

# Conservation in Pueblito Archaeological Site.

Tayrona National Natural Park, Colombia.

*A Proposed Maintenance Plan.*

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## Introduction

In 2006 *Corporación Proyecto Patrimonio* was approached by the Santa Marta City government to investigate and report on the potential impacts of constructing a large chairlift to be built for the purpose of transporting tourists to the archeological site of *Pueblito*, Tayrona National Park. The results of this report included an initiative to introduce a much needed management plan for the *Pueblito* site. The outcome of the investigation concluded that it was not possible to construct the proposed structure without causing significant damage to both the archeological region and to the surrounding fragile ecosystem.

Since then, we have had a special interest in studying this archeological area. This proposal is a continuation of such research. We don't have the power to take decisions in the ambit of policies or law, but we have a strong conviction to protect the cultural heritage. In order to keep working towards that purpose, this document contains the principal elements for a maintenance program in the short, medium and long term. The aspects of a preservation plan are included, such as the flexibility for adaptation to casual events during the process. This maintenance plan also attempts to provide the required processes needed for the monitoring and reviewing of the proposed activities.

This work is an example of a management program that was originated as an initiative from an NGO (*Corporación Proyecto Patrimonio*) concerned with the preservation of heritage sites. It was not proposed by the owner or manager of the area under study or even by the different institutions who held the responsibility for the protection and care of the archeological site.

For this reason, the project does not aim to establish the policies applied on the site, or to take decisions about the development of the necessary works in the area. This project is limited in its scope to point out the problems encountered during several field trips to the site and to provide solutions and alternatives to the constant challenges of the site.

While it may appear pretentious to make a large proposal that aims to do a continuous monitoring program of this archeological area, we know that planning is the best way to achieve long term forms of development. Furthermore, the importance of this area requires an approach that ensures its conservation for the future.

## Abstract

This document is about seeking new policies for the preservation of the archeological site of *Pueblito*, found in the Sierra Nevada of Santa Marta, Colombia. Through a historical review, it exposes the different problematic facts that this area has suffered since the colonial period between the late 15<sup>th</sup> and the 19<sup>th</sup> century. Concerning the archeological issues, it describes how a type of archeological city were built by the native *Tayrona* society, and what kind of complexity techniques were required. The structures have been somewhat protected due to the difficulties in accessing the archeological site. It is shown the urgent need to build a solid maintenance plan for the whole area of *Pueblito*, and the areas that remain still undiscovered. The proposal gives a concrete plan of maintenance that includes long, medium, and short terms of action, in order to give continuity to the Management Plan produced in year 2006. It deals with many problematic factors that affect the site up to date. There are many instances that are responsible for its preservation, e.g. the various local and National institutions, but there are not optimum channels of communication between many of them. The progressive interest in this site has brought much tourism into the area. People, who without the correct guidance or the appropriate signage, negatively affect the fragile terraces, structures and dwellings of various sizes, stone-lined paths, staircases, ceremonial and feasting areas, canals and storehouses found in the 2 square kilometre defined up to the current date of this proposal.



Figure 1. Localization of Colombia in South America. The figure shows the North region of Colombia where is located Pueblito (red point), Santa Marta City (yellow point) and Sierra Nevada de Santa Marta (blue point). Sources: google earth (global) and Instituto Geográfico Agustín Codazzi.

## Introduction

### Background

#### Location

The archaeological site of Pueblito, also known as Ciudad Chairama, is located in the north region of Colombia, in the country sides of Santa Marta city, inside the Tayrona National Natural Park (Figures 1 and 2). The altitudinal variation, between 0 meters to 900 meters high above the sea level, make it one of the most biodiverse places in South America,

giving it also an incredible range of ecological diversity represented by more than 100 species of mammals, 300 species of birds, 60 of reptiles and 50 species of amphibians (Figure 3). Some of these species are found nowhere else on the planet. The temperatures range from 16°C to 28°C and humidity can reach levels of 90 per cent or more due to the abundant rainfall.



