, various mosaics, houses, statues of Isis and Dionysus, and a large amphitheater built into the side of the plateau, among other relics.

Clunia and other nearby sites collectively weave together the history of the Roman Empire on the Iberian Peninsula. Every newly discovered artifact or architectural feature provides an additional piece of the puzzle and adds to the narrative. However, these historical treasures are threatened by damage to the sites from natural and man-made hazards, whether they be weather, looting, or careless behavior.

The ASIS Cultural Properties Council assessment team's research of Clunia included a site survey and risk assessment that examined the culture of the site, the site's vulnerability to looting and various natural and man-made hazards, the local legal requirements that impact the development of a security plan, the available resources to support a new security plan, and the invaluable input derived from the various stakeholders¹ interviewed.

INTRODUCTION

Historical ruins in remote locations represent unique security challenges for the stakeholders charged with their preservation and protection. The available published material on such sites has largely focused on preservation or on properties that are either in war zones or areas with ongoing political unrest or ideologies set on deliberate destruction of cultural heritage sites, such as in Iraq and Libya. Little has been published about security threats and

vulnerabilities of the sites outside of these circumstances.

The Cultural Properties Council selected the Clunia site as an opportunity to examine threats and vulnerabilities in a large and remote area located in a politically stable region. The site is typical of many such isolated sites that have minimal law enforcement response and support, limited financial resources and technology, and inadequate staffing to protect the remains of what was once a significant Roman city on a large tract of land sitting atop a plateau. While Clunia is not a likely target for terrorism or ideological destruction based on the political climate in Spain and the remoteness of the site, brazen and inexhaustible looting threatens the site's history and artifacts on a daily basis.

The assessors have articulated recommendations as a basis for a conceptual security plan that draws in all stakeholders—particularly the residents of the surrounding communities—and aims at helping them understand Clunia's historical significance and the site's value as a treasured resource to be protected. The assessors believe that community education coupled with a strategic protection initiative will address the removal of artifacts by residents as well as the trespass and looting that has occurred at the site over time. The plan is intended as a guide to address both daily as well as situational security threats to the people, assets, and activities of the Clunia site.

Clunia's remote location and limited law enforcement support require that the security plan be self-reliant against threats and that it can be ramped up as necessary to address more serious dangers, should the region's political or ideological climate change.

EXECUTIVE SUMMARY

The assessment team completed a case study, including a physical security assessment of Clunia and its surrounding environs, along with a review of other historic sites in the region. The objective of this assessment was to identify those conditions that could create security vulnerabilities for the site and its resources, including people, assets, and activities. It is the assessment team's view that a key factor in considering risk to the site is the Clunia community's lack of understanding and appreciation of the value of the site and the potential economic boost it could bring to the region. The Cultural Administration (Directorate of Cultural Heritage of the Junta de Castilla y Leon and Directorate of Culture Diputacion Provincial de Burgos) certainly understands the value of the ruins, yet at a community level, Clunia may be seen more as a natural resource for community use. Nearby residents in Peñalba de Castro and the countryside use the area for recreational pursuits such as mushroom picking and dog walking. Over time, nearby residents have removed artifacts to adorn homes and other buildings in the community. Looting remains the primary security threat

to Clunia; there has been a history of looters using metal detectors and other tools that have been transported onto the site by paying visitors or others who have accessed the site surreptitiously after-hours. Additionally, the loss of a large stone with phallic symbols, which took much time and care to remove, suggest that commercial looters are also drawn to the site. Current security strategies, including the presence of an after-hours security officer, have been ineffective in deterring, detecting, or delaying these intruders, and losses have often been identified only after the fact.

The limited application of security technology and physical security features, the gaps in security personnel coverage on site, and the lack of timely police response in this remote and sparsely populated region further exacerbate Clunia's security challenges.

The assessment team offers the following recommendations as detailed in the report to diminish the opportunities for looting and unwanted intrusion:

- Begin the process of educating the public on the unique value that Clunia brings to the region and the community.
- Install strategically placed thermal cameras to inform security when there is someone in proximity to the perimeter fence and elicit an on-site security response to that location.

- Establish a more robust full-time security presence on-site during all hours that the site is closed to the public.
- Provide security officers with better equipment, including two-way radios or cellular phones, to enable immediate communications with the proposed security control center and law enforcement. Further provide officers with an all-weather patrol vehicle for perimeter patrols and intrusion response.
- Provide those officers with the requisite training to facilitate an effective and proactive security presence.

METHODOLOGY

The Clunia site security assessment focused on looting, vandalism, and damage to the site as well as the potential for attacks from terrorists or those bent on ideological destruction. However, it became clear in preparation for the assessment that the stable political climate in this particular region of Spain and the remoteness of the site render the latter threats unlikely.

The assessors spent four days on-site and examined security documentation, security logs and incident reports, security staffing, and operational staffing. The team observed perimeter protection, including fencing and gates; controls for site visitors; and the activities of citizens within the community who routinely access the site with little screening. The team



Map with localization in Spain, in the Province of Burgos in the region of Castilla y León.

also examined the on-site artifact storage facility, night-time illumination, and the remote access roads leading to perimeter gates.

In addition, the team conducted meetings with employees working on-site as well as with representatives of the Regional Ministry of Culture of Castilla y León, the Department of Culture of the Provincial Deputation of Burgos, the Mayor of Huerta de Rey, the Mayor of Baños de Valdearados, and the security advisor of the Provincial Deputation of Burgos, who oversees the security contract with Securitas, Clunia's contract security staffing provider. Finally, the consultants examined the possible applications of security technology and its potential to better protect the site. (See Security Risk Assessment Methodology Model, Appendix C).

COLONIA CLUNIA SULPICIA SITE

The Clunia site is located in the Province of Burgos in the Castilla y León region of North Central Spain. Clunia is located on a plateau approximately 1,000 meters (3,200 feet) above sea level and consists of roughly 200 hectares, or 2,000 acres. The site dates back to the first century BC, and much of it is still conserved. Clunia includes a forum with a basilica, temple, administrative building, and nearby three-story houses. In addition, there are Roman baths, an aqueduct, and one of the largest theaters in Roman Hispania. Pottery, mosaics, sculptures, Roman coins, glass, and pieces of jewelry have also been discovered. Christian symbols have

been identified as well, which means that one of the first Christian communities in the Iberian Peninsula might have lived in Clunia. The site is in a sparsely populated area of Spain adjacent to the town of Peñalba de Castro, which has a population of fewer than 85.

SECURITY THREATS

The primary threat to the Clunia archaeological site is looting facilitated by inadequate perimeter protection and limited access controls. These security gaps have enabled unfettered access by persons from neighboring towns as well as unwanted intrusions by those employing metal detectors and shovels for the removal of coins and other metal artifacts. Clunia site personnel routinely find holes dug into the ground by commercial looters, paying visitors, and others who access the site during off-hours. These violations are sometimes discovered during daily rounds of the site, though it should be noted that Clunia is not patrolled on a frequent basis due to its size, limited staffing, and lack of an adequate patrol vehicle. Incident reports made available to the assessors show that hundreds of holes have been dug on the site in the past two years alone. On a single day in 2015, site personnel discovered more than 165 holes dug into the ground by unknown intruders who had sufficient time to render such destruction without discovery. It is unknown what, if anything, was removed during these incidents. People generally are aware of the kinds of



Partial columns outside a local church and artifacts adorning a local residence.

artifacts that are discoverable at the site and are undeterred by any of Clunia's current security precautions. Historically, there has been no adequate means to identify perpetrators or control the looting, and the limited measures in place are insufficient. Even the act of probing and digging in and of itself has a damaging effect on the protective earth crust that covers unexcavated artifacts

The Clunia site has been poached for many years, often by citizens of the surrounding towns. Some of this activity was not necessarily treasure hunting for profit; rather, persons from the community retrieved Clunia artifacts to adorn their homes and other buildings, as is evidenced in the houses and businesses of the adjacent town of Peñalba de Castro. Even a local church is adorned with a partial column from Clunia next to its entranceway. Although this activity has diminished somewhat in recent years, other activities on the Clunia site clearly indicate more sophisticated commercial looting, including the observed use of metal detectors, visible excavation holes, a missing stone with phallic symbols, and the deliberate removal of preserved artifacts from the site.

For centuries, Clunia was used as a quarry to meet the building materials needs of the nearby peoples. Religious authorities regulated the use of Clunia as a quarry² during the Middle Ages and much of the modern age. However, during

the nineteenth century, there was free use of the site's remains. It would not be until the twentieth century that the site gained its current level of protection.³

There has been significant terrorist activity at cultural properties in Iraq, Syria, and portions of Southeast Asia. Although there has been an uptick in terrorist activity and incidents in Spain in 2017, there is no current intelligence to suggest that Clunia or other remote cultural sites within Spain are at risk for such an attack. Moreover, such an event would not likely result in significant loss of life at Clunia, minimizing both the significant impact of an attack and the media attention terrorist groups seek when striking a target. Nonetheless, activities in Spain and all of Western Europe should be continually monitored for any such intelligence on potential threats and shared with the Cultural Administration.⁴

SITE VULNERABILITIES

The site assessment revealed several security vulnerabilities threatening Clunia, including: inadequate access control and perimeter protection, brushfire threats, limited video and alarm technology, long law enforcement response times, limited police training on the significance of cultural heritage protection, and inadequate security staffing.

