ICOMOS

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES
CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES
CONSEJO INTERNACIONAL DE MONUMENTOS Y SITIOS
МЕЖДУНАРОДНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ

Our Ref. GB/AS/1578-Add.Inf_1

Charenton-le-Pont, 08 October 2018

H. E. Mr Juan Andrés Perello Rodriguez
Permanent Delegation of the Kingdom of Spain to UNESCO
Maison de l'UNESCO
1, rue Miollis
75732 Paris CEDEX 15

World Heritage List 2019
Risco Caido and the Sacred Mountains of Gran Canaria Cultural Landscape (Spain)

Dear Sir,

ICOMOS is currently assessing the nomination of "Risco Caido and the Sacred Mountains of Gran Canaria Cultural Landscape" to the World Heritage List, and an ICOMOS evaluation mission visited the property to consider matters related to protection, management, conservation and interpretation. ICOMOS is very grateful for the time, expertise and support given to the evaluation mission by the State Party, local experts and other involved in the nomination process.

In order to help with our overall nomination process, we would be grateful to receive further information to clarify several points and to augment the material that has already been submitted in the nomination dossier.

We would be grateful if the State Party could consider the following points and kindly provide additional information on these matters:

Description of the property
ICOMOS would be pleased if the State Party could provide a more accurate overview of the current state of archaeological research in the Canary Islands in order to better understand Gran Canaria's place in the history of the archipelago.

The inventory project begun at the initiative of Werner Pichler which mentions the engravings of the north of Fuerteventura with 2866 individual figures and the work briefly mentioned in the nomination dossier of several researchers from the Universidad de La Laguna, on the island of Tenerife, and the Universidad de Las Palmas, on the island of Gran Canaria could assist in this task.

Table 2.a.I lists all the attributes and components of the cultural landscape of Risco Caído and its buffer zone (p. 34). However, only part of the sites are described in the nomination dossier (p. 78). For instance, the Nomination dossier does not mention the exact number of sites where Libyan-Berber scripts have been recorded or the total number of rock images. Could the State Party provide a detailed description for each component of the property? Furthermore, for each archaeological site, could the State Party provide, if available, details of the archaeological researches undertaken (archaeological excavations and surveys, rock art surveys, archaeo-astronomical studies, etc.)?

ICOMOS has noted that the Nomination dossier briefly mentions the Archaeo-and Ethnobotany of the cultural landscape. This fact appears to be of significance, mainly due to the fact that the landscape contains a very specific biodiversity, with several plant species being endemic to the area. The aboriginal population used these unique plants for medicinal and other traditional uses, and these continue right up to today. There has been a detailed study done on the Archaeo-and Ethnobotany of the area, also linking the use of certain plants to those in Morocco and West Africa, providing another link to the original Berber inhabitants.

ICOMOS has identified that there is a gap of information on the Nomination dossier regarding the aforementioned study and considers that its addition would prove a valuable contribution to Risco Caido's case.

Factors affecting the property

The Nomination dossier mentions on pages 395 – 398, that '*new buildings, sometimes on protected land, or the unfortunate rehabilitation and use of old buildings…and also the existence of some new infrastructure facilities that have a negative impact on certain priority enclaves of the landscape, such as some illegal tracks, high and medium voltage overhead cables, certain water works or the nocturnal lighting of some isolated hamlets in this area.*'

ICOMOS would be pleased to receive further information, if available, on the actions which are planned to mitigate these issues.

Boundaries and the buffer zone

Maps 5.b.13 and 5.b.14 show, respectively, that many archaeological sites and many ethnographic sites inventoried are not only located within the proposed boundaries and the buffer zone but also outside.

ICOMOS would be pleased if the State Party could provide further clarification on the rationale which led to the delineation of the proposed boundaries and buffer zone of the nominated property.

Could the State Party provide, if available, a table showing the number of cultural sites located in the nominated property and its buffer zone?

Protection

The nomination dossier specifies that the nominated area and buffer zone of the cultural landscape of Risco Caído overlap with different categories of designation. ICOMOS would be pleased to receive further information on how the Natura 2000 and the Gran Canaria Biosphere Reserve designations overlap with the nominated area and buffer zone and what is the relationships with the protective measures of the nominated property and its buffer zone.

Some of the areas of Special Heritage Interest (ARIP-3, ARIP-4), within the framework of the Special Territorial Plan for Historical Heritage Management, are located in the nominated area and in the buffer zone (Map 5.b.15). In view of the heritage value of these areas, ICOMOS would be pleased if the State Party could provide further clarification on why the Special Heritage Interest (ARIP-3, ARIP-4) area does not coincide entirely with the boundaries of the nominated property.

In the Gran Canaria land-use planning (Map 5.b.9), several D.I.2 areas are designated as land earmarked for development within the nominated property boundary and its buffer zone. The nomination dossier mentions that the land-use planning does not envisage new zoned land for the nominated area and its buffer zone. However, ICOMOS notes that part of the boundaries of the Barranco Hondo-Lugarejos site, inscribed as a property of cultural interest (BIC), overlaps with one of these D.I.2 areas. Could the State Party clarify the strategy adopted in this specific case and, in general, whether development projects will be carried out in the areas already designated?

Could the State Party also provide further clarification on the level of protection of the buffer zone with regard to cultural sites, as areas of Special Heritage Interest do not entirely overlap with the buffer zone?

Conservation
ICOMOS would be pleased if the State Party could provide further clarification on the conservation work undertaken at archaeological sites in order to reduce the effect of erosion (targeted sites and results obtained).

Could the State party indicate whether an archaeological programme has been planned or already carried out in 2018 on the nominated property (specifying the composition of the team, the techniques used and the results obtained, if available)?

Management
The archaeological heritage of the Canary Islands seems to be treated differently in each one of the islands (i.e. Tindaya). The island of Gran Canaria also seems to be the only island that has incorporated archaeological heritage into its tourism activity. Could the State party clarify whether there is a common project between the different islands of the archipelago considering that these resources offer potential in cultural tourism and, more specifically, in archaeological tourism?

ICOMOS would be pleased if the State Party could provide further information on the water management strategy for the nominated property specifically on the water supplies for local communities, agricultural and tourism activities within the nominated and buffer areas of the nominated property.

Involvement of the local communities
ICOMOS would be pleased to receive further information concerning the level of involvement of the local communities in the participatory management strategy.

ICOMOS appreciates that the timeframe for providing this additional information is short. Brief responses are required at this stage, and can be discussed further with the State Party if needed during the ICOMOS World Heritage Panel process.

We look forward to your responses to these points, which will be of great help in our evaluation process.

We would be grateful if you could provide **ICOMOS** and the **UNESCO World Heritage Centre** with the above information by **Friday 9 November 2018 at the latest**.

Please note that the State Party shall submit two copies of the additional information to the UNESCO World Heritage Centre so that it can be formally registered as part of the nomination.

We thank you in advance for your kind cooperation.

Yours faithfully,

Gwenaëlle Bourdin
Director
ICOMOS Evaluation Unit

Copy to
Consejería de Turismo, Cultura y Deportes. Dirección General de Patrimonio Cultural - Gobierno de Canarias
Cabildo Insular de Gran Canaria
Subdirección General de Protección del Patrimonio Histórico - Ministerio de Educacion, Cultura y Deporte
UNESCO World Heritage Centre

Additional information

requested by ICOMOS regarding the nomination of the

Risco Caído and the Sacred Mountains of Gran Canaria Cultural Landscape

for Inscription on the World Heritage List 2018

November 2018

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This report includes the additional information requested by ICOMOS in its letter of the 8th October 2018 concerning the nomination process of Risco Caido and Sacred Mountains of Gran Canaria Cultural Landscape. It includes the information requested, along with the pertinent comments on each point.

1

Description of the property

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Introductory notes

In order to offer some context to the state of archaeological research in the Canary Islands, regarding the island of Gran Canaria, it is worth providing some introductory notes on the cultural differences and the island archaeological resources. Gran Canaria is undoubtedly the island that achieved the highest level of cultural development and socio-economic complexity in the aboriginal past of the archipelago as a whole. As stated throughout the nomination dossier, and especially in the local comparative analysis, consideration must be given to the fact that, since the arrival of the first Amazigh settlers, each island evolved differently and in total isolation for over 1500 years, with the exception of occasional connections between Lanzarote and Fuerteventura.

Some of the main differences in the aboriginal culture compared with the other islands of the archipelago can be found in the wealth and monumental nature and variety of its built heritage, giving rise to important, extensive settlements of houses and artificial caves. In their world of the dead too, as with the extensive walled cemeteries of burial mounds, or with the inaccessible mountain cemeteries, with complex treatments of the funeral spaces. The sacred architecture deserves a mention of its own. Although there are some important elements on other islands, such as the sacrificial altars of La Gomera or El Hierro, or spaces with cup marks, grooves or certain kinds of engravings on Lanzarote, Fuerteventura, El Hierro or Tenerife, the magnitude and building complexity makes Gran Canaria the island with the most highly-evolved representations, as can be seen with Risco Caído, El Bentayga, Acusa or Risco Chapín, within the area of the nominated property, or at other points of the island, such as La Fortaleza or Cuatro Puertas. The large collective granaries, not found on other islands and very frequent in the area of the nominated property, are also spectacular.

The aboriginal economy was more diversified on Gran Canaria and the population was larger, which implies a more stringent social control and a more complex institutional organisation and management of resources. This importance is reflected in its immaterial culture, which attains a high level of symbolic, artistic and spiritual development.

On Gran Canaria, the more than two hundred clay idols found, most of which are female representations, are a clear element that identifies their culture. This notable and singular aesthetic, symbolic and spiritual expression reaches one of its maximum heights in the representation of the pubic triangle, which is related to fertility and to the matrilineal society that governed the social and political order of the island. This element can be seen, not only in the idols, but also in the large number of rock engravings in caves on the island, mostly represented in the area of the nominated property.

Gran Canaria is the only island where the technique of painting can be found. It was used both for pottery and for idols and “pintaderas” (geometric symbols). It was also common practise for the aboriginals to paint their houses and caves, both as decoration and in a symbolic sense, and the area of the cultural landscape is where the largest number of painted caves on the

island can be found. Gran Canaria is also where one can find the widest variety of rock art expressions including the variety of motifs, styles, techniques and above all, meaning.

Gran Canaria in the context of archaeological research in the Canary Islands

This cultural importance means that much of the scientific research that has been carried out in the islands into the pre-European cultures that settled the islands has focused on Gran Canaria. A large part of the most important elements of those Amazigh cultures that evolved in the Canary Islands and, above all, which survived to our times, are found on this island and particularly, in the area of the cultural landscape: grand settlements in artificial caves, fortified granaries and villages, mountain sanctuaries excavated into the rock, caves with rock paintings, representations of the pubic triangle, forms of farming and water use.

Although most of the research on Gran Canaria was initially conducted in the lowland areas, in recent decades, researchers have shown a special interest in the archaeology of the mountains, because of both the fine state of conservation of the remains (burials, seeds, wood, etc.), and because of the significant cultural singularities. The international process of recognising the cultural landscape has accentuated this interest, as can be seen in some of the leading research being done internationally.

Archaeological work has increased exponentially in recent years, especially so after the relevant competences were transferred to the island Cabildos, although most of this work consists of occasional, unplanned actions (urgent interventions), generally in coastal areas under urban development pressure, which associates actions of this kind more with the development model than with research strategy. The more isolated and protected areas, such as the area of the nominated property have seen very few actions of this kind.

However, the research interventions that we are interested in this section, dealing with planned medium and long-term projects involving multi-disciplinary teams, are focused mainly on Gran Canaria, because of variables like the size of the island, the monumental nature of the properties and the cultural and scientific importance of the archaeological heritage in the territory.

On Gran Canaria for 2017 and 2018, there have been 15 systematic interventions, 14 on Tenerife, 3 on Fuerteventura, 5 on Lanzarote, 4 on La Palma and one on La Gomera. This includes on-going work in areas of economic activity like Las Cañadas on Tenerife, at some mountain sanctuaries on La Gomera, or at aboriginal settlements like Fiquinineo, Zonzamas or Buenavista on Lanzarote. Gran Canaria is where research projects per se are to be found, involving scientific teams and with pre-designed objectives. These include the actions in La Cueva Pintada in Gáldar, La Fortaleza, La Guancha, La Restinga and in the area of the nominated property, Risco Caído, Cueva de la Paja, Sierra del Bentayga, burial cave and granary in Acusa or the recent study in La Mesa del Junquillo.

There are other kinds of studies and specialised work that must also be born in mind, where Gran Canaria has also been the pioneer or where works of this kind have been most frequent, such as work that applies 3D techniques of reproduction or representation (laser scanner, photogrammetry), infrared analysis, archaeoastronomical measurements, absolute dating, the application of new recording methodologies and systems and specific analyses, some of international importance, like archaeobotanical, DNA or paleo-dietary studies.

In the area of the Cultural Landscape, we would draw your attention to the application of these techniques, such as laser scanner in Risco Caído, photogrammetric surveys at Risco Caído, Cueva de la Paja, Cuevas Caballero, Risco Chapín, Cueva del Guayre, Cuevas del Rey or in

Cueva de las Estrellas in Acusa, all of which are sites within the nominated property. Furthermore, datings have been taken at Risco Caído, Bentayga, Acusa, not just with Carbon 14, but also with thermo-altered soil analysis. The important finding of a new funeral cave in Acusa, in 2018, is worth citing, with an exceptional fitting out of the funeral space, with a rich presence of wooden panels, fabrics, well-conserved hides. And above all, because of the major international projection, the archaeobotanical studies by Jacob Morales on several granaries of the island, and particularly within the grounds of the nominated property. This year, 2018, they have obtained some very interesting samples. This research is also part of the lines of research tackled in the framework of the nomination project of the property that also funds the absolute chronology analysis.

Finally, we would draw your attention to some research and doctoral theses, in which, although the scope of the study may exceed the area of the property, they have used a large and varied sample of archaeological elements originally from this area, especially for the bio-anthropology studies, with tech-related aspects and raw materials, the study of rock art manifestations and alphabetic inscriptions, among others.

And in closing, it is worth pointing out that the background to the importance of archaeological research in Gran Canaria is mentioned in general terms on pages 276-282 of the nomination dossier.

The inventory project begun at the initiative of Werner Pichler which mentions the engravings of the north of Fuerteventura with 2866 individual figures and the work briefly mentioned in the nomination dossier of several researchers from the Universidad de La Laguna, on the island of Tenerife, and the Universidad de Las Palmas, on the island of Gran Canaria could assist in this task.

COMMENTS

Here there has probably been a misunderstanding! The researcher of the Institutum Canarium, the late Werner Pichler, did not begin an inventory project on the archeology of the Canary Islands as could be interpreted from the letter. What he actually did was to systematise the alphabetic inscriptions of the Island of Fuerteventura in his book "Las inscripciones rupestres de Fuerteventura" (Pichler, 2003)[1] which is a compilation of earlier papers published in Almogaren, the journal of his own institution. These alphabetic inscriptions were of two kinds.

On the one hand, there were the so-called Latino-Canarian (the name is still debatable) inscriptions that had been first identified by a team of Canarian scholars, including José de León, the Director of the nomination proposal who recently presented a paper discussing the state of the art of the topic (Coloquios de Historia Canarias-América, in press), and María Antonia Perera, a member of the scientific team of the nomination proposal and author of an extensive PhD thesis on Fuerteventura, defended in 2015, entitled "Arqueología de Fuerteventura, un estudio del territorio", which also includes the most recent analysis of the alphabetic inscriptions. The vast majority of the alphabetic inscriptions found in Fuerteventura are of this kind, with more than 150 panels at 14 sites scattered over the island. Of the 2866 'individual figures' mentioned above, certainly c. 90% are individual signs (i.e. letters) of these inscriptions. This Latino-Canarian script is exclusively found on the islands of Fuerteventura and Lanzarote and has not been found in any other place, either in the islands, or on the nearby mainland, although it is believed to have been inspired by the Latin alphabet. This is a particular aspect of a very individual culture such as the one of the easternmost Canary Islands. Hence, no relationship at all with Gran Canaria has been found so far.

On the other hand, the Latino-Canarian alphabet lived together (there are even bi-alphabetic inscriptions which are currently under analysis by members of our scientific team) in Fuerteventura and Lanzarote with a version of the pan-Amazigh Libyan-Berber script. This is actually present in the rest of the Canary Islands, including Gran Canaria, an alphabet that was probably brought to the seven islands at the time of their colonisation by Amazigh groups from northwest Africa. The Lybic-Berber script was first systematised by Renata Springer, another member of the scientific team of the nomination proposal, in her PhD thesis (Springer, 1994, see dossier Bibliography). Pichler also studied these inscriptions in Fuerteventura, analysing 25 panels at 6 sites with a total of some 163 signs spread over an area of nearly 1500 Km^2: a density of c. 0.1 sign per Km^2.

On the contrary, Gran Canaria presents one of the richest and varied collections of Libyan-Berber inscriptions of the Archipelago. There are several stations in Balos, El Draguillo, Guayadeque, Morro Santiago, Bandama, and Hoya Toledo, and more are being discovered. In the area of the nominated property, these are present in Bentayga (see Fig. 2a.121 of the dossier), Visvique (Fig. 2a.124) and on a large panel at Roque de las Cuevas del Rey, in Cuevas del Rey (see Figs. 2a.122, 123, and 126). These stations will be further described later

[1] Werner, P (2003). Las inscripciones rupestres de Fuerteventura. Cabildo Insular de Fuerteventura. ISBN: 978-84-

on in this report. There are c. 90 individual signs in the c. 94 Km2 of the property, a density much higher than the one found on Fuerteventura, which arguably has nothing special in this respect. Indeed, the presence of these inscriptions in the area of the property clearly demonstrates the Amazigh ancestry of the ancient Canarians who lived, adapted and prospered in the area of the proposed property.

Table 2.a.llists all the attributes and components of the cultural landscape of Risco Caldo and its buffer zone (p. 34). However, only part of the sites are described in the nomination dossier (p. 78). For instance, the Nomination dossier does not mention the exact number of sites where Libyan-Berber scripts have been recorded or the total number of rock images. Could the State Party provide a detailed description for each component of the property?

The following paragraphs complete the description of the components/attributes of the property that appear in Table 2.a, as requested. We would point out that the sites not explicitly described are referred to in the descriptive chapters of the nomination dossier, although they do not go into detail in the specific descriptive paragraph.

Before starting the description, we would point out the sections of the nomination dossier in which the components of the property are described individually.

- Pages 78 to 102 offer an individual description of the main troglodyte manifestations specified in the table.
- Pages 116 to 119 describe sanctuaries or “almogarenes” in caves, except for the “almogaren” at Bentayga, which is described in detail in the section on astronomical culture.
- Pages 129 to 151 offer a detailed description of the two main “almogarenes” with astronomical connotations.

The ones below are those that have not been described individually, although they have been mentioned in other descriptive contexts:

Libyan-Berber inscription stations

There are four Libyan-Berber-type alphabetical engraving stations in the area of the nominated property that constitute outstanding manifestations that talk to us of the Amazigh roots of the culture that inhabited this space. Their description by location is as follows:

Roque Bentayga

These are two engraving stations with Libyan-Berber inscriptions located on one of the most important basalt spurs of the island, bearing in mind the height that it reaches, 1,404 metres above sea level, and its central situation in the Tejeda Basin. Pico de las Nieves, with a height of 1,956m can be seen to the east from Roque Bentayga and the Summit of Mt. Teide to the west. These natural features were noticed by the aboriginal population to humanise this space as a sacred place. There are hundreds of cave dwellings, granaries and burial caves dug into the tuff scattered around this area.

The ancient population sculpted an almogaren or quadrangular cultural ground into the base of Roque Bentayga with cup marks and grooves, including a large cup mark measuring 0.72 m in diameter, from which the sunrise can be seen over the crags in its summit on the equinoxes.

We would also highlight the layout of a wall in this enclave that surrounds the Eastern and southern part of the rock, and it is said that it was built for defensive purposes and to organise and control traffic coming through. On the south side, the aboriginal Trail providing access to the crest can still be seen, and here, where the wall is and where the route to the Summit is located, where there is a single panel of engraving that clearly shows the incisions that comprise five signs arranged in a vertical line, along with other strokes that do not appear to be alphabetical characters, and a figure in the form of a Greek cross whose limbs have been drawn with straight strokes.

Continuing the climb up towards the crest, on a risky pass on a sheer wall, is the second station of Roque Bentayga, comprises of a single panel bearing three horizontal lines of Libyan-Berber characters are engraved with incisions. The lines contain nine, nine and twelve signs respectively. There are six different characters on the top line and three repeated characters, while shows eight signs and a single repeated character. Finally, the third line, which contains the highest number of characters, with only one repeat and 11 characters. In general, we count sixteen signs and twelve repeats for this station. From here, you can see the peak of Mt. Teide crowing the Summit of Altavista, 1,376 metres high.

The meaning of this writing is associated with the area in which it is engraved, presumably giving it a sacred meaning, and with the function arising from the fact that there is wall partially enclosing the rock, and its conception as a passing place and the view of Mt. Teide.

Roque Cuevas del Rey

The Roque Cuevas del Rey engraving station is also located in an important, fertile archaeological environment, where we would highlight the troglodyte settlement of Cuevas del Rey, comprised of a set of artificial caves laid out on three significant orographic ledges, spurs or rocks with archaeological units, each with a different function, but all located on the Bentayga range with a maximum altitude of 1,404m above sea- level.

Roque Cuevas del Rey is the name given to one of the three spurs of reddish-coloured tuff used to excavate artificial cave dwellings set in the north face of the rock, and laid out on several different levels. The floor plans of the cave dwellings are usually cross-shaped, including Cueva del Guayre, with its broad, roughly-square floor plan, with the walls painted black, white and red and the floor contains 39 cup marks with a smaller number of excavated grooves. An east-facing granary has also been documented here, arranged on four ledges, each at a different height. Sometimes, some of the silos of the granary open at floor level and the presence of a White-toned mortar can be seen that was used to waterproof the tuff and to reduce humidity in order to better conserve the fruit and grain stored there.

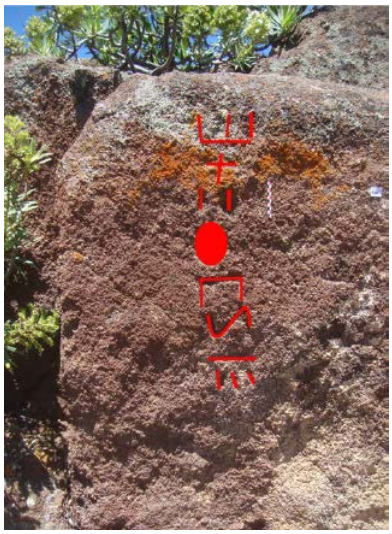
Higher up, on the east face of the rock, is the engraving station (N 27.59.32.0; W 015.39.10.39) arranged in two sectors with a panel in each one. Panel 1 of sector 1 is located 22.5m to the east of sector 2. Panel 1 of sector 1 has a line with two Libyan-Berber characters engraved vertically, and to the left, there is another sign, but none of them are repeated.

At this distance to the west, is panel 1 of sector 2, which is striking because of its natural complexity, as it is arranged as a relatively uniform natural wall broken by cracks and changes in the characteristics of the surface of the rock, into five sections. The engravings have been

made on the most uniform and smoothest parts of the surface. From the top and from east to west, we have recorded: two lines of seven and two signs, two of which are repeats from the first line. To the right, separated by a crack, there are two more lines of Libyan-Berber characters, comprised of four and two signs. There is a smooth surface at the bottom that bears three lines of four, two and five signs. The first and third lines contain one repeat in each. To the right, there is an isolated sign and a vertical line with five signs. Also to the right, and somewhat separated from it, there is another engraved line of four signs, the top two of which are unusual in shape. And finally, on the lower part of the whole Surface, there are three horizontal engraved signs.

We would draw your attention in this station to the orography of the site and the surroundings defined by the Bentayga mountain ranges, the use given to the caves, as dwellings and business premises, the existence of Cueva del Guayre decorated with the application of colour, and finally, the engraving station. Of all of this, we would emphasise the organisation of the lines, depending on the natural peculiarities of the rock, the large number of lines, a total of forty-two signs and recurrences, suggesting the reiterated frequency with which it was used over time. The use of other recording and imaging techniques will probably reveal new signs.

Visvique



The engraving station of Visvique is located in the municipal district of Agaete. Spatially, it is associated with a necropolis of natural caves and a troglodyte settlement excavated into the left bank of the Barranco de Agaete, which is also known as Roque Bermejo, due to its colour. The habitat is comprised of just over thirty artificial cavities, some of which are currently inaccessible, as natural rock falls have collapsed the access paths to them. This settlement includes a granary and there is a stone quarry close by that was used for making circular millstones. The settlement commands an ample view over farming and livestock lands – the main activities of the ancient Canarian population.

There is another engraving station above the level of the settlement, at 646m above seal-level (N: 28R 0433309; W 3105849), comprised of a sector with a single panel of reddish tuff that contains a vertical line with eight Libyan-Berber characters and, to the right, another isolated sign of the same alphabet. The support is separate, away from other blocks of Stone in the area with dimensions of 1.08b high by 2.30m long. The Libyan-Berber characters face south-east and have been engraved with an incision technique, reaching a significant thickness given the size of the grain of the geological material.

We would highlight the lack of repeated characters in the line, which only contains one, suggesting that it was engraved in a single sitting and no-one had to return to finish it. Another striking peculiarity of this station is the size of the signs, indicating that they were conceived more to be seen and read from some distance away, rather than from the foot of the panel. Based on the layout of the support, the size of the characters and their location, bearing in mind that you approach them from the front, if you approach them from the cave settlement, it could be some kind of announcement or proclamation.

Agricultural terraces and cultural heritage of water ("cadenas", "bocaos", "andenes", "alcogidas", cave-pools)

The farm terraces that are scattered over the landscape of substantial areas of the nominated property, known locally as cadenas, bocaos, or andenes depending on the area and the kind of terrace, are outstanding expressions of how to accommodate farmland in mountains areas and inaccessible crags, adding natural, environmental and ethnographical values to the area that they are set in within the area of the nominated property. The most important ones are those laid out all around the area of Barranco Hondo-Artevirgo, clearly a continuation of the aboriginal terraces, and those situated around the rural settlement of Timagada. They are also represented in places in the buffer zone, like those to the south of Tejeda.

These farm structures are linked to a profound knowledge of the terrain and the geology that encompasses the skills to capture water in the right substrates and water management techniques that include building cave-reservoirs, channels carved into living rock and irrigation water sluice gates.

The expressions of cave reservoirs and cave ponds are scattered over the area of places like Acusa Verde, El Roque, Lomo Blanco, Los Lomillos, Artenara, Barranco Hondo de Arriba and Lugarejos, where they remain in use. The archaeological sites that still show the complexity and authenticity of the water culture of the ancients Canarians include the archaeological site of Las Cuevas de La Paja.

Altavista Mountain

La Montaña de Altavista, situated in the Tamadaba massif, within the area defined as Tirma according to the demarcation made of the estate in 1894, is the highest point of the western rim and a scenic reference of the Tejeda caldera.

There are interesting archaeological sites on the two summits of this mountain, defined by several circular structures built with stones, artificial platforms and a cobbled access path, all set in the pine forest. We located three groups of structures here, placed at three different heights. One, at a height of 1350m, comprises a dry-stone, rectangular structure, situated on the edge of the summit. The largest structure is on the western summit, at a height of 1375m. This is a roughly-circular structure, made of large blocks set vertically on the ground and held up by stone chocks; its diameter at the widest point is 9.70m on the N-S axis. On the eastern summit, the highest one, the path leads to a third structure, also roughly circular in shape, made up of small standing stones, facing east, which was built on an artificially-constructed platform to create a flat space.

The characteristics of these constructions, their placement in the pine forest, the kind of construction and the fact that they are located at the highest part of Tirma, apart from acting as geographic landmarks inside the Tejeda Caldera, lead us to consider whether these structures, so far from any residential settlement, were for ritual or religious purposes. What is beyond question is that from the location of the Libyan-Berber inscriptions on the west face of Roque Bentayga, one can see a clear alignment of this mountain that appears to be crowned by Pico del Teide on the neighbouring island of Tenerife. The new moons in the summer months set over this part of the horizon, including the mention of "the first conjunction" of the chronicles. Nature does not naturally align, but it is still highly suggestive that the two alphabetic inscriptions found at the Bentayga site were made there precisely.

Our Lady of the Cave and its surroundings (Virgen de la Cuevita)

The age and origin of the sanctuary of Our Lady of the Cave of Artenara dates back several centuries. Certain references suggest its origins in the 16th century, although others associate the introduction of this figure to the evangelising expeditions of the Franciscan friars from Majorca and Catalonia, as a strategy for bringing the former Canary Island population to Christianity, in compliance with Papal Bulls, in the late 14th century (see Figure 2.a.96).

All the trappings of worship are carved into the rock in this cave, offering an outstanding example of cultural syncretism between the aboriginal sanctuaries and Christian temples, that also occurs in other cave churches located in the area of the nominated property. The orientation of the cave and the altar are surprising, looking directly towards Roque Bentayga, the ceremonial epicentre of the Tejeda Caldera with astronomical connotations.

An outstanding troglodyte settlement is laid out around it that, in an amazing sequence, shows a range of different re-used and inhabited caves, historical caves that have been adapted but not inhabited and aboriginal caves whose appearance remain unaltered, as well as an impressive reservoir cave that is still in use. The site comprises a genuine manual of cave-dwelling and its evolution and vicissitudes over time.

Tamadaba forest

The Tamadaba massif, located at the north-west tip of the nominated property, almost undoubtedly formed part of the sacred space of Tirma referred to by the Chronicles of the Conquest of the Canary Islands. After the conquest, the place name “Tirma” gradually became limited to a large farming and livestock property situated in the buffer zone, losing the identity of a sacred space that it had to a large extent for the Amazigh settlers of Gran Canaria.

Because of its geographic location bordering on the north-west rim of the Tejeda Caldera, the fact that it flanks the main access from the north of the island to the sacred mountain places, up Barranco de Agaete, and because of its rugged configuration and the fact that it overlooks the coastal platform of the west of the island, Tamadaba-Tirma played an essential role in Amazigh cosmogony. They were considered the end-points of the territory as sacred vehicles of communication with the sacred world. Ethno-historical sources on repeated occasions tell of collective pilgrimages to sacred sites, always in the mountains, as part of the rites celebrated to propitiate the renewal of the natural resources necessary for the success of the harvests and the livestock. It was also considered sacred because of the vital resources that this environment provided for the aboriginal population, a very important fact for the survival of the inhabitants of the mountains after the Conquest.

The ethno-astronomy works that have been carried out in the cultural landscape have shown the important role that Tamadaba plays as an astronomical marker until the present day. This is reflected at the Cruz de María, linked to the movements of Venus and legends of witches and appearances, as the possible continuation of long-gone aboriginal traditions linked to their sacred world.

Besides, the importance of this massif is also emphasized by the unusual fact, for the major watersheds of the island that often run down from the highlands to the coast, that it closes off the exit to the sea at Barranco Hondo, meaning that Tamadaba is a confined and closed space, which has enabled many traditions to survive and it also means that it has its own imagery in the cultural landscape.

It is a rocky massif formed mainly of old, Miocene basalts and a natural population of Canary Island pine (Pinus canariensis) along with other plant species, providing a home for 24% of the endemic flora of Gran Canaria. The main archaeological sites included in the area are the Visvique site, along with Pico de la Bandera, Guayedra Alta and the site at Altavista mountain (already described), the latter at an altitude of 1,375 metres above sea-level crowning the massif.

Intangible attributes

The intangible attributes of the property are described in the dossier, except for those relating to ethno-botanic know-how, which are attached to this report.

- The aboriginal calendar is described on pages 221 to 226
- Ethnoastronomy – knowledge of the sky on pages 229 to 241
- The continued survival of transhumance on pages 169 to 177
- Aboriginal pottery on pages 191 to 192
- Land-use trades and techniques (water, farms) on pages 159 to 166
- Other important ethnographic expressions are mentioned throughout chapter 2.a.viii

Leading secondary attributes/components of the buffer zone

Below is a summary table of descriptions of secondary attributes/components in the buffer zone, most of which are mentioned in Table 2.a.1. In all cases, they are considered secondary attributes because they are significant examples that are already represented in the nominated property with greater value (integrity, completion, conservation), which confirm or reinforce the facets of the OUV stated. The buffer zone also includes some manifestations of ethnographic interest and works that are not related to the values expressed in the nominated property, but which do have a significant local interest, albeit not exceptional.

Name	Brief Description
Cave house settlements and farming landscape around Barranco Hondo	These are scattered settlements and houses that normally include cave houses surrounded by farming terraces. They are interesting examples of this kind of habitat, but in this part of the buffer zone, they are often associated with recent buildings and other elements that diminish their authenticity, completion and integrity. The best representations of this kind of expressions are to be found in the area of Barranco Hondo-Artevirgo in the nominated property, including the hamlet of Barranco Hondo de Abajo as a set of re-used, old cave houses.
Other farming terraces	Apart from the crops mentioned in the area of Barranco Hondo, the buffer zone contains other interesting terraced farming landscapes, including the case of La Culata.
Tirma Archaeological Site	This is a territory with alternating flat areas and slopes of the valley in the form of steps on the outer edge of the Tejeda Caldera. The Tirma estate is currently owned by the Cabildo of Gran Canaria and it covers some 600 ha. Originally, it was a private pine forest that was cleared in the early 20th century to be used for farming and raising livestock. As an archaeological zone, this territory contains multiple archaeological remains comprised of dry-stone burial mounds and houses, natural cave dwellings and burial caves, along with a series of stone structures thought to have been used for cultural purposes. Even though these elements are important, they are not comparable, in terms of their monumental or outstanding nature, with the model of troglodyte settlements and burial grounds more frequently found in the nominated property. The archaeological zone, which falls entirely in the buffer zone, has been declared a BIC (Heritage of Cultural Interest)

Name	Brief Description
Dams and water galleries	The water gallery known as El Túnel de La Mina, the first major water work built by the Crown of Castile in the Canary Islands is on the edge of the buffer zone. It was designed to provide water for Las Palmas de Gran Canaria and the north of the island. Nowadays, this gallery is owned by La Heredad de Aguas El Molinillo de Tejeda (Molinillo de Tejeda Water Rights Association) and has been declared of historical interest. The original work has been transformed over the years on successive occasions to bring it in line with new needs and technological progress. There are also several reservoirs in the area such as: Caidero de las Niñas, Siberio and Don Gregorio, or Los Hornos. All these have been built in the last hundred years.
Ethnographic elements	In the buffer zone, the Ethnographic Heritage maps (*Cartas Etnográficas*) i include a series of properties and elements of different kinds, such as: washing places, threshing grounds, ponds, springs, sheds, haybarns, grain stores, ovens, sawmills, cross-roads and lay-bys, wineries, wine presses, small bridges, the remains of old mills, cheese-making facilities, inns, traditional shops, groups of traditional houses, historical cemeteries and even a funeral parlour.
Tamadaba escarpments	The buffer zone holds a substantial part of the Inagua, Ojeda and Pajonales forests. These forests now constitute one of the best preserved natural pine forests (*Pinus canariensis*) on Gran Canaria. It also holds several heads of important ravines (Mulato, Mogán, etc.), such that it plays an important role in recharging the water table and conserving the soil
Inagua-Pajonales forests	The buffer zone includes the lower part of the Tamadaba escarpments and cliffs. This zone covers the rest of the cliffs of the Tamadaba massif, down to its flanks, where it comes into contact with the more populated zones of the north and east of the island, thus sheltering their whole scenic area. They also contain a notable biodiversity, playing host to xeric communities of surge and cactus spurge, thermo-sclerophyll scrub and communities of rock vegetation.