After more than thirty years of research at the site, the archeologists have located structures that include dwellings of various sizes, terraces, stone-lined paths and staircases, ceremonial and feasting areas, canals and storehouses (Figures 4 and 5). The archaeological remains extend over more than 2 square kilometers. Outside these area and still covered by forest, more structures can be found awaiting further archaeological research. This means that the specific limits of the site have not yet been determined.

### The Archaeological Site of Pueblito. Tayrona Society

Recent archaeological excavations in Chengue Bay (Tayrona National Park), Pueblito (Tayrona National Park) and Teyuna- Ciudad Perdida revealed that dwellings and structures are buried beneath the stone masonry and rammed earth terraces were built during the Tayrona period (A.D. 100-1650) (Giraldo, 2009).

Although it is quite common to refer to the totally of this population by the term “Tayrona”, the social and political organization encountered by the Spanish in the early 16<sup>th</sup> century was truly complex. Towns, or rather groups of towns, were politically independent from one another, even though a certain degree of sociocultural unity is suggested by a common language, stone architecture and material culture.

Throughout the 16<sup>th</sup> century, multiple governors tried, and failed, to Christianize and subjugate the indigenous population to Spanish rule. The Spanish only ruled over the immediate area around Santa Marta

Figure 2. Localization of Pueblito, inside the Tayrona National Natural Park. Map taken and adopted of Zuluaga (1996:160)



Figure 3. Monkey “Mono aullador”.



and few of the coastal towns. Settlements located high up in the Sierra Nevada or surroundings remained outside their control. In this sense, the colonial enterprise was completely unsuccessful, since they were unable to establish new towns in the Sierra Nevada or dominate the indigenous population.

Tayrona towns and villages were slowly yet progressively abandoned during the 16<sup>th</sup> century due to a variety of reasons. Apart from constant conflict with the Spanish colonizers, the early introduction of the European diseases such as measles, typhus, smallpox, and influenza caused epidemic cycles approximately every ten years, with devastating effects for the indigenous population. Though no exact population numbers are available for the site, different studies have demonstrated that by 1570 most indigenous population in the New World had decreased by 80 per cent. Spanish documents also mention the constant outbreak of these diseases among the Tayrona. The frequency and magnitude of these outbreaks meant that population did not have enough time to recover, something that must have caused severe problems in indigenous social structure.

The Spanish were never able to establish permanent settlements or towns in the upper reaches of the Sierra Nevada and surroundings during the 17<sup>th</sup> and 18<sup>th</sup> centuries. It is presumed that the surviving indigenous population migrated into areas outside colonial control. The forest slowly covered the great Tayrona towns, keeping them hidden until they were rediscovered in the 20<sup>th</sup> century.

#### **The Discovery of Pueblito**

Pueblito was discovered, sadly enough, by “*guaqueros*” or looters, the people responsible for the destruction of many archaeological sites throughout Colombia as they search for pre Columbian objects to be sold illegally.

The discovery led to the partial looting of the site, a situation which lasted until the 60’s when the ICAN<sup>1</sup> was alerted about the existence of an important site that was destroyed by looters.

Upon its discovery, the town was completely covered in vegetation, and although some of the structures had been seriously damaged by looters, but most of the terraces and walls was still in good shape. Its remote location far away from population centers such as Santa Marta had helped to protect it from the ravages of time and the depredations of more looters during most part of five centuries. Even though the structures had been covered by forest for five hundred years or so,

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<sup>1</sup> In 1999 it became the Instituto Colombiano de Antropología e Historia, ICANH. Is the governmental institution charged with protecting Colombian archaeological heritage.

archaeologists found that approximately 85 per cent of the structures were very well preserved.

#### **Designation of the Site and legal protection**

In 1967 Pueblito became part of the Tayrona National Natural Park. Due to the environmental importance of the Park, the UNESCO bestowed the international status of Reserve Biosphere.

In 2005 the Unidad Administrativa Especial del Parque Nacional Natural Tayrona (UAEPNNT. Special Administrative Unit) made the Management Plan for the Park. In this document the archaeological site of Pueblito was designed as cultural-historic interest area. This designation, with the particular condition of archaeological site, gives a special scheme of use and protection. By the Colombian law, the archaeological heritage (objects and sites) has a special regimen, regulated by the Instituto Colombiano de Antropología e Historia (ICANH. Anthropology and History Colombian Institute).