[Inadequate Access Control and Perimeter Protection](#)



Stone with Phallic Symbols
stolen from Clunia.

The Clunia site was fenced after it was purchased by the cultural administration in the early nineties. The fence is composed of a two-meter-high chain link barrier that encloses the entire perimeter of the plateau on which Clunia is situated. The fence is equipped with one main gate, another gate located near the adjacent artifact storage building, and five remote gates spaced throughout the perimeter. The remote gates are padlocked and all are capable of being opened using a common key. There has been at least one significant breach to the perimeter fence in recent years; a group of individuals were able to compromise a section of the fence by lifting it up to enable a vehicle to be driven inside, allowing the group to remove a large stone artifact without detection. Theft of individual tiles have been more commonplace.

Staff members report that, over the years, keys have been provided to local shepherds and pastors for access to the site so they could pass through with their flocks. In addition, employee keys have not always been turned in when those individuals left the employ of the Ministry and departed the site. There is also evidence that some random townspeople also have keys as they were observed walking on the premises during hours that the site was closed and the main access gate locked. In the morning hours, the assessors observed several people walking down the access drive, out the main gate, and into the town of Peñalba de Castro at the time the gate was being opened to the public. This

informed the assessors that those persons were able to achieve undocumented access either with a key or by otherwise compromising the perimeter.

Throughout the four days on-site, the assessment team regularly observed Peñalba de Castro residents picking mushrooms and other edible plants in the area. Though the individuals typically walked onto the site via the main gate, their activities were neither monitored by staff nor captured by video surveillance while on the premises. Some residents were observed walking in via the main gate, while other were seen to be on the site before the gate were opened and it is unknown how they go there.

Brushfire Controls

Brushfires are a significant security threat to Clunia. The grasses that grow on the site protect the land by holding soil in place and helping to preserve the protective layer over unexcavated portions of the site. However, dry grasses and uncontrolled underbrush are common in this dry, windy, elevated terrain, and they are a potential source of fire. An uncontrolled brushfire could destroy the protective grasses and enable flooding and erosion that could destroy the integrity of the protective layers of soil. According to Mayor Antonio Muñoz of Alcalde de Huerta del Rey, fire department services in the remote nearby towns are small with limited equipment and manpower; they are largely geared to structural fires. Moreover,

response to a brushfire is expected to be slow and inadequate to the need.

Clunia staff informed the assessment team that shepherds and their flocks regularly access the Clunia site as part of their grazing management system. They are permitted to enter 24 hours a day via any of five remote gates in the perimeter fence. As a curator explained, grazing sheep provide a valuable service to the Clunia site by eating the dry grass, thus diminishing the growth of flammable underbrush that is a major cause of fire in this terrain and a potential hazard for the Clunia site. While the assessors did not have an opportunity to speak with the shepherds, it is clearly important that the shepherds continue to be permitted access to the site with their sheep, with the caveat that Clunia staff should be made aware of when the shepherds are on-site.

Staff reported that pastors of area congregations sometimes lead pilgrimages⁵ to the site and thus are issued keys. Staff reported that the pastors always seek the permission of the Cultural Ministry before accessing the site.

Motor Vehicle Access

Persons who enter the site in motor vehicles are permitted to drive their vehicles to the parking lot at the top of the mountain where they are often out of sight of the working staff. This creates multiple potential vulnerabilities for Clunia. First, since motor vehicles are not

checked at the gate, motorists could easily bring metal detectors, shovels, and other equipment onto the site and loot or vandalize without being detected. Second, the access drive to the top of the mountain is a steep grade with insufficient guard rails. There exists the potential for a careless motorist who is inattentive or speeding to drive a vehicle off the road and into the amphitheater. This could result in acute injury to the motorist and significant damage to the restored amphitheater.

Limited Security Technology

There is limited use of video surveillance cameras in the customer service and adjacent artifact display building as well as in the artifact storage facility. These cameras are not monitored in real time, but provide recorded views of strategic locations, including at the statues of Isis and Dionysus, in other areas in the artifact display building, and at the access point to the artifact storage facility. There is no video surveillance or alarm strategy for other portions of the site, including the perimeter gates and fence line, the building at the entrance gate, and the building nearest the forum at the top of the plateau.

Limited Law Enforcement Support

Even with a more robust video surveillance and alarm system, there is no timely law enforcement response available for Clunia. The law enforcement agency of jurisdiction⁶ is based in Huerta de Rey in the Province of

Burgos and the response time, according the representatives of the Cultural Ministry, is said to be approximately 75 minutes. This would be far too slow to effect a deterrence against unwanted intrusion and theft even if such events were detected.

Ineffective Security Staffing

The Council's assessment team concluded that Clunia's security staffing is not adequate to address the significant vulnerabilities identified by the site assessment.

Security staffing on-site is limited to the hours of 11:00 p.m. until 6:15 a.m. daily. This means that there is no security staff or Clunia operating staff on-site from 6:15 a.m. until the site opens at 10:00 a.m. and again between 4:00 p.m. and 11:15 p.m. Staff reported that on one occasion the security officer on duty was caught sleeping by the civil police. Staff reported that the officer in question was terminated; however, the conditions that allowed that behavior to occur remain. The team also observed that the officers who work the Clunia site have no vehicle to enable perimeter patrols. Ideally, the site should be staffed by security officers any time there are no other staff members present on site. In addition, the security officers should be equipped with a small all-wheel drive vehicle suitable to the rugged and cold environment to enable regular perimeter and site patrols of the fenced area atop the plateau throughout the seasons.

CONTRIBUTING FACTORS

Some of the contributing factors to the threat of losses of artifacts and architecture from Clunia and to the site's inadequate security include the remoteness of the site itself from major population centers in Spain and an uninformed population that lacks understanding of the true value of the Clunia site as an asset to the region.⁷

Representatives of the Cultural Ministry report that there are only two major events and four or five minor events in the summer seasons and a few smaller programs scheduled during the rest of the year at Clunia. General tourism amounts to only around 15,000 visitors annually. The contribution of visitors to the financing of the Clunia site is very small. The resources for the archaeological deposit come from the budgets of the public administrations such as the Diputación de Burgos and the Junta de Castilla y León.

Presently, Clunia is used by the community as a place to pick mushrooms, walk dogs, allow sheep to graze, and, for some, as a spot to pilfer coins and other artifacts. It appears that there is a limited public understanding of the value of Clunia's heritage and the threats that pilferage and looting pose to its very existence. The assessment team did not arrive at this conclusion lightly; it is based on comments by on-site guides and other staff members as well as one of the mayors with whom the team spoke.⁸ The assessment team has determined

that Clunia needs a process to educate nearby residents about the site’s historical significance and its value to the economy of the region. That educational process should be geared toward informing residents of the detriment caused by the ongoing removal of artifacts from the land and excavated display areas. (See Community Involvement and Awareness, p. 13). The long-term goal of this education campaign would be to facilitate the recognition of Clunia as a cultural, educational, and tourist destination in concert with other nearby Roman sites, such as the monastery, the wineries, the bull fighting ring in Huerta de Rey, and the Santa Ana Basilica in nearby Arandilla. Residents should be instilled with a “pride of ownership” that would enable business growth and give the community the incentive to protect and preserve the site. In addition to revenue generated from Clunia as a tourist destination, there would be increased opportunities for the regional economy as a whole sparked by the greater use of restaurants, hotels, hostels, and transportation in North Central Spain. The direct benefit to the Clunia ruins could be a significant surge in revenue that might support appropriate security and customer service measures.

MEASURING THE EFFECTIVENESS OF CLUNIA’S CURRENT SECURITY PLAN

Clunia’s current protective measures are largely passive in nature. The site’s six-kilometer (3.7 mile) perimeter on top of a plateau is

fenced and gated. There is a secured main gate at the entrance on the edge of the town of Peñalba de Castro, a gate at the adjacent storage facility, and remote gates that are padlocked. The visitor center, which displays high value artifacts such as the statues of Isis and Dionysus, and the artifact storage building are both contained within the secured perimeter. Both buildings are alarmed and monitored by the recorded video surveillance system. There is no real-time video monitoring on-site. During public hours, the site is staffed by two individuals: a gate attendant who sells tickets and provides information about the site, and a guide who provides detailed historical explanations and presentations on the site and the artifacts contained within. There is also a part-time maintenance person assigned to the site. There are no security officers on duty during public hours.