Furthermore, for each archaeological site, could the State Party provide, if available, details of the archaeological researches undertaken (archaeological excavations and surveys, rock art surveys, archaeo- astronomical studies, etc.)?

Archaeological researches

Before going into detail of the research work and studies done for each of the main archaeological sites, we should point out that there is a set of reference documents for the area as a whole, which act as the foundation for research, protection, conservation and management policy for the archaeological sites of Gran Canaria. On the one hand, there are the Municipal Archaeological Maps[2] and the island Archaeological Inventory[3] drawn up by the Cabildo of Gran Canaria. These encompass all the archaeological sites of the nominated property.

On the other hand, we have the Special Tejeda Basin Plan drawn up by the Canary Island Museum[4], focusing on the area of the nomination, and the Inventory of Rock Manifestations of Gran Canaria commissioned by the Cabildo of Gran Canaria[5] that includes all the caves with engravings or paintings located in the nominated property.

A general overview of the background to the archaeological research in the area of the nominated property can also be found in chapter 2.b.xi "The historical evolution and knowledge of the property through sources and research". It is also worth pointing out that some key aspects dealing with the connection of certain attributes with the Amazigh culture were tackled jointly along with the Institut Royal de la Culture Amazighe (IRCAM) during several missions carried out in recent years.

Below is the summarised information on the archaeological research carried out on the main archaeological sites that appear as attributes of the nominated property:

Roque Bentayga

Archaeological work started at this enclave almost from the beginnings of the discipline itself, in the late19th century[6], which describe it as a reference site in the Tejeda basin, although we have very early references to this important archaeological complex from historians from the 16th to the 20th centuries.

Recent research here started with the digging carried out in several caves by Mauro Hernández Pérez, then a lecturer from the University of La Laguna[7], although timid approaches had been made previously[8]. An archaeological dig was later carried out by archaeologist Julio Cuenca, commissioned by the Cabildo of Gran Canaria, which gave the first radio-carbon datings of vegetable matter from the site[9], which suggest that it dates back to 1265-1300 A.D. and 1370-1380 A.D.

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[2] Cabildo of Gran Canaria (2004-2005) review of the Archaeological Maps of the Municipal Districts of Agaete, Artenara, Gáldar and Tejeda.

[3] Cabildo of Gran Canaria (2017) Archaeological Inventory of Gran Canaria.

[4] SAMC (189). Tejeda Basin Special Protection, Conservation and Restoration Plan.

[5] PROPAT (2009). Inventory, documentation and conservation and protection proposals for rock manifestations of Gran Canaria. Cabildo of Gran Canaria.

[6] Grau, V. (1980). Viajes de exploración a diversos sitios y localidades de Gran Canaria. The Canary Island Museum.

[7] Hernández, M. (1980). Excavaciones arqueológicas en Gran Canaria: Guayadeque, Tejeda, Arguineguín.

[8] Jiménez, S. (1963). *Síntesis de la Prehistoria de Gran Canaria.* Las Palmas de Gran Canaria

[9] http://dataciones.grancanariapatrimonio.com/yacimiento.php?code=25019&s=

Several bio-anthropological studies have been conducted on the remains recovered from the necropolis of the Tabacalete terrace, one of the funeral areas of Roque Bentayga. This research was conducted by the departments of pre-history of the University of La Laguna and the Department of Historical Sciences of the University of Las Palmas de Gran Canaria. The first of these projects was carried out by several authors from both these universities, and it focussed on artisanal practises based on anthropological studies[10]; the second, carried out by Javier Velasco, focused on analysing the diet and the economy of these communities[11]. The next study was a dental anthropology study carried by archaeologist Teresa Delgado Dárias[12].

Several archaeoastronomical studies have also been conducted[13] that associate the Bentayga Almogaren with a sacred space linked to controlling time[14]. The Cabildo of Gran Canaria in turn, started an astronomical orientation and visibility study of the main caves and sanctuaries of the nominated property, taking DEM and GIS analysis as its foundation[15].

Regarding studies of the rock art, several articles have been published on the two Libyan-Berber engraving stations located in the southern and western area of the rock[16], as well as the study conducted by the team led by Renata Springer Bunk[17]

Cuevas del Rey

As with Roque Bentayga, this archaeological site was discovered by researchers during the 19th century[18].

The University of La Laguna lecturer, Mauro Hernández Pérez, made the first archaeological intervention on this site[19]. Datings of this archaeological enclave taken of wood[20] suggest dates of 246-536 A.D.

Both the caves with rock paintings to be found at the archaeological site and the Libyan-Berber engravings on the edge of the settlement have been studied and analysed by the University of

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[10] Velasco, J. *et al.* (1999). *Evidencias de actividades "artesanales" en la dentición de la población prehispánica de Gran Canaria"* Anuario de Estudios Atlánticos XLIV.

[11] Velazco J. (1999). *Economía y dieta de la población prehistórica de Gran Canaria.* Ed. Cabildo de Gran Canaria

[12] Delgado, T. (2009). La Historia en dientes. Una aproximación a la Prehistoria de Gran Canaria desde la Antropología Dental. Cabildo Insular de Gran Canaria.

[13] Esteban, C. *et al.*(1994). Astronomía y Prehistoria en las islas Canarias. In: Arqueastronomìa Hispana. Equipo Sirius. Madrid.

[14] Jiménez, J. (1988). *Un centro cultual en Bentayga (Tejeda, Gran Canaria).* Investigaciones Arqueológicas en canarias. Canary Island Government.

Belmonte et al. (1994): *Canarian astronomy before the conquest: the pre-hispanic calendar. Journal of the* Canary Island Science Academy VI 2, 3 & 4.

[15] Gil, J.C. (2016). Análisis de visibilidad, orientación Astronómica and estadístico de los yacimientos con possible significación astronómica y entorno especial relacionado. Cabildo of Gran Canaria.

[16] Cuenca, J. (1995). *Nueva estación de grabados rupestres alfabetiformes tipo líbico-bereber en el Roque Bentayga. Gran Canaria.* The Canary Island Museum.

Cuenca, J. (1996). Las manifestaciones rupestres de Gran Canaria. Manifestaciones repestres de las islas canarias. Directorate General of Historic Heritage of the Canary Island Government.

[17] Springer Bunk, R. (2008). Realización de un inventario de inscripciones alfabéticas en el ámbito rpestre canario. Directorate General of Historic Heritage of the Canary Island Government.

[18] Grau, V. (1980). Viajes de exploración a diversos sitios y localidades de Gran Canaria. The Canary Island Museum.

[19] Hernández, M. (1980). Excavaciones arqueológicas en Gran Canaria: Guayadeque, Tejeda, Arguineguín.

[20] http://dataciones.grancanariapatrimonio.com/yacimiento.php?code=25024&s=

La Laguna in Tenerife[21], the Canary Island Museum of Gran Canaria[22] and by the team led by R. S Springer [23].

Acusa

Archaeological research in Acusa started with the interest aroused by the fact that it is one of only two places on Gran Canaria were mummified human remains have been preserved from explorations carried out in 1930. Two of the individuals found at that time and now deposited in the Canary Island Museum have been widely studied and have provided important information about the settlements of the interior of the island and their socio-economic practices and rituals.[24]

In recent years, archaeological interventions have been carried out both at La Cueva de Las Estrellas, an outstanding example of a cave with rock paintings, and the El Álamo granary, which have led to significant advances in our knowledge of the ancient island communities, their economy, farming practises and storage and of the use and origin of plant species during the pre-colonial period[25].

Regarding rock art, several projects are on-going, dealing with the analysis and documentation of the rock paintings located inside several caves. The first ones were carried out by the University of La Laguna[26] and later, Heritage Projects include the painted caves of Acusa in an inventory commissioned by the Cabildo of Gran Canaria[27]. Following the proposals of this work, specialists from the University of Las Palmas de Gran Canaria started a digital search using photogrammetry of the painted cave of La Candelaria (Acusa Seca)[28].

This current year (2018) the Department of Historical Sciences of the University of Las Palmas de Gran Canaria has carried out archaeological work in a burial cave, which is still under study, but it is providing valuable data, not only on funeral gestures and rituals, but also on the techniques used for forestry management by the aboriginal communities of Gran Canaria.

[21] Hernández, N. (1999). Las cuevas pintadas por los antiguos canarios. Estudios Prehispánicos 9. Directorate General of Historic Heritage of the Canary Island Government.

[22] Cuenca, J. (1996). Las manifestaciones rupestres de Gan Canaria. Manifestaciones rupestres de las Islas Canarias. Directorate General of Historic Heritage of the Canary Island Government.

[23] Springer Bunk, R. (2008). Realización de un inventario de inscripciones alfabéticas en el ámbito rupestre canario. Directorate General of Historic Heritage of the Canary Island Government.

[24] Alberto, V. *et al.* (2013-2014). *En la ambigüedad de tu pie. Sobre momias y tumbas.* Tabona nº 20, 33-60.
Dárias, T. (2018). La reconstrucción del modelo cultura: el significado de los fardos funerarios y la conformación de la identidad a partir de la momia. XXII Coloquio de Historia Canario Americana. (in the press)

[25] Morales, J. et al. 2014. The archaeobotany of long-term crop storage in northwest African communal granaries: a case study from pre-Hispanic Gran Canaria (cal. ad 1000–1500). Vegetation history and archaeobotany 23: 789–804.
Hagenbland, J. *et al.* (2017). *Farmer fidelity in the Canary Island revealed by ancient DNA from pre-historic seeds.* Journal of Archaeologycal Science, 78, 78-87.
Morales, J. et al (2014). The Archaeobotany of long-term crop storage in Northwest African communal granaries: a case study from pre-Hispanic Gran Canaria (cal. 1000-1500). Vegetation History and Arrchaeobotany, 23(6), 789-804.

[26] Hernández, N. (1999). Las cuevas pintadas por los antiguos canarios. Estudios Prehispánicos 9. Directorate General of Historic Heritage of the Canary Island Government

[27] Proyectos Patrimoniales (2009). Inventario, documentación y propuestas de conservación de las manifestaciones rupestres de Gran Canaria. Cabildo of Gran Canaria.

[28] Gil, C. (2016). Fotogrametría digital. Proyecto de reconstrucción geométrica de la Cueva de La Candelaria (Acusa Seca, Artenar). Cabildo of Gran Canaria.

Risco Caído

The discovery of the archaeological site of Risco Caído is related to the discovery of representations of pubic-shaped geometric engravings, so the first work done at the site was to make a graphic, photographic record and tracings of the panels engraved with triangles[29]

Later on, and taking a deep dive into the archaeological analysis, it was associated with a place of worship after the first archaeological campaign[30] and it was later linked to astronomical events.

Archaeoastronomical studies funded by the Cabildo of Gran Canaria and led by archaeologist Julio Cuenca[31] are currently being carried out by an inter-disciplinary team, to address different aspects, from photogrammetric surveys[32], 3D scanner[33], high-resolution times-lapse[34] or GIS.

Other interventions have also been aimed at discovering the processes of formation of the archaeological site by archaeological digs[35], soil micro-morphology studies, paleomagnetic studies and analysis of the building process of the caves[36].

Risco Chapín: Cueva de Los Candiles and Cuevas del Caballero

La Cueva de los Candiles was located when an inventory of rock art sites was being done by the Archaeology Committee of the Canary Island Museum in 1974[37], but it was not until 1994 that an in-depth study of this cave was published with public-shaped engravings inside with tracings taken of them and a detailed list of the different kinds of triangular representations[38]. During the same project, tracings were also taken of the pubic engravings of La Cueva del Caballero and the floors of this archaeological site.

Narciso Hernández, a researcher from the University of La Laguna, also included La Cueva de los Candiles in the study of the painted caves of Gran Canaria[39].

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[29] López, F. *et al.*(2002). *El triángulo púbico en la prehistoria de Gran Canaria: nuevos hallazgos arqueológicos.* XV Coloquio de Historia Canario Americana.

[30] Cuenca, J. *et al*. (2008). *El culto a las cuevas entre los aborígenes canarios: el almogaren de Risco Caído (Gran Canaria)*. Almogaren nº 39

[31] Cuenca et al. , Mediterranean Archaeology and Archaeometry, in press, preprint

Bel monte et. Al. Mediterranean Archaeology and Archaeometry, in press, preprint

[32] Gil, C. (2016). Complejo arqueológico de Risco Caído. Proyecto de restitución fotogramétrica. Cabildo of Gran Canaria.

[33] Geoavance (2013). Documentación geométrica de alta definición con escáner láser terrestre de Risco Caído (interior y exterior de cuevas). Cabildo of Gran Canaria.

[34] Ulises

[35] Proyectos Patrimoniales (2012). Sondeos y excavaciones arq ueológicas en el yacimiento de Risco Caído. Cabildo of Gran Canaria.

[36] International Geophysical Tecnology (2012). Auscultaciones mediante Georadar de las cuevas 6 y 7 de Risco Caído y Cueva de Candile. Cabildo of Gran Canaria.

Márquez, J.M. (2016). Estudio arquitectónico comparado: Cuevas de Risco Caído, del rey en el Roque Bentayga, La Candelaria en Acusa. Cabildo of Gran Canaria.

[37] Archaeology Committee of the Canary Island Museum (1974). Inventario de los yacimientos rupestres de Gran Canaria. El Museo Canario XXXV

[38] Cuenca, J. and Rivero G. (1992-1994). La Cueva de Los candiles y el santuario de Risco Chapín. El Museo Canario XLIX.

[39] Hernández, N. (1999). Las cuevas pintadas por los antiguos canarios. Estudios Prehispánicos 9. Directorate General of Historic Heritage of the Canary Island Government.

Chimirique

The University of Las Palmas de Gran Canaria conducted an archaeological intervention here on two natural cavities that presented archaeological deposits, which provided information referring basically to the diet of the aboriginal settlements of the area and on the historic use of troglodyte areas, as a cave was used as a domestic space and later abandoned, when it collapsed and was used as a burial site[40]. Datings of this site place them between 600-680 A.D. during the domestic period and 1025-1255 A.D. when it was used as a burial site[41].

Mesa del Junquillo

An archaeological prospecting project is currently on-going at this archaeological site, aimed at locating remains associated with one of the last battles of the war of conquest of Gran Canaria in the last quarter of the 15th century[42].

Visvique

Work has been done in this interesting settlement of artificial caves relating to the rock art manifestations, as there is a panel of Libyan-Berber inscriptions[43].

Archaeoastronomical studies

With respect to the archaeoastronomical studies, Gran Canaria is the paradigm in this kind of investigation at the Archipelago as clearly stressed from pages 61 to 67 of the dossier.

There are other nice examples such as Montaña Tindaya in Fuerteventura (Perera et al. 1996, see Bibliography of the dossier after p. 515) but this is an isolated singularity. Studies in Gran Canaria began in the late 1980s, when the equinoctial alignment at Bentayga was discovered by the current manager of the planetarium of the Science and Cosmos Museum of Tenerife, Oswaldo González, when he was a teenage amateur astronomer (Esteban et al. 1996).

They received a huge impulse in the 1990s and early 2000s, when numerous members of the proposal scientific team were involved in the research (in the dossier Bibliography, see e.g. Aveni and Cuenca, 1994; Belmonte et al. 1994, 2000; Belmonte and Hoskin, 2002; Esteban et al., 1994, 1996, 1997; Gil and Belmonte, 2009; Belmonte, 2015, and references therein, among others). This includes the study of Bentayga and the Calendar as defended in pages 147-151 and 221-226 of the dossier, respectively. Different sites at Acusa were also analysed in the last decade and data analysis, astronomical relationships and inter-visibility between them and with Roques Bentayga and Nublo are discussed in the dossier (p. 152-153). This has plainly entered in the popular tradition: see e.g. <https://www.youtube.com/watch?v=uOC5xhvsEdA>.

Studies had a renaissance with the discovery of Risco Caido. For the last decade, a multidisciplinary team has been working on site analysing the relationship between astronomical and cultural aspects of this important archaeological site, notably of Cave 6. Most of the results obtained so far are described in detail in the dossier (pages 129-140) and have recently been presented to the international community (Cuenca et al. and Belmonte et al, 2018, Mediterranean Archaeology and Archaeometry, in press, preprints available upon requirement).

[40] Rodríguez, E. *et al.*(199). Excavaciones arqueológicas en Risco Chimirique (Tejeda, Gran Canaria). Vegueta, nº4, 57-74.

[41] http://dataciones.grancanariapatrimonio.com/yacimiento.php?code=02&s=

[42] Cuenca, J. (2018)

[43] Springer Bunk, R. (2008). Realización de un inventario de inscripciones alfabéticas en el ámbito rupestre canario. Directorate General of Historic Heritage of the Canary Island Government.

Finally, a multidisciplinary team has recently been created [first field campaign in May 2018] comprising researchers of the Cabildo de Gran Canaria (including the Director and Scientific Director of the nomination proposal), the Incipit (Institute of Heritage Sciences) of the Spanish Supreme Council of Scientific Research (CSIC) at Santiago de Compostela, and the Instituto de Astrofísica de Canarias (La Laguna, Tenerife) to continue the archaeoastronomical research in the area of the property and other sites of Gran Canaria to analyse and discuss parallelisms, singularities and the identification of further exceptionalities.

ICOMOS has noted that the Nomination dossier briefly mentions the Archaeo-and Ethnobotany of the cultural landscape. This fact appears to be of significance, mainly due to the fact that the landscape contains a very specific biodiversity, with several plant species being endemic to the area. The aboriginal population used these unique plants for medicinal and other traditional uses, and these continue right up to today. There has been a detailed study done on the Archaeo-and Ethnobotany of the area, also linking the use of certain plants to those in Morocco and West Africa, providing another link to the original Berber inhabitants.

ICOMOS has identified that there is a gap of information on the Nomination dossier regarding the aforementioned study and considers that its addition would prove a valuable contribution to Risco Gaido's case.

The ethnobotanical and archaeobotanical dimension Associated values and resources

The use of plants in the area of the cultural landscape and the surrounding area over the years offers a series of cultural values and know-how that have been mentioned in different parts of the nomination dossier. They also provide us with information that brings to light links to the original Amazigh culture. Given their importance, we will broaden this information by providing the most significant reference elements and the catalogues of plants used, placing special emphasis on the endemic plants.

The traditional flavours generated by the people that have lived here and their relations with the natural resources over time contain valuable information for a better understanding of this cultural landscape. Specifically, the concept of “cultural biodiversity” refers to the diversity of know-how that mankind has developed in the history of their relations with biodiversity. This is a very important aspect of the cultural heritage of the property, above all when referring to a legendary legacy that has been handed down over the generations to the present day. Moreover, the characteristics of the space, determined by its double isolation, as an island and as a confined mountain territory, give these cultural expressions an outstanding and unique nature.

The sacred mountains of Gran Canaria present a wide floral and ethnographic diversity that has generated a culture of oral tradition, whose manifestations include the continued survival of a deep knowledge of the flora and how it can be used for different purposes, including medicinal purposes.

Based on their endemic biodiversity, the mountains of Gran Canaria are the reservoir of a rich cultural diversity; in other words, one that cannot be replicated anywhere else on the planet. The cultural uses of all kinds that have been made of this flora since mankind first appeared on the island and the high proportion of endemic plants, make this a “living repository” of exceptional knowledge, practises and ways of interacting with the environment.

1. THE CULTURAL USES OF NON-CULTIVATED PLANTS OVER TIME

The basic diet of both the aboriginal population and the settlers who came after the island was conquered in the 15th century, at least in the countryside, would obviously have come from the crops that they could grow and from the success they had raising their livestock. But, life would

have been unimaginable without the right tools, without human and animal health, without fuel, without many activities related to the world of their beliefs.

Thus, communities would obtain plant resources, medicinal and veterinarian remedies from their surroundings to feed their animals and to complement their diet during different seasons or during times of temporary shortages, in order to alleviate their illnesses and injuries and those of their livestock, along with material for building their houses and for making their farm tools, wood for the fire, etc. Knowledge of the wild plants, from its phenology and ecology, to their properties and how they could be used, was essential for their every-day lives and the activities they engaged in for the economic survival of the country folk of the island. It could be said that it would be difficult to find a single aspect of the lives of our forefathers that did not contain the presence of some plant element, and the relations with the flora were so profound that they even transcended the material aspect of life to become part of the intimate space of religious beliefs and superstitions, which has been recorded in the ethno-botanical studies conducted in the nominated property.

1.1. Botanical characterisation and selection criteria for species with documented cultural uses

The flora of Gran Canaria comprises a total of 1,281 species and 82 sub-species, 1,003 (78%) of which are native, 46 are endemic to Macaronesia (4%) and 232 (18%) endemic to the Canary Islands. 95 of these endemic species in turn, are exclusively found in Gran Canaria and 137 in the Canary Islands. This study has not considered the species endemic to Macaronesia. The importance of the area of the nominated property in this context is obvious if we consider that it holds 53 plants endemic to Gran Canaria (48 sp., 15 subsp.), 100 endemic to the Canary Islands (82 sp., 18 subsp.) and 20 endemic to Macaronesia (see Catalogue of endemic plants in the Cultural Landscape, pages 57-58 – Nomination dossier).

In order to draw up sections 2.2 and 2.3 concerning the cultural uses of plants documented by ethnography, the 161 endemic species to be found in the nominated Cultural Landscape have been identified (69 % of the total of 232 species endemic to the Canary Islands), and from there, the 76 species with documented cultural uses have been identified (47% of the total of 161 species endemic to the Canary Islands)

<table>
<tr><td rowspan="4">1,281 species in the Gran Canaria flora</td><td>1,003 native species</td><td colspan="2"></td></tr>
<tr><td rowspan="3">232 endemic Canary Island species</td><td>71 endemic Canary Island species not found in the area</td><td></td></tr>
<tr><td rowspan="2">161 endemic Canary Island species found in the area</td><td>85 endemic Canary Island species with no cultural use</td></tr>
<tr><td>76 endemic Canary Island species with a cultural use</td></tr>
</table>

From this quantitative data, one can infer that the native flora of Gran Canaria (78%) and the endemic Macaronesian flora (4%) have not been considered for ethnobotanic characterisation as these are not values of the nominated property associated with the cultural use of wild flora.

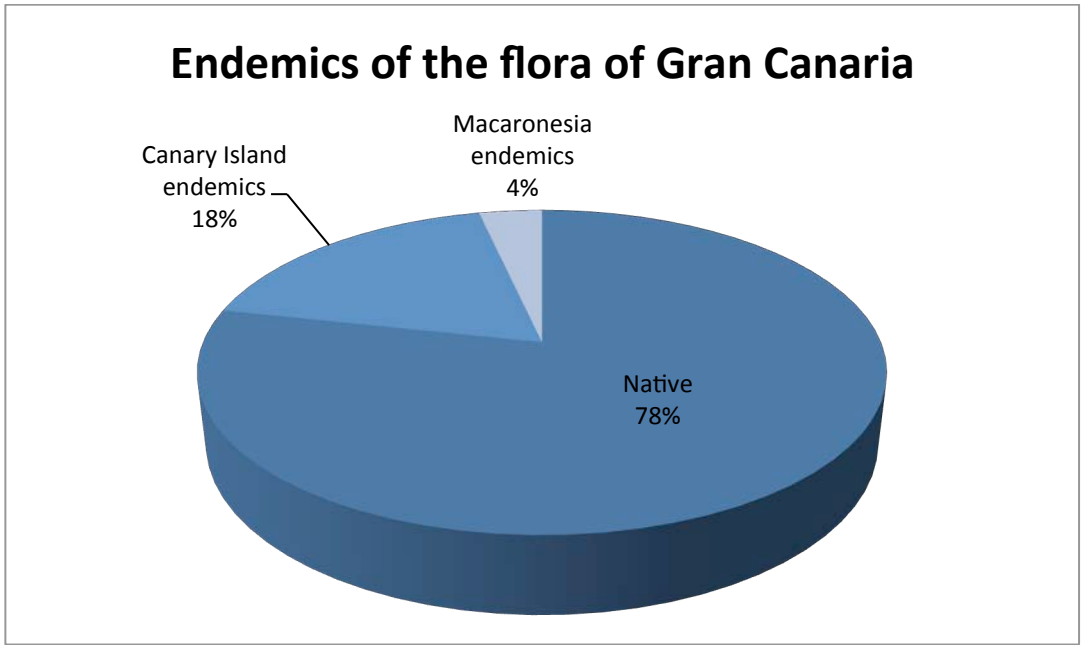
And of course, the introduced species have been ruled out too, many of which were introduced very early on and have broad, traditional cultural uses.

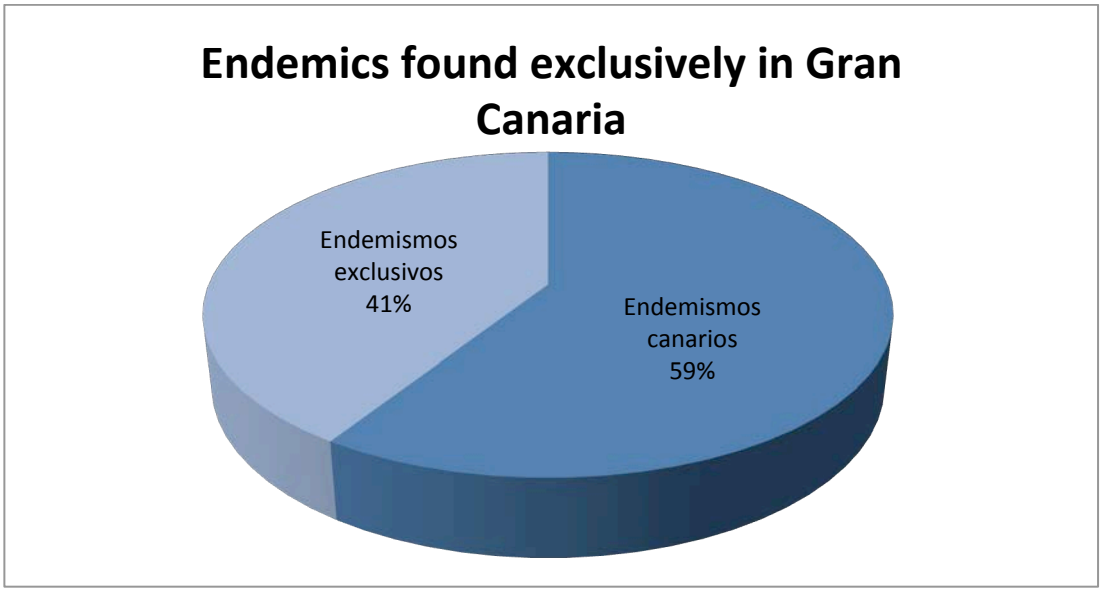
Hence, it is important to stress that the ethnobotanic wealth of the non-cultivated plants of Gran Canaria, and in particular in the area of the nominated property, is far greater than reported in this report, with multiple and secular uses of a large number of plant species, such as those cited and displayed in the Tejeda Museum of Medicinal Plants, situated in the buffer zone of the nominate property.

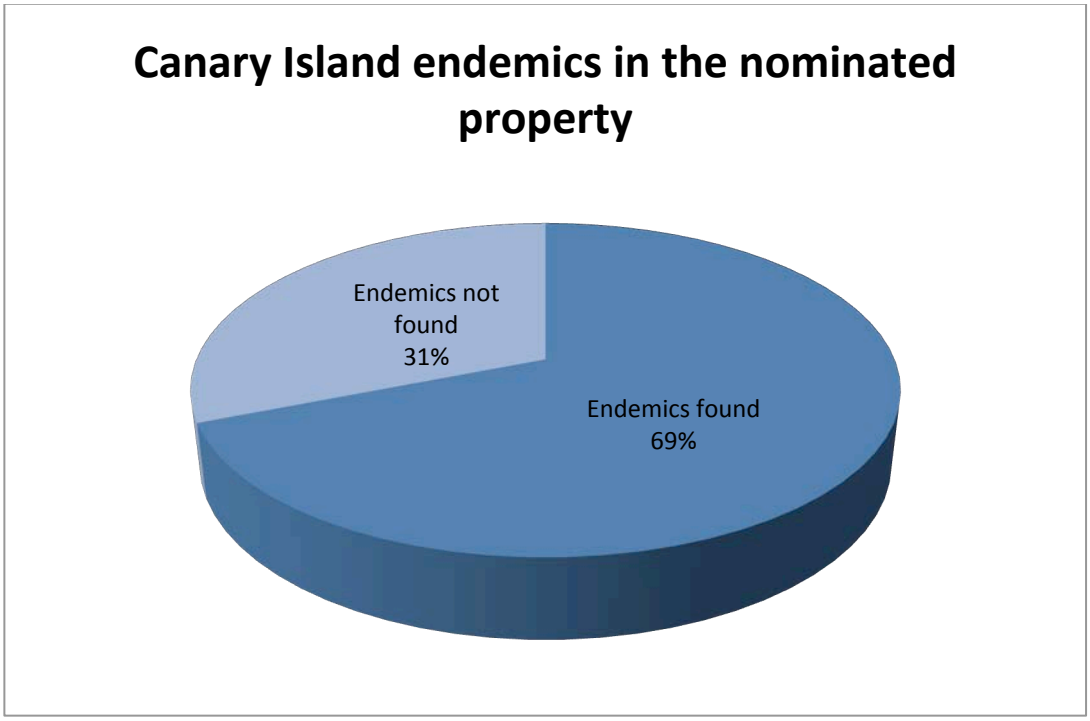
For the archaeobotanical characterisation of section 2.1, dealing with the cultural uses of non-cultivated plants documented archaeologically, consideration has been given to the archaeobotanical remains identified in different archaeological sites of the island. It is important to highlight that the archaeobotanical focus of archaeology is a relatively recent one, although the results obtained to date provide important conclusions such as those presented in section 1.4, which highlights the Amazigh ties, with a special mention for the findings in the area of the nominated property. These findings, along with the increase in the number of comparative analyses, including those based on molecular phyllo-genetics, could provide new and surprising results in the next few years.

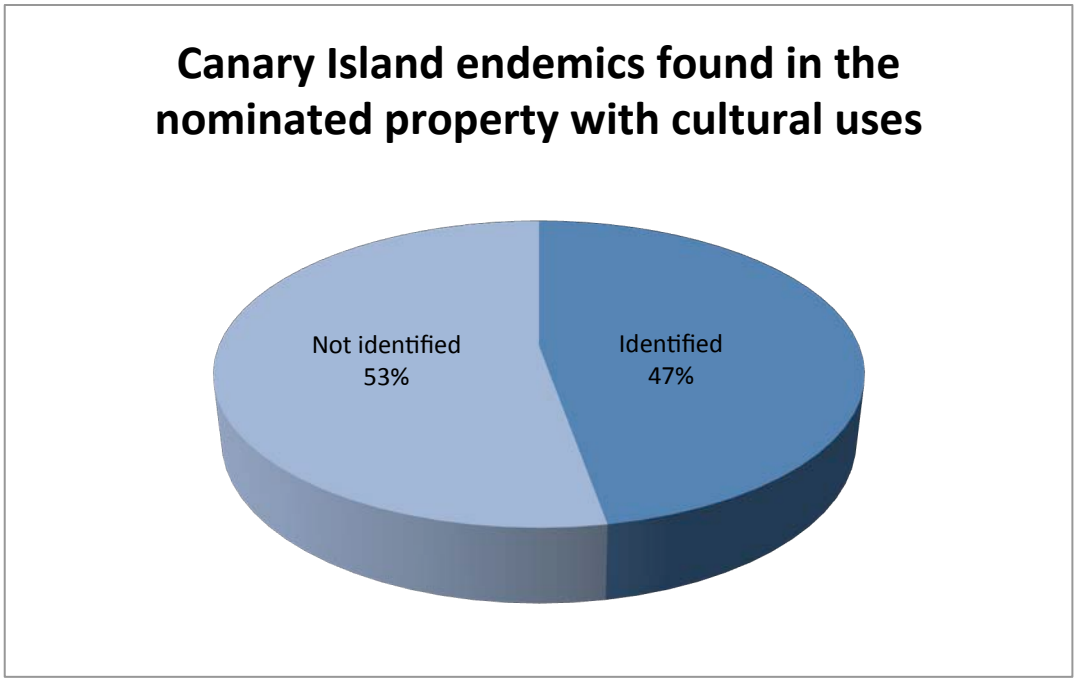
Secondly, as this does not deal specifically with aspects concerning the endemicity of the plants, but rather with an empirical demonstration of the use of non-cultivated plants by the pre-Hispanic culture of Gran Canaria, native species have been included too, and not just the endemic ones.

Finally, the catalogue of plants in the archaeological record presents the results obtained by research in the six best-documented sites of Gran Canaria to date from the archaeobotanical standpoint, indicating the volume of archaeological sediment analysed, the number of samples obtained and the density of the samples per litre of sediment, together with radio-carbon dating, which give an time amplitude of 1,100 years of use of non-cultivated plants




Endemics found exclusively in Gran Canaria
Endemismos exclusivos 41%
Endemismos canarios 59%


Canary Island endemics in the nominated property
Endemics not found 31%
Endemics found 69%



1.2. The cultural use of non-cultivated plants in the pre-Hispanic/amazigh stage

As far as the aboriginal population is concerned, recent archaeobotanical studies have proven, to date, the presence of some forty-something non-cultivated species in the archaeological record of Gran Canaria (see section 2.1). A significant number of the remains recovered consist of carbonised seeds or berries, hence associated with their consumption. But, consideration must be given to the fact that a large number of the wild plant resources are consumed raw or processed away from the fire, so the number of wild species collected would most probably be higher; and it is difficult to assure whether other remains are associated with other activities like collecting fuel, curing people or rituals, or not.