In resume, Tayrona National Natural Park is responsible for its administration and protection. However, any action taken inside Pueblito requires ICANH approval.

#### **Previous restoration works**

Most of the archaeological researches done in Pueblito (Alden J. Mason, 1922; G. y A. Reichel- Dolmatoff, 1964-50; H. Bischof, 1969; G. Cadavid, 1991) were developed in the central sector of the site which has a special archaeological attraction for both researchers and tourists.

In 1967, an ICAN commission cleared some terraces, roads and stairs and opened the space between the core area of Pueblito and the Cabo San Juan de Guía beach.

The ICAN with the support of the Fundación de Investigaciones Arqueológicas Nacionales (National Archaeological Research Foundation) executed a restoration project conducted by Gilberto Cadavid and developed in three phases between 1986 and 1993. Consolidation and restoration of the structures were mostly limited to clearing out the vegetation and fixing the upper sections of walls damaged by tree fall. Many of the flag-stones paths were found buried under heavy layers of soil and leaf litter and these too had to be cleaned out and consolidated. To preserve the authenticity of the remains, collapsed walls were put back together without mortar or other adhesives, using the same stones that had tumbled down. The incredible stability of the structures eased the task of consolidation



and restoration, making it possible to open the site to the public in 1993.

In 2006 Alvarez et al outlined the base for Pueblito's Management Plan. The plan objective was to identify the main conservation problems of the area and to establish the preservation activities for the short, medium and long term.



*Figure 6. Cadavid photos of phase II (1988) before and after the intervention.*

Between 1993 and 2008 the maintenance was limited to cleaning the main structures from weeds but there wasn't any monitoring or evaluation about the structural conditions of the archaeological remains.

In 2008, after identifying the main conservation challenges, Alvarez y Bateman (2008) had the responsibility of recovering two of the walls terraces that had a high risk of collapsing.

The specific actions of the project were:

- Compile, organise and digitalise the existing conservation information about the area produced by Cadavid during the phases between 1987 y 1993 (Figure 6).
- Evaluate the main characteristics and behaviour of visitors (age, origin, site usage).
- Analyse and identify the major problems affecting the structures whose walls had collapsed.
- Identify and analyse the type of stone of the structures and type of biological mechanisms that are affecting them.
- To intervene the collapsed wall and those at risk of collapsing.

- Develop detailed documentation on the intervened structures before and after the intervention that includes topographical surveying and sectional drawings (Figure 7).