When the site is closed to the public, there is a single contract security officer on duty from 11:00 p.m. until 6:15 a.m. The security officer has no patrol vehicle with which to tour the site, limiting his effectiveness. Moreover, there are gaps of hours between the time that the Clunia staff leaves for the day and when the guard arrives at 11:00 p.m. There are other gaps during the one hour that the site is closed daily during the afternoon as well as from the time that the officer leaves at 6:15 a.m. to the time when public visiting hours commence at 10:00 a.m.

Clunia Schedule

- Winter: 1 October–30 March / 10:00 a.m.–2:00 p.m. and 3:00 p.m.–5:00 p.m.
Gap 2:00 p.m.–3:00 p.m.
- Summer: 1 April–30 September / 10:00 a.m.–2:00 p.m. and 4:00 p.m.–11:00 p.m.
Gap 2:00 p.m.–4:00 p.m.

After-hours, the visitor center and artifact storage building, along with specific high-value artifacts within, are alarmed. The buildings also have a limited video surveillance system that is recorded but not monitored in real time. Additionally, law enforcement response to any alarm or call for service is estimated by the Cultural Ministry to take about an hour. The value of the security officer's presence is limited under prevailing conditions and that presence has not deterred the theft of artifacts or the regular use of metal detectors. There is a guide on the site, but visitors are sometimes left unattended and there is no policy or practice in place to allow for vehicle searches. This is a vulnerability, as there is no security officer on-site for several hours after the operating staff leaves for the day at 4:00 p.m.

It was noted that preliminary excavation for a new visitor center was begun during the consultant's site visit. Construction is scheduled to begin on the new visitor center in 2018 and should be completed by 2020.

The assessors requested a copy of Clunia's written security plan but did not receive one. From the team's observations and on-site interviews, it appears that the current security plan is limited to a reactive response which frequently occurs only after a theft or other incident has been discovered and which sometimes comes days after the actual event occurred. There is little in the way of a proactive strategy that would serve to prevent or delay intrusion and theft. Gates and fencing by themselves are not effective deterrents as the fence can and has easily been compromised. The lack of control over keys that are out in the community creates multiple opportunities for undetected access. As an illustration, the assessment team observed people walking dogs on the site during times when the main gate was secured. The gate attendant pointed out that many of those people were locals who have keys and can access the site whenever they wish. The team found no evidence of an on-site key control log or key management system. The alarm system on the locked visitor center and artifact storage building does provide some deterrent. However, as noted above, law enforcement response to an intrusion alarm often takes more than an hour, according to the Cultural Ministry. Furthermore, as previously noted and as is common in many European and American jurisdictions, law enforcement personnel are responding to intrusions, trespass, and potential theft without a working understanding of the critical nature of the

Clunia site and the impact of one-of-a-kind cultural property loss. These factors make the existing security program inadequate to Clunia's needs.

As noted above, the assessors asked for, but did not receive, the security plan. Nor did they receive a written emergency plan, and it is unclear that such written plans exist. Per Spanish law, emergency planning in archaeological sites and in modern buildings is considered a safety issue and related to the prevention of occupational hazards. The content of Spain's Self-Protection or Emergency Plan is defined by law in a Royal Decree of 2007, and site plans are expected to comply.

COMMUNITY INVOLVEMENT AND AWARENESS

The Clunia cultural site has a high return on investment (ROI) potential based on the opportunity for income generation from Clunia and other nearby cultural sites.

However, there is now a conflict between cultural heritage protection and the population: the protection of cultural heritage will undoubtedly have an impact on longstanding traditions. Many of the nearby residents even see Clunia as a detriment to their economic development, according to the mayor of Huerta de Rey, D. Antonio Muñoz. Rural areas with special protections and those protected by Cultural Heritage designations come with many

restrictions. For example, in Clunia's environs, it would not be possible to invest in the industrial or mining sectors, since the laws would prevent it by prioritizing the cultural heritage of the site over other interests.

It is difficult to measure the tangible value of cultural heritage. Although research on the economic impact of cultural heritage sites is scarce and recent, all existing studies reveal the remarkable importance of the sites as a driver of development in the public and private sectors, with a high rate of return on investment and a direct benefit to the local economy. In addition, cultural heritage sites can be an important alternative to other economic sectors, especially in rural areas. The most obvious sector and the one with the greatest economic impact is cultural tourism, but it should be noted that the field of conservation employs many professionals both in the public sector (such as in museums, institutions, and training centers) and the private sector (such as in foundations, companies specializing in the preservation of movable property, construction companies involved in the conservation of real estate, companies and laboratories specializing in studies or conservation products and technologies, and other organizations).

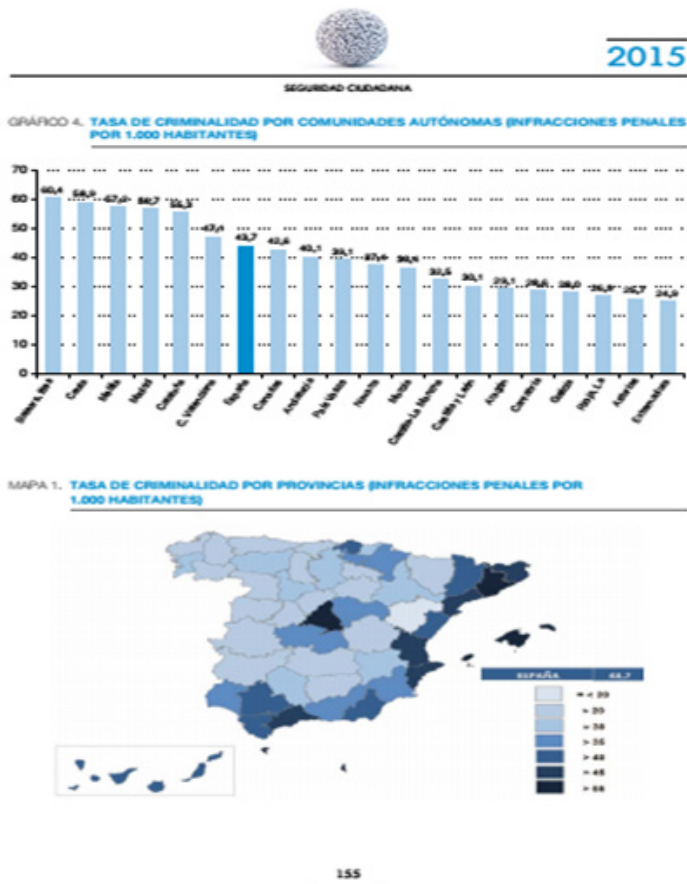
COMMUNITY CRIME

Based on interviews with the local mayors as well as area innkeepers and merchants, crime in the immediate surroundings of the Clunia



Palace of the Counts of Miranda, also known as the Palace of Avellaneda.

Square with Peñaranda de Duero castle in the background.¹⁵



site is minimal and has no discernable impact on the site based on location, aside from the looting by locals. This is contrary to what one would expect in an urban environment such as the Province of Burgos or other metropolitan areas. In the Province of Burgos, 32.4 offenses per 1,000 inhabitants were committed, while the Spanish average was 45.1 offenses per 1,000 inhabitants, according to criminology statistics

published by Spain's Ministry of the Interior.

BENCHMARKING OTHER SITES

During the assessment team's field work, visits were made to other main examples of cultural heritage in the area. As in Clunia, the team verified that security planning was very slight or nonexistent at nearby sites in the municipalities of Peñaranda de Duero and Baños de Valdearados.

Peñaranda de Duero

History

The town's lands were populated by the ancient Arévacos and Vascones tribes. In the tenth century, the Muslims were reconquered and Peñaranda de Duero's castle made a border with the Muslim hosts on the other side of the Douro River. In the 11th century, it was mentioned as part of the district of Clunia. Later, it was part of the nearby city San Esteban Gormaz. Following the succession of the Prince Don Pedro, son of Sancho IV, and his wife, Dona Maria de Aragon, the lords of the town were introduced to Alfonso XI at the hands of the House of Avellaneda. After the marriage of Aldonza de Avellaneda with Diego López de Zúñiga in the fifteenth century, which united the two lineages, their descendants will bear the title of Duques de Peñaranda.



The former Collegiate Church of Santa Ana



Monuments

- **Castle:** The castle was originally built in the tenth century and completely renovated in the fifteenth century. From the castle's tower, there is a magnificent view of the nearby Santa Ana church. In the background, the Vega del Arandilla is visible. The castle was declared of Cultural Interest by the Spanish Ministry of Culture in the Monument category on June 3, 1931.
- **Wall:** Two of the three gates of the wall that were built in the fifteenth century are preserved.
- **Palace of the Counts of Miranda, or Avellaneda:** The palace was built in the sixteenth century on behalf of Don Francisco de Zúñiga Avellaneda and Velasco, the third Count of Miranda del Castañar. The front of the palace shows the coat of arms of the Zúñiga family between tenants and inside, across the entrance hall, is an elegant manor courtyard with a double gallery from which you access the palace rooms, beautifully decorated with splendid coffered ceilings. In the Hall of Ambassadors, there is an elegant stucco fireplace and a gallery for musicians. Next to the palace is a square with elegant Gothic lines. The palace was declared of Cultural Interest in the Monument category on June 3, 1931.