Ethnohistorical sources, written between the 15th and 17th centuries, during and after the conquest of the island, talk about the use of six species on Gran Canaria as a food source, and many others used to make clothes, tools, medicines, decoration for bodies and for many other purposes, although the very nature of the sources, written before the discovery of botanical taxa, make the identification of specific species a complex task.

1.3. Historical continuity in the use of non-cultivated plants

With all the necessary methodological caution, it is possible to consider that – at least for the clearly endemic plants with ethnographically-documented cultural uses in the present, discovered and proven with oral interviews – there was a significant exchange of know-how between the aboriginal population and the new European settlers.

The endemics, as plants that only existed on Gran Canaria at that time, were obviously unknown species to the new population. We will see how just in the area of the nominated property, ethnographers have documented a total of 76 endemic species with cultural uses, many of which could have been preserved by the remaining aborigines and passed on to the new population as part of the trans-culturalisation process. This hypothesis is supported by the fact that many of the common names of endemic species have a clear pre-Hispanic origin, as indicated in section 1.4.

Today, only 3% of the population works in farming and 66% live in metropolitan areas. But, in the 1940s and 1950s, most people engaged in agriculture (60%) and lived in rural settlements, such as those dotting the area of the nominated property. That is why those closest to the country side are those who are now over seventy years old and who belong to or have belonged to these rural communities. And they are the depositories of this ethnobotanical know-how.

In order to safeguard this cultural biodiversity, the "Viera y Clavijo" Canary Island Botanical Garden, a unit of the CSIC (Supreme Council of Scientific Research) belonging to the Cabildo of Gran Canaria, has been running the "Knowledge Bank" project since 2004, aimed precisely at compiling, documenting and disseminating this extraordinary heritage.

1.4. Amazigh ties

While the uses and applications of the endemic (and therefore, unknown to recently-arrived populations) plants were most probably passed on by the Amazigh population to the new European population, the first Amazigh settlers arrived to an uninhabited and bio-geographically very different territory from their places of origin, with an extraordinary endemic biodiversity from a botanical standpoint. And this is where the true exceptionality of what we could call a profound process of adaptation, adaptability and of harnessing the new plant resources available for all kinds of uses in the new island environment lies.

Although there is a lack of comparative ethnobotanical studies between the Canary Islands and North Africa, there are isolated references to the medicinal and culinary use of certain species of the Cistus genus not endemic to the Canary Islands, by today's Berber people. But there is also a record of the fact that *Thymus origanoides* Webb & Berthel (tajosé), for instance, endemic to Lanzarote, has traditionally been used to provoke abortions, probably since pre-Hispanic times. But, similar, and potentially abortive species in North African have never been used for this purpose.

But, one fundamental element that ties directly to the Amazigh world and which also accredits the ethnobotanical cultural continuity between the pre and post-Hispanic stages is the indisputably Amazigh nature of common plant names of several native and endemic species, as shown in the table below:

Aboriginal / Amazigh name	Scientific name
Balo	*Plocama pendula* Aiton
Bejeque	*Aeonium* spp., *Greenovia* spp.
Berode (berol)	*Kleinia neriifolia* Haw.
Bicácaro (bicacarera)	*Canarina canariensis* (L.) Vatke
Góngaro	*Aeonium virgineum* Webb ex Christ
Cóngano	*Aeonium simsii* (Sweet) Stearn
Herdanera (jerdanera)	*Teline rosmarinifolia* Webb & Berthel.
Jocama	*Teucrium heterophyllum* L`Hér.
Joriada	*Asteriscus graveolens (Forssk.) Less.*
Mocán (mocanera)	*Visnea mocanera* L. f.
Orijama	*Neochamaelea pulverulenta* (Vent.) Erdtman
Tabaiba	*Euphorbia* spp. (endémicas canarias)
Taferte	Sisymbrium, Hirschfeldia, Rapistrum, Erucastrum
Taginaste	*Echium* spp.

Aboriginal / Amazigh name	Scientific name
Tasaigo / Tasaico	*Rubia fructicosa* Aiton
Yoya	Berry from *Visnea mocanera* L. f. (probably from the Amazigh “yaya” = children, fruit, berry

Phyllo-genetic studies on cultivated plants, especially on the barley strain (*Hordeum vulgare* ssp. *vulgare*) are providing highly interesting data that accredit beyond doubt a) the North African origin of pre-Hispanic barley and b) the surprising fact that the barley currently grown in Gran Canaria is the same as the barley grown by the Amazigh populations.

The research projects carried out by the University of Las Palmas de Gran Canaria, and funded by the Ministry of Economy and Competitivity of the Spanish central government (HAR2010-19328 and HAR2013-41934) are highly significant in this regard. Their objectives included the study of the contents of the aboriginal fortified granaries, particularly the granary of El Álamo in Acusa, situated in the nominated property. The most significant point is that these studies, along with others conducted jointly with the University of Linköping (Sweden), have confirmed the extraordinary presence of archaeological DNA in seeds recovered from the granaries. The conservation of DNA in archaeological seeds is very rare, and has only been documented in very few places in the world like Sudan, Israel and China (Hagenblad et al., 2017).

The DNA obtained from the pre-Hispanic barley has been compared with modern DNA from barley currently grown in the Canary Islands and other points of Africa and Europe; and the conclusion drawn is that the barley grown today in the area is the same as the barley that was introduced by the aboriginal Canarians. This is a unique case, offering genetic proof that a plant has continued to be grown in the same place for over one thousand years (Hagenblad et al., 2017). These data confirm the enormous scientific potential of these granaries, which represent a genuine treasure of our heritage.

The difficult access to these granaries has allowed part of the original content of the silos to be conserved, providing unique information about the economic strategies associated with producing food during aboriginal times. Furthermore, this is the first collective granary analysed systematically on the island of Gran Canaria (Morales et al., 2014). The results of the studies conducted in the silos have also documented the presence of over 10,000 remains of plant foods. These include evidence of cereals (barley and wheat), legumes (beans, lentils and peas), and fruit (figs and dates from the Canary Island palm tree). The proportion of species found in the silos is very similar to those found in housing units, with barley as the main cereal identified. These data confirm barley as the most important cereal in the diet of the pre-Hispanic inhabitants of Gran Canaria (Morales et al., 2014).

There can be no doubt from a botanical point of view, that barley, along with the fig tree, wheat and beans and peas (species that have yet to be worked on phyto-genetically) were the first plants introduced into Gran Canaria by the first Amazigh settlers. The data on barley merely reinforces the Amazigh origin of the first population and the surviving link of the current population to their most remote past.

According to the modern-day farmers, local barley is better adapted to the climate of the archipelago, with short and mild winters, than barley from mainland Europe. Local barley is able to ripen even during extreme droughts, producing larger harvests than foreign barley. The fidelity of the Canarian farmers to the local barley is thus likely, at least in part, due to its better performance, being well adapted to the climate of the archipelago.

The case of figs is just as significant. It is clear from the present evidence that figs were cultivated and consumed during the pre-Hispanic stage of Gran Canaria. Furthermore, fig was the only fruit crop introduced in the Canaries during the pre-Hispanic period. In North Africa, place of origin of the first Canarians, figs are also a very important resource in the diet at the present time. Although there are not molecular studies about the relationship among figs from the Canaries and North of Africa, ethnographic and linguistic studies in Morocco and Algeria have shown several similarities in the naming and managing of fig with the data from the Canary Islands. These similarities could also extend to other species like the palm tree, as, even though the local species is different and endemic to the Canary Islands (Phoenix canariensis), the systems to handle and harness all its components is clearly related to the ancestral way it was handled in North Africa.

The study of the silos of the El Álamo granaries offers other significant elements of the aboriginal ethnobotanical culture. Fragments of laurel (*Laurus novocanariensis*) were found in several of them. Laurel is a tree that is endemic to the Canary Islands that grew basically in the extensive laurel forests that carpeted the northern part of the area. The leaves and berries provide essential oils that act as insecticides and anti-fungus, and they have been traditionally used as insecticide and to eliminate domestic pests (Rodilla et al., 2008). This is an exceptional find as it is one of the few archaeological proofs in the world of the use of plant insecticides in prehistoric times.

1.5. Medicinal uses

One of the main uses for wild plants is medicinal. The two cultural stages that have overlapped in Gran Canaria, and particularly in the mountains, since over 1500 years ago have obviously not been immune to these applications, although its exceptional nature and unique character must be highlighted, due to the high percentage of endemic plants used as resources.
As indicated above, the native flora, and endemic to Gran Canaria to different degrees, is comprised of a total of 1,281 species, plus a very high number of introduced plants. The identification and characterisation of the medicinal uses of this enormous body of flora would be excessive, so, for obvious reasons, we will focus on showing the medicinal ethnobotanical heritage that characterises the nominated property, and particularly, the specific medicinal applications of the endemic species found in the area. Their other cultural uses are specified in sections 2.1 and 2.2.

It has already been pointed out that it is not easy to detect the medicinal uses of these plants in the archaeological record, but the fact that we are dealing with endemic species reinforces to a great extent the idea that such applications were known to the Amazigh population before the conquest and that this knowledge was transmitted to and adopted by the European population that occupied the island after the Spanish conquest.

Within one of the cultural uses of plants, the medicinal component has been essential up to relatively recently in the area of the nominated property. Moreover, this is a culture that remains deep-rooted even island-wide, with medicinal plants being used on an everyday basis to alleviate symptoms, to cure minor illness or as a supplement to reinforce medical treatment.

The highlands have always been the land of "*yerberos" (people who use plants to cure)*. The traditional trade of *yerberos, both male and female,* in which women have played an essential role, continues to survive. These are people with a profound knowledge of the environment, wild

plants and their medicinal applications, who collect and, if necessary, dry and process these valuable plants for consumption and to market them all over the island in permanent or occasional markets. They are commonly grown and collected in the area of rural settlements when medicinal plants are required on a small family scale.

Medicinal ethnobotany is so important in the area that they have the only Museum and Interpretation Centre devoted to Medicinal Plants in the Canary Islands, located in the rural town of Tejeda (http://tejeda.eu/plantas).

In the geographical context of the nominated property, the main endemic species with medicinal uses and with an expression of their applications are as follows:

Aeonium percarneum (R. P. Murray) Pit.
Properties: Healing scars, coagulant
Applications: Stops small haemorrhages from cuts

Camptoloma canariense (Webb & Berthel.) Hilliard
Properties: Cold cure, expectorant
Applications: Colds, cough

Micromeria sp.:
Properties: Cold cure, expectorant
Applications: Cold, cough. Helps circulation. Good tonic for hair. Clean and cure wounds.

Sideritis dasygnaphala (Webb & Berthel.) Clos emend. Svent.
Properties: Cold cure, expectorant, asthma treatment
Applications: Cold, cough, asthma

Artemisia thuscula Cav
Properties: Stomach, aromatic, expectorant, analgesic
Applications: Stomach (ache). Pains, Stimulates appetite.

Atalanthus pinnatus (L. f.) D. Don
Properties: Astringent
Applications: The sap is used to wean children from breast feeding at a certain age

***Bystropogon canariensis* (L.) L`Her.**
Properties: Cold cure, stomach, expectorant, digestive, tranquiliser
Applications: Cleans phlegm and mucous in the case of cold, cough. It alleviates stomach ache. Calms the nerves. The crushed leaves are put up a person's nostrils to decongest them.

***Bystropogon origanifolius* L`Her.**
Properties: Cold cure, stomach, expectorant, digestive, tranquiliser
Applications: Cleans phlegm and mucous in the case of cold, cough. It alleviates stomach ache. Calms the nerves. The crushed leaves are put up a person's nostrils to decongest them.

Euphorbia balsamifera Aiton ssp. Balsamífera
Properties: Skin
Applications: Verrucas, callouses

Euphorbia canariensis L.
Properties: Skin
Applications: Verrucas, wounds (instep)

Forsskaolea angustifolia Retz.
Properties: Diuretic, anti-inflammatory
Applications: Infection. It reduces irritation of the bladder. Flu

***Fumaria coccinea* Lowe ex Pugsley**
Properties: Reduces glucemia, reduces cholesterol, and is used to treat asthma
Applications: Cholesterol. It reduces glucose in the blood. Asthma

Juniperus turbinata Guss. ssp. canariensis (A.P. Guyot in Mathou & A. P. Guyot) Rivas-Mart., Wildpret & P. Perez
Properties: Antiseptic
Applications: Mouth (teeth)

Kleinia neriifolia Haw.
Properties: Cures wounds, woundwort, analgesic
Applications: Reduces ear ache

Lavandula minutolii Bolle
Properties: Digestive, astringent, pain killer, aromatic
Applications: Fights stress, nerves, helps to get to sleep. Stomach ache, in case of indigestion, diarrhoea. Aromatic for perfuming the house and children's clothes

Neochamaelea pulverulenta (Vent.) Erdtman
Properties: Treat rheumatism, analgesic, reduces glucose, reduces cholesterol
Applications: For wounds, blows. Reduces pain in the mouth. Reduces blood sugar. Cholesterol

***Olea cerasiformis* Rivas-Mart. & del Arco Aguiar**
Properties: Reduces cholesterol, reduces blood pressure
Applications: Reduces cholesterol in blood and high blood pressure

Ononis angustissima Lam subsp. Angustissima
Properties: Stomach, analgesic
Applications: Alleviates stomach ache

***Ononis angustissima Lam subsp. longifolia* (Willd.) H. Forther & D. Podlech**
Properties: Stomach, analgesic
Applications: Alleviates stomach ache

***Pinus canariensis* Sweet ex Spreng**
Properties: Anti-inflammatory, cold cure, analgesic
Applications: Pneumonia, flue. Cures wounds. Alleviates tooth-ache. Eliminates thorns (resin).

***Rosa canina* L.**
Properties: Astringent, eyes, abortive, anti-inflammatory, cold cure
Applications: Sty (eye). Pneumonia

Rumex lunaria L.
Properties: Expectorant, emollient, anti-inflammatory
Applications: Pneumonia, decongests nose mucous, colds

Salvia canariensis L.
Properties: Cold treatment
Applications: Cold, asthma

2. CATALOGUE OF PLANTS WITH DOCUMENTED CULTURAL USES

2.1. Catalogue of native plants, endemic to Gran Canaria and endemic to the Canary Islands with documented cultural uses in the archaeological record of Gran Canaria

It is important to emphasise that one of the main archaeological sites of Gran Canaria that have provided archaeobotanical data of great value is in the very heart of the nominated area. This is the fortified cave granary of El Álamo, an integral part of the troglodyte complex of La Mesa de Acusa. The remains of barley from this site have also served as the base material for genetic studies that have accredited both the North African origin of pre-Hispanic barley and the fact that the barley currently grown on the island is the same as the barley grown during aboriginal times (see section 1.4).

	La Cerera	**El Tejar**	**Ermita de San Antón**	**Lomo los Melones**	**Cueva Pintada**	**Lomo los Gatos**	**El Álamo-Acusa**
site type	cave-dwelling	ritual-dwelling	kitchen-midden	dwelling-food processing	village-dwelling	midden	granary
seed preservation	charred	charred	charred	charred	charred	charred	desiccated
Cal BP radiocarbon dates	1650 ± 40 1370 ± 40	1280 ± 80 640 ± 40	920 ± 70 750 ± 50	710 ± 40 560 ± 40	610 ± 40 430 ± 40	450 ± 40 430 ± 40	980 ± 30 540 ± 30
sediment volume	780	617	69	491	737	207	14
Seed density per litre of sediment	1.17	0.21	1.42	5.86	4.59	2.38	836.85
cultivated plants							
Hordeum vulgare L. subsp. *vulgare,* grain	880	92	17	212	1465	245	2
Hordeum vulgare L. subsp. *vulgare*, rachis	3	3	2	4	90	.	5795
Triticum aestivum/*durum,* grain	2	3	2	3	216	49	2
Triticum durum Desf.*,* rachis	.	.	.	.	1	.	403
cereal node	.	.	.	.	1	.	7
Lens culinaris Medik.*,* seed	1	.	21	.	7	.	61
Pisum sativum L., seed	1	.	.	.	3	.	1
Vicia faba L, seed	.	.	.	.	2	.	14
Ficus carica L., seed	25	32	53	2658	1581	108	4458
Ficus carica L., fruit fragment	.	.	.	.	1	9	8
wild gathered plants	.	.	.	.	.	.	.
cf. *Adenocarpus foliolosus*	.	.	.	.	1	.	.
cf. Laurus novocanariensis	.	.	.	.	.	.	3
Neochamaelea pulverulenta (Vent.) Erdtman	.	.	3	.	3	3	.
Phoenix canariensis Chabaud	2	3	.	1	2	21	4
Pinus canariensis C. Sm. ex DC. in Buch	.	.	.	.	.	.	8
Pistacia atlantica Desf.	.	1	.	.	1	.	.

	La Cerera	El Tejar	Ermita de San Antón	Lomo los Melones	Cueva Pintada	Lomo los Gatos	El Álamo-Acusa
Plocama pendula Aiton	.	.	.	1	.	55	.
Retama rhodorhizoides Webb & Berthel.	.	.	.	.	1	.	.
Rubus sp.	.	.	.	.	1	.	.
Visnea mocanera L. f.	.	.	.	3	4	3	.
weeds	.	.	.	.	.	.	.
Aizoon canariense L.	.	.	.	2	14	.	8
Ajuga iva (L.) Schrb.	.	.	.	12	.	.	.
Amaranthus sp.	1	.	1	6	650	1	.
Anagallis arvensis L.	.	.	.	1	33	.	16
Apiaceae	.	.	.	.	.	.	24
Asphodelus sp.	.	.	.	.	2	.	.
Asteraceae, seed	3	.	.	.	5	.	93
Asteraceae, flower head	.	.	.	.	.	.	2
Atriplex sp.	.	.	.	3	1	1	.
Avena sp. spikelet	.	.	.	.	1	.	2
Bituminaria bituminosa (L.) Stirton	.	.	.	.	.	.	29
Boraginaceae	.	.	.	.	.	.	31
Brassicaceae	.	.	.	.	.	.	55
Bromus sp.	.	1	.	.	.	.	5
Calendula arvensis L.	.	.	.	.	.	.	23
Chenopodium murale L.	.	1	.	8	237	7	28
Emex spinosa (L.) Campd.	.	1	.	.	.	.	1
Euphorbia regis-jubae Webb et Berth., seed	.	.	.	.	.	.	73
Fumaria sp.	.	.	.	.	.	.	20
Galium sp.	.	1	.	.	3	.	2
Heliotropium ramosissimum (Lehm.) DC.	.	.	.	26	.	.	.
Hippocrepis sp.	.	.	.	.	.	.	1
Linum sp.	.	.	.	.	1	.	.
Lathyrus clymenum L.	.	.	.	.	.	.	1
Malva parviflora L.	7	12	44	10	255	4	10
Medicago sp. fruit	.	.	.	.	.	.	2
Mesembryanthemum nodiflorum L.	.	.	.	.	54	.	.
Opuntia sp.	.	.	.	.	.	.	73
Oxalis pes-caprae L., tuber	.	.	.	.	.	.	10
Patellifolia patellaris (Moq.) A.J. Scott, Ford-Lloyd & J.T. Williams	.	.	.	1	.	5	.
Phalaris sp.	2	1	.	1	131	.	26
Plantago sp.	.	1	.	1	15	.	15
Poaceae	.	.	.	.	3	.	20
Raphanus raphanistrum L., pod	.	.	.	.	.	.	43
Rumex sp.	2	1	.	.	4	.	5
Sherardia arvensis L.	1	.	.	.	7	1	12
Silene gallica L.	2	2	.	9	85	1	60
Silene vulgaris (Moench.) Garcke	.	.	.	.	8	.	8
Silybum marianum (L.) P. Gaertn.	.	.	.	.	.	.	20

	La Cerera	El Tejar	Ermita de San Antón	Lomo los Melones	Cueva Pintada	Lomo los Gatos	El Álamo-Acusa
Sisymbrium sp.	.	.	.	.	21	.	48
Small seeded legume	3	.	1	15	15	6	73
Solanum alatum/nigrum	.	1	4	3	31	.	5
Solanaceae	.	.	.	.	.	.	9
Spergularia fallax Lowe in Hook.	.	.	.	.	.	.	172

2.2. Catalogue of plants endemic to Gran Canaria found in the nominated property with cultural uses documented by ethnographic interviews

95 species / 63 found in the cultural landscape / 24 with cultural uses: 38% of 63 species

The boxes highlight the endemic species of ethnobotanical interest, including the scientific name, the common name and their uses.

Aeonium arboreum (L.) Webb & Berthel. subsp arboreum

Aeonium arboreum (L.) Webb & Berthel. subsp arboreum
Common names:
Houseleek
Yerba puntera
Uses:
Forage, hay, grass and other food for animals
Quench the thirst of animals

Aeonium canariense (L.) Webb & Berthel. ssp. virgineum (Webb ex Christ) Banares

Aeonium percarneum (R. P. Murray) Pit.
Common names:
Góngaro (pre-Hispanic)
Puntera coloraa
Puntera negra
Oreja burro
Yerba puntera
Uses:
Medicinal
Forage, hay, grass and other food for animals
Quench the thirst of animals
Repellent, rodent poison, disinfectant, insecticide

Aeonium simsii (Sweet) Stearn
Aeonium undulatum Webb & Berthel.
Aichryson bituminosum A. Banares
Aichryson pachycaulon Bolle ssp. praetermissum Bramwell

Andryala pinnatifida Aiton ssp. preauxiana (Sch. Bip.) G. Kunkel
Common names:
Mouse-Ear
Tosera
Tosedera
Tosiaera
Tosienta
Perrorera
Uses:
Shortcoming, inappropriate, offensive or poisonous

Argyranthemum adauctum (Link) Humphries ssp. canariense (Sch. Bip.) Humphries
Common names:
Daisy
Magarsa
Manzanilla
Uses:
Forage, hay, grass and other food for animals (Occasional)

Argyranthemum adauctum (Link) Humphries ssp. gracile (Sch. Bip.) Humphries
Common names:
Daisy
Magarsa
Manzanilla
Uses:
Forage, hay, grass and other food for animals (Occasional)

Argyranthemum frutescens (L.) Sch. Bip. ssp. pumilum Humphries
Argyranthemum lidii Humphries
Asplenium terorense G. Kunkel
Babcockia platylepis (Webb) Boulos

Babcockia platylepis (Webb) Boulos
Common names:
Daisy
Lechugón
Lechuga de risco
Uses:
Forage, grass and other food for animals

Camptoloma canariense (Webb & Berthel.) Hilliard
Common names:
Sutera
Sierva
Saladillo
Uses:
Medicinal

Carlina canariensis Pit.
Common names:
Carline Thistle
Cardo yesca
Cardo de mecha
Cardo cristo
Uses:
Utensils, tools, belongings, roofs, sidings, rendering, “yesquera”
Forage, hay, grass and other food for animals

Carlina texedae Marrero Rodr.
Common names:
Thistle
Cardo yesca
Cardo de mecha
Cardo cristo
Uses:
Utensils, tools, belongings, roofs, sidings, “yesquera”
Forage, hay, grass and other food for animals

Chamaecytisus proliferus (L. f.) Link ssp. meridionalis Acebes
Common names:
Tasagaste (pre-Hispanic)
Escobón
Escobón salvaje
Ecobón blanco
Escobón blanco del sur
Uses:
Rituals and signs from the spirits
Charcoal, wood, other material for making fire, leaves, bush for bedding
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals
Shortcoming, inappropriate, offensive or poisonous

Cheirolophus arbutifolius (Svent.) G. Kunkel
Chrysoprenanthes pendula (Sch. Bip.) Bramwell ssp. flaccida (Svent.) Bramwell
Chrysoprenanthes pendula (Sch. Bip.) Bramwell ssp. pendula

Cistus horrens Demoly
Common names:
Cistus
Jarón
Jaguarzo
Hogarzo
Uses:
Shortcomings, inappropriate, offensive or poisonous

Cistus ocreatus C. Sm. in L. von Buch
Common names:
Cistus
Jarón
Uses:
Shortcoming, inappropriate, offensive or poisonous

Crambe scoparia Svent.
Common names:
Sea-Kale
Col de risco
Uses:
Forage, hay, grass and other food for animals (Occasional)

Crambe tamadabensis Prina & Marrero Rodr.
Common names:
Sea Kale
Col de risco
Uses:
Forage, hay, grass and other food for animals (Occasional)

Dendriopoterium menendezii Svent.
Dendriopoterium pulidoi Svent. ex Bramwell

Descurainia artemisioides Svent.
Common names:
Flixweed
Mato amarillo
Uses:
Forage, hay, grass and other food for animals

Descurainia preauxiana (Webb) O. E. Schulz
Common names:
Flixweed
Mato amarillo
Uses:
Forage, hay, grass and other food for animals

Dracaena tamaranae Marrero Rodr., Almeida-Perez & Gonzalez-Martin
Common names:
Gran Canaria Dragon Tree
Uses:
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals

Echium callithyrsum Webb ex Bolle
Common names:
Viper's Bugloss
Taginaste (pre-Hispanic)
Taginaste manso
Uses:
Forage, hay, grass and other food for animals

Echium decaisnei Webb ssp. decaisnei
Common names:
Bugloss (pre-Hispanic)
Taginaste (pre-Hispanic)
Taginaste salvaje
Taginaste blanco
Uses:
Forage, hay, grass and other food for animals
Charcoal, wood, other products for making fire, leaves, bush for bedding
Shortcoming, inappropriate, offensive or poisonous

Echium onosmifolium Webb ssp. Onosmifolium

Erysimum albescens (Webb & Berthel.) Bramwell
Common names:
Wallflower
Alhelí montuno
Uses:
Forage, hay, grass and other food for animals

Globularia ascanii Bramwell & G. Kunkel
Globularia sarcophylla Svent.

Isoplexis isabelliana (Webb & Berthel.) Masf.
Common names:
Foxglove
Cresta gallo
Uses:
Medicinal
Shortcoming, inappropriate, offensive or poisonous

Lotus spartioides Webb & Berthel.

Micromeria sp.:
Micromeria benthamii Webb & Berthel.
Micromeria canariensis (P. Pérez) Puppo subsp. canariensis
Micromeria canariensis (P. Pérez) Puppo subsp. meridialis (P. Pérez) Puppo
Micromeria helianthemifolia Webb & Berthel.
Micromeria lanata (C. Sm. ex Link) Benth.
Micromeria leucantha Svent. ex P. Perez
Micromeria pineolens Svent.
Micromeria tenuis (Link) Webb & Berthel. ssp. Tenuis
Common names:
Savory
Tomillo burro
Tomillo salvaje
Tomillo negro
Tomillo blanco
Uses:
Edible, aromatic and seasoning
Medicinal
Forage, hay, grass and other food for animals

Parolinia filifolia G. Kunkel
Parolinia ornata Webb
Paronychia capitata (L.) Lam. ssp. canariensis (Chaudhri) Sunding

Pericallis webbii Sch. Bip. & Bolle
Common names:
Cineraria
Mayo
Flor de mayo
Uses:
Rituals and signs from the spirits

Scrophularia calliantha Webb & Berthel.

Sideritis dasygnaphala (Webb & Berthel.) Clos emend. Svent.
Common names:
False Sage
Salvia
Salviablanca
Uses:
Medicinal
Veterinarian
Charcoal, wood, other material for making fire, leaves, bush for bedding

Sideritis guayedrae Marrero Rodr.
Silene tamaranae Bramwell
Sonchus brachylobus Webb & Berthel.

Sventenia bupleuroides Font Quer
Common names:
Sow Thistle
Lechuga de risco
Serraja de risco
Uses:
Forage, hay and other food for animals (Occasional)

Tanacetum ferulaceum (Webb) Sch.Bip.
Common names:
Privet
Magarza del sur
Uses:
Repellent, rodent poison, disinfectant, insecticide

Tanacetum oshanahanii Marrero Rodr., Febles & C.Suárez

Tanacetum ptarmiciflorum Sch.Bip.
Common names:
Privet
Magarza plateada
Uses:
Repellent, rodent poison, disinfectant, insecticide

***Teline microphylla* (DC.) P. E. Gibbs & Dingwall**
Common names:
Broom
Retama
Uses:
Shortcoming, inappropriate, offensive or poisonous
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals

Teline rosmarinifolia Webb & Berthel. ssp. *eurifolia* del Arco

Teline rosmarinifolia* Webb & Berthel. subsp. *rosmarinifolia
Common name:
Rosemary-leaved broom
Retama
Uses:
Shortcoming, inappropriate, offensive or poisonous
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals

***Vicia filicaulis* Webb & Berthel.**
Common names:
Vetch
Chinipa
Chinipita
Archista
Archista loca
Archistilla loca
Orchista
Archista salvaje
Arvejaquilla
Arvejaca
Arvejita
Lentejilla
Chicharrillo
Uses:
Forage, hay, grass and other food for animals

2.3. Catalogue of plants endemic to the Canary Islands found in the nominated property with documented cultural uses

137 species / 98 found in the cultural landscape / 52 with cultural uses: 53% of 98 species

Adenocarpus foliolosus (Aiton) DC.
Common names:
Sticky Broom
Cobeso
Escobeso
Uses:
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals
Charcoal, wood, other material for making fire, leaves, bush for bedding

Aichryson laxum (Haw.) Bramwell
Aichryson parlatorei Bolle
Aichryson porphyrogennetos Bolle
Aichryson punctatum (C. Sm. ex Buch) Webb & Berthel.

***Allagopappus canariensis* (Willd.) Greuter**
Common names:
Golden Rod
Mamita
Uses:
Forage, hay, grass and other food for animals

Allium canariense L.
Common names:
Allium
Ajo
Ajillo
Ajillo silvestre
Tipos de uso*:*
Shortcoming, inappropriate, offensive or poisonous

Andryala pinnatifida Aiton subsp. pinnatifida
Mouse-Ear
Tosera
Tosedera
Tosiaera
Tosienta
Perrorera
Uses:
Shortcoming, inappropriate, offensive or poisonous

***Arbutus canariensis* Veill.**
Common names:
Strawberry Tree
Madroño
Madroño canario
Tipos de uso:
Edible, aromatic and seasoning
Charcoal, wood, other material for making fire, leaves, bush for bedding

Artemisia ramosa C. Sm. in Buch
Common names:
Wormwood
Incencio / Incienso / Inciensio / Icensio morisco (incense/Moorish incense)
Uses*:*
Medicinal
Veterinarian
Repellent, rodent poison, disinfectant, insecticide

Artemisia thuscula Cav.
Common names:
Wormwood
Ocensio
Incencio
Incienso
Inciensio
Incensio pollero
Incensio gallina
Incensio pollo
Icensio salvaje
Uses:
Medicinal
Veterinarian
Aromatic
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals
Repellent, rodent poison, disinfectant, insecticide
Rituals and signs from the spirits
Shortcoming, inappropriate, offensive or poisonous

Asparagus sp.:
Asparagus plocamoides Webb ex Svent.
Asparagus umbellatus Link subsp. umbellatus
Common names:
Aparagus
Esparraguera
Uses:
Forage, hay, grass and other food for animals
Edible, aromatic and seasoning
Utensils, tools, belongings, roofs, sidings

Atalanthus capillaris (Svent.) A. Hansen & Sunding

Atalanthus pinnatus (L. f.) D. Don
Common names:
Alpíperes
Alpispe
Uses:
Medicinal

Bosea yervamora L.
Common names:
Fountain Bush
Hediondo
Jediondo
Uses:
Shortcoming, inappropriate, offensive or poisonous

Bryonia verrucosa Dryand.
Common names:
White Bryony
Alabasa
Calabacerilla
Calabacera de legarto
Venenillo
Uses:
Shortcoming, inappropriate, offensive or poisonous

Bupleurum salicifolium R. Br. in Buch ssp. aciphyllum (Webb ex Parl.) Sunding & G. Kunkel
Common names:
Hare's Ear
Arsonú
Alsonú
Onsonú
Mato amarillo
Uses:
Forage, hay, grass and other food for animals

***Bystropogon canariensis* (L.) L`Her.**
Common names:
Mint
Poleo de risco / salvaje / de la cumbre / del campo)
Uses:
Medicinal

***Bystropogon origanifolius* L`Her.**
Common names:
Mint
Poleo (blanco / normal / manso / verdadero
Uses:
Medicinal

Campylanthus salsoloides (L. f.) Roth
Common names:
Sea Rosemary
Restrallón
Uses:
Forage, hay, grass and other food for animals

Carduus clavulatus Link
Common names:
Musk Thistle
Cardo de yegua
Uses:
Forage, hay, grass and other food for animals

Carex canariensis Kuk.

Carlina salicifolia (L. f.) Cav.
Common names:
Carline Thistle
Cardo cristo
Cardo de risco
Cardo blanco de risco
Uses:
Forage, hay, grass and other food for animals
Yesca

Ceballosia fruticosa (L. f.) G. Kunkel
Common names:
Wild Peach
Duraznero salvaje
Uses:
Forage, hay, grass and other food for animals

Ceropegia fusca Bolle

Chamaecytisus proliferus (L. f.) Link subsp. proliferus
Common names:
Tajaraste
Tasagaste
Tasagate
Tagasaste
Satagaste
Sestagaste
Escobón
Escobón blanco
Escobón manso
Escobón mulato
Escobón negro
Escobón majorero
Uses:
Forage, hay, grass and other food for animals
Shortcoming, inappropriate, offensive or poisonous
Utensils, tools, belongings, roofs, sidings
Charcoal, wood, other material for making fire, leaves, bush for bedding

Convolvulus sp.:
Convolvulus canariensis L.
Convolvulus floridus L. f.
Convolvulus perraudieri Coss.
Common names:
Bindweed
Guaydil (pre-Hispanic)
Carrigüela
Enreaera
Uses:
Charcoal, wood, other material for making fire, leaves, bush for bedding
Shortcoming, inappropriate, offensive or poisonous

Dactylis smithii* Link subsp. *smithii
Common names:
Cocksfoot
Cañilla
Uses:
Forage, hay, grass and other food for animals

Dorycnium broussonetii (Choisy ex Ser. in DC.) Webb & Berthel.

Dracunculus canariensis Kunth
Common names:
Arum Lily
Taraguntía
Saragusía
Saragutía
Uses:
Shortcoming, inappropriate, offensive or poisonous

Dryopteris oligodonta (Desv.) Pic.-Serm.