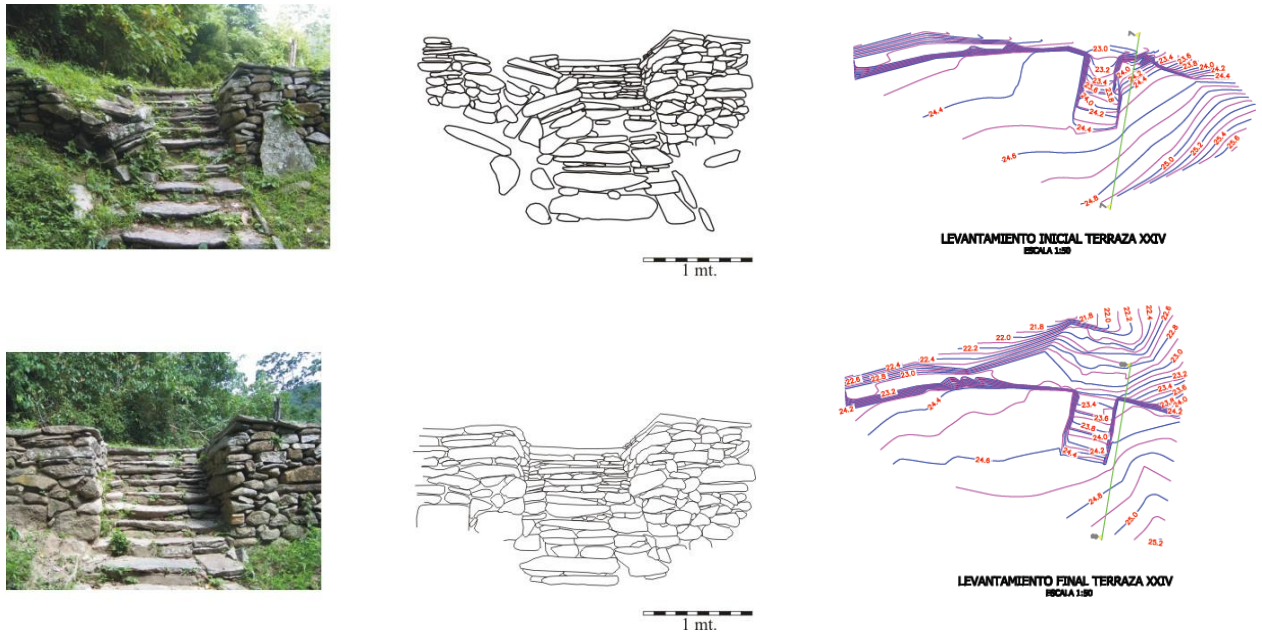


Figure 7. Type of documentation produced in the 2008 intervention: photos, drawings and topography

## PUEBLITO VALUES

### Tayrona architecture

The investigations conducted by the ICANH in the Sierra Nevada de Santa Marta, have identified more than 250 archeological sites in the geographic Tayrona area, including *Ciudad Perdida*, also known as *Buritaca 200*, and *Pueblito*. In each of these settlements it is possible to find essentially the same construction principles adapted to different ecological environments and topography.

In such a difficult and broken topography, building great terraced surfaces to be used as foundation structures for temples, dwellings or gathering places is an incredibly sensible solution. A great majority of the towns are located on hilltops with very steep slopes which makes them easily defensible without having to add fortifications. In addition, the only way of reaching these towns is by climbing in single file a narrow staircase emplaced on a 45, 50, or even 60 per cent slope. This explains clearly why the Spanish had such a hard time attacking and dominating these populations. Furthermore, building on hilltops and steep slopes allowed them to cultivate the less pronounced slopes which are less prone to erosion (Figure 8).



Figure 8. Shows the different levels of the terraces

Terraces are made of two very broad types, although both use a construction technique known as packed earth in combination with stone-masonry retaining walls. A simple isolated terrace begins when





Figure 9. A slope is cut to make a cross section. Stair with access to the river

a slope is cut to make a flat cross-section (Figure 9). The soil and stones taken from the cut are then moved down-slope as fill, and held in place by several courses of roughly dressed stone. The flat surface is then reinforced by tamping the soil and adding medium sized cobblestones. Once the wall had reached a certain height, they added a course of long (one to two meter), rather flat stones, building up over them the next retaining wall in a stepped-back fashion. The combined weight of soil, rubble, and stone retaining wall upon the long stones adds structural reinforcement to the lower terrace and wall, minimizing deformation and shift. Once the terrace was finished, surfaces exposed to water run off and were then covered with flagstones to prevent water from puddling, thus avoiding erosion caused by seepage and oversaturation. It was then that the elevated ring of cut and dressed stone used as a foundation for buildings was placed on the terrace surface. As population and a need for level living space grew, other cuts for terraces were made nearby, and masonry walls and terraces extended until they abutted or intersected against one another, thus creating great flat surfaces for living.



Figure 10. Circular spaces that conform the architectural pattern.

Terraces built on the narrow crest leading up to uppermost part of the hilltop were built somewhat different. Archaeological excavations have determined that the crest and hilltop were studded with rock outcroppings, something that forced the Tayrona to build higher and thus more complex retaining walls on both sides and add great amounts of soil and rubble as fill. Once a terrace was completed, it was possible to build the next one the sequence, since the walls could now rest upon this lower one.