- **Church:** The former Collegiate Church of Santa Ana was begun in 1540. It has a baroque façade and, in the interior, possesses a neoclassical altarpiece in high relief carved by Alfonso Bergaz in walnut. On its face, it has three Roman busts of Clunia.

We visited the church with Priest D. Eriberto García. We can verify that, despite the more than remarkable collection of cultural heritage the facility houses, it does not have any security measures.

- **Convent:** The convent was erected in San José del Carmen in the sixteenth century.
- **Botica:** The pharmacy of the Jimeno of the seventeenth century has a museum that is still in operation, one of the oldest in Spain. The museum was declared of Cultural Interest in the Monument category on March 20, 2007.
- **Roll:** The roll was declared of Cultural Interest in the Monument category on June 3, 1931.

Baños de Valdearados.

We also visited the town of Baños de Valdearados, a municipality of the Province of Burgos, autonomous community of Castilla y León. The municipality is located 16 kilometers from Aranda de Duero and 80 kilometers from Burgos. It has 407 inhabitants (National Statistics Institute, 2008).



The main mosaic, "The Return of Bacchus of India" was stolen on December 28, 2011.



Current mosaic, rebuilt.

Artistic Heritage

The town's entire municipal area is full of traces of history, particularly in the Roman Villa of Santa Cruz, which possesses mosaics of high value, discovered by chance about 30 meters south in November 1972.

Other monuments of note include the parish church of Nuestra Señora de la Asunción, a neoclassical style building with a façade of Renaissance influences from the seventeenth century; the Hermitage of Santo Cristo del Consuelo, with its Elizabethan Gothic façade; the seventeenth century San Roque Chapel; and The Hermitage of Santa María Magdalena of the sixteenth century.

We also visited the remains of the Roman Villa of Santa Cruz, along with the mayor of Baños de Valdearados, D. Lorenzo Izcara Hernando.

The Roman Villa of Santa Cruz was discovered in 1972 and includes the mosaic of Bacchus, one of the largest and best preserved in Europe. Among other discoveries are 10 rooms and four corridors pertaining to the typical villa of the period Imperial Low, from between the ninth and eleventh centuries.

A mosaic room with a mixture of 66 square meters of tiles of marble and noble stones makes up the main room of the villa. Much of the composition is composed of a valance and six hunting images, of which four are dedicated

to the winds known as Notus, Zefyrus, Eurus, and Boreas.

Protection of this Roman villa consists of motion detection connected with a central alarm. The widespread perception was that the site was at low-risk of outside threats. As with other sites in the province, law enforcement response to any issues is exceptionally slow.

FINDINGS AND CONCLUSIONS

The assessors determined that Clunia is currently at a low risk for an act of terror or other high-profile event. Its remote location and sparse population do not lend themselves to a major attack or political statement. Moreover, Spain is a relatively peaceful nation with a stable government and a rebounding economy with little political unrest, especially in the Burgos province of the country where Clunia is located. There is no current intelligence to suggest that Clunia or similar sites are at risk of ideologically motivated destruction.

It is the assessment team's view that the key risk to the Clunia site is looting. A general lack of understanding and appreciation for both the value that the Clunia site represents to the community and the potential economic boost it could bring to the region contribute to the looting threat. Nearby residents use the site for recreational pursuits, like walking dogs and the picking of mushrooms and other edible plants. Over time, nearby residents have removed

artifacts to adorn homes and other buildings in the community. There has been a history of looting and attempted looting with the use of metal detectors, which are easily transported onto the site by either paying visitors or trespassers.

Clunia and other points of interest in the region, such as the nearby castle, monastery, wineries, and ancient churches, represent a potential economic engine for tourism from school groups and archaeological research programs along with Spanish and foreign visitors to the region. Increased revenue from additional tourism would enable the site to employ more people as guides, ticket-takers, maintenance workers, and security personnel. The additional revenue might also facilitate the addition of an effective and proactive security program.

SITE-SPECIFIC RECOMMENDATIONS BASED ON ALL FACTORS

Strategic and Procedural

- Begin the process of educating the surrounding communities on the critical importance of the Clunia site, the need to preserve and protect the site and its artifacts, and the value that Clunia could bring to the economy of the region, including merchants, hostels, restaurants, wineries, and other nearby cultural sites. This process should begin by first working with community leaders such as mayors, legislative representatives, and business people, followed by focused community meetings, informational brochures, and regular communications from the Cultural Ministry.
- Design and implement a training program on the importance of Clunia for the inhabitants of the area of influence of the archaeological site. These training plans would be given in schools, institutes, town halls, and neighborhood associations, with the clear objective of raising awareness of Clunia.
- Develop a marketing strategy to bring tourism to the Clunia site in conjunction with the region's other, smaller cultural sites, including the Church of Santa Ana, the monastery, the wineries and vineyards, and hostels, and bed and breakfast establishments in nearby towns.
- Use the opportunity of the construction of Clunia's new visitor center to establish better access controls by:
 - Designing the visitor center as an access control portal for all visitors
 - Incorporating a security monitoring facility within the visitor center
 - Prohibiting motor vehicles from moving beyond the visitor parking lot outside the secure perimeter and limiting the site to

foot traffic and limited controlled vehicle traffic

- Requiring a photo ID of all adult visitors who enter the site
- Checking all visitors for contraband such as metal detectors, hand shovels, and other excavation equipment
- Work with the shepherds on a more closely defined schedule that works to the best strategic advantage to the security of the site. Minimally, the site administrator and security staff should know when the shepherds are on-site. This will provide additional eyes and ears to the security process and assist in identifying other unwanted incursions to the site.
- Work with townspeople on defining what times they can access the site to pick mushrooms and other wild edible plants and the reasons for it. Partnering with the townspeople can imbue them with a sense of ownership and control of the site and may lead to their own closer scrutiny of outsiders who may be intent on theft or other malevolent acts.

Physical Controls

Rekey the perimeter gates and establish strict controls on key issuance and use. Prohibit visitor vehicles from accessing the site beyond the parking lot adjacent to the new visitor center.

Establish proper signage to include wayfinding and rules for public behavior and treatment of the site.

Technology

Consider the installation of strategically placed thermal cameras (see Appendix A). This technology will inform security when someone is in proximity to the perimeter fence and can elicit an on-site security response to that location. (For cost information, see Appendix B)

Equip security officers with two-way radios or cellular phones to enable immediate communications with the control center. Provide them with digital round devices to ensure that all sensitive, remote, and other appropriate areas of the site are visited regularly. (Cost to be determined)

Equip security personnel with a suitable all-weather, all-terrain vehicle with which to patrol and respond to intrusions.

Security Staffing

Establish a full-time security presence on the site during all hours that the site is closed to the public. The assessors recommend two officers: one to staff a control center within the visitor center; and another to perform patrols and digitized security rounds, and to provide an obvious physical presence on the site.

Recommendations for supervision of security officers

Require that security officers assigned to Clunia be equipped with a cell phone and a PDA that will enable them to log-in or register with their employer when arriving at the site, avail themselves of daily assignments and special instructions as assigned by their supervisor, and transmit electronic reports in real time. These devices will also enable constant communications with the security company's operations center via GPS location signals. Each outgoing security officer will electronically submit a written report for each incident they encounter and a log of his or her working shift. The contracted security company should have a service chief or supervisor who will inspect the service at random by sending weekly reports to those responsible for the archaeological site.

Recommendations for supervising the contracted security company:

Apart from the daily execution reports reflected in the previous point, the contracted company will be required to:

- Certify accrediting compliance with the Labor Risk Prevention Law under Spanish law.
- Certify that it is up-to-date with tax obligations and Social Security obligations.
- Certify of compliance with the provisions of the Spanish Data Protection Act.

- Provide proof of payment of payroll to its employees.
- Document training courses for (and proficiency of) security officers.

Further Research

It would be prudent to utilize the services of a security risk management consultant to develop the security risk management policies, procedures, and training.

Train all Clunia staff, guides, ticket-takers, maintenance personnel, and curators to be alert to intrusions, suspicious behavior, and the presence of contraband such as metal detectors and other tools.

Holistic Security Approach

It is important to understand that this security process only works effectively when all elements are implemented and all are working in concert with one another. It is difficult to imagine that area law enforcement response will improve. Therefore, the security model must be holistic and maintain a primary mission of delay, deterrence, detection, and prevention of incursions onto the site. The first step is to get the community on board with a sense of ownership. The second step is to provide policies and practices that complement the technology in place and the presence of security officers. The next step is to provide the security officers with tools and technology that optimize their presence on-site and allow them to know

when someone is attempting to access the site, either before or when it happens.