Echium sp.
Echium strictum L. f. subsp. strictum
Echium triste Svent. subsp. triste
Common names:
Bugloss
Tajinaste
Tajinaste salvaje
Trajinaste
Lengua de vaca
Uses:
Forage, hay, grass and other food for animals
Medicinal
Dye

***Erucastrum cardaminoides* (Webb ex Christ) O. E. Schulz**
Common names:
Canary Mustard
Quemoncillo
Uses:
Forage, hay, grass and other food for animals

Erysimum bicolor (Hornem.) DC.

***Euphorbia aphylla* Brouss. ex Willd.**
Common names:
Leafless Spurge
Tolda
Uses:
Shortcoming, inappropriate, offensive or poisonous

Euphorbia balsamifera Aiton ssp. Balsamífera
Common names:
Sweet Spurge
Tabaiba (pre-Hispanic)
Tabaiba dulce
Uses:
Medicinal
Forage, hay, grass and other food for animals
Charcoal, wood, other material for making fire, leaves, bush for bedding
Utensils, tools, belongings, roofs, sidings
Chewing gum

Euphorbia canariensis L.
Common names:
Cactus Spurge
Cardón
Uses:
Medicinal
Veterinarian
Repellent, rodent poison, disinfectant, insecticide
Charcoal, wood, other material for making fire, leaves, bush for bedding
Substance for paralysing fish
Shortcoming, inappropriate, offensive or poisonous

Ferula linkii Webb
Common names:
Fennel
Cañaleja
Cañaheja
Uses:
Shortcoming, inappropriate, offensive or poisonous
Rituals and signs from the spirits

Festuca agustinii Linding.

Forsskaolea angustifolia Retz.
Common names:
Forskolea
Yerba ratonera
Ratonera
Uses:
Medicinal
Veterinarian
Forage, hay, grass and other food for animals

***Fumaria coccinea* Lowe ex Pugsley**
Common names:
Fumewort
Pamplina
Pimplina
Uses:
Medicinal

Gesnouinia arborea (L. f.) Gaudich.

***Globularia salicina* Lam.**
Common names:
Globularia
Lengua de pájaro
Uses:
Charcoal, wood, other material for making fire, leaves, bush for bedding

Greenovia aurea (C. Sm. ex Hornem.) Webb & Berthel.
Habenaria tridactylites Lindl.

Hypericum sp.
Hypericum grandifolium Choisy
Hypericum reflexum L. f.
Common names:
St. John's Wort
Yerba del crub
Cruzadilla
Uses:
Medicinal
Forage, hay, grass and other food for animals

Ilex canariensis Poir.

Juniperus turbinata Guss. ssp. canariensis (A.P. Guyot in Mathou & A. P. Guyot) Rivas-Mart., Wildpret & P. Perez
Common names:
Juniper
Sabina
Uses:
Medicinal
Utensils, tools, belongings, roofs, sidings

Kickxia scoparia (Brouss. ex Spreng.) G. Kunkel & Sunding
Common names:
Broom Toadflax
Pico pájaro
Uses:
Forage, hay, grass and other food for animals

Kleinia neriifolia Haw.
Common names:
Verol (pre-Hispanic)
Berol (prehispánico)
Berode (prehispánico)
Uses:
Medicinal

Lavandula minutolii Bolle
Common names:
Lavender
Yerba risco blanca
Uses:
Forage, hay, grass and other food for animals
Medicinal

Lavatera acerifolia Cav.
Common names:
Tree Mallow
Malva de risco
Uses:
Forage, hay, grass and other food for animals

Lobularia canariensis* (DC.) L. Borgen subsp. *canariensis
Common names:
Alison
Azuquilla
Pan y queso
Tomillo
Tomillo blanco
Matillo blanco
Uses:
Forage, hay, grass and other food for animals

***Lobularia canariensis* (DC.) L. Borgen subsp. *intermedia* (Webb) L. Borgen**
Common names:
Alison
Azuquilla
Pan y queso
Tomillo
Tomillo blanco
Matillo blanco
Uses:
Forage, hay, grass and other food for animals

***Marcetella moquiniana* (Webb & Berthel.) Svent.**
Common name:
Shrubby Burnet
Palo sangre
Uses:
Charcoal, wood, other material for making fire, leaves, bush for bedding
Forage, hay, grass and other food for animals

***Maytenus canariensis* (Loes.) G. Kunkel & Sunding**
Common names:
Canary Spindle Tree
Peralillo
Uses:
Charcoal, wood, other material for making fire, leaves, bush for bedding

Monanthes brachycaulos (Webb in Webb & Berthel.) Lowe

Neochamaelea pulverulenta (Vent.) Erdtman
Common names:
Cneorum
Leña buena
Uses:
Medicinal
Veterinarian
Charcoal, wood, other material for making fire, leaves, bush for bedding
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals

***Olea cerasiformis* Rivas-Mart. & del Arco Aguiar**
Common names:
Wild Olive
Baguero
Acebuche
Olivo salvaje
Olivo macho
Uses:
Edible, aromatic and seasoning
Medicinal
Rituals and signs from the spirits
Utensils, tools, belongings, roofs, sidings
Charcoal, wood, other material for making fire, leaves, bush for bedding

Ononis angustissima Lam subsp. angustissima
Common names:
Sticky Resharrow
Melosilla
Uses:
Medicinal
Forage, hay, grass and other food for animals
Charcoal, wood, other material for fire making, leaves, bush for bedding

***Ononis angustissima Lam subsp. longifolia* (Willd.) H. Forther & D. Podlech**
Common names:
Sticky Restharrow
Uses:
Medicinal
Forage, hay, grass and other food for animals
Charcoal, wood, other material for making fire, leaves, bush for bedding

Orchis canariensis Lindl.

Pancratium canariense Ker-Gawl.
Common names:
Sea-Daffodil
Cebolleta
Uses:
Shortcoming, inappropriate, offensive or poisonous
Forage, hay, grass and other food for animals

Paronychia canariensis (L. f.) Juss.
Common names:
Knot Grass
Nevadilla
Uses:
Forage, hay, grass and other food for animals

Pericallis tussilaginis (L`Her.) D. Don in Sweet
Phelipanche lavandulacea (Rchb.) ssp. trichocalyx (Webb) Carlon, G. Gomez, M. Lainz, Moreno Mor., O. Sanchez & Schneew.

***Phoenix canariensis* Chabaud**
Common names:
Canary Date Palm
Palma
Palma canaria
Palmera
Uses:
Edible, aromatic and seasoning
Charcoal, wood, other material for making fire, leaves, bush for bedding
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals

***Pinus canariensis* Sweet ex Spreng**
Common names:
Canary Pine
Pino
Pino canario

Uses:
Edible, aromatic and seasoning
Medicinal
Industrial
Aromatic
Charcoal, wood, other material for making fire, leaves, bush for bedding
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals

Plantago webbii Barneoud

Plocama pendula Aiton
Common names:
Balo (pre-Hispanic)
Uses:
Charcoal, wood, other material for making fire, leaves, bush for bedding
Utensils, tools, belongings, roofs, sidings
Forage, hay, grass and other food for animals
Shortcoming, inappropriate, offensive or poisonous

***Poa pitardiana* H. Scholz**
Common names:
Pasto
Grama
Uses:
Forage, hay, grass and other food for animals

Polycarpaea aristata (Aiton) DC.
Pterocephalus dumetorus (Brouss. ex Willd.) Coult.
Reichardia ligulata (Vent.) G. Kunkel & Sunding
Reseda crystallina Webb & Berthel.
Reseda scoparia Brouss. ex Willd.

***Rosa canina* L.**
Common names:
Dog Rose
Alcaramujo
Escaramujo
Uses:
Medicinal

Rubia fruticosa Aiton subsp. fruticosa
Common names:
Canary Madder (pre-Hispanic)
Tasaigo (pre-Hispanic)
Taaigo
Retasaigo
Raspilla
Uses:
Utensils, tools, belongings, roofs, sidings
Dye
Forage, hay, grass and other food for animals

Rubia fruticosa Aiton ssp. melanocarpa (Bornm.) Bramwell
Common names:
Canary Madder (pre-Hispanic)
Tasaigo (pre-Hispanic)
Taaigo
Retasaigo
Raspilla
Uses:
Utensils, tools, belongings, roofs, sidings
Dye
Forage, hay, grass and other food for animals

Rubia peregrina L. ssp. agostinhoi (Dans. & P. Silva) Valdes & G. Lopez

Rumex lunaria L.
Common names:
Canary Sorrel
Vinagrera
Uses:
Edible, aromatic and seasoning
Medicinal
Forage, hay, grass and other food for animals

Salvia canariensis L.
Common names:
Wild Sage
Salvia
Salvia negra
Salvia morisca
Salvia la cruz
Uses:
Edible, aromatic and seasoning
Medicinal
Veterinarian
Forage, hay, grass and other food for animals
Charcoal, wood, other material for making fire, leaves, bush for bedding
Industrial

Scilla dasyantha Webb & Berthel.

Scilla haemorrhoidalis Webb & Berthel.
Common names:
Canary Squill
Ajillo
Uses:
Medicinal

Seseli webbii Coss.
Sideroxylon canariensis T. Leyens, W. Lobin & A. Santos

Sonchus acaulis Dum. Cours.
Common names:
Sow-Thistle
Lechugón
Lechuga de risco
Lechuguilla
Lechuguilla de risco
Cerrajón
Uses:
Forage, hay, grass and other food for animals
Shortcoming, inappropriate, offensive or poisonous

Sonchus canariensis (Sch. Bip.) Boulos subsp. canariensis
Tamarix canariensis Willd.

***Teucrium heterophyllum* L`Her. subsp. *brevipilosum* v. Gaisberg**
Common names:
Red Germander
Jocama (pre-Hispanic)
Uses:
Medicinal

Todaroa montana Webb ex Christ
Common names:
Canary Keck
Tajam (pre-Hispanic)
Tajamio (pre-Hispanic)
Tajame (pre-Hispanic)
Cañaleja mansa
Cañaleja salvaje
Cagaruta
Tagaruta
Uses:
Forage, hay, grass and other food for animals
Shortcoming, inappropriate, offensive or poisonous

Tolpis lagopoda C. Sm. in Buch
Viburnum rigidum Vent.

Vicia sp.
***Vicia chaetocalyx* Webb & Berthel.**
***Vicia cirrhosa* C. Sm. ex Webb & Berthel.**
Common names:
Canary Vetch
Chinipita
Chinipa
Archista
Archista loca
Archistilla
Orchista
Archista salvaje
Orchista salvaje
Arvejaquilla
Arvejaca
Arvejita
Lentejilla
Chicharrillo
Uses:
Edible, aromatic and seasoning
Forage, hay, grass and other food for animals

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Attached are some reference images of some plants and uses to show the ethnobotanical wealth of the nominated property.

Close-up of the inflorescence of *Vicia villosa*, one of the species of the *Vicia genus* encompassed under the vernacular denominations of *chinperas, chinipitas, chinipillas*. Photograph: Jaime Gil González.

Phoenix canariensis, one of the most useful species. Photograph: Jaime Gil González.

Incense (*Artemisia thuscula*) is one of the most popular medicinal species in the nominated property, and it is still used among the population. Photograph: Arnoldo Álvarez Escobar.

Collecting charcoal from the forests was an important economic activity. Photograph: Yuri Millares.

Using tagasastes (*Chamaecytisus proliferus*) for forage was a wide-spread practise and it still has a significant presence in the countryside. Photograph: Jacob Morales Mateos.

Captoloma canariense, one of the botanical jewels of the area. Photograph: Jaime Gil González.

Bells for livestock with the clappers made from Canary Island cneorum, heartwood of pine and juniper roots. Photograph: Jaime Gil González.

The seed pods from the *Phoenix canariensis* were an important food resource in times of hardship. Photograph: Arnoldo Álvarez Escobar.

Plants have a presence in multiple facets of country life and they are used for a wide diversity of purposes. The photograph shows broom used as bedding for the livestock.

Photograph: Natividad Delgado

2

Factors affecting the property

The Nomination dossier mentions on pages 395-398, that 'new buildings, sometimes on protected land, or the unfortunate rehabilitation and use of old buildings... and also the existence of some new infrastructure facilities that have a negative impact on certain priority enclaves of the landscape, such as some illegal tracks, high and medium voltage overhead cables, certain water works or the nocturnal lighting of some isolated hamlets in this area.'

ICOMOS would be pleased to receive further information, if available, on the actions which are planned to mitigate these issues.

The Nomination dossier mentions on pages 395-398, that 'new buildings, sometimes on protected land, or the unfortunate rehabilitation and use of old buildings .. .and also the existence of some new infrastructure facilities that have a negative impact on certain priority enclaves of the landscape, such as some illegal tracks, high and medium voltage overhead cables, certain water works or the nocturnal lighting of some isolated hamlets in this area.'

ICOMOS would be pleased to receive further information, if available, on the actions which are planned to mitigate these issues.

First of all, we would like to clarify that the impacts mentioned refer in general to risk factors that have to be monitored closely. Even considering that the impacts of this kind are only occasional in the area of the nominated property, and, in general, only refer to elements to be corrected in the buffer zone, we will now move on to consider the actions scheduled or in course regarding this matter:

Construction of new buildings

The characteristics of the planning legislation and the protection system in the nominated property prevent the construction of new buildings anywhere in the area in question. Hence, this risk of impact is inexistent and planning discipline would be applied to any kind of action of this kind. The buffer zone is a slightly different case, where there is urban land, but there are limits on the volume and the kind of building that can be constructed according to the planning legislation in effect.

Improper refurbishment and use of old buildings

Regarding the impacts arising from an improper refurbishment and use of old buildings, especially with regard to aesthetics, material and visual impact, the conditions for these actions are currently contained in the different urban planning scale instruments of the area in question: general municipal planning and the planning instruments of protected natural spaces. These instruments include maintaining ethnographic and scenic values.

However, based on the special characteristics of this territory and the opportunity to provide better and more uniform landscape protection in the future, the Cabildo of Gran Canaria has started, this year, the process of diagnosing the planning legislation to detect additional aspects where regulation must be brought in line with the commitments inherent to conserving the nominated Cultural Landscape, with the refurbishment and use of old buildings being one of these aspects. (see Island By-laws at the end).

Illegal tracks

Regarding illegal tracks, planning legislation in the area of the nominated property does not currently allow new tracks to be made, except in specifically-defined cases in specific area, for example, improving the access to houses or smallholdings. Any illegal tracks that cannot be brought in line with the law will be subject to planning disciplinary measures taken by the competent authorities.

In recent years (from 2003), there has only been one attempt to illegally open a new track in Taigui that has been suspended by agents from the department of the environment, after opening the corresponding inquiry (see legal provisions and impact prevention).

Treatment of areas around archaeological sites

After an initial diagnosis of the visual and aesthetic impacts around the main sites, a need to intervene was identified in three specific areas. Projects were drawn up to such end to improve these sites and eliminate impacts from the areas around Roque de las Cuevas del Rey, Risco Caído and Acusa, the first two of which are about to be completed and the latter has already been completed. In all cases, the interventions have been aimed at refurbishing walls and accesses with local materials, eliminating scenic impacts and small eyesore buildings, and blending in the facades and the areas around certain rural houses.

A fine example of this is the project to adapt and enhance the Cuevas del Rey site and surroundings, which is scheduled for completion by the end of 2018, with a public investment of 500,000 €.

Water infrastructures

The scenic challenges faced regarding channelling water must consider two factors: on the one hand, the distribution of irrigation water using traditional open channels presents the handicap of causing water leaks of over 50% more than with modern, efficient irrigation water distribution systems that use pipes. One essential aspect in this area is that water is in short supply and essential for maintaining the agricultural landscape and the local economy. The solution would appear to depend on the ability to combine the possibilities of putting in underground pipes with the use of traditional canals (“acequias”) as a support, on a case-by-case basis, in order to reduce their visual impact. These aspects are also addressed in the Island By-Laws.

Regarding sanitation, several actions have been taken in the nominated property, aimed at installing underground pipes and introducing bio water treatment systems. These actions include the project, already completed, of a sanitation network in the cave village of Acusa.

Create a light pollution-free space

Maintaining the quality of the night sky is another major package of measures aimed at preventing and eradicating the main sources of light pollution. The measures and actions envisaged that are either in course or completed are as follows:

- Agreement with the ITC (Canary Island Institute of Technology) for an inventory of the current lighting system in order to roll out the lamp replacement programme to achieve a light pollution-free space.
- The Artenara council has replaced 30% of their lamps to bring them in line with the Starlight requirements for sky quality and energy saving. This action will be on-going over the next three years.
- The Tejeda council, which covers a large proportion of the small settlements of the nominated property, signed an agreement this year with the Spanish State Diversification and Energy Saving Institute (IDAE) to replace and adopt non-polluting, energy efficient lamps to the tune of €1.1m. This affects the entire area of the nominated area and the Tejeda basin included in it, as well and the buffer zone that falls within this municipal district. Hence it is one of the largest projects of this kind in the countryside in the whole of Spain.
- In the area of Starlight certification, the Cabildo of Gran Canaria has drafted Light By-Laws that especially affect the area of the Starlight Reserve and Destination that includes the nominated property and its buffer zone.

- In the process of reviewing the Gran Canaria Island Planning Document (PIO), new draft regulations have been introduced, covering light pollution that is currently going through the process of approval (General and Specific Regulations of the Plan - Section 18 Environmental Quality: measures against sound, light and air pollution).

Finally, it must be remembered that since almost all the site is included in the Protected Areas (ENP), any action must be submitted to environmental impact study.

The legal framework - Eventual legal measures applied in certain extreme cases

Over and above what has been said, it is worth pointing out that the legal provisions, arising from general and regional legislation, that are aimed at protecting the natural and cultural heritage, and more specifically, the provisions established in the laws aimed at controlling impacts, include guarantees that make it impossible for these to occur.

In the case of the nominated property, we would also draw your attention to the fact that new Canary Island Land Act (Ley del Suelo de Canarias) envisages that "*the local corporations – with the co-operation of the Cabildos – draw up a catalogue of impacts from constructions that significantly deteriorate the rural landscape because of their building style, composition or because of their situation, such that corrective measures are taken in their regard that could consist of their total or partial demolition, or adapting them to the traditional kind of building of the area in which they are located*"

Hence, there is sufficient institutional framework in which to develop planning, environmental and heritage discipline policies, which will obviously be supplemented with information and awareness-raising campaigns – in line with the participative processes of the local population and stakeholders – to prevent and off-set any occasional impacts recognised, and to restore those places in which any are detected.

Finally, it must be remembered that since almost all the area included in the Protected Natural Space (ENP), any action must be submitted to environmental impact study

In any case, all legal provisions and protective measures always bear in mind that this is a living landscape that evolves and constantly faces the challenges posed by the conservation-sustainable development binomial.

The role of the new Island By-Laws

It must be pointed out that to be able to establish additional planning provisions, over and above existing ones in the planning legislation in effect, to protect, preserve and manage the heritage, territory and landscape in the area of the property and its buffer zone or to regulate uses that have an impact on it, the recent legislation on land and the protected natural spaces of the Canary Islands, Law 4/2017, 13th of July, establishes a new figure (article 154), Provisional Island By-Laws, defined as follows: "*In the event of extraordinary and urgent public necessity or social interest that has arisen, that requires an amendment to regional or town planning, and which cannot be tackled with the ordinary procedure for minor amendments to the planning legislation, island or municipal by-laws can be provisionally approved, either at the initiative of the island or municipal government or at the request of persons or entities with legitimate representative interests, by the procedure of approving these regulations pursuant to*

the local legislative regime, with the same effects that the planning instruments that they temporarily replace would have."

And this is precisely the way that the Cabildo of Gran Canaria has chosen to reinforce the aspects of scenic quality and the correction of certain impacts that could arise and which are not specifically envisaged in the planning legislation and in the different planning instruments. This instrument, applied to the area of the property, would allow the authorities to jointly address all and any planning modifications that may be necessary (all at once), to include the objectives and actions envisaged in the Cultural Landscape. The By-Laws will be passed with the co-operation of all the administrations involved in the project (Cabildo and Councils) and, after a period of public participation, they will establish the necessary provisions for a good fit between the nominated property and regional and town planning. Once adopted, and given the provisional nature that characterises these by-laws, their provisions will have to be integrated in municipal planning legislation and in legislation covering protected natural spaces.

In order to be able to establish the content and scope of these By-Laws, a complete analysis and diagnosis of the area is needed to allow a comparison between the regulations contained in all these instruments in order to identify the aspects that should be regulated, which must include especially actions that could generate some kind of environmental impact. Aspects like those mentioned in the nomination dossier, such as refurbishing old buildings (and cave-houses), the criteria for improving tracks and trails, for the layout and replacement, if necessary, of electricity lines and for laying pipes, are all aspects to be considered in the analysis and diagnosis currently in process.

The first analysis of current planning is underway, in order to identify the aspects that may be revised to integrate the objectives set out in the Integral Management Plan of the nominated property and the protection system for it, into the planning regulations.

3

Boundaries and the buffer zone

Maps 5.b.13 and 5.b.14 respectively show that many archaeological sites and many ethnographic sites inventoried are not only located within the proposed boundaries and the buffer zone but also outside.

ICOMOS would be pleased if the State Party could provide further clarification on the rationale which led to the delineation of the proposed boundaries and buffer zone of the nominated property.

Could the State Party provide, if available, a table showing the number of cultural sites located in the nominated property and its buffer zone?

Maps 5.b.13 and 5.b.14, respectively show that many archaeological sites and other ethnographic sites on the inventory are not only located within the boundaries and the buffer zone, but also beyond.

COMMENT

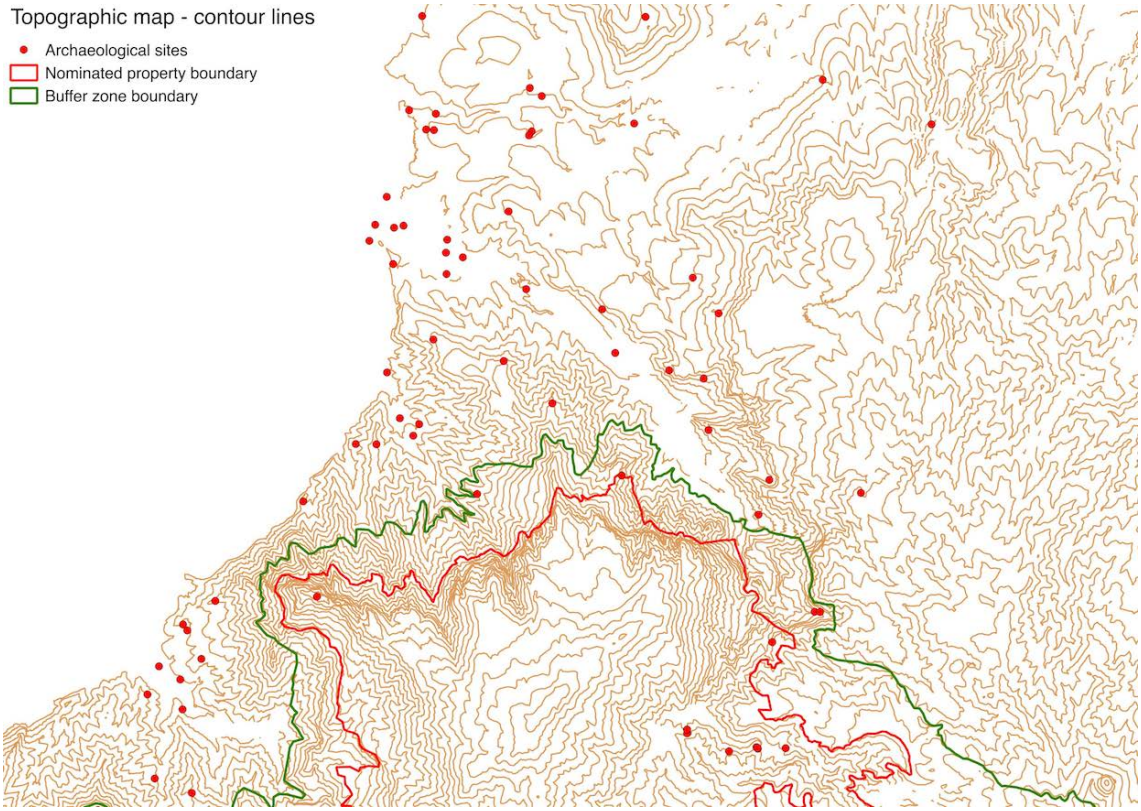
It is true that there are many archaeological sites, and other ethnographic sites and elements located beyond the area of the property, including its buffer zone. These are circumstances that occur especially to the north and north-east of the area under consideration, while, to the south and east, in the proximity of the Tejeda Caldera, sites of this kind are less frequent, with the exception of some isolated examples.

Apart from the fact that these sites and elements do not represent important expressions associated with the nominated property and its outstanding value, it is important to point out that these are to be found in the area of the foothills, in gorges that converge towards the mountains or on the coast, and they are always situated outside of the Tejeda Caldera and outside of the system of east-west running ravines included in the caldera situated to the north of Artenara.

The properties of special interest with regard to the nomination are situated in areas of caves (examples of troglodyte habitats) and mountainous areas (the sacred mountains), located in the Tejeda basin and the areas close by that have propitiated the cave habitat because of the geological material they are made from and their orientation. This means that many of the properties that appear in maps 5.b.13 and 5.b.14 located outside of the buffer zone, either in the bottom of the Agaete Valley, or on the hills and ravines of the municipal districts of Gáldar, Santa María de Guía, Moya, Valleseco and Vega de San Mateo, which run down from the Tejeda basin towards the north and east, have little relation with the characteristics of those to be found in the nominated property and its buffer zone.

Despite the apparent proximity on the map of these manifestations, we should highlight that there are sharp changes in height of 400m and more a very short distance from the boundary of the nominated property, which puts these elements in a different geographical and cultural context. This difference can be appreciated in Map 4.1 and in Figure 4.1. that show the elevation of the ground in 3D and the corresponding boundaries.

It is also worth pointing out that on the island of Gran Canaria, beyond the area of the sacred mountains, restricted to the Caldera of Tejeda, an inventory has been taken of a large number of aboriginal sites that show other expressions of the pre-Hispanic settlement of the island. As explained in previous points, this is the island with the largest number and diversity of substantial archaeological sites in the whole of the Canary Islands.



Map 3.1. Shows the distribution of archaeological sites in the northern area of the nominated property. The altitude curves show the great difference in height of the archaeological sites to be found outside of the area of the nominated property.

Figure 3.2. Shows the perspective of the nominated property and its buffer zone from the north-west. In the foreground, the Tamadaba massif, where the radical changes in height that occur can be seen starting at the area of the mountains from the boundary of the nominated property.

ICOMOS would like the State Party to offer clarifications about the criteria used when delimiting the boundaries and buffer zones suggested for the nominated property.

CLARIFICATIONS ON THE DELIMITATION CRITERIA USED

The entire area of the nominated property and the buffer zone falls within the Tejeda Caldera, which constitutes a clearly differentiated area in geological, natural, scenic and cultural terms in the mountain highlands of Gran Canaria. The cultural uniqueness of this environment was evident in aboriginal times and it has been so from the time of the Conquest to the modern day.

Based on this premise, established as the basic delimitation criterion when defining the boundaries of the nominated property, we have opted to establish an area in which a commitment is made that sees the convergence of the following selection criteria:

C1. To include the territorial expression of the living space that the ancient settlers of the sacred mountains of Gran Canaria occupied

This criterion refers to including the three major area of the aboriginal memory in the nominated property: the Interior basin of Tejeda, Artevirgo and Tamadaba.

The inner Tejeda basin encompasses all the space in which a substantial part of the troglodyte settlement of these mountains and their natural habitat unfolded. This is where most of their settlements, sanctuaries and monumental expressions like the fortified granaries were located.

The legendary settlement of Artevirgo that spread along the bed of Barranco Hondo and which became one of the largest settlements on the entire island in pre-Hispanic times.

Tamadaba, the sacred forest of the ancients, which includes significant features like Montaña de Altavista.

Documental evidence and archaeological research enable us to associate these spaces with the ancestral territory known as Tirma, mentioned in the chronicles of the Conquest. In the 18th century, this place name was relegated to a residual part of the area situated in the buffer zone.

C2. Concerning the Integrity of the composition

Components/attributes inside the nominated property fully express all the facets of OUV. The best and most significant examples of components/attributes of archaeology and ethnology are inside the proposed property and which include among others: the main sanctuaries and all of the almogarenes and archaeological sites with astronomical connotations, practically all of the aboriginal troglodyte settlements of the Tejeda Caldera and the expressions of rock engravings, the best manifestations of the re-used or historically developed troglodyte habitat, including its associated farming-terrace landscapes and techniques and outstanding uses of resources like water, the main transhumance routes and related landscapes, along with places associated with the immaterial heritage by virtue of their symbolic importance.

C3. Concerning the landscape and the natural environment

The boundaries of the nominated property have been fine-tuned in the delimitation process, based on criteria of ecosystems to make them coherent with the integrity of the natural habitats of special interest. For example, this is especially highlighted in the inclusion of rocky habitats on the edges of Tamadaba and other cliff zones.

The boundaries include scenic features such as the monumental geological manifestations, edges, crests and escarpments that delimit the space in visual terms, as seen from the inside of the Caldera and from the main cultural sites of reference. This criterion is especially applicable to the inner basin of the Tejeda Caldera, where its boundaries include the major geological, monumental elements and cliffs, and where the boundary is set, to the south and to the south-east, as the rim and the crests of the first mountain range that hosts the living space of the settlements.

In the case of Barraco Hondo-Artevirgo, the whole bed of the ravine has been included, up to the head, bearing in mind that all together, this represents a scenic, cultural and environmental unit. It includes the two slopes of the ravine, the sunny side and the shaded side. This is an expression of a landscape constructed over the centuries, where the troglodyte settlements of all the different ages are set in the terraced fields and where settlements are located preferably on the sunny side of the ravine.

Another delimitation criterion was to include the best-preserved historical landscapes of the Tejeda Caldera, including the most representative settlements and their surroundings of the different kinds of agricultural terraces, apart from the orchard landscapes.

Finally, the Tamadaba massif constitutes a well-determined scenic unit, presided over by the forest of Canary Island pine, from a natural point of view, and from a cultural point of view, as the sacred forest of the ancient Canarians.

C4. Interconnection and skyscape

The boundaries include all the elements and spaces resulting from the feasibility studies and inter-connectivity between the nominated property's attributes and its monumental and natural references, particularly those relating to the astronomical culture of the ancient Canarians. As described in the course of the dossier, this is a landscape that is interconnected with the sky, in which a substantial part of the caves and sanctuaries are visually connected with cultural, symbolic and natural elements, while, at the same time, they are associated with celestial phenomena.

C5. Other applicable criteria

Regarding the inclusion of ethnographic properties and elements, the delimitation process considered the need to include the ones that best represent the values associated with the nominated property within the boundaries, based on criteria of representatively and integrity; in other words, giving consideration also to the quality of the environments in which they are located. This is especially reflected in areas included in the buffer zone such as the urban centre and rural settlements associated with Tejeda or in the area of Barranco Hondo, where there is a high density of these manifestations, most of which are common elements, often associated with areas of recent construction.

The layout of the boundary has, on occasions been fine-tuned due to criteria such as the different forms of protection and use zoning of the planning departments, such as those arising from Protected Natural Areas.

In the case of Barranco Hondo-Artevirgo, we would highlight the coincidence between the boundaries drawn and other planning issues, such as the fact that all the space set aside is considered an Archaeological Protection Zone in the Gáldar General Planning Document.

C6. General considerations on the delimitation criteria in relation to attributes / components

a) The best and most significant examples of components/attributes of archaeology and ethnology are inside the nominated property;

b) Examples outside the property are of some importance but they could be seen as "secondary attributes" because:

- similar and stronger examples already exist in the property;
- they are considered inside the buffer zone and must be seen as confirmation/reinforcement of the main components/attributes inside the property, rather than "forgotten attributes".

c) Components/attributes inside the nominated property fully express all the facets of OUV.

C7. Buffer zone

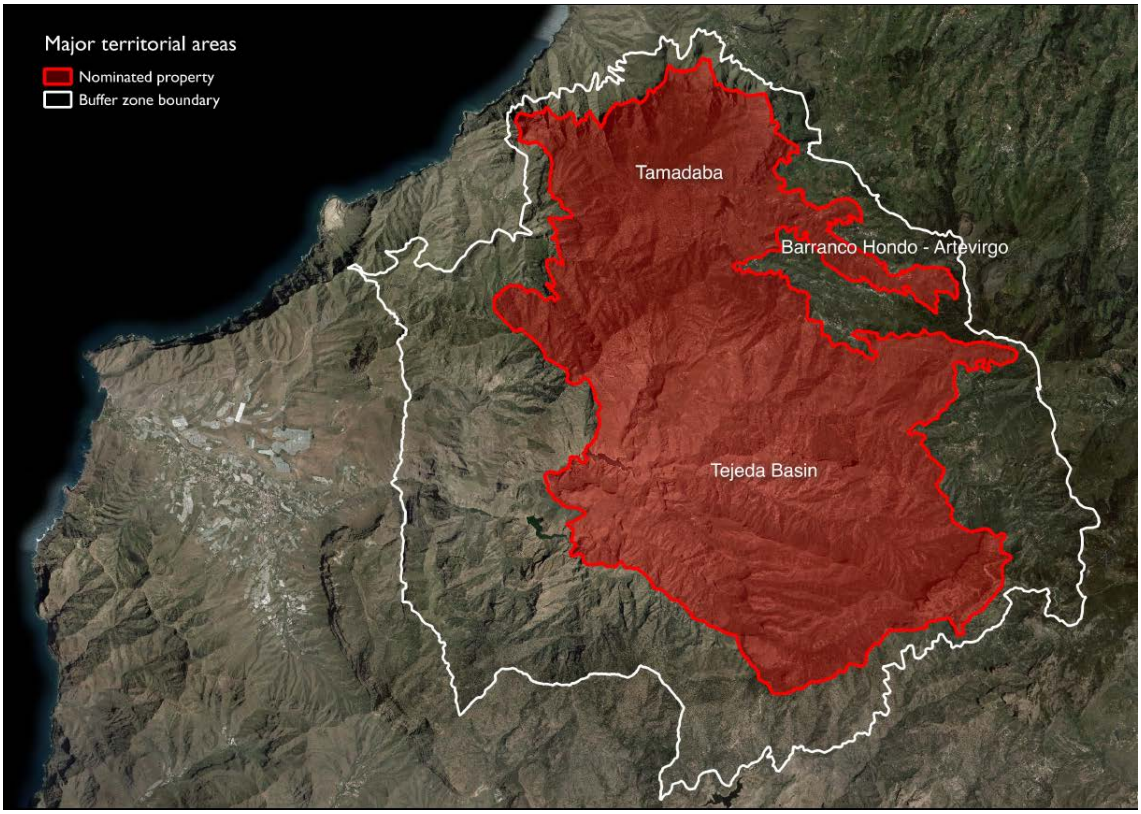
The basic criterion used for the buffer zone for setting the boundaries is the geological rim of the Tejeda Caldera, which includes all of the scenic space contained within the property.