Figure 11. Circular spaces that conform the site

Tayrona architecture highlights and emphasizes the use of circles and circularity as formal elements, open spaces between buildings and the constant management and direction of circulation and movement, both within and between settlements (Figures 10 and 11). These characteristics can also be observed in the extensive, and oftentimes bewildering, network of paths, staircases and sidewalks guiding people's circulation between buildings in a settlement such as Pueblito. Although the natural site was inevitably altered and transformed by the construction of these large towns, one of the more interesting aspects is that buildings somehow follow the landscape's natural forms. This implies a low-density urban pattern *vis-à-vis* the total amount of area that is effectively used by the population, which tends to be far greater.

On the other hand, due to this particular architectural pattern, Tayrona towns do not have well-defined edges allowing us to determine where a settlement begins or ends. Differing from many other pre-Columbian and preindustrial societies, the Tayrona did not make use

of walls or fortifications, to delimit, enclose and protect their towns. They constructed countless paths linking nearby towns to another, within a certain area. In this way, they formed a net of rather large towns, each with its own characteristics, that are socially, politically and economically dependent on one another.

### Scientific Values

Pueblito scientific values are determined by the presence of archaeological remains and items such as flora, fauna and soil that determine that the site could be studied by different disciplines.

Pueblito is a representative site of Tayrona culture that has been studied for decades and posed a series of questions that have not yet been resolved by research. Because it is a site with difficult access and it is located within a protected area, much of the cultural information contained in the ecological and environmental field has not been disturbed or contaminated, thus offering suitable conditions for the development of archaeological and zooarchaeological research, among others. This provides an insight into the cultural process of that society that settled on this site, its adaptation to the environment and the changes imposed on it. In this sense we can not only understand the relationship between mankind and the environment, but also the particularities of the evolution of species of fauna and flora.

Also, Pueblito is an area within the Tayrona National Park that has been recognized for its importance as it contains various ecosystem niches and natural sanctuaries that raise scientific interest.

### Historic, Urbanistic and architectonic Values.

Pueblito is a site of great importance because it is an example of unique features of urban development from ancient times. It is testimony to the adaptation of an infrastructure of networks and nodes that enabled the development of economic and social organization, evidenced even today for its architectural remains.

### Cultural Values.

For indigenous groups currently living in the Sierra Nevada de Santa Marta (like the Kogui, Arahucos and Chimilas cultures) Pueblito is a territory where one can find ancient sacred sites as defined by the Línea Negra points (Figures 12 and 13). The Línea Negra join sacred places where practices developed as *pagamentos* (considered as the standards by which nature takes care) that ensure social and environmental balance. These spaces are essential for communication between the spiritual and material beings which allows the reproduction of life. For the indigenous people these sites



Figure 12. The Arahucos are one of the indigenous groups living in the Sierra Nevada de Santa Marta.

Source: Parques Nacionales Naturales



Figure 13. Other group is the Koguis.

Source: Parques Nacionales Naturales



are specified in the rules that have ancestrally defined land use and management of various river basins that make up the Sierra Nevada. The document "Sacred Sites in the Tayrona National Natural Park" (Gonawindua) document referenced the existence of three sacred sites located in Pueblito. These are called: Terúgama, Terugamun and Teyzhuna and are located within the area that have been restored and opened to the public. There, the *mamos*<sup>2</sup> have been performing some rituals such as *pagamentos* to nature for about 10 years.

## Analysis.

### Present Situation

Although in general the central sector of Pueblito is in a relatively good condition after 25 years since its restoration, it shows a series of degradations that evidence the lack of a maintenance plan and the necessity of conservation programs.

According to the points made by the Pueblito's Management Plan (Alvarez et al, 2006) already observed in the three field trips we have done to the place, roads, stairs, terraces of central sector show the following damages:

**Vegetation growth:** The growth of roots and vegetation between the slabs of roads, stone-lined paths, canals, terraces and staircases constitute a decay factor for the stability of the walls. The force generated by the expansion of these movements in the earth produces disalignment of the stones of the walls and do not allow a good observation. This decline is associated with lack of maintenance of the area (Figure 14).

**Moving elements:** It occurs when one or more of the elements of the structure are displaced from their original place due to some external factor as the output of roots, the presence of animals (ants), settling the land, the loss or weakening of the filler (Figure 15).