ABOUT THE AUTHORS

Ricardo Sanz Marcos and James H. Clark, CPP, are members of the ASIS Cultural Properties Council and have been planning a cultural site assessment for more than two years. Mr. Sanz Marcos identified the Colonia Clunia Sulpicia as an excellent example of a large Roman site representative of first and second century Roman influence in the north of Spain.

Following the ASIS Foundation’s approval of the CRISP grant last October, the two began their site work in late November 2016.

James. H. Clark, CPP, is managing partner of Clark Security Group, LLC, an independent security consultancy in Cleveland. His practice focuses on museums, libraries, and other cultural properties. He has spent the past 27 years working as an independent security consultant for cultural and educational

SUMMARY OF COSTS OF THE SPECIFIC RECOMENDATIONS

Investment and Annual Costs		
	Investment	Annual Maintenance
<ul style="list-style-type: none"> • Rekey the perimeter gates • Thermal Cameras • Existing CCTV improvement • All weather all terrain vehicle* <p><i>*Renting</i></p>	<p>1.500,00 €</p> <p>88.874,00 €</p> <p>1.580,00 €</p> <p>-</p>	<p>130,00 €</p> <p>2.666,22 €</p> <p>-</p> <p>4.800,00 €</p>
	Annual Cost	
<ul style="list-style-type: none"> • Security Staffing • Cellular Phones and PDA** <p><i>**included in the cost of security staffing</i></p>	<p>137.000,00 €</p> <p>-</p>	
Summary		
<ul style="list-style-type: none"> • Initial Investment • Annual cost Security Staffing • Technology Annual Maintenance 	<p>91.954,00 €</p> <p>137.000,00 €</p> <p>2. 796,22 €</p>	

institutions and corporations throughout the United States and worldwide.

Ricardo Sanz Marcos has been the managing partner of the Spain-based consulting firm PROARPA - Security Asset Protection and Cultural Heritage since 2003. The company offers independent security services focused on preparation, awareness, prevention, and intervention to manage risk effectively and provide optimum security. Ricardo is reference security adviser in the institutions of Cultural Heritage of Spain, managing security projects at museums, cathedrals, and archaeological and cultural sites. Following the increase in the terrorist threat worldwide, Ricardo became an anti-terrorist management consultant to institutions and companies related to tourism. Ricardo belongs to the ASIS International Cultural Properties Council and has made management of cultural heritage a life project.

Robert Carotenuto, CPP, PCI, PSP, Cultural Properties Council Chair 2016-2017, helped champion this case study effort along with past Council Chair Gary Miville (2014-2015). Robert wrote the ASIS Foundation grant proposal and helped develop and design the research strategy. He is the Associate Vice President for Security at The New York Botanical Garden and an Adjunct Lecturer in John Jay College's Department of Security, Fire and Emergency Management.

RECOMMENDED READING

Plan de Seguridad Integral del Patrimonio Cultural de Castilla y León. Proarpa, 2014.

BIBLIOGRAPHY REFERENCES

1. *The European Convention on the Protection of the Archaeological Heritage of Europe*, Promotion of Public Awareness. 1992 Appendix XV, Article 9. (1992). 353.
2. Brierley, John. *A Pilgrim's guide to the Camino de Santiago: The way of St. James* (Camino Guides). Forres: Findhorn Press, 2014.
3. Actas del Cabildo de la S.A.M.I. de Santiago de Compostela (Minutes of the Council of the Cathedral of Santiago de Compostela).
4. Álcantara, F. /;El Parque Nacional del Gudarrama." *Sol*, 1923.
5. Alonso Hierro, J., and J. Martín Fernández. "Activos culturales y desarrollo sostenible: la importancia económica del Patrimonio Cultural." *Política y Sociedad*, 50, no. 3 (2013). 1133-1147.
6. Álvarez Areces, Miguel Ángel. *Patrimonio, Cultura y Paisaje, recursos para una economía sostenible*. Santander: IARCA, 2009.
7. Amaya Corchuelo, Santiago. (2006). "Gestión y Valorización del Patrimonio Cultural." Paper presented at Congreso Alter, Baeza (Jaén), España, October 2006.
8. Antigüedad del Castillo-Olivares, Maria Dolores, and Joaquín Martínez Pino. "Mediacion y Gestion del Patrimonio en Europa." *Editorial Universitaria Ramon Areces*, 2012.
9. *Arte Espanol: Revista de la Sociedad de Amigos del Arte*. 8, no. 1 1926.

10. Ashley, Ceric, and Didier Bouakaze-Khan. "Conservation and Management of Archaeological Sites in Sub-Saharan Africa." *Conservation and Management of Archaeological Sites* 13, no. 2-3 (2011). 95-102.
11. Bedate, Ana, Luis Cesar Herrero, and Jose Angel Sanz. "Economic Valuation of the Cultural Heritage: Application to Four Case Studies in Spain." *Journal of Cultural Heritage* 5 (2004). 101-111.
12. Bernaldo de Quirós, C. "Peñalara," *Ediciones El Museo Universal*, 1992 (edición facsímile).
13. Biblia oficial de la Conferencia Episcopal Española. Ediciones Biblicas, 2011.
14. Biblioteca de la Presidencia de la Xunta de Galicia
15. BOE NÚM. 300 martes 14 de diciembre 2004. COMUNIDAD DE CASTILLA Y LEÓN.
16. Boletín Oficial Castilla y León: 22/07/1999; 10/05/2007; 08/07/2009 y Boletín Oficial de Estado: 24/05/2007; 01/08/2009 (ANEXOS)
17. BOLETÍN OFICIAL DE GALICIA.
18. BOLETÍN OFICIAL DEL ESTADO.
19. Bowitz, Einar, and Karin Ibenholt. "Economic Impact of Cultural Heritage – Research and Perspectives." *Journal of Cultural Heritage* 10 (2009). 1-8.
20. Brasas Egado, C. *Guía de Segovia*, León: Editorial Nebrija, 1980.
21. Breñosa, R. *Guía y descripción del Real Sitio de San Ildefonso*, Ann Arbor: University of Michigan Library, 1884.
22. Bustamante García, A. "La arquitectura clasicista del foco vallisoletano." *Institution Cultural Simancas* (1983).
23. Cabrera Bonet, Miguel, and Javier Danés Pastor. (1999). "Ordenación Silvopastoral de los Montes de Valsain." *Organismo Autónomo Parques Nacionales*, 1999
24. Castillo, A., and M.A. Querol. "Archaeological Dimension of World Heritage: From Prevention to Social Implications." *Springer*, 2014.
25. Catálogo de la Exposición Vidrio de la Granaja, Real Fábrica de Cristales de La Granja, 1988-1989.
26. Centro Patrimonial de Renault en Valladolid. Folleto de visita.
27. Chaves Martín, M.A. (2006) Segovia. Guía de Arquitectura.
28. Choi, Andy S., Brent W. Ritchie, Franco Papandrea, and Jeff Bennett. "Economic Valuation of Cultural Heritage Sites: A Choice Modeling Approach." *Tourism Management* 31, (2012). 213-330.
29. Códice Calixtino, (S.XII) Archivo de la Catedral de Santiago de Compostela.
30. Darlow, Susan, and Stephen Essex. "Sustainable Heritage Management Practices at Visited Heritage Sites in Devon and Cornwall." *Journal of Heritage Tourism* 7, no. 3 (2012). 219-237.
31. De la Torre, Marta (ed.). *Assessing the Values of Cultural Heritage: Research Report*. Los Angeles: Getty Conservation Institute, 2002.
32. De Vera y de la Torre, J. "Piedras de Segovia", *Estudios Segovianos*, (1950) 293-299.
33. Delgadillo Polanco, Víctor Manuel; Throsby, D. *Economía y Cultura, México*. Consejo Nacional para la Cultura y las Artes (CONACULTA), 2008.
34. Diario El Mundo de 27 de abril de 2015.
35. Diderot-D'Alambert. (1746) L'art du verre de L'Encyclopedie.