It is worth pointing out as an exception to this rule, that the buffer zone surpasses the rim of the Caldera along one stretch of the boundary to the west, to include all of the area of the archaeological complex of Tirma Archaeological Site (BIC).

Hence, the cultural landscape is defined by a basin that encloses an extensive area of the mountainous interior of the island in a circle, with the spectacular sheer walls of Altavista, Acusa, Montaña de Artenara and Chapín to the north, which in the popular imagery is La Trasierra, the Nublo massif to the east and the mountain range of Pajonales, Sándara and Inagua to the south. The natural and cultural border of this is determined to the south-east by the Tirajana Caldera, and to the south, the extensive area of pine forests and ravines, separated from our region by an extensive space that historically has been semi-depopulated from the time of the aborigines to the modern day. So, despite the territorial isolation, it has never either contained or transmitted outstanding historical and cultural values as has happened in the cultural landscape we are dealing with. Only the western part of the Caldera opens up into a great ravine down to the coast at La Aldea, although the Altavista and Montaña de la Mora mountain range, along with El Junquillo plateau enclose the space around an impressive narrow pass, marking the dividing line between ravines.

We need to join a physical and cultural corridor to this massive space, the one that opens up between Acusa and Artenara to the north and north west. This space, which is accompanied and defined both geologically and culturally by the gran massif of Tamadaba, the only case on the island where the connection between the coast and the mountain peaks along the major ravines is cut off. In this case, Barranco Hondo, the former Artevirgua of the aboriginal population, is laid out like a confined world that has allowed for the survival of the best cultural expressions handed down from the original Canarian population to our generation.

Thus, the boundaries are the result of the methodological application and convergence of all the criteria mentioned, in which multiple adjustments have been made in the course of the nomination process. All these criteria are addressed implicitly throughout the nomination dossier, albeit not in the structured manner required by this specific question.



Map 3.2. Main area of the nominated property

Could the State Party possibly offer a table showing the number of cultural sites situated in the nominated property and its buffer zones?

Preliminary consideration

We have provided the table that indicates the number of cultural sites located in the nominated property and the buffer zone. However, we must point out that the density of points that appear on the mapping of material elements and ethnographic sites must be nuanced as an eventual delimitation criterion.

Elements outside the property are of some importance but they could be seen as "secondary attributes" because:

- similar and stronger examples already exist in the property;
- they are considered inside buffer and must be seen as confirmation/reinforcement of main components/attributes inside the property than "forgotten attributes".

The ethnographic properties included on the inventories of the ethnographic maps are not classified and they include a wide range of different manifestations, including very specific elements like a traditional oven abutting a house or a washhouse, or other rural expressions like threshing grounds, ponds and sheds, as well as churches, cemeteries, traditional businesses and other ethnographic expressions of different kinds like cave dwellings. In short, it is an exhaustive inventory, but not ordered by importance or kind of property that sometimes includes common elements.

It is important to highlight the fact that there is no kind of ethnographical classification that is not represented within the boundaries of the nominated property. Furthermore, one important piece of information, it is worth pointing out that most of the prominent sites of ethnographic interest on the inventory fall within the area of the nominated property.

TABLE 3.1.
CULTURAL SITES LOCATED IN THE NOMINATED PROPERTY AND BUFFER ZONE

Cultural sites and properties	Nominated property	Buffer Zone
BICs (Heritage of Cultural Interest) [1]	5	1
Caves with rock art manifestations [2]	32	0
Sites included on the inventories of the archaeological mapping [3]	74	48
Material elements and sites on the inventory of the ethnographic maps [4]	324	393

1. The BICs (Heritage of Cultural Interest) in the space include only archaeological sites. These are areas that include the most important manifestations and sites of the area. They include the sites and elements included in the inventories of the archaeological maps.

2. The caves with rock manifestations are exclusively in the nominated property, in BIC areas and also included on the archaeological maps.

3. Archaeological maps (Cartas Arqueológicas). It must be pointed out that 37 of the 48 sites and elements inventoried in the buffer zone are in the Tirma archaeological site - BIC (The place name should not be confused with the Tirma that defined the sacred mountain territory of the ancient Canarians). This area includes dry-stone

structures of a funeral nature, burial mounds or semi-underground aboriginal houses that are different kinds and expressions from those considered in the area of the nominated property, where a highly-detailed inventory has been drawn up.

4. Ethnographic Maps (Cartas Etnográficas). See comments on delimitation criteria. Many of the ethnographic properties inventoried in the buffer zone are common areas like cemeteries, store sheds, traditional shops, inns, washing places, ovens, grain stores, lay-bys, traditional -historical houses...

4

Protection

The nomination dossier specifies that the nominated area and buffer zone of the cultural landscape of Risco Cafdo overlap with different categories of designation. ICOMOS would be pleased to receive further information on how the Natura 2000 and the Gran Canaria Biosphere Reserve designations overlap with the nominated area and buffer zone and what is the relationships with the protective measures of the nominated property and its buffer zone.

Some of the areas of Special Heritage Interest (ARIP-3, ARIP-4), within the framework of the Special Territorial Plan for Historical Heritage Management, are located in the nominated area and in the buffer zone (Map 5.b.15). In view of the heritage value of these areas, ICOMOS would be pleased if the State Party could provide further clarification on why the Special Heritage Interest (ARIP-3, ARIP-4) area does not coincide entirely with the boundaries of the nominated property.

In the Gran Canaria land-use planning (Map 5.b.9), several D.1.2 areas are designated as land earmarked for development within the nominated property boundary and its buffer zone. The nomination dossier mentions that the land-use planning does not envisage new zoned land for the nominated area and its buffer zone. However, ICOMOS notes that part of the boundaries of the Barranco Hondo-Lugarejos site, inscribed as a Heritage of Cultural Interest (BIC), overlaps with one of these D.1.2 areas. Could the State Party clarify the strategy adopted in this specific case and, in general, whether development projects will be carried out in the areas already designated?

Could the State Party also provide further clarification on the level of protection of the buffer zone with regard to cultural sites, as areas of Special Heritage Interest do not entirely overlap with the buffer zone?

The nomination dossier specifies that the nominated area and buffer zone of the cultural landscape of Risco Cafdo overlap with different categories of designation. ICOMOS would be pleased to receive further information on how the Natura 2000 and the Gran Canaria Biosphere Reserve designations overlap with the nominated area and buffer zone and what is the relationships with the protective measures of the nominated property and its buffer zone.?

The area of the nominated property and its buffer zone is a Multi-Internationally Designated Area (MIDA) where two designations converge. In other words, the entire area falls within a UNESCO Biosphere Reserve and, on the other hand, 82% of the surface area is space included in the EU Natura 2000 Network and, eventually a World Heritage Site.

The nominated property and the Natura 2000

Pursuant to article 3 of the Habitats Directive, Directive 92/43/EEC of the Council of Europe on the conservation of natural habitats and wild flora and fauna, the Natura 2000 protected areas network is a coherent European ecological network comprised of Special Areas of Conservation (SAC) and Special Protection Areas for Birds (SPA).

The main purpose of the network, and particularly the SACs, is to guarantee the maintenance or re-establishment, if necessary, of the kinds of natural habitats and of the habitats of species in their natural area of distribution, in a favourable state of conservation, bearing in mind current uses and exploitations, and the economic, social and cultural demands there may be, and avoiding any transformations that may give rise to the loss or alteration of the values that underpin their designation.

There are 4 SACs in the area of the nominated property and its buffer zone:

- ES70000111 Tamadaba
- ES7010039 El Nublo II
- ES70010019 Roque Nublo
- ES0000041 Ojeda, Inagua y Pajonales

And two SPAs:

- ES0000111 Tamadaba
- ES0000041 Ojeda, Inagua y Pajonales

(See Map 5.b.7-8 of the nomination dossier)
Table 4.1. Shows the distribution of the areas in the nominated property and its buffer zone.

Table 4.1. NATURA 2000 SACs IN THE CULTURAL LANDSCAPE

	Nominated property ha	*Buffer zone ha*	*Total ha*	*%*
SAC Tamadaba	2375.21	2122.75	4497.96	25.03
SAC Nublo II	4870.70	2957.08	7827.78	43.57
SAC Roque Nublo	282.40	159.38	441.78	2.46
SAC Ojeda, Inagua	40.94	2032.95	2073.89	11.54
	7569,25	7272.16	14841.41	82.60

Hence, most of the area of the nominated property and its buffer zone fall within an SAC and/or an SPA. This implies that this designation makes a powerful contribution to the protection of the natural resources of the nominated property and of many of its essential scenic components under the European protection framework, guaranteeing that the integrity of key natural areas of this cultural landscape will be maintained. Habitats of special European interest and other habitats of interest in the area according to EU directives, and which give rise to these designations, are listed on page 432 of the nomination dossier. All while acknowledging that it is a living landscape.

The Management Plans were drawn up to attain these objectives, aimed at underpinning the conservation measures for the habitats and species of European interest. All these plans establish specific actions covered by a zoning scheme that, in turn, is organised around the different levels of activity, protection and by the kind of measures and actions to be implemented. The cornerstone of the zoning system is the zoning proposals it makes in the Gran Canary Island Planning Document (PIO) and in the provisions to such end established in the planning instruments of the different Protected Natural Areas (PNAs) in which these SACs are included. Each Management Plan is supplemented with a chapter aimed at specifying the monitoring and assessment mechanisms and with a six-year economic-financial plan.

We would also like to draw your attention to the *Action criteria* that, depending on the SAC in question, each management plan establishes. The "*Action criteria should be understood as the set of conditions that must be taken into consideration for making activities compatible with the conservation objectives, for each of the zones envisaged in the Management Plans*[44].

These criteria are referenced to the zoning established by the Management Plans, in accordance with the five categories ranging from priority conservation areas, restoration areas to transition areas.

The SAC Management Plans that affect the nominated property have been drafted and approved in their final version. This guarantees the protection objectives that have given rise to the different designations. These are:

- Tamadaba SAC Management Plan
- El Nublo II SAC Management Plan
- Roque Nublo SAC Management Plan
- Ojeda, Inagua y Pajonales SAC Management Plan

One thing that is striking in the delimitation of the Natura 2000 Network for the area of the nominated property is that it excludes the settlements of population and their surrounding farm

[44] ORDER of the 7th of March 2016, approving the conservation measures of the Special Areas of Conservation comprising the Natura 2000 Network in the Autonomous Region of the Canary Islands, aimed at maintaining or re-establishing their habitats when their delimitation coincides with the spaces comprising the Canary Island Network of Protected Natural Areas that have an approved conservation plan or rules, covering 12 areas. Canary Island Official Gazette Nº 49, 11th March 2016. Article 3.- Definitions.

land, highlighting the need to distinguish the Natura 2000 area from the living space of the sacred mountains in terms of protection.

The nominated property and the Gran Canaria Biosphere Reserve

UNESCO Biosphere Reserves are conceived to become models for the harmonised conservation and management of biological and cultural diversity and economic and social development based on local community efforts and sound scientific know-how.

Biosphere reserves are established as part of the UNESCO Man and the Biosphere Programme (MAB). This is an Inter-governmental Scientific Programme that seeks to establish scientific conditions for laying the long-term foundations for enhancing relations between people and the environment. Biosphere Reserves, inscribed in the MaB Programme World Network of Biosphere Reserves, promote solutions that reconcile conservation of biodiversity with its sustainable use. Biosphere reserves are 'Science for Sustainability support sites' – special places for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are currently the international category most clearly aimed at promoting sustainable development, aspiring to contribute models of co-existence between development and human welfare and the welfare of ecosystems.

Biosphere Reserves are designated by national governments and remain under the sovereign jurisdiction of the States in which they are located. The strategy of the World Network of Biosphere Reserves is founded on the Lima Action Plan for UNESCO's Man and the Biosphere Programme and its World Network of Biosphere Reserves (2016-2025), aimed at guaranteeing the effective implementation of the MAB strategy 2015-2025.

The MAB Strategy 2015-20125 focuses its action on conserving biodiversity, restoring and enhancing ecosystem services, and fostering the sustainable use of natural resources; contributing to sustainable, healthy, and equitable societies, economies and thriving human settlements in harmony with the biosphere; facilitating biodiversity and sustainability science, education for sustainable development and capacity building; and supporting mitigation and adaptation to climate change and other aspects of global environmental change. This strategy and the Lima Action Plan are clearly integrated in the SDGs (Sustainable Development Goals).

Practically the entire nominated property and its buffer zone fall within the Gran Canaria Biosphere Reserve, declared on the 29th of June 2005, which covers practically one third of the island of Gran Canaria. Thus, the conservation and protection goals concerning its status and set by the MaB Programme are applicable to it.

With regard to protection aspects, it should be pointed out that the Gran Canaria Biosphere Reserve is founded on the Canary Island Network of Protected Natural Areas (ENP), in accordance with is function to preserve biodiversity and protect natural elements. In other words, the declaration of the reserve has not created new legal instruments of environmental or regional protection, it is based on existing ones.

In fact, the zoning of the biosphere reserve, which determines the protection and conservation goals, establishes the space of the Inagua Integral Nature Reserve, in the nominated property, as the core zone, and, as a buffer zone, the area of the property that falls within the Nublo Rural Park and the Tamadaba Nature Park. In the cases of the Tamadaba Nature Park and the Inagua Integral Nature Reserve, the objectives covering the protection of habitats, species and ecosystems prevail; while in the case of Nublo Rural Park, most of which falls within the inner Tejeda basin, the functions of conservation and sustainable development combine more significantly.

The functions established in the Gran Canaria Biosphere Reserve include protection actions aimed not only at protecting habitats and ecosystems, but also those concerning the protection of the natural and rural landscape and cultural heritage in the broad sense of the term.

As far as the protection provisions are concerned, one must consider the close relationship between the Natura 2000 and Biosphere Reserve designations and the Canary Island Network of Natural Areas (ENP), and in turn, with the different regional planning instruments like the Gran Canaria's Land-use Plan (PIO) and municipal planning.

In the case of municipal planning, it is worth highlighting that there are no areas in the proximities of Barranco Hondo that are included in Natura 2000. But, in the area of the nominated property, the head of this ravine and the surroundings are included in the Las Cumbres Protected Landscape. Moreover, the entire ravine is considered a Protected Archaeological Area in the Galdar General Plan.

Finally, as general thoughts to share, we would point out that environmental conservation is at the very centre of the different designations, including the possible designation of the nominated Cultural Landscape. Experience in ADIM areas, according to the studies conducted, confirms that greater protection can be attained for an area if this has multiple, international designations. Furthermore, international designations have the potential to enrich each other mutually by adding value in complementary focuses, and to act in synergy to enhance the protection and management of the site.

Protection benefits arising from designations

There are obvious advantages for areas of this kind that have two or more forms of international recognition. In this case, the multiple designations have the potential to increase the capacity of recovery of the conservation areas against external pressure, as they highlight the different outstanding values of the site. This is an aspect that has been of special importance in protecting the area of the nominated property, knowing that it has been given high levels of protection without any discrepancy with the local population, which reinforces the sense of territorial pride because it is different.

MIDAs can and do provide a platform for the nominated property regionally, nationally and internationally, to reinforce inter-institutional co-operation. Experience in the area of the nominated property suggests that designations have helped to raise funds for managing and protecting sites and helping to assure financial resources from international donors. This is the case of rural development plans (sustainability) in the EU Leader financial instrument, or the funds obtained for protection and conservation as part of the EU Life Programme. Special funds from the Autonomous Region of the Canary Islands can also be accessed, along with those of the Central Government and the Cabildo of Gran Canaria, based on these designations. This has been shown especially in the whole property nomination process.

Another factor to consider is that international recognition of MIDAs accentuates the scientific importance of an area for research, education and public awareness-raising and it is extremely useful for fostering cross-border co-operation, twinning sites, world-wide exchange of knowledge and partnership programmes. This has been shown in the increase in the research process in the area and in the public awareness-raising processes of the values to be found in the nominated property. Also in the rural sustainable development and quality economy initiatives aimed at promoting and protecting local species, farming and livestock systems and native products, sometimes implemented within the framework of international co-operation networks.

In fact, the link between conservation and sustainable development is common if one considers designations as a whole and, therefore, the latter clearly facilitate the involvement of local communities in the field of conserving and protecting the area.

And finally, MIDAs help to raise international visibility and global prestige to a large extent, which, in turn, allows for the reinforcement of the economic base of the area through new forms of sustainable, responsible tourism, the spending associated with visitors and the marketing of branded products and services, which also minimises leaks from the economy. This is reflected in the progressive consolidation of a cultural tourism model and associated products like star tourism and archaeological tourism and in other forms of knowledge-based tourism.

Some of the areas of Special Heritage Interest (ARIP-3, ARIP-4), within the framework of the Special Territorial Plan for Historical Heritage Management, are located in the nominated area and in the buffer zone (Map 5.b.15). In view of the heritage value of these areas, ICOMOS would be pleased if the State Party could provide further clarification on why the Special Heritage Interest (ARIP-3, ARIP-4) area does not coincide entirely with the boundaries of the nominated property.

To address this question, it is worth first looking at the genesis and reasons for the ARIP. The Gran Canaria's Land-use Plan (PIO) established these zones in 2003. As we can see from Map 5.b.15, two mountain zones were considered that affect the nominated property and its buffer zone:

ARIP 3. "Highland Area I – Troglodyte Villages".
The identification of this area was clearly focused on recognising the troglodyte settlements. In fact, its definition points out that this zone includes the following sites: Acusa Seca, Lugarejos Pottery Centre (Municipal District of Artenara), Roque Bentayga, Cuevas del Rey, La Higuerilla (Municipal District of Tejeda), all within the area of the nominated property.

ARIP 4. "Highland Area II: The Traditional Rural Space"
The identification of this area was aimed at recognising the set of most representative, traditional Highland settlements, plus relevant pieces of the ethnographic heritage. The definition establishes the following as the most representative examples: El Majuelo, El Chorrillo, El Carrizal, El Espinillo, Era del Llano, Ayacata, Timagada, Juncal de Arriba, Juncal de Abajo (within the area of the nominated property) and Las Casas del Lomo, Juan Gómez, Molino de la Culata (in the buffer zone), along with part of the network of bridle paths or "Caminos Reales" (old mountain paths, including some transhumance routes).

Recognising these zones means that planning and protection instruments and special plans have to bear in mind the different values that they contain, whether it is the case of the troglodyte settlements, or in other cases, traditional rural villages and certain ethnographic elements.

Regarding the delimitation of these two ARIPs, the following nuances must be made:

a) If we consider only the up-dated inventory of troglodyte settlements and villages (see Map 2.a.8), with particular consideration to those of archaeological character, we can see that ARIP 3 does not cover the whole space of these manifestations, leaving some outstanding expressions outside of the boundary. This is the case of the aboriginal troglodyte settlements in Tamadaba and those located in the southern area of the Tejeda basin. The better understanding of these manifestations and the new evidence provided by 15 years of archaeological research after this section of the plan was drafted, suggest that there is a certain mismatch in the consideration of ARIP 3, which should be more extensive. On the other hand, the most important manifestations are included in the definition of the area of the nominated property.

The delimitation of the nominated property has also excluded the exterior part of Barranco Hondo-Artevirgo, based on how representative it is, the state of conservation and integrity of

the historic or aboriginal troglodyte manifestations. Thus, in this site, the whole area of ARIP 3 is not included in the nominated property.

b) Understanding that ARIP 4 encompasses the main traditional rural settlements and ethnographic expressions, the proposed delimitation of the property has taken into consideration both the importance of each of the properties considered and its relationship with the OUV and its state of conservation, such that the most dynamic areas (the main villages of Tejeda and Artenara and the major nearby settlements) have not been included in the nominated property. These have been included in the buffer zone. Moreover, these are the areas that can accommodate the main infrastructure needs, along with equipment and services for both municipal districts. This fact is especially clear in the eastern zone of the nominated property, the Tejeda village and the surroundings.

c) The ethnographic and archaeological properties that appear in the ARIP zones of the buffer zone are not therefore included in the area of the nominated property; they are important but, as has already been said, they can be considered as secondary attributes because: 1) there are already similar, stronger and more representative examples in the area of the nominated property; 2) even considering their intrinsic value, in the analysis conducted in developing the nomination dossier, they are considered more as secondary components/attributes that reinforce those in the area of the nominated property; 3) in many cases, there are common elements and historically recent additions that do not contribute significant values to the OUV, as mentioned in previous points.

All these factors, plus the scenic determinations, are the reasons for the decision not to use the boundaries of the ARIP strictly when delimiting or making them coincide with the area of the nominated property (see also the point 3: boundaries and the buffer zone)

Bearing these considerations in mind and the better understanding that we now have of the properties, helped significantly by the identification, organisation and classification that has been done as part of the nomination process, the Department of Culture and Historic Heritage of the Cabildo of Gran Canaria started the procedure to reformulate the ARIPs in this mountainous area of Gran Canaria in 2017. The Historical Heritage Service filed its recommendation to the Gran Canaria's Land-use Plan (currently under review) to include a proposal in this Plan to reformulate the ARIPs, including their area of influence, which in general terms, coincides with the provisions established in the proposed nomination.

The application has been accepted after being analysed by the Department of Territorial Policy that draws up the Gran Canaria's Land-use Plan (PIO), and it has been included in the Review of this Plan, currently going through the Cabildo de Gran Canaria. Obviously, the information provided in the dossier does not include this reformulation as the new review of the Island Gran Canaria's Land-use Plan (PIO) is in the middle of the approval process. This is why we have chosen to present the ARIPs in effect since 2003.

In the Gran Canaria land-use planning (Map 5.b.9), several D.1.2 areas are designated as land earmarked for development within the nominated property boundary and its buffer zone. The nomination dossier mentions that the land-use planning does not envisage new zoned land for the nominated area and its buffer zone. However, ICOMOS notes that part of the boundaries of the Barranco Hondo-Lugarejos site, inscribed as a property of cultural interest (BIG), overlaps with one of these D.1.2 areas. Could the State Party clarify the strategy adopted in this specific case and, in general, whether development projects will be carried out in the areas already designated?

This is an obvious mistake in the transcription of the codes of the different categories of D Areas in the nomination dossier. Point 4 (pages 436-437) is completely wrong due to a faulty down-load of information. Map 5.b.9 that supports the information however, is correct.

The description of the categories of land of this kind that affect the nominated property and which should comprise point 4, is as follows:

D1. Land zoned for urban development

A look at map 5.b.9 shows that there are no areas of the property that fall within this category. In other words, the Gran Canaria land-use planning (PIO) does not include any land zoned for urban development anywhere in the area, either in the nominated property or in the buffer zone, so there are no plans whatsoever for any new sectors of urban development.

D2. Rustic land with rural settlements

This includes land on which there are settlements of population in some kind of concentration, which urban planning has classified as rustic land in the category of rural settlement, but this land cannot be incorporated, transformed or treated as urban land.

This is the case of the aforesaid incongruence that occurs in the area of Barranco Hondo-Lugarejos, where there is land zoned in this category, more precisely in Barranco Hondo de Abajo, an area that has been declared a Heritage of Cultural Interest (BIC). The erroneous wording in the dossier suggests an outright contradiction such as, for example, that Barranco Hondo de Abajo were zoned as land for development. This is absolutely impossible as it has been declared BIC by the Canary Island Government, where conservation of the heritage of the BIC and its area of influence must prevail over all other matters.

The full list of hamlets or rural settlements included in this Area D2 that appear on map 5.b.9. is as follows:

- The nominated property includes: El Roque, El Carrizal, El Chorrillo, La Solana, El Espinillo, El Juncal and Timagada (municipality of Tejeda). Lugarejos and Coruña (municipality of Artenara) are also included, along with Bco. Hondo de Abajo, La Palmita-La Audiencia and El Tablado (municipality of Gáldar).
- The buffer zone includes: El Rincón, Las Crucitas, El Majuelo, La Degollada, Casas del Lomo, Casas Caídas, La Culata, Casas de la Huerta, Los Manantiales, Juan Gómez, Cuevas Caídas and Peña Rajada (municipality of Tejeda), El Sao (Agaete), El Retamal (Gáldar) and Cueva Nueva, Las Arevejas, Las Cuevas, Chajunco-Caidero-Lomo Cuchara, Coruña, Cueva de los Gatos and Las Peñas (Artenara).

D3. Urban land

This area includes the spaces that the planning legislation has classified as urban land. This category can only be found in the buffer zone, where we have the urban centres of Tejeda and Artenara, and the small settlement of Juncalillo, in the municipality of Gáldar.

The location of the aforementioned population centres can be seen on Map 2 (page 12) of the nomination dossier.

Link to the Gran Canaria Land-Use Planning:

https://www.idegrancanaria.es/plan-insular-de-ordenacion

Could the State Party also provide further clarification on the level of protection of the buffer zone with regard to cultural sites, as areas of Special Heritage Interest do not entirely overlap with the buffer zone?

All of the cultural sites, be they ethnographic or archaeological sites, keep the same level of protection in both the buffer zone and in the area of the nominated property.

In accordance with the different kinds of property and categories, we can distinguish, first of all, the BICs (Heritage of Cultural Interest). The Tirma Archaeological site (BIC) is located in the buffer zone. As pointed out, the BICs are at the top of the cultural property protection system. The level of protection is the same as for the BICs included within the boundaries of the nominated property and they also have nation-wide recognition.

The other archaeological sites of the buffer zone are included in the Archaeological Maps under development in Article 15 and Article 64 of the Canary Island Historical Heritage Act, Law 4/1999 and are therefore, fully protected. Moreover, Article 59 of the aforesaid law establishes that all elements must be subject to town and regional planning protection, and it establishes the provisions necessary to guarantee their preservation.

All these provisions are reflected and included in the island, municipal and sectorial planning, and they are even transferred to the management and protection instruments for protected natural spaces. This is the case, for instance, of the provisions established in the El Nublo Rural Park Zoning and Management Plan that sets out the specific regulations concerning the protection of cultural properties, on a management level, as occurs with other spaces. (See Chap. 5.b.ii).

It is important to point out that the ARIPs do not necessarily involve an increase in the intrinsic protection of each of the properties, but they do establish a framework of priorities for developing Special Plans arising from the Gran Canaria's Land-use Plan (PIO), depending on the importance of the resources in question.

5

Conservation

ICOMOS would be pleased if the State Party could provide further clarification on the conservation work undertaken at archaeological sites in order to reduce the effect of erosion (targeted sites and results obtained).

Could the State party indicate whether an archaeological programme has been planned or already carried out in 2018 on the nominated property (specifying the composition of the team, the techniques used and the results obtained, if available)?

The ICOMOS would be pleased if the State Party could provide further clarification on the conservation work undertaken at archaeological sites in order to reduce the effect of erosion (targeted sites and results obtained).

The concern of the Cabildo de Gran Canaria, the institution with competence in matters of protection and conservation of the historical heritage of Gran Canaria, in safeguarding the historical heritage of the highlands of the island, including the Cultural Landscape of Risco Caído and the sacred mountains, dates back further than the proposal to nominate this space for world heritage status. It should be pointed out that the study that PROPAC was commissioned to carry in 2009, for a detailed diagnosis of the caves with rock art manifestations emphasised the risks of this kind. One of the fruits of that work was the design of a global conservation strategy for the most important, fragile properties in this area.

The dossier explained the main risk factors. Here, we are going to focus mainly on the measures adopted to prevent or mitigate the natural factors, especially those concerning damage caused by damp, desiccation of the support, wind and water erosion, seismic movements or, on a larger scale, stability risks.

Based on these different causes, we have included in our answer all measures, studies and actions aimed at preventing the deterioration of the main properties due to natural factors related to erosion in the broadest sense of the term, which gives rise to a global strategy on different fronts: Initial diagnosis, adopting urgent measures (like stabilising slopes), detailed graphic documentation work, monitoring factors causing erosion and damage and the conservation and restoration work itself, both on a small scale (engraved or painted motifs, archaeological floors, etc.), and on a large scale (caves, rock supports, overhangs, etc.). The latter section has accounted for most of the conservation investment. From these criteria, we now move on to detailing the main conservation actions in the area of RCESMGC. We have included actions taken in 2018, although some of these are being completed or will continue into 2019.

Preliminary diagnoses

The first study, mentioned above, of the state of the caves bearing rock art manifestations in the Highland area is the starting point. Based on this, several general geological studies have been conducted, along with more specific ones (scanning with ground-piercing radar, sclerometer studies, taking lithological cores, petrological analysis, studies of cracks and fissures, assessment of the structural stability, mechanical resistance studies at intervention points and more recently, diagnoses of pathologies and structural integrity at several sites in the nominated property.

Documentary support and reproduction

This section considers other studies that, while helping in strictly scientific works, on occasions have been used for tasks of conservation and restoration. Here, we are referring to photogrammetric and laser scanning surveys of some caves and rocky outcrops in order to determine, geo-reference and monitor certain pathologies and precisely define some conservation actions, such as pathologies of the interior walls

and of panels with engravings or paintings. In this case, apart from Risco Caído, photogrammetric surveys have been taken at other sites of the nominated property, such as Cueva Caballero and Candiles at Risco Chapín, in Cueva del Guayre or the almogaren of El Bentayga (on-going) and in the painted cave of La Candelaria in Acusa.

Stabilising

This section covers the actions aimed at preventing direct or indirect damage to the main attributes of the nominated property, with a view to eliminating risk factors, but also applying a preventative criterion, to prevent erosive action from continuing to cause future negative effects. These actions include cleaning vegetation from slopes, channelling possible run-off waters, eliminating small stones from cornices, triggering small landslides at unstable points or treating some new cracks. A study was conducted in 2017 on the stability problems of some points at sites of the nominated property, above all in unstable geological formations, such as volcanic tuffs, that show a potential risk, not only to the archaeological and ethnographic properties, but also to the safety of people. The most significant works have concentrated on Cuevas del Rey and cave 8 of Risco Caído, apart from other enclaves like Acusa and El Solapón in Barranco Hondo de Abajo, scheduled for 2019.

Monitoring

Another highly important action from the point of view of preventative conservation, especially at points that could present more serious stability problems, is permanently monitoring some natural factors, including the study of micro-climatic traits at different points of the area (Risco Caído, La Paja, Candiles, Cueva del Guayre and Corrales de Acusa), monitoring micro-seismic activity and deformation of the terrain (Risco Caído).

Archaeological conservation and restoration

We have used the aforementioned diagnosis of the state of the main caves with rock art manifestations, although it has also been up-dated as the specific interventions have moved forward and new problems have been detected. The most important actions have been work to clean the surfaces of interior rock supports, panels with rock art manifestations (for now, with engravings), treating micro-fissures, chips and slides. The conservation and restoration of floors has also been very important. Some of these floors have cup marks, where we have installed raised flooring to prevent any contact with the archaeological floors.

Conservation and restoration works

Mention has to be made of the major projects (Risco Caído and Cuevas del Rey) and plans (Barranco Hondo and Acusa) commissioned for global actions aimed at protecting, adjusting and refurbishing the landscape, etc. The projects (Risco Caído and Cuevas del Rey) contemplate specific actions to prevent any deterioration of the supports, caves of archaeological interest, including the access paths. In this case, the treatment of floors and reinforcement of slopes helps to prevent erosion and disintegration process of the sites.

The most significant of these projects are the projects of Risco Caído and Cuevas del Rey and the draft projects of Acusa and Barranco Hondo.

This section refers to the bulk of the actions carried out in this period and whose aim was to preserve the main archaeological sites and ethnographic properties of the cultural landscape. At this stage, these have concentrated above all on the most fragile

zones that show a real danger of instability. It should be pointed out that these actions were preceded by diagnoses, with important graphic and documental support. This has included a photographic record of the previous state of the site, which has helped in restoring pre-existing walls and enclosures, and a full documentation of the process, with archaeological supervision.

Risco Caído- Cueva de la Paja. Most of the actions have focused on Risco Caído, because of the major stability problems. Some conservation actions and underpinning have been carried out in caves next to Risco Caído because of the risk of rock falls, which could have affected the main core of the site. The major landscaping project is underway with specific conservation actions.

Cuevas del Rey. There is another major intervention here, which will be completed by the end of 2018. This includes conservation works like treating the slopes, paths and some ethnographic properties, like a threshing ground affected by erosion.

Bentayga. In 2013, an investment was made to adjust the museum equipment, but restoration and conservation work was also carried out on the access path. In 2018, new conservation work has been done on the access paths to the site and modern graffiti was removed.

Cueva Candiles in Risco Chapín. Work has been done to reinforce enclosures and accesses, to prevent the entrance overhang from collapsing, panels have been put in place to prevent the sun penetrating inside and run-off waters have been channelled, etc.

Mesa de Acusa. Investments have been made in improving the access area, channelling waste waters, the enclosures of the cave with paintings and the outside has been cleaned.

Could the State party indicate whether an archaeological programme has been planned or already carried out in 2018 on the nominated property (specifying the composition of the team, the techniques used and the results obtained, if available)?

Yes, there is an archaeological programme established by the Cabildo of Gran Canaria, co-ordinated by the Historical Heritage Unit. This takes the form of the nominated property Integral Management Plan. The archaeological programme for the nominated property is updated each year and it is expanded in line with budgetary possibilities, new findings and scientific trends in the matter. There is a budget line created for this purpose in the organization chart of expenditures of the Cabildo de Gran Canaria, irrespective of the eventual sources of external financing.

Archaeological research

The lines of research set out in the plan are reinforced by specific programmes of the Canary Island Government and the reinforcement and co-operation of academic institutions and research centres like: the University of Las Palmas de Gran Canaria, the University of La Laguna, the Viera y Clavijo botanical gardens, the Canary Islands Institute of Astrophysics (IAC) and the INCIPIT (Institute of Heritage Sciences of the CSIC (Spanish Supreme Council of Scientific Research).

The top priority lines of work set out for this period, which have specific funding lines assigned to them by the Cabildo of Gran Canaria, are as follows:

- Study of the settlement model and evolution over time (dating)
- Temples and astronomical markers. Specific studies
- Fortified granaries. Comparative studies and approach to the economy
- Agricultural practises. Crop lands. Terraces, Treatment and storage. Genetic studies. Origin and exchange
- Funeral practises
- The habitat in caves and above ground. Patterns and techniques. Hierarchy and functionality
- The symbolic world. Objects of worship. Paintings, engravings
- Paleo-landscape study. Paleontology. Potential flora and fauna
- Up-dating general archaeological inventories of the area with GIS support
- Up-dating inventory files of the ethnographic heritage (in constant process for the past two years by the FEDAC).