**Sinking:** Due to settlement of land, the loss or weakening of the structure filled with soil moves sinking. It can also occur by weight or excessive charges (Figure 16).

**Soil erosion:** It happens in areas free of vegetation terraces where the soil is exposed to the direct action of water and the land does not have the necessary slope to drain water. Compounding this damage is produced by the alteration of archaeological contexts. However, soil



Figure 14. Growth of vegetation between staircases stones.



Figure 15. Elements displaced due to the output of roots.



Figure 16. Sinking due to settlement of land.



Figure 17. Soil erosion.

<sup>2</sup> A *mamo* is the political and religious authority of indigenous communities in this region.

erosion can also be caused by other factors such as looting and removal of earth to make interventions such as placement of fences or structures on the terraces and dwellings (Figure 17).

**Loss of bearing capacity of the walls:** Occasioned by the loss of the filling and compaction. This is associated with loss of clay materials (soil solifluction), the growth of roots, soil erosion and the weight of the visitor-carrying capacity.

**Lack of maintenance.** Park officials perform basic cleaning tasks in the area of vegetation restored without established periods. This allows the site to remain presentable for tourism, but these tasks are not enrolled in a maintenance program. In the other hand staff is not sufficiently trained to make the maintenance in the correct manner.

Taking into account the relationship between these manifestations of deterioration and its causes could be established that the main factors affecting Pueblito are:

- Lack of protection of housing terraces.
- Lack of maintenance of the archaeological structures.
- Biological deterioration.
- Lack of determining carrying capacity of the structure and design of the routes.
- Lack of signage to guide visitors through trails suitable and resistant.

## Problems

- **Lack of communication between the responsible institutions.** As it was mentioned before, UAESPNN is in charge of the administration of Pueblito. The ICANH is the institution in charge of the protection and investigation of the area; therefore it is the entity responsible of taking the decisions in relation to the research and conservation of the archaeological remains, providing the required licenses. Until 2006, The UAEPNNT was not aware that any intervention on the site required a license from the ICANH. Instead, the ICANH is only involved if it is seeking to intervene or alert a person into any irregularity is happening in the place, otherwise it does not interfere in the administration of the place.
- **It has not been integrated the Pueblito Management Plan to Park Management Plan.** The production of the Management Plan in 2006 provided the bases for the conservation and zonification of the area and identified the different uses and actions that should be developed in a short,

medium and long term. However, this document has not been adopted formally by the UAEPNNT and therefore, none of the recommendations have been implemented.

- Since 2005, the UAESPNN gave the control of some of the areas to the Concession Tayrona and since then this institution controls the entrance of visitors, garbage recollection, signage and promotion of the Park. It is evident that the management of the signs in the park have improved; however, there is a conflict of interest as the main aim of the Tayrona National Natural Park is the conservation and protection of the fauna and flora as well as the archaeological site, while the main objective of the Tayrona Corporation is the tourism. Tourist numbers have increased despite the fact that the restoration site is not adequately prepared for increased number of visitors. For example, even over the most fragile places there is no signage to inform visitors where they should be allowed to walk.
- **Determination of charge capacity.** There is not yet determined the exact capacity that supports the place as well as a lack of preparation for services to visitors and management of disasters (Pueblito does not have sanitary installations or first aid and emergency facilities).
- Lack of trained personnel staff able to promote, develop and continue the projects aim to conserve the archaeological site.

## Proposal. WORK PLAN

The following section details the necessary actions recommended for an effective management of the area.

### Identifying actors and institutions

Along the implementation of this conservation plan, it is imperative to identify and compromise the different institutions, cooperation agencies and actors in the participation of this project as this guarantees its viability.

#### **Public Sector**

- **ICANH.** Governmental institution responsible for the safeguard, protect and research of the archaeological heritage of the nation, therefore it is in-charge of directing and taking decisions in relation to research and conservation of archaeological remains. Also provides advice on issues related to museum studies, cultural studies and publications (ethnology, heritage).
- **FIAN.** Provides funding for research and conservation work on the archaeological heritage of the country.