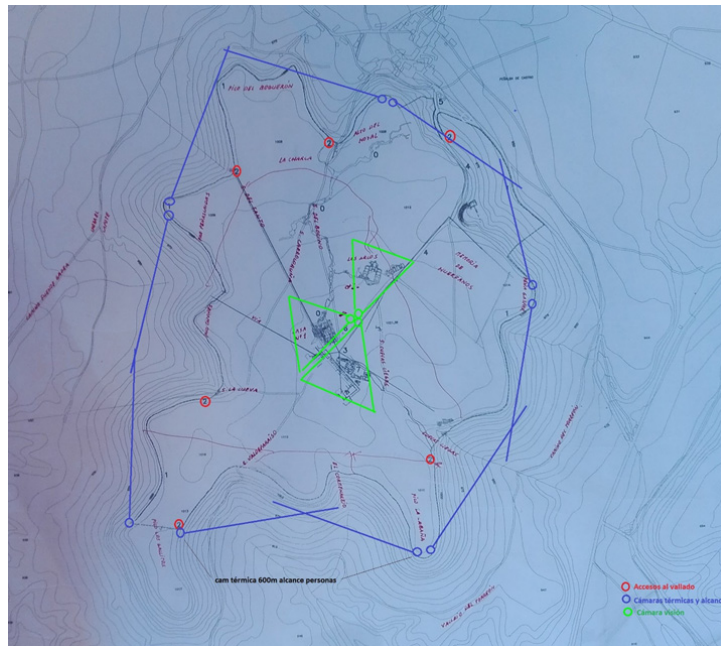
36. English Heritage. *External Lighting for Historic Buildings*. London: English Heritage, 2007.
37. Fondo documental sobre protección de Patrimonio Cultural de la empresa consultora de Seguridad Proarpa Protección de Activos y Patrimonio. www.proarpa.es
38. García Hernando, J., (1958) El Seminario Conciliar de Segovia, Segovia.
39. García Morales, M^a Victoria García Morales; Soto Caba Victoria. (2001) PATRIMONIO HISTÓRICO ARTÍSTICO.
40. Gracián, Baltasar. EL ARTE DE LA PRUDENCIA. Temas de hoy.
41. Guerra Campos J., (1954) Bula “Deus Omnipotens”.
42. Guerra Campos, José. (1982) Exploraciones Arqueológicas en la S.A.M.I. de Santiago de Compostela.
43. Guitierrez, Maria De La Luz, Enrique Hambleton, Justice Hyland, and Nicholas Stanley. “The Management of World Heritage Sites in Remote Areas: The Sierra de San Francisco, Baja California, Mexico.” *Conservation and Management of Archaeological Sites* 1, no. 4 (2013). 209-225.
44. Hoyo, Cardenal J. Memorias del Arzobispado de Santiago, 1950.
45. ICOMOS. (2012). “Tangible Risks, Intangible Opportunities: Long-term Risk Preparedness and Responses for Threats to Cultural Heritage.” Proceedings of the ICOMOS Scientific Symposium, Beijing, China, October 2012.
46. Kerr, James Semple. *Conservation Plan: A Guide to the Preparation of Conservation Plans for Places of European Cultural Significance*. 7th ed. Burwood: Australia ICOMOS, 2013.
47. Kerr, John. “The Role of the Police in the Co-production of Art Security in London.” *Journal of Art Crime* 8, (2012). 105-117.
48. Papal Bull, “Deus Omnipotens.” Pope León XIII, 1884.
49. Laguna y Villanueva, M.. Memoria de reconocimiento de la Sierra de Guadarrama, bajo el punto de vista de la repoblación de sus montes, 1864
50. Ley 12/2002, de 11 de julio, de Patrimonio Cultural de Castilla y León, 2002.
51. Lina María Espinosa Gómez. La sostenibilidad del Patrimonio, 2010.
52. Lacarra Ducay, María del Carmen. *Los Caminos de Santiago: Arte, Historia y Literatura*. Zaragoza: Instituto Fernando el Catolico, 2005.
53. Luz Fernández Garrido / Tareixa Abal Santorum/ José F. Blanco Fandiño. Ponentes de la muestra sobre el Camino de Santiago. Seminario Mayor de Santiago de Compostela, 2015.
54. Lwoga, Noel Biseko. “Factors Influencing Local Residents’ Intentions to Conserve the Built Heritage in Tanzania.” *Journal of Heritage Tourism* (2016). 1-16.
55. Mabula, A.Z.P. “Strategy for Cultural Heritage Management (CHM) in Africa: A Case Study.” *African Archaeological Review* 17, no. 14. (2000). 211-233.
56. McManamon, Francis P., and Alf Hatton (eds.). *Cultural Resource Management in Contemporary Society: Perspectives on Managing and Presenting the Past*. London: Routledge, 2000.
57. Messenger, P.M., and G.S. Smith (eds.). *Cultural Heritage Management: Policies and Issues in*

- Global Perspective*. Gainesville: University Press of Florida, 2010.
58. Musiba, Charles M. "The Administration of Cultural World Heritage Sites and Their Contribution to the Economic Empowerment of Local Communities in Africa." *The Management of Cultural World Heritage Sites and Development in Africa*. (2014). 93-103.
59. Navrod, S., and R.C. Ready (eds.). *Valuing Cultural Heritage: Applying Environmental Valuation Techniques to Historical Buildings, Monuments and Artifacts*. Cheltenham, UK; Northampton, MA: Edward Elgar, 2002.
60. Noelia Márquez Grille, Directora de Restauración de la S.A.M.I. Catedral de Santiago y Directora de la Oficina del Peregrino. Interview.
61. Otaduy, Jorge, and Diego Zalbidea. "Sostenimiento económico de la Iglesia Católica en España." Paper presented at Instituto Martin de Azpilcueta, Simposia Internacional. Pamplona, Spain, 2007.
62. Página web de la Catedral de Santiago de Compostela.
63. Pearson, Michael, and Sharon Sullivan. *Looking after Heritage Places: The Basics of Heritage Planning for Managers, Landowners and Administrators*. Carlton: Melbourne University Press, 2001.
64. Pickard, Robert. "Setting the Scene: The Protection and Management of Cultural World Heritage Properties in a National Context." *The Historic Environment: Policy & Practice* 7, no. 2-3 (2016). 133-150.
65. *PLAN PAHIS 2020: Dirección General de Patrimonio*. Junta de Castilla y León, 2014.
66. Ploska, Karolina. "Theory and Practice of Archaeological Heritage management – A European Perspective." diss. Cardiff University, Cardiff School of History and Archaeology, 2009.
67. Rontome Nortario, Enrique, and Paloma Pastor. *Vidrio islámico en Al-Andalus*. 1998.
68. Saura, Salvador, and Ramón. *Una ruta a través del tiempo*. Edicions de L'Eixample. 2004.
69. Storemyr, P. *Nemi as a laboratory for developing methods for cultural environments definition and cultural heritage monitoring. Case study of Romitorio of S. Michele 22-26 July 2001. Field report to Norwegian Institute for Cultural Heritage Research (NIKU)*. Zürich, Expert-Center for Conservation of Monuments and Sites, 2001.
70. Taruvinga, P., and W. Ndoro. "The Vandalism of the Domboshava Rock Painting Site, Zimbabwe: Some Reflections on Approaches to Heritage Management." *Conservation and Management of Archaeological Sites* 6, no. 1 (2003). 3-10.
71. Teutonico, Jeanne Marie, and Gaetano Palumbo, eds. 2002. *Management Planning for Archaeological Sites: An International Workshop Organized by the Getty Conservation Institute and Loyola Marymount University, 19-22 May 2000, Corinth, Greece*. Los Angeles: Getty Conservation Institute.
72. Tran Huu, T., and S. Navrud. "Capturing the Benefits of Preserving Cultural Heritage." *Journal of Cultural Heritage* 9, no. 3 (2008). 326-337.
73. UNESCO. *Managing Cultural World Heritage*. Paris: UNESCO World Heritage Centre, 2013.
74. Vázquez de Parga, Lacarra y Ríu, "Las peregrinaciones a Santiago de Compostela" 1949.

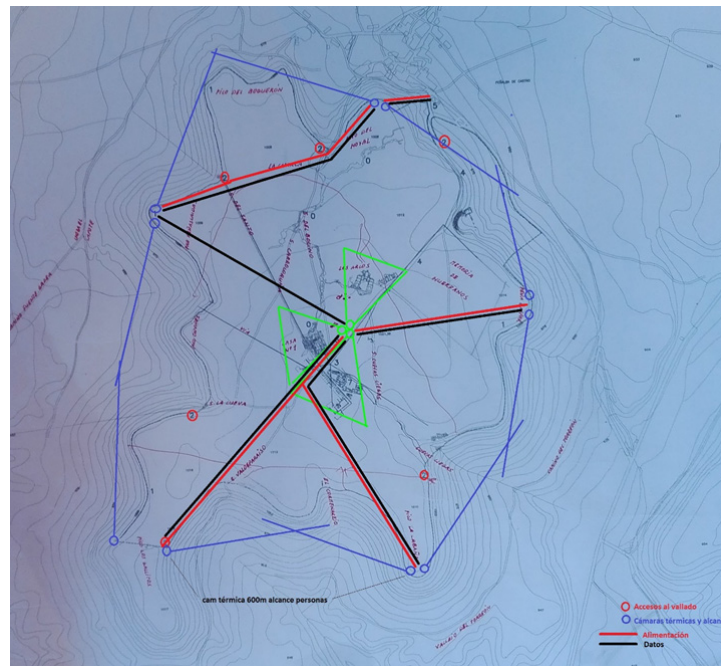
-
75. Valenkis, O. *Management Plans for World Heritage Sites: Final Report*. Paris: ICCROM, 2008.
76. Vileikis, Ona, Giorgia Cesaro, Mario Santana Quintero. "Documentation in World Heritage Conservation: Towards Managing and Mitigating Change: The Case Studies of Petra and the Silk Roads." *Journal of Cultural Heritage Management and Sustainable Development* 2, no. 2 (2012). 130-152.
77. Visita a las excavaciones de la S.A.M.I. de Santiago de Compostela.
78. Waller, Robert. "Conservation Risk Assessment: A Strategy for Managing Resources for Preventive Conservation." Preventive conservation: practice, theory and research. Paper presented at the Ottawa Congress, International Institute for Conservation, Ottawa, Canada. September 1994.
79. World Bank. *Georgia: Cultural Heritage Project, Implementation Completion Report*. Washington, DC: World Bank, 2004.
80. Young, Christopher. "Understanding Management in a World Heritage Context: Key Current Issues in Europe." *The Historic Environment: Policy & Practice* 7, no. 2-3 (2016).
81. Zilhao, Joao. "The Rock Art of the Cao Valley, Portugal." *Conservation and Management of Archaeological Sites* 2, no. 4 (1998).193-206.