Within this programme, in 2018, several archaeological research interventions have been carried out or are on-going, in the context of the programme, which are detailed below:

1. *Study of aboriginal resistance in the area of the Tejeda Caldera. Possible location of the Battle of Ajodar described in the Chronicles of the Conquest*. Commissioned and financed by the Cabildo of Gran Canaria. The team for this intensive archaeological prospecting is comprised of Julio Cuenca Sanabria (archaeologist), Carlos Gil Sarmiento (engineer in geomatics and specialist in photogrammetry), Daniel González Rodríguez (assistant archaeologist). This work is monitored by the Cabildo by José de León Hernández (archaeologist).

2- *Photogrammetric survey and restitution of the almogaren of Roque Bentayga and Cueva de Los Candiles*. Commissioned and financed by the Cabildo of Gran Canaria. This study is directed by Julio Cuenca Sanabria (archaeologist), with Carlos Gil Sarmiento (engineer in geomatics and specialist in photogrammetry) carrying out the documentation work (photogrammetric restitution applied to archaeology). José Guillén Medina (archaeologist) is monitoring this work on behalf of the Cabildo).

3- *Light hierophany study (data gathering and interpretation) inside cave 6 of Risco Caído with time-lapse recordings, over the different dates of the year*. This study is directed by Julio Cuenca Sanabria and the graphic survey and restitution of images is done by the La Koctelera trading company.

4. Apart from these studies, two associated research projects of great interest have been conducted in 2018 in the area of the nominated property by the University of Las Palmas and directed by Amelia Rodríguez Rodríguez and Jacob Morales Mateos. The latter researcher has been taking part in several scientific projects in the area of Risco Caído and the sacred mountains, such as at Roque Bentayga, Caves 6 and 7 of Risco Caído, Cueva de la Paja, etc. These research projects are part of the research strategy in the cultural landscape.

4.1. *Archaeological intervention in the burial space of La Cruz de la Esquina. On-going. This is part of the research project*: HAR2017-83205-P *Social relations of production on the island of Gran Canaria in pre-European and colonial times. Two colonisation processes in a single territory.* The project has the financial support of the Ministry of Economy, Innovation and Industry with the co-operation and funding of the Cabildo of Gran Canaria. This research project is led by Amelia Rodríguez Rodríguez and Jacob Morales Mateos. The team on the ground in the area (Cruz de la Esquina) is made up of: Javier Velasco Vázquez (bio-anthropologist), Pedro Henríquez Valido (archaeo-entomologist), Paloma Vidal Matutano (archaeo-anthropologist), Pablo Castellano Alonso (zoo-archaeologist), Verónica Alberto Barroso (zoo-archaeologist), Ernesto Rodríguez Rodríguez (archaeologist), Angel Marchante (photogrammetry), Jacob Morales Mateos (archaeo-botanist) and Amelia Rodríguez Rodríguez (archaeologist).

4.2. *Archaeological intervention in La Cueva de Las Estrellas (cave of the Stars). This is part of research project: HAR2017-83205-P social relations of production on the island of Gran Canaria in pre-European and colonial times*. Two colonization processes in a single territory. The project has the financial support of the Ministry of Economy, Innovation and Industry with the co-operation and funding of the Cabildo of Gran Canaria. This research project is led by Amelia Rodríguez Rodríguez y Jacob Morales Mateos. The team on the ground in the area (Cruz de la Esquina) is made up of: Javier Velasco Vázquez (bio-anthropologist), Pedro Henríquez Valido (archaeo-entomologist), Paloma Vidal Matutano (archaeo-anthropologist), Pablo Castellano Alonso (zoo-archaeologist), Verónica Alberto Barroso (zoo-archaeologist), Jacob Morales Mateos (archaeo-botanist) and Amelia Rodríguez Rodríguez (archaeologist).

There are also other scientific projects that started in 2017 and which have continued in 2018, such as:

- Those dealing with expressions of the oral heritage, like the ethno-archaeo-astronomical studies, the continued survival of elements of the sacred world and a new participative research procedure with works on recovering place names, with special emphasis on Amazigh place names. All these are related to the archaeological heritage in the area of the nominated property. These studies were directed by researchers Yeray Rodríguez (Dr in philology) and Sarai Ventura (philologists and specialist in oral studies).

- Those dealing with recovering documental information from the 16th and 17th centuries in historical archives and focusing on the cultural survival of the aboriginal population (habitat, economic aspects, resources, settlements, place names, etc.). Most of this information has not been published, but it is of great importance as interpretive support in the archaeological studies of the area. This work has been directed by Pedro Quintana Andrés (Dr in History).

NOTE

We would also point out that, for 2019, the Cabildo of Gran Canaria has already set aside 150,000 € for a specific archaeological research plan in its budget to provide continuity for the studies carried out at Roque Bentayga, Risco Caído and Acusa and for the preliminary study of La Montaña de Altavista, and a study of caves with rock art manifestations with pubic engravings (€50,000).

Conservation and restoration

In relation to the works of conservation and restoration underwent during 2018, focus has been put on Risco Caído archaeological site. Nevertheless, works of systematic motorization and data recollection for the preventive conservation of other sites with rock art has also been carried out in Cueva de Los Candiles, Cuevas del Caballero, Cuevas del Rey and Acusa, by a team leaded by Vicente Soler physicists from CSIC (Spanish Supreme Council of Scientific Research) under the co-ordination of José de León Hernández (archaeologist) from Cabildo de Gran Canaria.

Several interventions have been developed in Risco Caído site regarding its conservation:

- Geological valuation of the sustainability of caves in the second level of Risco Caído, by the firm TECMINSA S.L.
- After this geological analysis, works of reinforcement and shoring of the second level of cave 5 were carried out by the firm Rodriguez Luján S.L. in order to ensure its stability.
- Works of conservation of the exterior of caves 6 and 7, by the curator Sonia Argano under the technical supervision of María Cárdenes, specialist in conservation and restoration.
- Installation of mobile sidewalks in caves 6 and 7 for the protection of the archaeological pavements, by the firm “Tibicena Arqueología y Patrimonio” under the technical supervision of José de León Hernández (archaeologist).
- The exceptional nature of cave 6, its location in an unstable geological environment and the demand of visitors in a fragile and reduced space has raised the need to make a real size facsimile replica to be installed in Risco Caido Interpretation Center (Artenara). For this reason, a project consisting of obtaining a high resolution digital file with laser scanner and photogrammetry and building of the facsimile has been proposed. This project based on criteria of conservation and obtaining of archaeological information is in the process of bidding, to which only the Factum Arte S.L. is close to be awarded with (approved investment: 250,000 €).

Other conservation and restoration work

Work of preventive conservation in Risco Caído, Cueva de Los Candiles y Acusa archaeological sites, by the firm “Tibicena Arqueología y Patrimonio” under the technical supervision of José de León Hernández (Cabildo de Gran Canaria).

Restoration and consolidation of the outer complex of Cueva de la Paja, by the firm “Juan Ventura Trabajos en Piedra S.L. Patrimonio” under the technical supervision of Julio Cuenca Sanabria (archaeologist).

NOTE – CONSERVATION WORK

The total investment consigned in the two sections mentioned during the period 2015-2018 amounts to € 1,739,798. This refers exclusively to the investment committed by the Cabildo de Gran Canaria.

6

Management

The archaeological heritage of the Canary Islands seems to be treated differently in each one of the islands (i.e. Tindaya). The island of Gran Canaria also seems to be the only island that has incorporated archaeological heritage into its tourism activity. Could the State party clarify whether there is a common project between the different islands of the archipelago considering that these resources offer potential in cultural tourism and, more specifically, in archaeological tourism?

ICOMOS would be pleased if the State Party could provide further information on the water management strategy for the nominated property specifically on the water supplies for local communities, agricultural and tourism activities within the nominated and buffer areas of the nominated property.

The archaeological heritage of the Canary Islands seems to be treated differently in each one of the islands (i.e. Tindaya). The island of Gran Canaria also seems to be the only island that has incorporated archaeological heritage into its tourism activity. Could the State party clarify whether there is a common project between the different islands of the archipelago considering that these resources offer potential in cultural tourism and, more specifically, in archaeological tourism?

It is true that the archaeological heritage is treated differently on each island. This is due to the fact mentioned before in the nomination dossier concerning the fact that management competences in matters of historical heritage have been devolved from the Canary Island Government to the island governments (Cabildos), although this is not the case of the legislative competences regarding the protection and recognition of properties. This means that exploiting these resources for tourist purposes follows a different pattern on each island which, moreover, as tourist destinations, are also clearly different.

Despite its leading role in this matter, the island of Gran Canaria is not the only one that has included the archaeological heritage as a tourist attraction. To one extent or another, all the islands have done this, but using different criteria. Table 6.1 shows the heritage centres and sites that can be visited by island that have been included as resources to visit in their cultural tourism offer. From this table, one can deduce that Gran Canaria concentrates a substantial percentage of this cultural tourism offer in the Canary Islands, not only due to the number of sites and centres that can be visited, but also because of their importance. It is undoubtedly the island that has made the greatest efforts in this matter.

The mention of the case of Tindaya on the island of Fuerteventura is striking. After the failed macro-project of an insculpture designed by Chillida, no project has been rolled out for the tourist use of the site, until this year, that is, when the final touches are being put to the access and the interpretation system of the aboriginal engravings that the mountain contains, with criteria of low density, such as those promoted in the nominated property.

Despite the potential that all these archaeological resources represent as a whole, there is no common Canary-wide project or programme regarding this activity. Although it is true that this year, 2018, at the initiative of the Canary island Government, work has started on drawing up a Strategy Plan to enhance the management of the archaeological parks of the Canary Islands, aimed at promoting a sustainable use of this heritage and its proper tourist use.

However, it is important to note that there are good prospects in this matter regarding the international cooperation actions, particularly with Morocco and other Maghreb countries. This would be the case of the "Shared Heritage" cooperation project, launched by the Government of the Canary Islands, which has the support of the Spanish Ministry of Culture and Sports, through the "archaeology abroad" aid program.

TABLE 6.1

Island	Archaeological centres and sites open to visit
El Hierro	Parque Cultural de El Julan Eco-museum Poblado de Guinea Cueva de la Pólvora (La Pólvora Cave)
La Gomera	Archaeological Museum of La Gomera Fortaleza de Chipude Alto Garajonay
Tenerife	Archaeological Museum – Santa Cruz de Tenerife Archaeological Museum - Puerto de la Cruz
Lanzarote	Zonzamas Interpretation Centre and Site Archaeological area of El Rubicón Archaeological and ethnographic museum of El Castillo de San Gabriel Archaeological site of La Caldera de Guanapay
Fuerteventura	Settlement of La Atalayita Cueva del Llano (El Llano Cave) - Villaverde Montaña de Tindaya – visit to the engravings Archaeological museum of Betancuria
La Palma	Benahoarita Archaeological Museum La Zarza-La Zarcita Archaeological Park Belmaco Archaeological Park El Tendal Archaeological Area
Gran Canaria	Canary Island Museum Risco Caído – Artenara Interpretation Centre Cave settlement of Acusa – Artenara Risco Caído Archaeological Site Roque Bentayga Interpretation Centre Archaeological Museum and Park of Cueva Pintada Maipés de Agaete Archaeological Park Cenobio de Valerón (Valerón Burial Ground) Barranco de Guayadeque Interpretation Centre La Fortaleza Interpretation Centre Necrópolis de Arteara (Arteara Burial Ground Cañada de los Gatos Los Caserones Archaeological Site Cuatro Puertas Archaeological Site Tufia Site

ICOMOS would be pleased if the State Party could provide further information on the water management strategy for the nominated property specifically on the water supplies for local communities, agricultural and tourism activities within the nominated and buffer areas of the nominated property.

Special significance is given to water resource planning in the territorial planning of the island of Gran Canaria, which, like all other resources, has to be based on a balanced, sustainable and rational use in accordance with the characteristics of the territory, in order to protect and enhance the people's quality of life. Thus, the Gran Canaria Hydrological Plan (PHGC) establishes island-wide regulations as a framework with the general objective of "guaranteeing the balance and harmonisation of regional and sectorial development and increasing the availability of water resources, while, at the same time, economising the use of water and rationalising its use in harmony with the environment and the other resources, as well as promoting a sustainable use of water based on long-term protection".

After a long period of development driven by tourism concentrated on the coastal zones of the island, the new Special Territorial Hydrological Plan of Gran Canaria (PTE-4)[45] offers a new strategy of priorities that significantly promotes the availability of water in the highlands and the interior of the island, particularly in the area of the nominated property, aimed at guaranteeing domestic supply and irrigation needs.

The water policy set by the Cabildo of Gran Canaria and the Canary Island Government, defined in the Hydrological Plan, is based on progressively covering tourist, populational and intensive coastal crop demand with desalinated water. In fact, the percentage of the total accounted for by desalinated water has grown from 37% in 2012 to 67% now (Canary Island Water Centre). This has started to release major resources in the highlands and foothills, where traditional farming subsists.

The objectives of the Hydrological Plan concerning the needs of the area of the nominated property include the following:

Objective 4: Guarantee domestic water supply in the foothills and highlands

Objective 5: Enhance, the guarantee and efficiency of water use for irrigation

Objective 7: Sustainable exploitation of subterranean waters

Objective 14: Promote water saving

Objective 11: Reduce dependence on non-renewable energies in the production of water (renewable water)

The Plan establishes a whole set of measures that impact compliance of Strategic Objective nº 4: "Enhance the Guarantee of Domestic Supply in the foothills and highlands". This determines that: "the availability of natural resources can be freed up to increase the availability of non-conventional resources (desalinated water), drive the search for supplies by municipal water authorities to guarantee securing the amounts envisaged, reduce the costs of obtaining water, a progressive reduction in differences between the rates applicable in each municipality, define the pipelines that must link the authorities' own water production, which have been bought or built, with the settlements to be supplied with domestic water, and to

[45] http://www.aguasgrancanaria.com/plan_hidro.php

unify and significantly improve the management and efficiency of the public domestic water supply by setting up Consortiums.

“The future guarantee of the system depends on not reaching emergency situations, by having sources of supply that do not depend on the market. Furthermore, it will significantly reduce the frequency and magnitude of the constraints put on the uses of water during periods of drought”, which has been the case of recent years.

The measures envisaged also include “the acquisition of concessional rights by the water administration in order to improve the guarantee of water supply in the foothills and highlands” (MBAE-022).

It also highlights with the same importance, measure MBAE-029 that addresses rolling out and developing Natural Water Treatment Systems in isolated settlements in the foothills and highlands. In fact, this is already a work in progress in the area of the nominated property and the buffer zone.

The Department of Culture of the Cabildo has developed the first pilot project for treating domestic waste waters for the cave village of Acusa Seca by building a natural water treatment system with vegetation that allows the water to be re-used for irrigation.

One aspect that impregnates the philosophy of the Hydrological Plan is to minimise the transfer of waters from the highlands and foothills down to the coast, putting the priority on using this water in the catchment areas. An agreement has now been signed for a study of the island’s aquifers.

The sustainable management of water resources in the area of the nominated property and its zone of influence has to be conceived as part of the new Food Sovereignty Strategy driven by the Cabildo of Gran Canaria. This is specified in the Foothills and Highlands of Gran Canaria Rural Development Plan drawn up by the Department of the Primary Sector and Food Sovereignty, which aims to set out a set of strategies that affect all spheres of the rural environment (territorial, planning, environment, agricultural output, economic diversification, quality of life, etc.) by facilitating the participation of all stake-holders involved in designing them, and by establishing protocols for managing them. The general objective of the Plan is “to promote sustainable development and enhancements in living and working conditions in the rural environment of Gran Canaria”. To such end, a raft of measures is to be rolled out based on two strands of development: the reorientation and development of livestock activities and the recovery and sustainable development of the environment and its natural resources.

NOTE ON HISTORICAL ASPECTS OF WATER RIGHTS

It is essential to bear in mind that all the measures adopted by the Gran Canaria Hydrological Plan promoting the availability of water in the highlands and in the action strategy of the nominated property Integral Management Plan, are an attempt, in part, to overcome an historical anomaly in water rights. Unlike the Spanish legal system with regard to water, waters are privately owned in the Canary Islands, by virtue of a process of appropriation that started after the Conquest.

Once the islands were fully conquered, attention turned to exploiting their resources. On the islands owned by the Crown (*islas de realengo*), like Gran Canaria, the governors started to distribute both the land and its waters, but both on these islands and those ruled by a seigniory system, the privatisation of the land, with the corresponding irrigation water, was authorised without the beneficiary having to give anything in exchange. Those who were given lands and water were known as “adulados”, or those who became the owners of water that irrigated their lands with “dulas” (the amount of water used to irrigate a piece of land in a given amount of time), which was regulated in accordance with the institutional framework of the time, forming the water rights associations. Hence, those benefitting from lands with irrigation were the large land owners, who came to comprise the ruling elite in Canary Island society.

A transcendental change came about in the legal framework applied to the distribution of water over time: ownership of water was separated from ownership of land and, consequently, a water market was created. Ever since that moment, the water rights associations or “heredamientos” would unite the owners of water rights under one umbrella, and this is the origin of an island oligarchy. The arrival of democracy has not completely resolved this anomaly with new legislation, although major reforms concerning the top priority public use of water have been introduced. Against this backdrop, the efforts of local, island and regional public authorities has been notable, not just in terms of infrastructure, but also in economic terms, in an attempt to guarantee adequate water supplies at an acceptable price in sensitive areas like the highlands and foothills of Gran Canaria.

7

Involvement of the local communities

ICOMOS would be pleased to receive further information concerning the level of involvement of the local communities in the participatory management strategy.

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Since the beginning of the nomination process, the participation of local communities has been decisive. Participation has been effective both in terms of the contribution of knowledge and the elaboration of the management strategy of the proposed property.

The local communities of the area of the property, in the highland or mountainous area of four municipalities of Gran Canaria, have historically played a very important role in keeping alive this cultural landscape full of symbolism for the population of the island as a whole.

The **social participation** dimension, or direct involvement in maintaining the cultural landscape, as reflected in the nomination dossier, includes several different facets that show how local communities are the active players and the true protagonists in maintaining the attributes and values of the property, keeping these lands as genuine natural and cultural laboratories of evolution.

In general, there are both tangible and intangible elements that show that the DNA of the agricultural and grazing landscape are being maintained, a relationship of appropriation and transformation of the geographical space, with attributes referring to the survival over time of the aboriginal culture along with other, more contemporary ones that show us the surprising capacity to adapt to the environment and its resources. These include:

- Troglodyte habitat. Old and new caves, conserving functionalities (habitat, water, storage, granaries)
- Farming on terraces for self-supply or the local market, together with water management systems and culture, as a traditional and intelligent form of organisation, which, in short, reflect a living farmer culture and economy perfectly adapted to the limitations in natural resources (land and water).
- Conservation and use of ancestral seeds (barley, for example).
- Maintenance of architectural elements associated with this farmer-based culture: channels, mills, ponds, tanks, pens, sheds, ovens, refuges, mangers, terraces, water distribution gates, springs, wash stones or threshing grounds.
- Grazing and transhumance, as animal husbandry practises that are an intangible attribute that has been preserved. These practises involve the conservation of sheds, huts, refuges, water distribution gates, pens and pools, and other important aspects like the conservation of native Canary Island breeds and the cheese-making culture.
- Bee-keeping culture in the mountains
- Maintaining the relationship with the skyscape with milestones that occur in the space and which form part of living traditions
- Community based tourism and sustainable cultural tourism
- Pottery production with aboriginal techniques
- Involvement of the local traditions by the inhabitants in public and private forestry management work and in maintaining the network of rural tracks and roads

Social participation even spreads to the work of research into the heritage that the property holds. The high degree of involvement of the local communities in the processes of **participative research** conducted in the area of the nominated property is truly novel

and original. In the end, this is a leading element of the strategy to preserve the property values. Mention must also be made of recovering the oral memory, the place names, native seeds and the use and know-how around medicinal plants as one of the most important lines of work. A genuine and exceptional "living repository" of know-how practises and ways of engaging with the environment (see Figure 7.1).

The role of the **local association movement** in the defence, conservation and sustainable development of the nominated property is just as determinant; in short, its participative management strategy. This dimension encompasses all the stakeholder groups, from associations promoting sustainable rural development, those defending family farming, water management, cheese making, conservation of animal indigenous breeds (autochthonous black bee, Canarian donkey or goats) as a cottage industry or the folklore and traditions, to business, resident and community associations, including ecological groups and those in defence of the cultural and natural heritage.

This active commitment made by the communities of the highlands of Gran Canaria to play a leading role is also reflected in their involvement in public decision-making. The real and effective level or **public or citizen participation** of the local communities has been a process based on self-organisation, along the evolution of the democratic culture in the broader political context. It is a process that counted on the active involvement of the Cabildo of Gran Canaria which has chosen to make of citizen participation a relevant public policy, which has been clearly demonstrated by promoting the leading role played by local communities and their real and active involvement in important public decisions that affect the welfare of both present and future generations, and consequently, the protection, conservation and management of the nominated property.

In the course of the nomination process, a broad-reaching, ambitious participative process has been put in place that involves all the stakeholders from the local community: citizens, associations, land owners, companies, NGOs and civil society in general.

With regard to the efforts made in promoting participative management of the property, this was formalised in early 2016, with the help of the areas Public Participation and Culture and Historic Heritage of the Cabildo of Gran Canaria, with effective support for a participative process concerning the nominated property, with the idea of basing the management of the property on a bottom-up process.

In an initial stage, the work has been done with the support of a multi-disciplinary professional team that focused on the active participation of the local community in jointly drawing up the Cultural Landscape **Integrated Management Plan** as a strategic tool to protect and promote the attributes and components of the space sustainably and based on grass-roots participation. Specifically, the aim was to involve local individuals and groups in actions of social participation (sustainable promotion and conservation of the territory's resources, maintaining old traditions and know-how that comprise their identity) and to define and specify their will to take part in the co-ordinated management of the property.

In the course of 2017, the participative process strategy is focused on empowering active individuals and groups as players in public decision-making by driving new grass-roots spaces and relations with the public administration (municipal and island) in the thematic areas of greatest interest and concern to the local communities (water, agricultural produce, tourism). This work has given rise and shape to a core group to drive this process, or **Citizen Commission** (*Comisión Ciudadana de Participación*) linked to this cultural landscape, made up of persons and associations from different sectors and from the local public in defence of the territory. This commission includes by now the following

groups and associations from civil society: La Trasierra, Charamusco Association of Charcoal Producers of the Highlands, Association of Land Owners “Los Cercados”, El Juncal Water Rights Association, El Espinillo de Tejeda Water Rights Association, Artenara Bee Keepers’ Association, Association of Farmers and Livestock Owners, Residents’ Associations (La Higuerilla, Bentayga de la Solana, Bruma del Chorillo, Juncalillo), and business associations (EDARTE-Artenara businesspeople, APROARTE-Artenara Growers’ Association).

The fit of local participation and with the Citizen Commission in the management system is shown in a graph in Figure 7.2.

To role of **local authorities**, the municipal governments in conserving this cultural landscape in the highlands of Gran Canaria and its management must also be highlighted. If the role of the Cabildo as the island-wide government is crucial to providing the organisation and foundation of the island in the devolved administration system of the Canary Islands, the role of the municipalities is just as strategic as they are the competent authorities in matters of preserving the historical and ethnographic heritage, in managing landscape conservation and in local development. Their role is key, along with the Citizen Commission and the Scientific Advisory Committee, the Steering Committee, in the management strategy and in the structure of the Foundation that is currently being created.

The commitment and active participation of the municipal governments was clearly expressed in what is known as the *Declaration of the Highlands of Gran Canaria*. In an unprecedented action in expressing a public commitment based on local will, on the 19th of October 2016, all of the elected representatives of the four municipalities involved in the proposed designation, whether they formed part of the municipal governments or not, including the opposition, along with the elected members of the Cabildo of Gran Canaria, signed what is known as the Declaration of the Highlands of Gran Canaria (see p. 479).

Finally, one important aspect to consider in the local involvement in preserving the property lies in the fact that a substantial part of the civil servants that live in the zone take responsibility for the work of conserving and protecting the resources and the landscape in the area. We are talking about environmental agents, forest rangers, guides from the cultural tourism administration. They all make up a social group that carries a lot of weight and they are highly qualified too, and they act as genuine guardians of the territory and its values.

Figure 7.1. Images of the participatory research process (oral heritage)

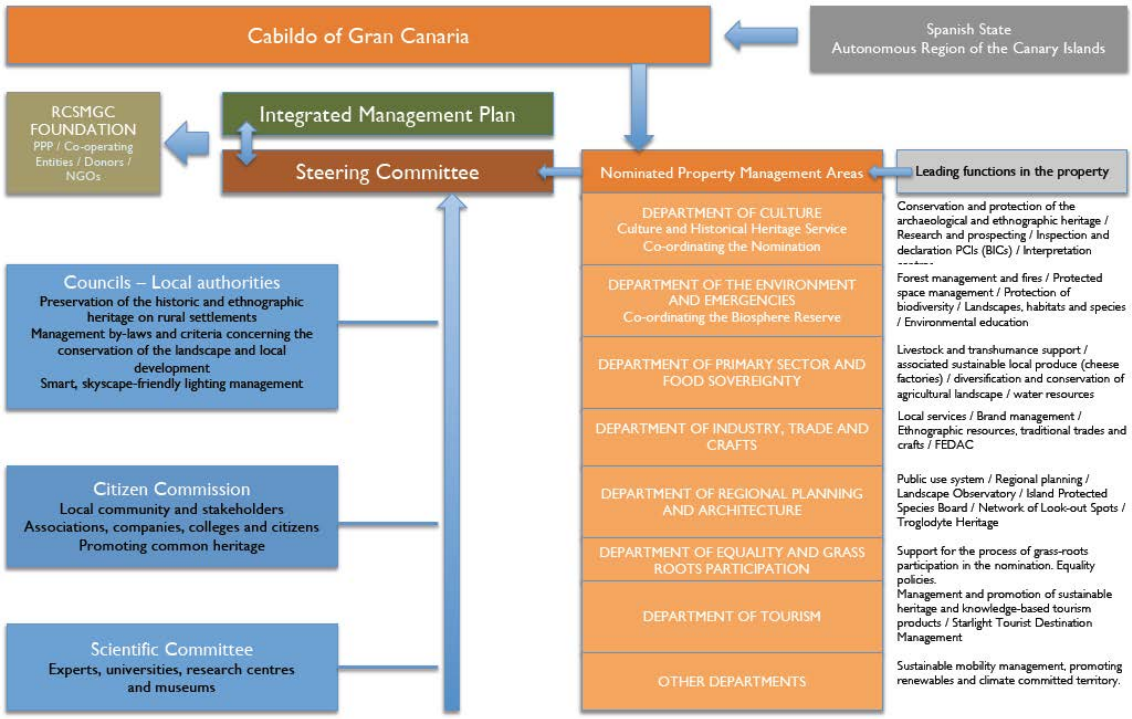

Figure 7.2. Management and governance organisational chart for the nominated property. The graph shows the different stakeholders and departments involved in the participatory management strategy of the property.

Additional information

requested by ICOMOS regarding the nomination of the

Risco Caído and Sacred Mountains of Gran Canaria Cultural Landscape

for Inscription on the World Heritage List

February 2019

Index

This report includes additional information requested by ICOMOS in their letter of the 21st of December 2018 concerning the nomination process of Risco Caido and Sacred Mountains of Gran Canaria Cultural Landscape.

1

Interpretation

The ICOMOS Panel understands that the Nomination dossier develops a demonstration of the relationship between landscape and skyscape and its sacred nature. However, the ICOMOS Panel has some concerns regarding the possible interpretation of the astronomical use of the nominated property sites and of its associated rock imageswhich include triangular motifs. The ICOMOS Panel considers that specific reference to possible function and meaning could label the site with definitions and information that are not yet confirmed by extensive research. The ICOMOS Panel considers that the unequivocal manner in which these interpretations are discussed in the Nomination dossier are somewhat out of place with the broader spirit of engagement, multivocality and openness to understanding the complexity of the cultural landscape

It is necessary to make some remarks about the general nature of archaeoastronomical evidence and how it contributes to the "best available interpretation" in context. No archaeoastronomical interpretation can ever be completely confirmed, however extensive the modern research: the same is true for archaeological interpretations in general. Rather, certain archaeoastronomical interpretations in context will simply become more robust (or else rejected and replaced) as more scientific evidence is accumulated. This is why, throughout the dossier, we refer to possible (rather than certain) functions and meanings.

As remarked in Ruggles and Cotte (2010, 267), the authenticity of a [historical, archaeological, or archaeoastronomical] 'fact' is linked to the credibility of that 'fact' and its interpretation, i.e. to the degree to which the 'fact' has been proven according to current standards in the discipline concerned. The accumulated archaeoastronomical research carried out at Risco Caído, as summarised in the recently published peer-reviewed article (Cuenca Sanabria *et al.* 2018; attached to this report), as well as the archaeoastronomical interpretations of the almogaren at Bentayga and its relationships with other sites within the cultural landscape (Esteban *et al.* 1996/7; Belmonte, 2015), have of course been subject to extensive discussion and scrutiny among academic peers.

It is worth highlighting in this context that this is a sacred mountain space of the ancient Canarians, where the sanctuaries and ceremonial sites impregnate the landscape with their identity; and its importance was mentioned in the chronicles of the Conquest. These sites illustrate the importance of this area for the original settlers. Furthermore, many of the components of the cultural landscape are closely interrelated symbolically, visually or spatially.

One of the components of the repertoire of elements associated with these places of worship and the world of aboriginal beliefs that stands out in the material culture are the many female idols with exaggerated pubis and navel, drawing a parallel with the caves with engravings of

pubic triangles and cup-marks on vertical panels that use the same symbology (Cuenca Sanabria and León Hernández 1983; López Peña *et al.* 2002). They all point to the fact that there were rites and beliefs associated with fertility worship. These are places that also contain other elements that are supposedly associated with fertility worship or rituals, such as functional grooves and cup-marks.

In the area of the cultural landscape, the caves with engravings of pubic triangles take on an unwonted importance. 7 of the 10 engraving stations of this kind that are currently recorded on the island are located in the area of the cultural landscape, accounting for 70% of the total. But if we look at the number of engraved motifs and their recurrence, the importance of the cultural landscape is exceptional. 473 of the 531 documented to date, in other words, nearly 90%, fall within its area.

The greatest concentration of engravings of this kind is to be found in Cueva Candiles, which shows no obvious intrinsic relationship with the skyscape, but it is oriented towards Roque Bentayga. Risco Caído is another case. The profusion of pubic triangles and cup-marks at the site, particularly in cave nº 6, along with its unusual design and the particular location of the site, illustrate its religious or ritual nature. These elements and features provide us with clear evidence of the fact that this is one of the *almogarenes* or sanctuaries of the ancient Canarians.

But Risco Caído also has an optical device capable of generating extremely suggestive solar and lunar hierophanies, whose time sequences are associated with key moments of the annual cycle and thus, with astronomical events. As with Bentayga, we are talking about an *almogaren* or sanctuary that also has astronomical connotations.

The lighting effect bathes part of the wall where the pubic triangles are situated, but neither the nomination dossier, nor the most detailed article drawn from for this report (Cuenca Sanabria *et al.* 2018) infer that the pubic triangles bear any proven astronomical relationship or meaning at any time, and much less that they act as astronomical markers. Any such hypothesis would have to be validated by possible future studies along the lines of the research promoted for the area of the nominated property. We are merely stating that this is a sanctuary or *almogaren* with an abundance of pubic triangle engravings, symbols of fertility, where a light phenomenon with obvious, and possibly symbolic astronomic connotations, occurs, which of itself, illustrates its outstanding nature.

The content of the nomination dossier, furthermore, not give rise to claims about the astronomical meaning or function of the engravings of pubic triangles in the other cave-sanctuaries that are not mentioned in previous paragraphs. On the contrary, the dossier emphasises the fact that these engravings are open to multiple interpretations and that they are associated with possible symbolic and ritual functions, such as fertility, initiation or transition rites, or birth-related ceremonies, in a context that also opens up other dimensions of knowledge like the significant role of women in these sacred places.

All of these factors should also be put into a broader cultural context that speaks of the relationship of this culture with the skyscape. When putting these manifestations into context, we cannot ignore the fact that this is the scene of an ancient culture with clear relations to the stars, and that their main deities included the sun and the moon. Many pertinent pieces of documentary evidence and quotes have been included throughout the nomination dossier, such as: "The Canarians are idolatrous, worshiping the Sun, the Moon and other Planets" (Alvise de Cadamosto, S. 15th century A.D), or "…they worshiped fire, the sun and the moon, and the dog-day star, when they started the year with grand feasting …" (Tomas Arias Marín de Cubas, 1694). Hence it would be very difficult to take the fertility rites out of their general context of beliefs and relationship with the main divinities, which, one must not forget, are celestial bodies.

Furthermore, this is a belief system that is clearly related to their Amazigh origins, so: "The Sun and the Moon are the only divinities worshipped by all Libyans" (Herodotus – 5th century B.C.).

Hence the relationships between astral divinities, seasonal cycles, the need to measure time, and fertility worship, with its rock-art symbology, is highlighted in the different pieces of evidence that illustrate the cosmology held by the ancient Canarians, although it is true that an intrinsic relationship cannot be proven entirely. In any event, as Professor Clive Ruggles likes to clarify, it is not a question of interpreting an entire cultural context in accordance with the sky, just as it would be a serious mistake for us to forget about it.

N.B.:

The recent article about the almogaren of Risco Caído (Cuenca Sanabria et al., 2018) is reproduced in full in Annex I of this report.

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2

Documentation

The ICOMOS Panel considers that the presence of human remains offers opportunities to deepen data and documentation of the early population of Gran Canaria. It would be appreciated if the State Party could provide additional information on this point, including DNA analysis, dating as well as respectful treatment of the dead.

The paleogenetic analysis of the indigenous population has allowed researchers to detect the presence of mitochondrial DNA and Y- chromosome lineages with clear North African ancestry in the Canarian indigenous population (Maca-Meyer et al. 2004, Fregel et al. 2009a, Fregel et al. 2015, Ordóñez et al. 2017, Fregel *et al.* 2009b). In addition, mitochondrial DNA results from four of the seven islands have shown high mitochondrial diversity for the islands of Tenerife (Maca-Meyer et al. 2004) and La Palma (Fregel *et al.* 2009a), and the partial or complete fixation of certain lineages in La Gomera (Fregel *et al.* 2015) and El Hierro (Ordóñez et al. 2017). This suggests that the colonization of the islands was a heterogeneous process and that the different islands could have had different evolutionary histories. Recently, a paleogenomic study of the Canarian indigenous population has confirmed these results at the genomic level (Rodriguez-Varela *et al.* 2017). Finally, a new study of mitochondrial DNA using next-generation sequencing techniques reinforces the idea that each island underwent different evolutionary processes and that it is not possible to make inferences about the entire indigenous population without including samples from each subpopulation (Fregel *et al.* 2018). This study has sequenced the mitochondrial DNA of 48 individuals from 25 archaeological sites of the seven islands, 8 of which are on Gran Canaria. This new dataset, including the samples from Gran Canaria, shows that the island had a high genetic diversity, implying a large population size (Fregel *et al.* 2018).

The analysis of the Canarian current population has provided interesting data about the configuration of the colonial society. Admixture estimates using mitochondrial DNA and Y-chromosome have demonstrated the existence of a sexual asymmetry in the survival of indigenous lineages (Rando *et al.* 1999, Flores *et al.* 2003, Santos *et al.* 2010), with a higher North African ancestry for the maternal lineages (~40%) and a higher European ancestry for the paternal ones (>90%). Consequently, autosomic markers produced an intermediate survival rate, with an average value of around 10-30% (Fregel *et al.* 2009c, Pino-Yanes *et al*. 2011, Botigue *et al.* 2013, Rodriguez-Varela *et al.* 2017, Guillén-Guío *et al.* 2018). This phenomenon is common in admixed populations that underwent processes of conquest and colonization, such as in the Canary Islands or Latin America. In these cases, the surviving indigenous population is mostly female due to the high mortality rate of males during the conflict. Also, most of the colonizers are initially male due to the danger and instability associated with the newly conquered territories.

An alternative way of providing information on the geographical origin of the Canary Islands´s population has been analyzing its domestic animals and plants. It is well known that the first inhabitants of the Canary Islands arrived with all the necessary means to survive (Morales *et al.*

2009), including domestic animals and crop plants: goat (*Capra hircus*), sheep (*Ovis aries*), pig (*Sus domesticus*), cat (*Felis catus*), dog (*Canis familiaris*), barley (*Hordeum vulgare*), wheat (*Triticum durum*), lentils (*Lens culinaris*), beans (*Vicia faba*), peas (*Pisum sativum*), and figs (*Ficus carica*). Ancient DNA data is available from Canarian archaeological samples of goats, pigs, wheat, and barley (Ferrando *et al.* 2015, Olalde *et al.* 2015, Oliveira *et al.* 2012, Hagenblad *et al.* 2017). For example, the analysis of mitochondrial DNA on pre-Hispanic pigs showed the presence of maternal lineages related to wild boars from North Africa (Olalde *et al*. 2015), confirming previous results on human aDNA. Also, nuclear SNP data in pre-Hispanic barley seeds suggested that the indigenous cultivars had a North African origin and that the islands were isolated from each other after the initial colonization process (Hagenblad *et al.* 2017).

The teams of geneticists, archaeologists and anthropologists at the University of La Laguna and the University of Las Palmas de Gran Canaria use a sampling protocol that reduces DNA degradation and avoids the direct handling of the material. The teams also follow a series of requirements that ensure an ethical treatment of the archaeological remains and a proper heritage conservation (Prendergast and Sawchuk, 2018). To accomplish they, (a) only take the archaeological material strictly necessary to meet the objectives of the project, (b) use less-destructive sampling methods and (c) document all sampling steps for future reference.

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The ICOMOS Panel notes that troglodyte as a term in English has a negative and backward connotation. The ICOMOS Panel would suggest that consideration should be given to changing this term to "cave-dwelling" for instance.

In everyday Spanish, the term troglodyte (troglodita) also has certain pejorative connotations, as it does in English, depending on the context in which it is used, but we do believe that we should distinguish between different areas regarding the use of these terms.

When we talk about caves that are currently inhabited or to the people who live in these caves, the terms used by the local population of the area of the nominated property and its area of influence are “casa cueva” (cave dwelling) or “habitantes en cuevas” (cave dwellers), which coincides with the comment made by the Panel. The local population does not use the term troglodyte to define their own habitat or the kind of dwelling. In fact, the terms “cave dwelling” and “cave dwellers” are used relatively frequently in the nomination dossier, particularly when we refer to inhabited cave dwellings, whether they are newly built or reused over the course of history since the Conquest (see pages 29, 69, 70, 74, 78-83, 95, 96, 103–108, 179).

When we talk about archaeological sites showing the remains of the cave settlements of the aboriginal population on the other hand, we face several problems regarding the interpretation of the term “troglodyte” that are specific to our region. First of all, the scientific literature generated in the Canary Islands in this field, and including the Iberian Peninsula, refers to these archaeological works and sites as troglodyte habitats. Please find attached at the end of this point a set of references and publications used in the nomination dossier that show the use of the term “troglodyte” in the specialized literature.

There is also a symbolic reference factor that leads us to understand that the use of the term “troglodyte” could be a good idea in this case. In his Histories, Herodotus referred to certain Amazigh people as Troglodytae, mentioning their conflict with the Garamantis, also of Amazigh origin (mentioned in the nomination dossier). Pliny the Elder and Strabo make several references about these cave dwellers of ancient northern Africa. Hence, it is a question of using a terminology that emphasises the relations between these cultural phenomena.

When we tackled the comparative analysis, on the other hand, we saw that the use of the term “troglodyte” was the most wide-spread among comparable properties on the List (The List / WHC web site), used far more frequently than other cases that used “cave dwellings” to define archaeological expressions of this kind, even in recent nominations. When conducting our work too, we found that the term “troglodyte” was used in ICOMOS thematic studies such as “Rock Art of the Sahara and North Africa” (ICOMOS, 2007), which dealt with the regional area of influence of the nominated property.

Outside of these references, however, we acknowledge the fact that in the case of key documents mentioning the different categories of properties, such as “Filling the Gaps - an Action Plan for the Future” (ICOMOS, 2004), as well as a substantial proportion of recent literature in English, the term “troglodyte” is not used, whereas “cave dwelling” is preferred.

Having explained our reasons for using the term “troglodyte”, and following the panel’s suggestions, we have no objection to using the terms “cave dwelling” and “cave dwellers” instead of “troglodyte”, especially in future communications, publications or reference documents like the executive summary.

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3

Boundaries

On the basis of the additional information provided on 9 November 2018 and the discussions held on 24 November 2018, the ICOMOS Panel understands that the majority of the nominated area and Buffer Zone falls within the geographical boundaries of the Caldera de Tejeda.

The ICOMOS Panel would be pleased if the State Party could provide a map showing the overlap between the boundaries of the nominated property and its Buffer Zone and the different protective measures in order to better understand how the boundaries of the nominated property and the Buffer Zone coincide or are different from protective designations.

We enclose two maps as a synthesis and clarification of the different levels and systems of protection that impact the nominated property. Annex II of this report presents them in DINA3 format to enhance your view.

Map 1
Natura 2000 Network and protecting cultural heritage

This map shows the territory protected under the EU Habitats Directive (Natura 2000 Network) and the system of protection for cultural heritage with regard to the boundaries of the nominated property and its buffer zone.

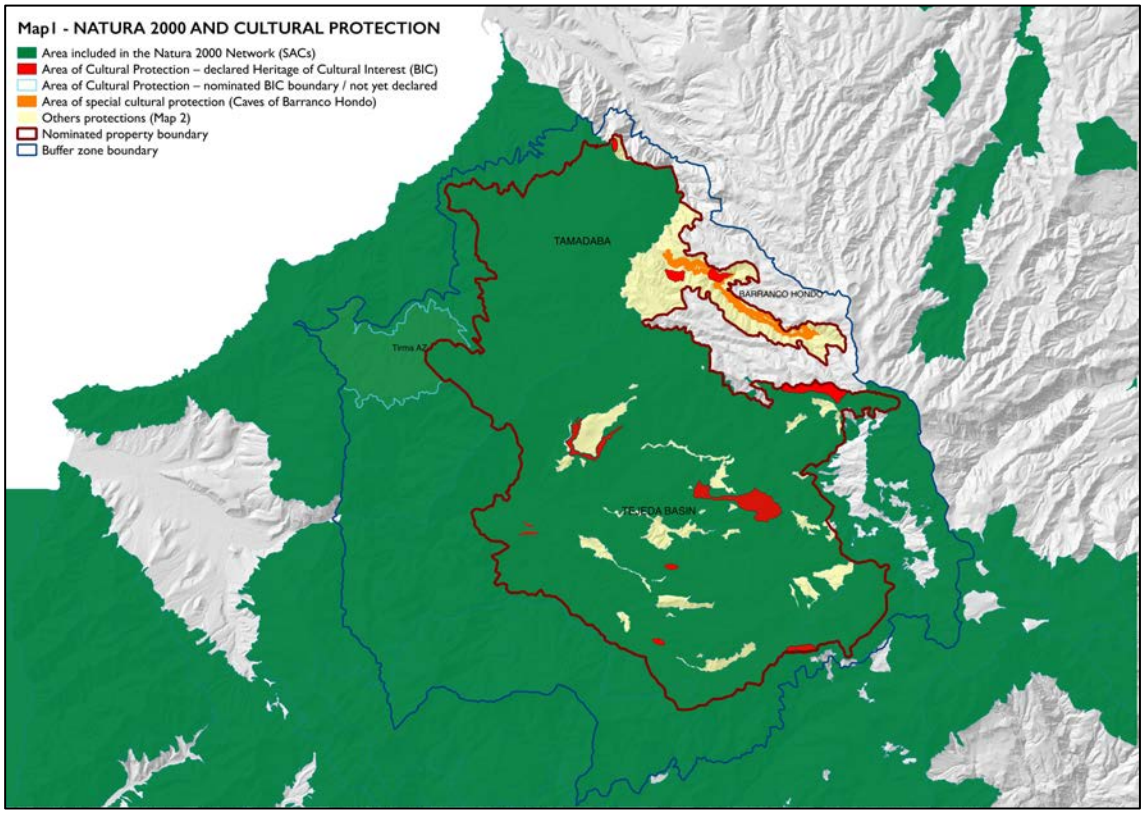
Regarding the Natura 2000 Network, we have used the same colour for all of the network's Special Areas of Conservation (SAC) to give a better understanding of the situation. This area covers a substantial part of the nominated property and the buffer zone. As you can see, it not only overlaps a large part of these zones, it also includes an extensive area beyond these boundaries. The rationale for this is that the nominated property and its surroundings form part the area of the island with the least degree of natural modification and that it preserves important species, habitats and ecosystems, not just as a mountain habitat, but also from a Europe-wide perspective. As the nomination dossier explains, some of the habitats classed as priority habitats of Community interest (EU) fall within the area of the nominated property. We would also point out that, as you well know, the Natura 2000 Network comprises a network of natural spaces of high ecological value in Europe, covered by the highest level of protection.

The gaps that can be seen in the area of SACs in the nominated property; in other words, the areas not included in the Natura 2000 Network, are the areas subject to traditional agriculture protection and with areas of rural settlements. This is why they have been excluded from the delimitation of the SACs. The environmental protection system in the case of the area of Barranco Hondo, which falls outside of the area of the Natura 2000 Network, can be better understood from Map 2.

With regard to cultural heritage protection, first of all, we would like to highlight the archaeological sites and their surrounding areas, which have been declared Heritage of Cultural Interest (BIC). These are the areas that include the main archaeological attributes of the property, along with settlements of cave dwellings such as Barranco Hondo de Abajo, declared a BIC as a historical site. We have also included the BIC nominations, in other words, those that

have been not yet been declared BICs, which is the case of the Tirma Archaeological Zone, the boundaries of which fall outside of the nominated property.

Finally, in the area of Barranco Hondo, the area of the zone given Cultural Protection status in the Galdar Land-Use Plan is indicated under the denomination “Cuevas de Barranco Hondo” (Caves of Barranco Hondo)[1].



The Natura 2000 Network and cultural protection system. The map is reproduced in Annex II, in DINA3 format.

Map 2.
The Canary Island Network of Protected Natural Areas (ENP), planning protection and cultural heritage protection

The map shows the protected areas belonging to the Canary Island Network of Protected Natural Areas (ENP) that overlap the nominated property, distinguishing between the different kind of protected spaces. The Map also includes the protection system covering cultural heritage and other complementary protection aspects included in the planning instruments.

The protected spaces that impact the nominated property are Tamadaba Natural Park, Nublo Rural Park and Roque Nublo Natural Monument. In a similar fashion to the case of the Red Natura 2000 Network, these areas included in the Canary Island Network of Protected Natural Areas (ENP) do not only overlap a large part of the nominated area, they also include a more extensive area beyond its boundaries, with the exception of the Roque Nublo Natural Monument.

[1] Official Canary Island Gazette (BOC nº 2007/32). Publication of the Galdar Land-Use Plan.
[2] Master Plan for Use and Management. Final approval nº 2003/100, 27 May 2003. Canary Island Government.

The protection system and measures stemming from these spaces being declared protected spaces are covered in greater detail in the Master Plans for Use and Management (Tamadaba Natural Park[2] and Nublo Rural Park[3]) or in the Conservation Measures (Roque Nublo Natural Monument[4]). It should be pointed out that the protection and conservation measures of the Natura 2000 Network are based on those set out for the ENPs where the two spaces overlap[5].

Against this backdrop, we should emphasise the fact that the Protected Natural Areas (ENP) that impact the nominated property are closely related with the designation of the Gran Canaria Biosphere Reserve, which encompasses 46% of the island and includes almost all of the nominated area. As we advised in the additional report of 9 November 2018, The Gran Canaria Biosphere Reserve has not generated any specific protection system or measures. The functions assigned to it as a Biosphere Reserve and its zoning, for the purposes of protection, are based solely on the characteristics of the Protected Natural Areas (ENP).

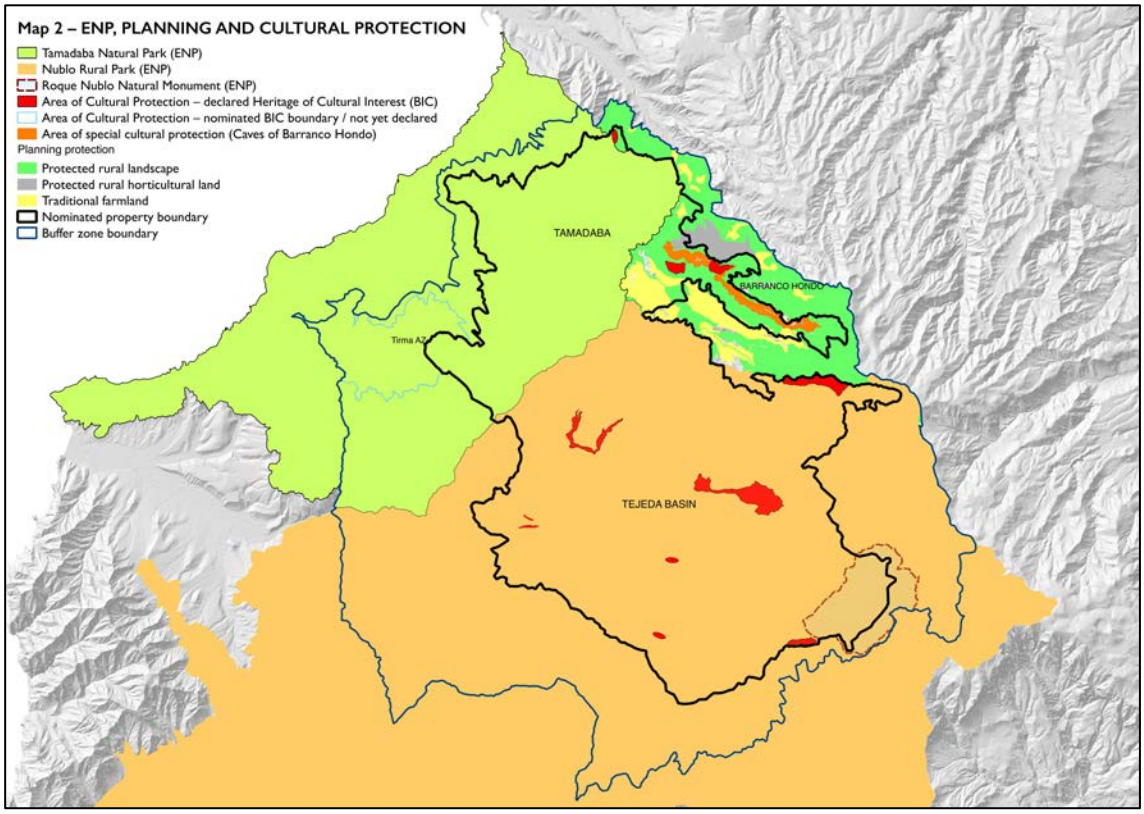
In the part of the property not included in the protected areas, basically the area of Barranco Hondo, there are several complementary protection aspects set out in the planning regulations. Apart from the cultural protection area (Cuevas de Barranco Hondo)[6] indicated on Map 1, there are three other categories of territorial protection: protected rural landscape[7], protected rural horticultural land [8] and traditional farmland.

It is worth pointing out that the Barranco Hondo landscape unit has either cultural protection status or rural land of scenic interest status, highlighting a coherent and complementary protection system covering both sides of the gorge, the sunny side (cave dwelling habitat) and the shady side (terraced landscapes). The areas granted landscape protection also cover much of the buffer zone beyond the boundaries of the protected natural spaces (ENP).

The only parts of the area of the nominated property that are not covered by these protection systems are the small areas of rural settlements. These are, however, covered by rural land status, which prevents any development actions that are not related to the traditional activities associated with the characteristics of the region within these boundaries.

In conclusion, every place of the nominated property and of he buffer zone benefit of a specific protection related to its cultural and/or natural values.

[2] Master Plan for Use and Management. Final approval nº 2003/100, 27 May 2003. Canary Island Government.
[3] Master Plan for Use and Management. Final approval nº 2002/160, 02 December 2002. Canary Island Government.
[4] Conservation Measures. Final approval nº 2005/095 - 17 May 2005. Canary Island Government.
[5] Official Canary Island Gazette (BOC nº 2015/124) – Order, 12 June 2015, adopting conservation measures for the Special Conservation Zones in the Autonomous Region of the Canary Islands that form part of the Natura 2000 Network, whose boundaries coincide with Protected Natural Spaces (ENPs). It is aimed at maintaining or re-establishing their habitats.
[6] Official Canary Island Gazette (BOC nº 2007/32). Publication of the Galdar Land-Use Plan.
[7] Official Canary Island Gazette (BOC – nº 2004/53) Publication of the Agaete Land-Use Plan, Official Canary Island Gazette (BOC – nº 2007/32) Publication of the Galdar Land-Use Plan and Official Canary Island Gazette (BOC – nº 1998/107), 1275 Order, 2 July 1998, finally adopting the Subsidiary Planning Standards of the municipal district of Artenara (Gran Canaria).
[8] Official Canary Island Gazette (BOC – nº 2007/32) Publication of the Galdar Land-Use Plan



Map 2. ENPs, planning protection and cultural protection. The map is reproduced in DINA3 format in Annex II.

Additional comments

The Archaeological Maps and Ethnographic Maps

The maps provided in this report do not include more detailed elements - 26 archaeological sites and 324 individual expressions of ethnographical heritage located within the area of the nominated property -, but they do also enjoy protected status as they are listed in Archaeological Maps and in Ethnographic Maps. These are scattered, either beyond the boundaries of the sites that have been listed as BICs, or fall within the special cultural protection zone (Barranco Hondo caves). More information on this matter is provided both in the dosser and in the report of 9 November 2018.

ARIP - Area of Special Heritage Interest

As mentioned in the report of 9 November 2018, the ARIP for this area of the island is in the process of being redefined and modified by the Gran Canaria Land-Use Plan (PIO), for later approval. The new definition will coincide with the boundaries of the nominated property. Although ARIPs, and consequently this modification, do not entail additional protection aspects, the modification guide future special plans that have an impact on improving and recognising the cultural heritage of the nominated property.

The ICOMOS Panel notes the archaeological importance of the Tirma archaeological site as a Property of Cultural Interest (BIC} in the northwest of the Buffer Zone, and the term "Tirma" as the sacred mountain territory of the ancient Canarians. The ICOMOS Panel would be grateful if the State Party could clarify why the Tirma archaeological site is not included in the nominated area.

The place name "Tirma" has undergone a remarkable evolution in terms of both the area it refers to and its meaning over the last five hundred years, from covering a broad sacred reference area for the aboriginal population, to becoming an estate with a specific boundary in the 19th century, before then being converted for intensive livestock and agricultural use in the 20th century, which is where the current place name is located. Hence, to answer this question, one has to address the different meanings of the term "Tirma" and its location over time.

The earliest information concerning Tirma as a place name comes from the chroniclers of the conquest of Gran Canaria, in the late 15th century and during the 16th century, which relate it to one of the two sacred mountain spaces of the indigenous population of the island. According to *Crónica Iacunense*[9] "they had two crags as a sanctuary, called Tirma and Amagro" (Morales, 1978). López de Ulloa, another chronicler of the conquest, gives a fuller version, "they had two crags as a sanctuary, called Tirma and Amarco, each measuring two leagues around, and they bordered on the sea, and this was so that the miscreant who had committed a crime could be safe and free in these hills" (Morales, 1978). This latter description leads us to assume that this was a spacious area in the mountains bordering on the sea. Thus, what we now know as Tirma refers to a less-spacious and different space from the one that can be deduced from these descriptions, at least until the 17th century. Although the Tirma place name can be traced and documented, the location of Amargo or Amarco has not yet been proven, as this place name and possible references have become blurred over time.

In later documentation found in notary protocols, more specific boundaries are set on the area known as Tirma, limited to the Tamadaba Massif, in the area of the nominated property. The boundaries of the place known as Tirma with the sea were still marked in 1674, according to a docket from the provincial archives of Las Palmas de Gran Canaria (AHPPL, 1674), which set one of these borders in what is now Playa de Segura, on the north-west edge of the nominated property, quite a long way away from what is now known as the Tirma estate. The fact that a sacred mountain borders on the sea may seem strange, but this is due to the fact that this is the Faneque area, in Tamadaba, a mountain that rises abruptly from the sea to a height of 1027m. This boundary with the sea and at least a substantial part of what was known as Tirma however, was finally left out of the area under the demarcation conducted in 1894.

The estate marked out in 1894 under the name of Tirma comprised a forested area dominated by the pine forest that was cleared in the early 20th century for agricultural and livestock use, transforming its appearance radically. Finally, the 2000 ha private estate or hacienda was bought by the Cabildo of Gran Canaria in 2002, when work started on environmental restoration and reforestation in large areas. In 2003, a decree was published filing for the area to be nominated a Property of Cultural Interest (BIC)[10], as an Archaeological Zone, the "Sanctuary of

[9] Conquest of the Island of Gran Canaria on the mandate of the Catholic Monarchs, Ferdinand and Isabel by Captain Juan Rejón and Governor Rodrigo de Vera with Lieutenant Commander Alonso Jaimes de Sotomayor. It was started by Musiut Joan de Betancourt in 1439 and was completed in 1477 on the day of the Bienaventurado S.P. Martyr on the 29th of April and this conquest took 38 years.

[10] Official Canary Island Gazette (BOC nº 2003/153). Decree of 22 May 2003, filing an nomination to declare the "Tirma Sanctuary" Heritage of Cultural Interest (BIC).

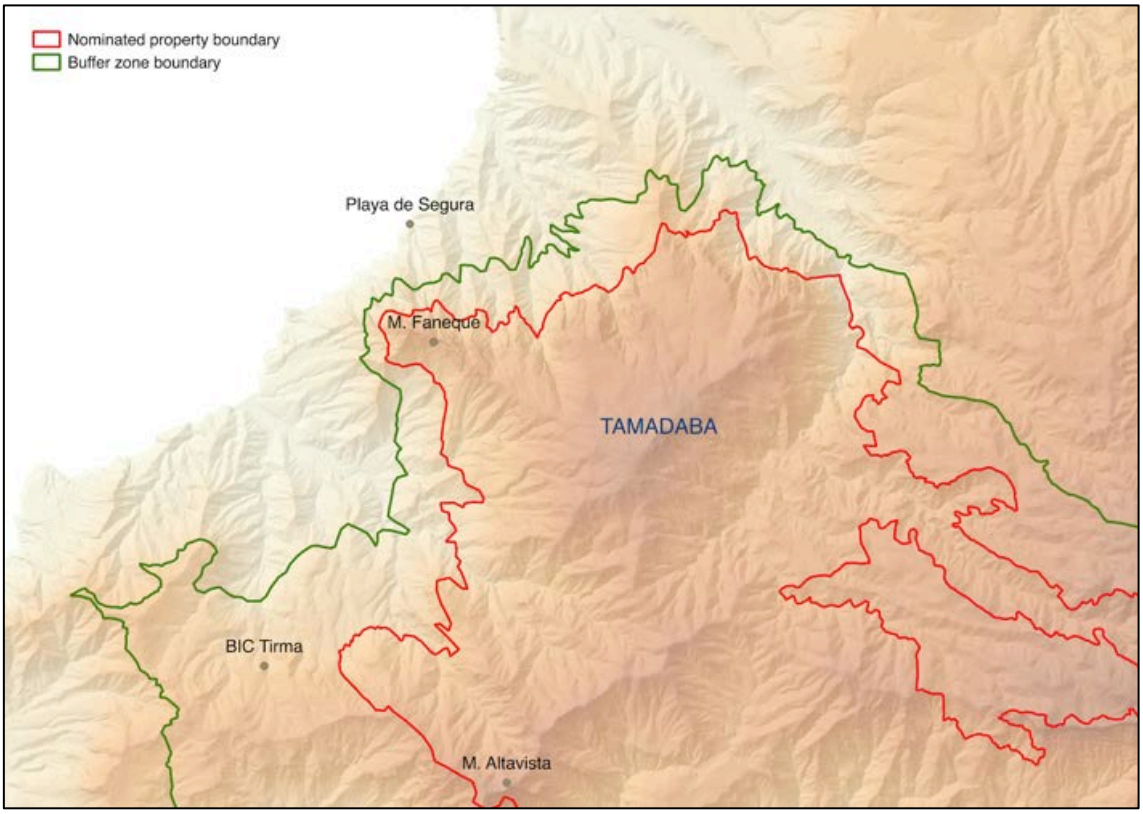
Tirma". It is important to point out that to date, the property has not been declared a BIC, so the only thing on record from the point of view of legal protection, is that an application has been filed, awaiting final declaration. We should also point out that the term used for the Tirma Sanctuary nomination, referring to a very specific 595-ha estate, is based solely on the first generic reference mentioned before in the chronicles of the Conquest, and on the fact that the estate bore that name. Nevertheless, archaeological research conducted after this nomination was filed in 2003, together with studies of place names and the documentary sources analysed since, have cast doubt on this assertion.

The archaeological explorations conducted in recent years, as part of the archaeological maps of Gran Canaria, have revealed the archaeological importance of the area known as Pinar de Tirma (Tirma Pine Forest), where Montaña de Altavista (Altavista mountain), the highest geographical point of the Tamadaba Massif, is located. These complete areas are included within the nominated property. This space harbours significant archaeological remains associated with religious or ritual functions. The characteristics of the buildings to be found in this place, their setting within the pine forest, the type of construction, the fact that they are located in the area of the highest crags, and the alignment of the site with Bentayga and Mt Teide -another major major geographical reference in the Tejeda Caldera- lead us to seriously consider that this space functioned as a sanctuary. As with the other significant sanctuaries of the area, these are places far away from any residential settlement, which, on the other hand, can be seen among the structures to be found in the current Tirma nominated BIC. Although, based on the evidence available, it cannot be fully confirmed on the basis of the information available that Altavista was an epicentre of the legendary sanctuary of Tirma mentioned in the chronicles of the conquest. The information provided does, however, raise major doubts as to whether the estate currently known as the Tirma hacienda really is a candidate to bear such a title. And we should not rule out the possibility that it formed part of a territory with connections to the old Tirma Sanctuary.

It is true that the Tirma Archaeological Zone, nominated as a Property of Cultural Interest (BIC), is in fact in the buffer zone; this is for several reasons. First of all, the current place name of Tirma does not cover the whole area of the indigenous sacred site, which, as mentioned, covered a more extensive mountainous area in the Tamadaba Massif, around an epicentre that does not coincide with the current nominated site as Heritage of Cultural Interest (BIC) that bears that name. The current name of Tirma is restricted to the estate or hacienda belonging to the Cabildo of Gran Canaria. As we have already explained, the boundaries were set when it was marked out in 1894. Thus, the present place name is restricted to the estate (*Cortijo de Tirma*), rather than to the sacred space described by the chroniclers in the late 15th and 16th centuries.

On the other hand, the fact that the area nominated as a Property of Cultural Interest (BIC) falls outside of the boundaries of the nominated property, in its buffer zone, is due to the fact that the Archaeological Zone of Tirma does not contain any representative attributes or values capable of transmitting the Outstanding Universal Value of the property, without forgetting the fact that it has been profoundly altered since the beginning of the 20th century. In archaeological terms, it is a space that basically harbours dwelling structures on the surface and areas with burial mounds, where no artificial caves, sanctuaries or religious spaces have been documented. The fact that the area included in the application for BIC status, which has not been declared, was called the Sanctuary of Tirma was not so much due to the fact that archaeological studies showed the religious function of the spaces located within the zoning, it was simply due to the sacred connotation given to Tirma in ethno-historical texts.

Nonetheless, including Tirma – under nomination for BIC status – in the buffer zone was a decision that was based on criteria of landscape connectivity and because it harbours expressions that, while not outstanding, do refer to this cultural phenomenon. Another point, as explained in the previous report, is that this space is on the outer rim of the Tejeda Caldera, considered the geographical and landscape setting of the nominated property.



Location of the place names mentioned in the text

References:

AHPLP, (1674). Protocolos Notariales, legajo 2.373, 13 November 1674.

BOC - Boletín Oficial de Canarias núm. 153, Friday 8 August 2003.

Morales, F. (1978). Canarias: Crónicas de su conquista. Ayuntamiento de Las Palmas de Gran Canaria-Museo Canario.

4

Management

The ICOMOS Panel would be grateful if the State Party could provide additional information regarding the intended function of the proposed Cultural Landscape Management, Co-ordination and Guard Centre, as well as information on when it will be operational.

After reaching an agreement between the Tejeda Council and the Cabildo of Gran Canaria, the Management Centre will be housed in a building set in the heart of Tejeda, on the edge of the area of the nominated property (buffer zone). It has sufficient capacity and facilities to house the functions and activities envisaged (see attached pictures). The selection criteria have given priority to the policy of reconverting and reusing public spaces and facilities available in the area, thus avoiding generating new facilities with the consequent impact.

Bearing in mind experts' estimates of the work remaining in order to complete the refitting of the building so as to fulfil its new functions, and also the process of allocating staff to operate it, we estimate that it will be ready to open in September 2019.

The budget has been approved by the Cabildo of Gran Canaria to guarantee both its operation and maintenance of the Centre.

The functions planned for the Centre are as follows:

Management and co-ordination

The Centre will undertake all of the management tasks relating to the property and its heritage, including on-site management, co-ordinating activities, action projects and administrative work.

The Centre will also be the head offices of the "Risco Caído and Sacred Mountains of Gran Canaria Foundation", the umbrella organisation for implementing and co-ordinating the activities and projects, direct management and participation system as a whole. It will also act as a node of participation of the local community.

Research Function

The Centre will provide support for research activities to be conducted in the area, including assistance, scientific overview and logistical support for visiting researchers.

Monitoring, guard and supervision

The Centre will co-ordinate guard and supervision duties with the heads of the various relevant institutions and entities with competence in this area. It will undertake on-site surveillance and monitoring of the parameters and indicators that affect the property. Its functions include drafting reports on the state of the property.

Training and skill building

The Centre will be the powerhouse and meeting place for implementing the different activities regarding training and the acquisition of the necessary skills to promote and manage the property. These include:

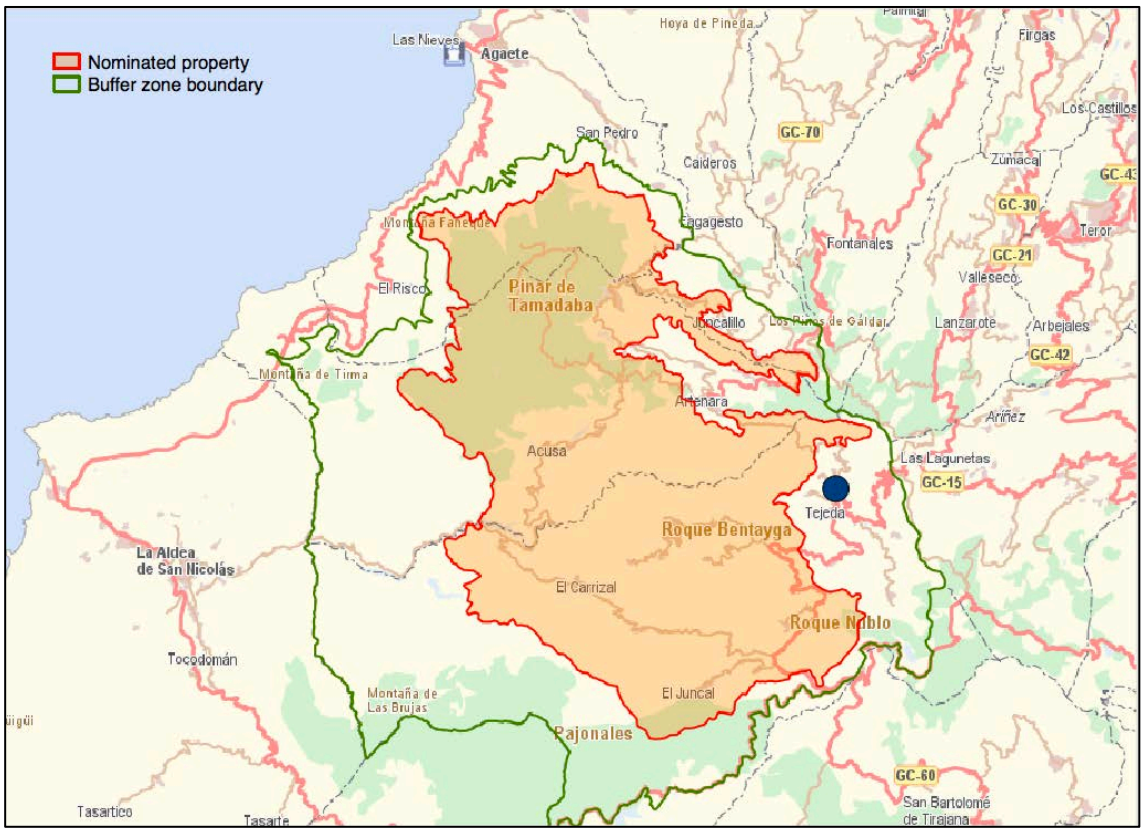
- Skill-building courses aimed at the heads of surveillance and maintenance of the heritage and resources in the area.
- Training for local social stakeholders covering areas such as heritage, responsible tourism, quality economies and sustainable development.
- Life-long training and skill-building for local educational and tour guides operating in the area.
- Specialist training in heritage restoration and conservation, including the preservation of ethnographic heritage.