APPENDIX A

CAMERA LOCATIONS AND CABLING SCHEME



Video Camera Locations.



Cabling and conduit scheme.

APPENDIX B
ESTIMATED COST OF VIDEO SYSTEM

CCTV Budget, Clunia, Burgos, Spain			
Product	Units	Cost Per Unit	Cost
CCTV			
Thermal camera detection range 600 m			
Breakdown			
Camera	10,00	2.800,00 €	28.000,00 €
Staff with box network connection and power	5,00	1.200,00 €	6.000,00 €
2nd official hour	90,00	28,00 €	2.520,00 €
1st official hour	30,00	38,00 €	1.140,00 €
Camera center control			
Breakdown			
Camera	3,00	580,00 €	1.740,00 €
Staff with box network connection and power	1,00	1.200,00 €	1.200,00 €
2nd official hour	17,00	28,00 €	476,00 €
1st official hour	9,00	38,00 €	342,00 €
Installation and commissioning of CCTV system.			
Wiring from cameras to switch and control center			
Breakdown			
Recorder 32 channels IP with 3 hard disks 3 Tb.	1,00	2.200,00 €	2.200,00 €
Fiber with multimode connectors	4.200,00	2,75 €	11.550,00 €
Cable alimentación	3.200,00	1,70 €	5.440,00 €
Switch connections	7,00	320,00 €	2.240,00 €
Cable UTP cat5e	120,00	1,75 €	210,00 €
Pipe 40 mm for external piping	4.200,00	1,20 €	5.040,00 €
Archets every 25m	168,00	82,00 €	13.776,00 €
Canalization	1,00	7.000,00 €	7.000,00 €
Total			88.874,00 €
Existing CCTV improvement			
Interior View camera			
Breakdown			
Camera	13,00	100,00 €	1.300,00 €
2nd official hour	10,00	28,00 €	280,00 €
Total			1.580,00 €
Total*			90.454,00 €
*To this amount must be added the corresponding taxes			

APPENDIX C
SECURITY RISK ASSESSMENT METHODOLOGY

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THE SECURITY RISK ASSESSMENT PROCESS

A risk assessment is a systematic process that evaluates both the likelihood that a threat against a site or an activity or business operation will materialize and the potential severity of the impact to the site.

There are many different approaches to identifying and assessing risks. Essentially, however, it is a qualitative process that follows the steps described below:

1. ESTABLISH CONTEXT

Establish and understand the context in which people will operate and in which assets (information, cash, buildings, and archaeological artifacts) will be used. This involves identifying organization and security objectives and the personnel and assets that are critical to the realization of those objectives.

2. IDENTIFY THE RISKS

Having identified the people and assets at risk, it is necessary to identify and assess the threats to those people and assets, along with the vulnerability of those people and assets to the identified threats.

Threat: To determine whether a threat exists, it is necessary to consider: the source of the threat, motivating factors driving the threat, the capability of the people or groups posing the threat, whether those people or groups have the intention to carry out the threat, and the triggers likely to activate the threat. Without both capability and intention, there is no threat.

Vulnerability: A vulnerability assessment determines the ability of existing security measures to withstand threat events. Essentially, the vulnerability assessment seeks to identify those security measures that are not effective.

A PURPOSE OF PROTECTION, PEOPLE AND ASSETS

To whom and what is protected:

1. People
 - 1.1. Visitors
 - 1.2. Employees
 - 1.3. Researchers
 - 1.4. Neighbors (shepherds, herb and mushroom pickers, dog walkers)
2. Archaeological remains:

- 2.1. In sight
- 2.2. Stored and exposed
- 2.3. Yet to be discovered
3. Modern buildings:
 - 3.1. Administrative
 - 3.2. Warehouse
 - 3.3. Exposition
 - 3.4. Equipment
4. Hermitage
5. Activities
 - 5.1. Cultural and worship visit to the Hermitage
 - 5.2. Cultural theater activities
 - 5.3. Cultural visit
 - 5.4. Scientific investigation
6. Ticket collection
7. Sensitive documentation/information (scientific research)
8. Reputation

RISK IDENTIFICATION

3. ANALYZE THE RISKS

Risk is a product of the identified threats and the vulnerability of assets to those threats. The degree of risk is determined by an assessment of the likelihood of a risk event taking place and its impact. Each risk should be mapped on an Impact-Likelihood Matrix (see below). Information gained from the risk analysis is used to prioritize risks for mitigation measures. The information

is captured in a security risk register and treatment plan.

The following matrices should be used to determine the impact and likelihood of any given risk event:

- **Likelihood Matrix**

The first matrix is used to assess the likelihood of each identified risk event. This involves an assessment of the level of threat (measured in five categories from “very low” to “very high” along one axis) and an assessment of vulnerability (measured in five categories from “very low” to “very high” along the other axis). The result will be a plot point on the matrix which identifies the likelihood.

- **Impact Matrix**

The second matrix is used to assess the impact of each identified risk event. This involves an assessment of the consequences of the risk event (measured in five categories from “very low” to “very high” along one axis) and an assessment of vulnerability (measured in five categories from “very low” to “very high” along the other axis). The result will be a plot point on the matrix which identifies the impact.

- **Risk Rating (or Impact-Likelihood) Matrix**

The Impact-Likelihood matrix (ILM), the third of the matrices, is used to rate the

level of risk. Likelihood is measured in five categories from “remote” to “almost certain” along one axis. Impact is measured in five categories from “insignificant” to “extreme” along the other axis. The result is a plot in the matrix which identifies a risk rating.

- **Definitions**

Threat. Threat is a product of an adversary’s intent, motivation, capabilities, and pattern of behavior. The source of a threat may include: terrorist groups (international or domestic), activists, pressure groups, single-issue zealots, disgruntled employees, and criminals (white collar, cyberhackers, organized, and opportunists). For a threat to be credible, the adversary must have both intent and capability; without both, there is no threat.

Vulnerability. Vulnerability is a weakness that can be exploited by an adversary to injure personnel, damage or steal property, or disrupt business operations. Vulnerabilities can result from, but are not limited to, weaknesses in management, security practices, or physical security.

Risk. Risk is an expression of the probability that a defined threat will target and exploit a specific vulnerability of an asset or business operation and cause a predicted set of consequences.

4. TREAT THE RISKS

This final stage involves the design of appropriate risk treatment measures. This process should aim to identify the intended reduction in likelihood/impact of the applied treatment measures. In evaluating treatment options, a cost-benefit analysis should be undertaken and an assessment should be made of the wider impacts of the treatment options.

Risks ID		
People	1.1	Thefts
	1.2	Traffic Accident
	1.3	Fire
	1.4	Terrorism / Violent Attack
Archaeological Evidence - In Sight	V2.1	Theft / Looting
	V2.2	Vandalism
	V2.3	Terrorism / Violent Attack
	V2.4	Replac Ing
	V2.5	Fire
Archaeological Evidence - Stored and Exposed	AE2.1	Theft / Looting
	AE2.2	Vandalism
	AE2.3	Terrorism / Violent Attack
	AE2.4	Replac Ing
	AE2.5	Fire
Archaeological Evidence - To Discover	P2.1	Theft / Looting
	P2.2	Vandalism
	P2.3	Terrorism / Violent Attack
	P2.4	Replac Ing
	P2.5	Fire
Modern Buildings	3.1	Theft / Looting
	3.2	Vandalism
	3.3	Attempt
	3.4	Sabotage
	3.5	Fire
Hermitage	4.1	Theft / Looting
	4.2	Vandalism
	4.3	Terrorism / Violent Attack
	4.4	Sabotage
	4.5	Fire
Activities / Operations	5.1	Terrorism / Violent Attack
	5.2	Sabotage
	5.3	Fire
	5.4	Traffic Accident
	5.5	Malicious pressure groups
Box Office Revenue	6.1	Theft
Information / Documentation	7.1	Theft
	7.2	Replac Ing
	7.3	Copy
	7.4	Destruction
	7.5	Fire
Reputation	8.1	All Previous Risks

Risk identification

Risk Likelihood = Threat + Vulnerability			Threat				
			Generalized low level threat not specific to the site	Serious threat but not specific to the site	Defined and significant threat against the site	Defined serious threat exists against the site	Detailed serious threat against the site
			Very Low	Low	Medium	High	Very High
Vulnerability/Exposure	No effective security measures in place	Very High		1.4-	1.2-4.1-4.2		
	Some security measures in place, but not effective	High		1.1-4.1-4.2-4.3-4.4-4.5-5.1-5.2-5.3-5.5-V2.5-P2.2-P2.3-P2.4-P2.5-6.1-	5.4-V2.3-V2.4	V2.1-V2.2-	P2.1
	Security measures in place but some weaknesses	Medium		AE2.1-AE2.2-AE2.3-AE2.4-AE2.5-3.1-3.2-3.3-3.4-	7.1-7.2-7.3-7.4-7.5		
	Effective but not comprehensive security measures in place	Low		1.3-3.5			
	Comprehensive security measures in place	Very Low					
			Likelihood Rating				
			ALMOST CERTAIN				
			LIKELY				
			CREDIBLE				
			UNLIKELY				
			REMOTE				

			Consequence				
People			Security incident causing no injuries	Security incident causing minor injuries	Security incident with injuries requiring hospitalisation	Security incident causing serious injury or death	Security incident causing multiple serious injuries or deaths
Archaeological Evidence			Minor damage, little financial impact	Damage or financial loss below 1.000,00 €	Moderate damage or financial loss (1.000,00 €-2.500,00 €)	Significant damage or financial loss (>2.500,00€-5.000,00 €)	Destruction of key assets or large financial loss (more than 5.000,00€)
Modern Buildings			Minor damage, little financial impact	Damage or financial loss below 1.000,00 €	Moderate damage or financial loss (1.000,00 €-2.500,00 €)	Significant damage or financial loss (>2.500,00€-5.000,00 €)	Destruction of key assets or large financial loss (more than 5.000,00€)
Hermitage			Minor damage, little financial impact	Damage or financial loss below 1.000,00 €	Moderate damage or financial loss (1.000,00 €-2.500,00 €)	Significant damage or financial loss (>2.500,00€-5.000,00 €)	Destruction of key assets or large financial loss (more than 5.000,00€)
Activities/Business Operations			Negligible impact on operations	Impact on operations but able to be dealt with at site level	Impact causing disruption to wider operations	Key operations compromised	Serious long lasting impact on operations
Box Office Revenue			Little financial impact	Financial loss below 1.000,00 €	Financial loss (1.000,00 €-2.500,00 €)	Financial loss (>2.500,00€-5.000,00 €)	Large financial loss (more than 5.000,00€)
Information/Documentation			Compromise of information otherwise available in public domain	Minor compromise of sensitive information	Compromise of information sensitive	Compromise of highly sensitive information likely to have unwanted consequences	Compromise of sensitive information. Likely to have serious consequences
Reputation				Minor and short lived damage to the site reputation	Moderate and ongoing damage to reputation	Substantial reputational impact	Substantial and sustained reputational damage
Impact = Vulnerability + Consequence							
	No or almost no risk control measures in place	Very High	1,1		1,2		1,4-5,4
	Risk controls in place but weak	High			1,3-6,1	4,1-4,2-4,3-4,4-4,5-5,1-5,2-5,2-5,4-5,5	V2.1-V2.2-V2.3-V2.4-V2.5-P2.1-P2.2-P2.3-P2.4-P2.5
	Moderate risk control measures	Medium			3,1-3,2-3,3-3,4-7,1-7,2-7,3-7,4-7,5		AE2.1-AE2.2-AE2.3-AE2.4-AE2,5
	Effective risk control measures	Low			3-5		
	Excellent risk control measures	Very Low					

	EXTREME
	MAJOR
	MODERATE
	MINOR
	INSIGNIFICANT

Impact-Likelihood Matrix		Impact				
		Insignificant	Minor	Moderate	Major	Extreme
Likelihood	Almost Certain					1.2-V2.1- V2.2-P2.1-
	Likely				1.4-	V2.3-V2.4- 5.4
	Credible			1.1-3.1- 3.2-3.3- 3.4-7.1- 7.2-7.3- 7.4-7.5	6.1-	V2.5-AE2.1- AE2.2-AE2.3- AE2.4-AE2.5- P2.1-P2.2- P2.3-P2.4- P2.5-4.1-4.2- 4.3-4.4-4.5- 5.1-5.2-5.3- 5.4-5.5
	Unlikely			3.5-		
	Remote					
Risk Rating		Description				
High		High risk. Comprehensive/layered preventive and recovery mitigation measures required or consideration given to abandoning location or activity that is giving rise to the risk unless it can be reduced to an acceptable level.				
Medium		Medium risk. Practical mitigation measures required.				
Low		Low and generally acceptable level of risk. Only modest security measures required.				

Risk Register and Treatment Plan

Risk ID		Treatment Objectives	Treatment Measures	Date	Posttreatment Risk Category	Cost
In order of priority with color rating		Reduction in likelihood and/or impact	List of identified risk control measures-both improvements to existing controls and new control measures-with preferred options highlighted	Target date for implementing risk controls	Assessed level of risk after implementing risk mitigation (Defined by color rating)	
People	1.1	Thefts				
	1.2	Traffic Accident				
	1.3	Fire				
	1.4	Terrorism/Violent Attack				
Archaeological evidence - insight	V2.1	Theft/Looting				
	V2.2	Vandalism				
	V2.3	Terrorism/Violent Attack				
	V2.4	Replacing				
	V2.5	Fire				
Archaeological evidence-stored and exposed	AE2.1	Theft/Looting				
	AE2.2	Vandalism				
	AE2.3	Terrorism/Violent Attack				
	AE2.4	Replacing				
	AE2.5	Fire				
Archaeological evidence - to discover	P2.1	Theft/Looting				
	P2.2	Vandalism				
	P2.3	Terrorism/Violent Attack				
	P2.4	Replacing				
	P2.5	Fire				
Modern Building	3.1	Theft/Looting				
	3.2	Vandalism				
	3.3	Attack				
	3.4	Sabotage				
	3.5	Fire				
Hermitage	4.1	Theft/Looting				
	4.2	Vandalism				
	4.3	Terrorism/Violent Attack				
	4.4	Sabotage				
	4.5	Fire				
Activities/Operantans	5.1	Terrorism/Violent Attack				
	5.2	Sabotage				
	5.3	Fire				
	5.4	Traffic Accident				
	5.5	Malicious pressure groups				
Box Office Revenue	6.1	Theft				
Information/Documentation	7.1	Theft				
	7.2	Replacing				
	7.3	Copy				
	7.4	Destruction				
	7.5	Fire				
Reputation	8.1	All previous risks				
See the site specific recommendations based on all factors. Page #17						
See the summary of investment and costs. Page #20						
Priority						
High		High risk. Comprehensive/layered preventive and recovery mitigation measures required or consideration given to abandoning location or activity that is giving rise to the risk unless it can be reduced to an acceptable level.				
Medium		Medium risk. Practical mitigation measures required.				
Low		Low and generally acceptable level of risk. Only modest security measures required.				



Sources

- ¹ Clunia's stakeholders: the local population and surrounding communities, Clunia staff, cultural administration, and visitors.
- ² De la Iglesia, Miguel Angel; Tuset, Francesc. Ediciones de la Excma. Diputacion Provincial de Burgos.
- ³ Law 12/2002 July 11th de Patrimonio Cultural de Castilla y León.
- ⁴ Cultural Administration: Directorate of Cultural Heritage of the Junta de Castilla y Leon and Directorate of Culture of the Diputacion Provincial de Burgos.
- ⁵ Pilgrimages are made to the Hermitage in the main area of the archaeological site.
- ⁶ In rural areas of Spain, it is the Civil Guard who has the police jurisdiction. The response noted occurred when the patrol was far from Clunia. The Civil Guard has a specialized team with international recognition in each province to investigate criminal offenses in Cultural Heritage.
- ⁷ As reported by Huerta de Rey's Mayor Don Antonio Muñoz.
- ⁸ The data collection and information gathering process included in-person interviews with the following people: the owner of the hotel in Peñaranda de Duero, two technicians and four workers at the Department of Culture of the Provincial Council of Burgos, two technicians and one worker at the General Directorate of Culture of the Junta de Castilla y León, the mayor of Huerta del Rey, the mayor of Baños de Valdearados, and the priest of Peñaranda de Duero. The data also included telephone calls with a captain of the Civil Guard and an inspector of the National Police Corps of the Brigade of Cultural Heritage. In our files we have the names of these people who have kindly participated in this study, and for reasons of confidentiality, they would like to remain anonymous.
- ⁹ ROYAL DECREE 393/2007, of 23 of March, that the basic norms of self-protection of the centers, establishments and dependencies dedicated to activities that can give rise to emergency situations.
- ¹⁰ In-person interview conducted on November 30, 2016.