The Centre will also promote the exchange of experience and best practice in sustainability and smart heritage management.

Dissemination

The Centre will have an exhibition area for permanent or temporary exhibitions relating to the main thematic areas of interest of the nominated property, along with meeting rooms. Apart from providing services for local visitors and outsiders, it will also co-ordinate dissemination activities in the area and it will be a centre of reference for the school and educational community of the district.

Views of the building fitted out in Tejeda for the Management Centre



Location of the Management Centre

5

Name of the property

As discussed in the meeting of 24 November 2018, the ICOMOS Panel considers that the Sacred Mountains of the Gran Canaria include a much larger area than Risco Caido. The ICOMOS Panel would be pleased if the State Party could consider changing the name of the nominated property in order to be more clearly related to this larger landscape.

It is true that the area of the nominated property encompasses a much larger zone than the Risco Caido archaeological site. However, when naming the property, consideration was not only given to the geographical concept encompassed by the Caldera de Tejeda.

The name of the property emerged right from the beginning of the nomination process as the result of the different proposals and ideas discussed among the local community and with the different stakeholders involved in safeguarding the nominated property. The final name was agreed, based on a consensus reached among the different participative and consultative processes, which not only included the local community, but also representative local agencies and the scientific community.

Over the last twenty years, Risco Caído has become the emblem and symbol of many of the values to be found in this broad area for the local community, as it is one of the leading temples of the ancient Canarians. It is true that there are other important sites in the Sacred Mountains with important meanings, but for social reasons or for reasons relating to popular imagery, Risco Caído has consolidated its position over the years as a powerful symbol and identity vector within the site, irrespective of the fact that it refers to a very specific attribute of the property. The singularity of the light phenomenon as a powerful vector of attraction and popular imagination have probably contributed to this.

Over time, this name has ended up becoming a clearly-promoted brand supported by the local community. There has been a lot of public and private investment in communicating and disseminating this brand, with large investments in all kinds of supports and resources. In addition to this are the numerous institutional and civil society adhesions to the nomination.

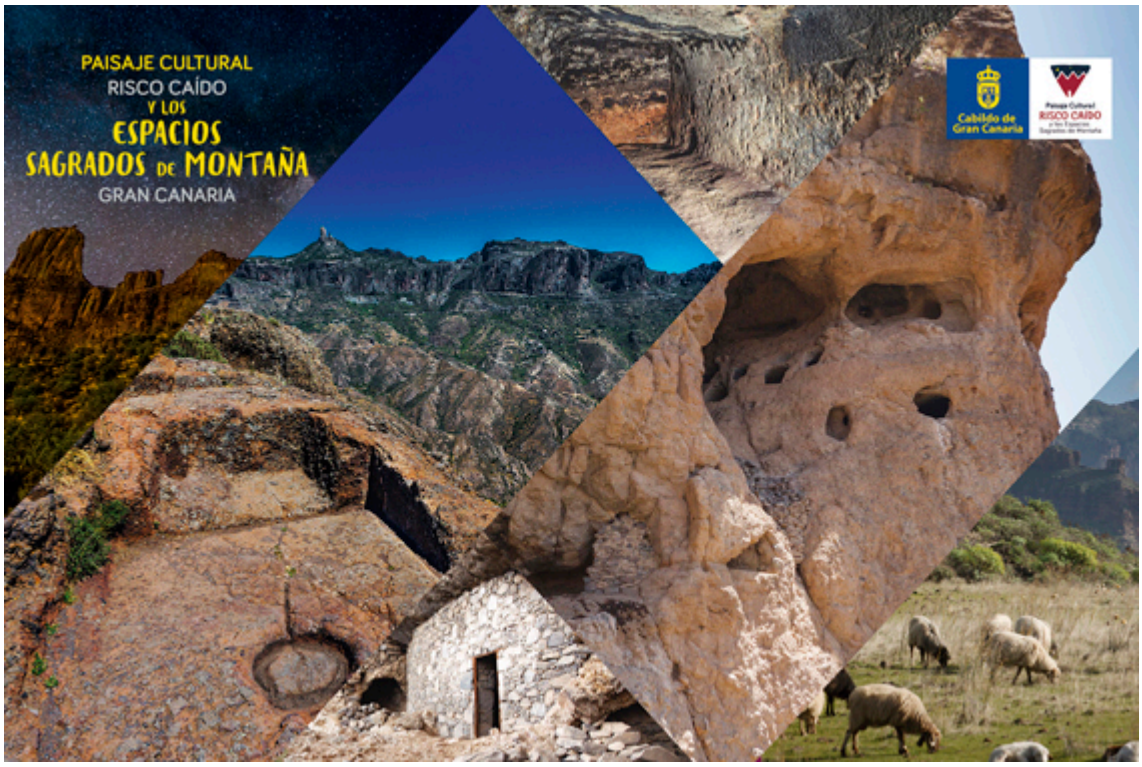
From our point of view, the problem lies not only in changing the name, which is a simple thing to do, with the exception of the materials and media produced, but rather in how to explain this sudden change in name to the local community and island population after so many years and the investment of so many resources.

However, when translating the name from Spanish into English, it has come to our attention that, perhaps it would be more fitting to call it “Risco Caido and Sacred Mountains of Gran Canaria” eliminating the definite article “the”, which could suggest that Risco Caído is something different from the Sacred Mountains.

In conclusion, ICOMOS remark related to the name is true in general view, but count of the history of the place as cultural site and the name appropriation by local communities, it seems preferable for stakeholders to maintain the initial proposed name: ‘Risco Caído and Sacred Mountains of Gran Canaria Cultural Landscape”.

Images

We enclose some pictures as a reference of the supports, signage, publications, communication and audio-visual material.



Sample of publications

Signage used throughout the space and permanent information supports

Denomination: Participative process and communication

Dissemination and denomination

Dissemination and denomination

Institutional support (the King and Queen of Spain in the left-hand photo) and public support for the nomination

6

Annex I

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THE ALMOGAREN OF RISCO CAÍDO: A SINGULAR ASTRONOMICAL SANCTUARY OF THE ANCIENT CANARIANS

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ABSTRACT

The almogaren (rock-cut sanctuary) of Risco Caído was discovered in 1996 in the Canary island of Gran Canaria. It is a paradigmatic example of a complex where light and shadow effects of an astronomical character have been found within the recent archaeological discoveries of a religious and ritual character in the Canaries. The main artificially excavated camera of the cultural complex Cave 6 takes the form of a cylinder, topped with a dome in the form of paraboloid. In this dome, a 2m long tunnel is excavated by which the light of the Sun penetrates at dawn, from spring to autumn equinoxes. The entering light projects enigmatic images on the western wall of the sanctuary, where numerous pubic triangles (vulvae − the universal symbol of fertility −) are recorded in low relief. Two dots of light of the sun first illuminate the decorated wall in March 19th (and september 25th) in the proleptic Gregorian Calendar, colliding and forming a single image for the time of the equinox, thus allowing the determination of a rough midpoint in time between the solstices. The rising and ascending sun then penetrates the cave during the spring and summer months, reaching its extreme at the moment of the summer solstice when the light takes a form roughly resembling a phallus illuminating the vulvae. This paper will desscribe the site and these series of illuminating effects and will discuss how this could have been interpreted by the ancient inhabitants of the island within the context of a lunar-solar calendar related to the cycle of fertility and permanent regeneration of life.

KEYWORDS: UNESCO, Archaeoastronomy, Archaeology, ancient Canarians, Gran Canaria, Risco Caído

1. INTRODUCTION

In 1996, the first author discovered the almogaren − or ceremonial centre −at Risco Caído in an archaeological prospect campaign in the mountains of Gran Canaria (Cuenca Sanabria, 2008 and 2012). This sanctuary is a unique, outstanding, religious archaeological site of the ancient Canarians, where astronomical relationship could have played a most relevant role. This was actually the rediscovery of a place of exceptional symbolic significance for the indigenous people.

The archaeological complex is situated on the edge of the Caldera de Tejeda, in the highlands of the north-western slopes of the island of Gran Canaria, 960 metres above sea level (see Figure 1). It is located in a remote and secluded part of Barranco Hondo ravine. Archaeological research indicates that the almogaren at Risco Caído was located at a strategic point on one of the main 'sacred routes' used by the indigenous people of the northern lowlands (area of Galdar, capital of the island in ancient times) to reach their main mountain sanctuaries situated in the Caldera de Tejeda and the surrounding mountains, such as Roque Bentayga (Esteban et al. 1996-7).

In these lands, where legends and actual facts mix and occupied by the early inhabitants of the island, archaeological studies have recovered a series of sites that have been identified as places of worship and ritual. They are found either on the top of prominent rock tors, where structures were carved out of the surface bedrock or, more frequently, in hollowed-out caves located in the most inaccessible or secluded parts of certain mountains, as is the case here (see e.g. Belmonte et al. 2018, this volume).

Figure 1. Panoramic view of the archaeological site of Risco Caído © Julio Cuenca

The two main and most remarkable neighbouring caves of the Risco Caído complex (caves C6 and C7, see Figure 2) comprise what the ancient Canarians called an 'almogaren', that is, a temple, a place where rituals are performed, where people congregated at certain times of the year or when the rains were scarce and rituals were needed to pray for them so as to ensure the cereal harvests. As ethnohistorical sources relate: *The houses of religious women were sacred for delinquents, they called them Tamogante en Acorán, which means the house of God. They had another house on a high cliff called Almogarén, which is a sacred house; there they invoked the deities and made sacrifices, sprinkling milk every day, which their God above looked down upon and they kept livestock for this purpose. They also went to two very high crags: Tirmah in the district of Gáldar, and another in Tirahana called Humiaia at White Cliffs. They swore by these two crags with utmost solemnity, they came to them in procession with branches and palm fronds, and the Maguas or virgins with their*

pitchers of milk to sprinkle; they called out and raised their hand and faces to the heavens and circled the rocky tor and descended, from there, they went to the sea to thrash it with their branches (Gómez Escudero, 1682).

Archaeological evidence reaffirms the sacred nature of the site as one of the most important almogarenes of the aboriginal Canarians (see, de León and Marín, 2018 for a comparative). The first striking fact is that these troglodyte constructions are located on top of a mountain that had previously been covered by a laurel forest. Thus, this was a hidden, isolated place with abundant water, far from human settlement. Consequently, this is a very significant natural landscape, containing the mountain, rain forest, the caves, water sources and even plant fossils. Another archaeological indicator is the architecture itself. In this case, we have two unique hollowed-out caves that have been built differently from the caves used as dwellings or for economic use.

However, two other features unequivocally confirm the sanctuary-like character of this site. One is the presence of symbols or bas-relief rock engravings on the inside walls, in the form of inverted triangles. These are clear representations of pubic triangles, a universal sign of fertility (López Peña et al., 2002; see Figure 3). The other is that there are numerous circular cup-marks and small niches chiseled into the inside walls and floors of both chambers. The presence of these cultural expressions is considered a definite indicator of a place of worship and ritual (Cuenca Sanabria, 1992).

Cave 6, the most relevant of the Risco Caído complex, has an original and completely unique layout. The floor is practically circular. The cave has curved walls and a hollowed-out vault rising almost five metres from floor level, forming an almost perfect parabolic dome (see Figure 4). This aspect is extremely important: since no other example of an artificial cave with a domed roof of this complexity and shape is known in the aboriginal world of the Canary Islands. On the eastern side of the dome, almost coinciding with the highest point is a conduit or oculus facing east, allowing light to flow in through it (Fig. 4).

The most appealing feature of this remarkable site is the lighting effect representation produced by the sacred sun and moon inside Cave C6, in the form of images projected by the light passing across a light tunnel or oculus. This image changes shape as the days and months pass and as they move along the wall with its altar-like representations of triangular engravings and cup-marks. These may eventually have functioned as reference points in a lunar-solar calendar. This visual calendar would have started at a date very close to the spring equinox when the projected solar images first appear (equinoctial phenomenology is frequent in sacred sites of Gran Canaria, see Esteban et al. 1996-7), continuing until the autumn equinox. From then until the next spring equinox, either by chance or by deliberated desire of the designers, the light of the full moon between the months of October and February would have illuminated the engravings inside the sanctuary.

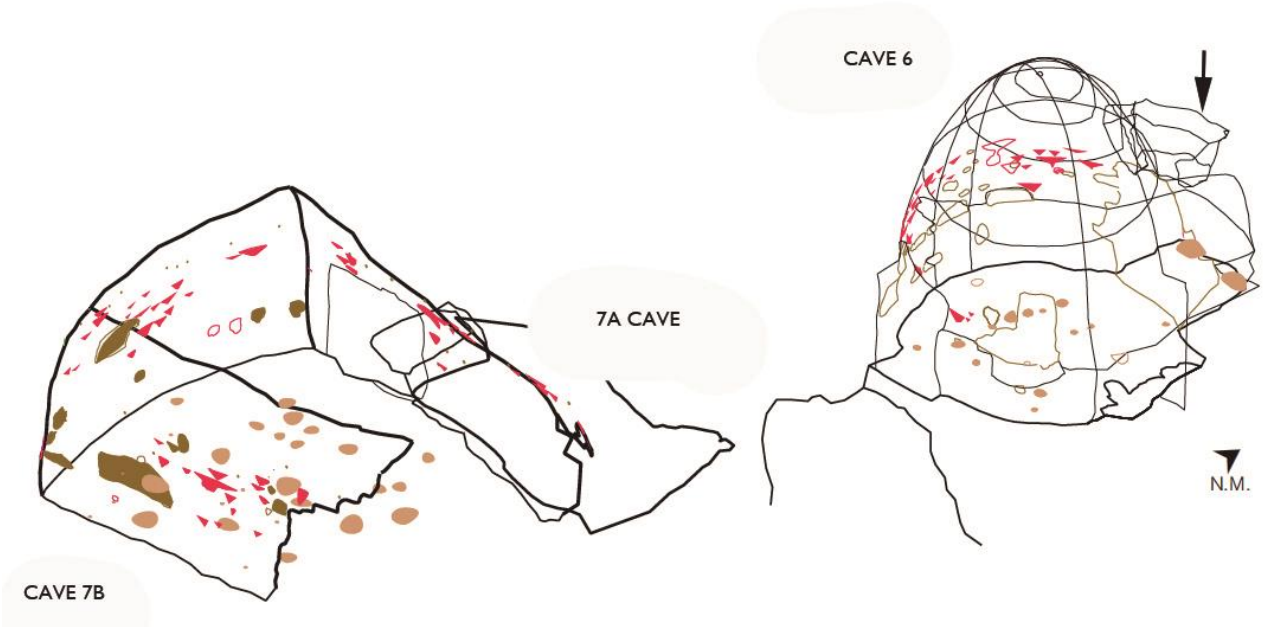

Figure 2. Three-dimensional survey of Risco Caído neighbouring artificial Caves 7A and 6. These certainly represent the sanctuary of the site with an elaborated decoration formed by pubic triangles (in red) and cup-marks (in brown). Notice the dome aperture or oculus in the upper right extreme of Cave 6. © Carlos Gil Sarmiento, PROPAC.

Amazingly, it is still possible to watch this visual tale unfold; one that has been projected inside this temple for countless centuries. It is thought to relate to fertility rituals, the fertility of Mother Earth being represented here by the carved ideogram for the female pubic triangle. Hence, this cave site is an ingenious creation that functions both as a sacred place and perhaps as an astronomical marker, where certain events such as the equinoxes and the summer solstice (when the moving image will stop and turn back) would be visually highlighted to coincide with the aboriginal Canarians' rituals, while eventually allowing them to keep a calendar, which they may have used to regulate farming and productive activities.

Archaeological research is still ongoing at Risco Caído. Two C14 radiocarbon dates have been obtained so far, one in 2013 from a sample of wood from a Canary Guelder Rose shrub (Viburnum rigidum; 1415-1450 A.D.), and the other in 2014 from an older organic sediment (1295 ± 25 A.D.), both collected from the inside walls of Cave C6. A thermally altered floor was discovered inside this cave during 2015: a sample taken from this still awaits paleomagnetic dating (de León and Marín, 2018).

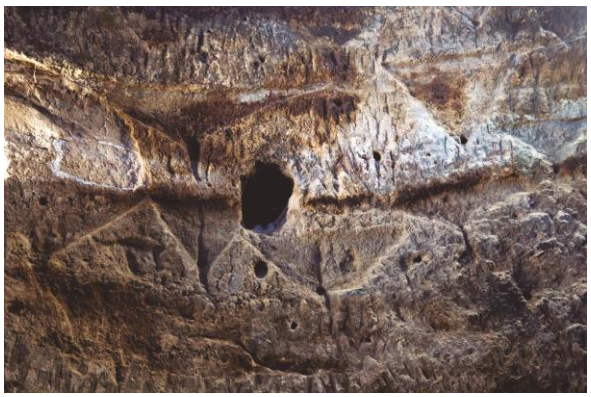

Figure 3. Close-up of the series of the engravings of pubic triangles, a symbol of fertility, and the cup-marks scattered over the west wall of Cave 6. © Julio Cuenca.

The incoming light hits the mural of rock engravings on the back wall, opposite the light tunnel or oculus. For six months of the year, sunlight illuminates this wall creating different shapes depending on the time of day and the season of the year (see Figure 5). The floor of the cave has also been worked and levelled, and a whole set of unconnected circular cup-marks have been chiseled into it. The largest concentration of these cup-marks lies at the base of the rock-engraving mural. Halfway up the south wall is what may have been a silo. The entrance is rectangular and it has opposing orifices on the floor and lintel for fitting the closing system.

Perhaps most strikingly, halfway up the west wall is a composition of thirty or so engravings of inverted equilateral triangle-shaped motifs, forming a decorative frieze of two parallel rows (Figs. 2 and 3). Associated with these triangular motifs and forming part of the same panel, are numerous cup-marks and generally circular orifices. There are also two large niches within the same wall panel, the larger of which is rectangular in shape (see Figure 6).

With its unique architecture and the interesting design of the oculus, together with its remarkable rock engravings, Risco Caído Cave 6 is a religious-ritualistic structure that is unparalleled in pre-Hispanic Canary Island archaeology. As we shall soon show in greater detail, its design may also incorporate probable astronomical and calendar-related relationships. The only cave sanctuary anywhere in Gran Canaria, that bears any similarity is the Tara sanctuary, in Telde, which is currently under study, although Risco Caído indeed is a more evolved and sophisticated version.

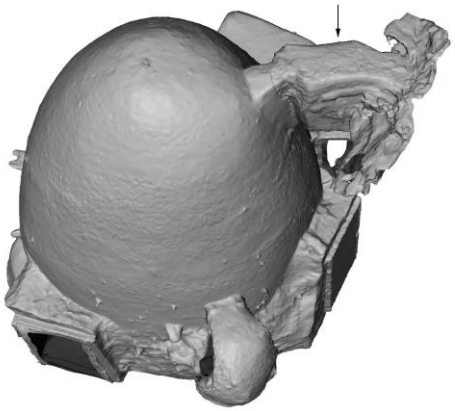

Figure 4. Digital model of Cave 6 using photogrammetry techniques and three-dimensional laser scanner. The paraboloid shape of the dome and the oculus (signalled by an arrow) are emphasized. © Carlos Gil Sarmiento.

2. RISCO CAÍDO, ARCHAEOSTRONOMY IN ACTION

It might be the case that Risco Caído Cave 6 acted as an ingenious astronomical marker. The light of the rising sun illuminating the interior of the sanctuary possibly signaled the arrival of the equinoxes and the summer solstice (Fig. 6), while the light of the full moon perhaps marked the passing of the 'winter' half' months after the autumn equinox until the next spring equinox, if this would not happen just by chance, which is unlikely since the ancient Canarians measured time through the year by 'moons' (Belmonte and Hoskin, 2002). These together would provide a calendar based on a lunar-solar year. This fact would indeed have allowed these aboriginal people to govern the vital yearly farming cycle.

The cave's significance as a possible astronomical marker was suggestive from the moment of its discovery. However, the fact that the light of the sun's rays enters two days before the spring equinox (a key moment of the ancient Canarian calendar; Esteban et al., 1996-7; Belmonte and Hoskin, 2002) and that the phenomenon continues until the autumn equinox was confirmed and documented in 2012, as part of the research work carried out during the first phase of the 'Archaeological Conservation, Protection and Research of the Cultural Complex' project. Every day at sunrise during the 'summer' half of the year, the cave is illuminated by a beam of light. This is projected onto the west wall and changes shape and direction as the sun rises and climbs into the sky. Each day, the descending beam of light illuminates the pubic triangles and niches located in the middle part of the mural, changing shape until it fades out in its path across the panel (see Figure 7). After six months of illuminating the cave every day, these effects disappear altogether at nearly the autumn equinox.

Hence, what is highly suggestive, and directly supported by empirical observations and subsequent astronomical calculations, is that the light enters through an aperture in the dome that could be described as an oculus, striking the dome for the first team each year almost at a time close to the spring equinox, dividing the year into two halves and allowing the determination of an approximate midpoint in time between the solstices. The recurring effect of the sunlight on the engravings would have progressed from two days before the spring equinox until the summer solstice, when the sunrise reaches its most northerly point on the local horizon of Risco Caído and its most southerly position on the panel of engravings (Fig. 7), before turning back along the same track until two days after the autumn equinox, when the phenomenon of the sunlight entering the cave comes to an end.

The chronicles of the Conquest reiterate the importance of the equinoxes (and particularly the spring equinox, as shown by the chronicles of Sedeño) and of the solstices, which are implicitly mentioned with the sun entering the sign of Cancer. Both are considered key moments in the annual cycle, as shown in the chronicle of Marín de Cubas (Esteban et al. 1996-7; Belmonte and Hoskin, 2002; Belmonte, 2015).

Figure 5. The diagram − a superposition of several photographs − shows the image projected by sunlight onto the panel of engravings at different moments of the year once the typical image of each epoch is clearly visualized. The sun's rays enter every day within the seasonal cycle between nearly the spring and autumn equinoxes. The sun's rays penetrate the chamber for the first time two days ahead the spring equinox and for the last time two days after the autumn equinox. The two separate dots on the extreme right mark these dates, close to the two equinoxes, moments when the two dots fused into a single image. In the intervening months of spring and summer, the image takes different forms that illustrate a rich visual language ranging from a 'primeval seed' to a 'fertilising phallus' (at the time of the solstice, time of harvest). In the middle, the light forms an image that resembles the Palaeolithic Venuses which, in turn, are reminiscent of certain female idols found in Gran Canaria. This, together with the presence of pubic triangles, cup-marks and niches along the light's path −as illustrated in Fig. 7 − suggests that we are dealing with a suggestive astronomical and symbolic phenomenology related to fertility cycles and perhaps timekeeping. © Julio Cuenca and José Carlos Gil.

Figure 6. The west wall of Cave C6, with the shapes of the extant pubic triangles superimposed for emphasis, viewed on the morning of the spring equinox. The patch of projected sunlight can be observed as it starts to descend the wall, moving down and right. The arrows indicate the most singular triangle of the panel (right) and the triangle touched by the path of sunlight at the summer solstice. Most of the central engravings on the panel (c. 65%.of the pubic triangles, including several of those to the left and right of the arrows as shown by our calculations; de León and Marín, 2018) are covered by sunlight or moonlight at different epochs of the year when a node regression lunar cycle is eventually considered. © Julio Cuenca

Figure 7. Photographic overlay showing consecutive images of the path of sunlight at the summer solstice (declination +23½°). The image, starting in the form of a phallus or shield, falls upon or fills several pubic triangles during its sweep down the wall, eventually becoming a dot that disappears into a niche, the lowest one illuminated by the rays of the sun or moon. This cycle of images is little different from the one that occurred in aboriginal times and serves as an example of what could be seen inside the sanctuary. This nice phenomenology is perhaps related to the fecundity rituals performed at the sanctuaries of Gran Canaria, at the great feasts celebrated in the lunation after the summer solstice. © Julio Cuenca and José Carlos Gil.

Further research work and the evidence collected over almost a decade have enabled us to gain a more accurate understanding of the probable astronomical function of the site. As already discussed, it is not only sunlight that penetrates Cave 6. The light of the full moon as it rises and climbs during the winter months from October to March (the time of the highest rainfall when the moon 'signals' the seasons in traditional Canarian agriculture; Belmonte and Sanz de Lara, 2001) also illuminates the main panel of engravings. The full moon also has the power and capability to illuminate the interior of the cave. This phenomenology happens from around the time of the autumn equinox and at each subsequent full moon until around the time of the vernal equinox. Although this effect could be for granted due to the architectural design and orientation of the sanctuary, we believe that it was certainly observed in ancient times.

The moon's movement is regulated by the 18.6-year lunar node cycle. This, together with the fact that full moons fall on different dates in different calendar years, mean that moonlight will not always fall on the same engravings from one year to another. During every 18th or 19th year, the moon's follows its most northerly path through the sky (the 'northern major lunar standstill limit'), which is beyond where the sun ever reaches. Interestingly, at these times, full moonlight can illuminate triangles beyond those illuminated by sunlight even at the summer solstice, lighting up some of the triangles situated to the left of the sweeps during the seasonal cycle between the spring and the autumn equinox (see Fig. 6).

3. FINAL REMARKS AND CONCLUSIONS

The structural profile of the ceiling of Cave 6 at Risco Caído is a parabola (Fig. 4), unlike all the other known caves on the island. Some have flat and some have domed ceilings, but their perimeters are generally rectangular and they usually have intentionally rounded corners, so as to reduce the maximum concentration of tangential forces where the ceiling meets the vertical faces of the walls. These, in turn, are vertical or lean in slightly towards the inside of the cave (e.g. Cave 7A, Fig. 2). From the point of view of its size, Cave 6 could perfectly well have been built like all the others, in a perceptibly prismatic shape. However, this is not the case!

Creatively and intentionally, the excavation and final ascending shape of the cave is a vaulted dome with a variable parabolic profile, with the main focus at the height of the window or oculus, facing east, through which natural light penetrates. In this way, the cave harnesses the geometrical qualities of a parabola not only to create a space that protects and embraces but also to obtain a uniform and concentrated distribution of the light that it captures, as well as the best diffusion of sound. These conditions enhance its quality as a space of sensations and beliefs.

Natural sunlight and moonlight − directed and, in turn, modified by the conduit that channels it like a spotlight into the cave − generates a series of images projected on to the opposite (west) wall that functions as a stone altar and potential astral marker. In addition to this, the beam of light that crosses the focus of the parabola creates indirect general lighting because its reflection is intensified by the alternating white rings of salts adhering to the surface of the upper laminar strata of the cave. These irradiate most of the complementary diffuse light that is concentrated downwards towards the base or inhabitable surface of this architectural masterpiece. Furthermore, thanks to its shape, the cave is evenly lit, without any extensive shadows or dazzling, apart from on the aforementioned stone altar where the solar and lunar phenomenology unfolds.

The construction process, assembly or system is one that, at the very least, materializes significant functional, structural, indeed artistic and symbolic and possible astronomical knowledge. It is a creation that has never been seen before in the islands; a work of great value for an isolated, unfamiliar with metal, culture like the one that produced this design of overall, integral conception. The architectural expression of the sacred site of Risco Caído, and the way it astronomical phenomenology might function, is outstanding for that historical period on the Island of Gran Canaria, because the inhabitants eventually applied what they learned from constantly observing the skies, because of the lack of auxiliary resources and, above all, because it is an eminently social creation conceived in abstraction.

The synchrony that apparently connects the Risco Caído sanctuary to the cosmos itself requires a level of perfection in form, proportion and execution that speaks of the singular technical achievements of the island society that designed and built it, that might be comparable with other ancient cultures around the world (Belmonte et al., 2016). The layout of the different architectural elements is based upon structural and compositional laws that transcend time, which are still present and which speak of the eternal and the unchanging. It would indeed be a perfect example of cultural astronomy in action.

Risco Caído is the most outstanding and enigmatic manifestation in the proposed Cultural Landscape of 'Risco Caído and the sacred mountains of Gran Canaria' (de León and Marín, 2018; Belmonte et al, 2018, this volume). It is in in certain aspects representative of the astronomical culture and knowledge

of the ancient Canarians. This space would eventually have an interesting coherency as a sacred site closely related to celestial events − the skyscape − for measuring time, for marking commemorative dates, and for holding rituals. In this context, Risco Caído and the rest of the sacred sites in the neighborhood, such as the almogaren at Roque Bentayga (Esteban et al. 1996-7; Belmonte, 2015), are outstanding attributes because of their potential astronomical significance in a culture that evolved in isolation from the ancient know-how imported from the pre-Islamic Maghreb, and which developed as a genuine expression in this new island environment. Cave 6 at Risco Caído is a complex artificial indoor sanctuary with plausible astronomical connotations, where patterns of sunlight and moonlight interact with a series of engravings, possibly marking the passage of days and lunar months between the solstices and the equinoxes. It is an excellent example of a sacred site where an interesting astronomical phenomenology would be manifested. Indeed, its enigmatic anthropological perspective is still a clue to be disentangled and understood.

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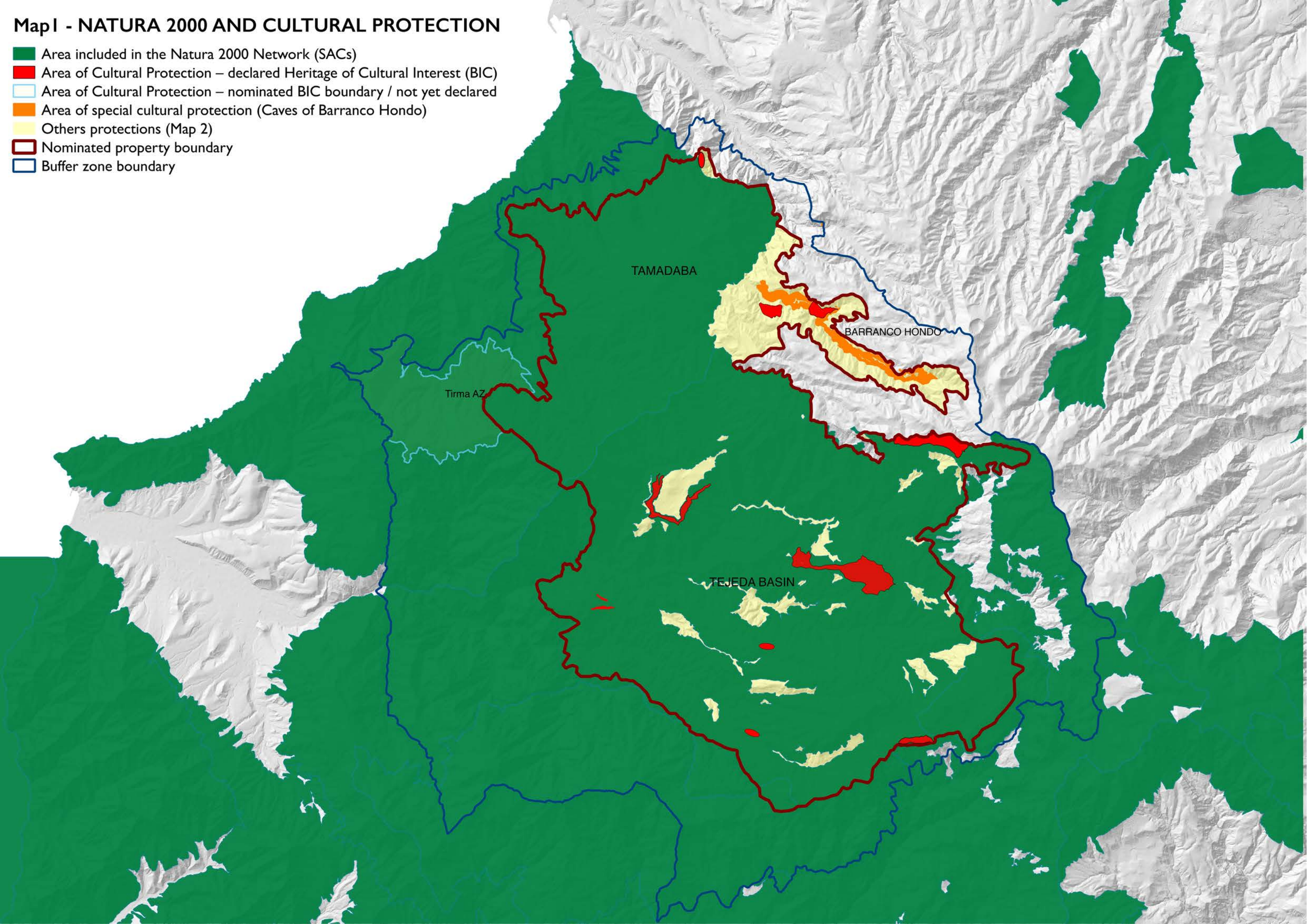
Annex II - Maps

Map1 - NATURA 2000 AND CULTURAL PROTECTION

- Area included in the Natura 2000 Network (SACs)
- Area of Cultural Protection – declared Heritage of Cultural Interest (BIC)
- Area of Cultural Protection – nominated BIC boundary / not yet declared
- Area of special cultural protection (Caves of Barranco Hondo)
- Others protections (Map 2)
- Nominated property boundary
- Buffer zone boundary



Map 2 – ENP, PLANNING AND CULTURAL PROTECTION

- Tamadaba Natural Park (ENP)
- Nublo Rural Park (ENP)
- Roque Nublo Natural Monument (ENP)
- Area of Cultural Protection – declared Heritage of Cultural Interest (BIC)
- Area of Cultural Protection – nominated BIC boundary / not yet declared
- Area of special cultural protection (Caves of Barranco Hondo)

Planning protection

- Protected rural landscape
- Protected rural horticultural land
- Traditional farmland
- Nominated property boundary
- Buffer zone boundary