- **CORPAMAG.** Regional autonomous corporation responsible for managing natural resources and work for sustainable development of the territory over which it has jurisdiction. It is therefore the regional environmental authority that counts for the control and protection of environmental conservation objectives of the zone and work with communities in buffer zones of the Tayrona National Natural Park.
- **Santa Marta Mayor.** Is the local authority. The Secretary of Culture and Education must manage resources to invest in the recognition, protection and dissemination of cultural heritage
- **Gobernación del Magdalena.** The Secretary of Culture and Education and CorpoTayrona, should support projects of cultural heritage generated with resources I.V.A. cellular in the Department.
- **IGAC** (Agustín Codazzi Geographic Institute). Is a national entity that produces, analyzes and disseminates environmental information and geo-referenced cadastral country, in order to support the planning and land management. Therefore is responsible, among others to develop the mapping of the country, the national register of real property, the inventory of soil characteristics and advance geographical research in support of regional development.

#### Academic Sector

- **Magdalena University.** The Anthropology program has currently opened an archeology lab and under their care is the collection of archaeological objects excavated by Reichel-Dolmatoff previously rested in the Park Tayrona.
- **SENA** (National Training Service) is the entity responsible for training personnel in various areas, including tourism professional guidance

#### Private Sector

- **Concesión Tayrona.** Currently is the entity responsible for managing all tourist services in the Park, control access, collection and waste management, signage, promotion and dissemination.

#### Community- Inhabitants

- **Ecoturt** (guides) and **ArriçTayrona** (carriers). Organizations providing ecotourism services in the Park.
- **Organización Gonawindua Tayrona.** It represents the indigenous authorities of the northern Sierra Nevada de Santa Marta and belongs to the Concejo Territorial de

Cabildos (Territorial Council). Currently works on the issue of ancestral land management and traditional knowledge in relation to land use framed within the Línea Negra.

## Maintenance Cycles

Following the Pueblito Management Plan (Alvarez et al, 2006), and the results of the intervention of Alvarez y Bateman (2008), the principal problems that affected the site have been identified.

Presented below are some categories based in the field work and the needs of the site. In the Table 1, it is summarized the action taking place, its priority, terms, and the work staff it needs. In the Appendix 1, is presented the map of these categories.

The categories are:

**High intervention.** Intervention on collapsed structures that requires motion and soil compaction. It may involve the anastylosis due to the severity of loss. At this moment, one of the terraces needs this action.

**Medium intervention.** Intervention on the structures that present sinking. The elements of the structure are still in their original position allowing to document and then compacting the ground and put them back into position.

**Low intervention.** It is a preventive intervention. It is performed on structures that present movements of some of its components caused by roots or animals. It requires to take off only some of the elements to stabilize.

**General maintenance.** Refers to the trimming of grass and removal of vegetation that grows between the stones.

**Visual Tracing.** It takes place in specific areas where weakness has been identified. For example, areas where nests are often constructed or the points where visitors stop more frequently. Such monitoring can be done through annotations, photos and general measurements.

**Monitoring.** Its main objective is to assess the stability of structures after intervention and determine their duration and time that is necessary to reinforce preventive level work.

Action	Priority	Time limit	Personal	Periodicity
<b>High intervention</b>	High	6 months	2 Archaeological conservators, 5 workers, 1 topograher	Every 10 or 15 years
<b>Medium Intervention</b>	Medium	1 year	2 Archaeological conservator, 4 workers, 1 topograher	Every 5 or 10 years
<b>Low Intervention</b>	Low	2 years	1 Archaeological conservator, 2 workers, 1 topograher	Every 3 years
<b>General Maintenance</b>	High	6 months	At least 2Workers	At least, once at month
<b>Visual Trasing</b>	Medium	1 year	2 Workers	4 times at year
<b>Monitoring</b>	Medium	1 year	1 Archaeological conservator, 1 topograher	1 time at year

## Maintenance and Conservation Education

### Workers

The training for the staff is urgently needed for the maintenance of the site. Under the current structure of the Park, there is a permanent worker at the place and another of the workers support it a few days at month. This is an activitie rotated among all workers. This is the reason why everyone should receive a maintenance training to enable them to carry out proper activities.

### Users

It should be designed an outreach strategy to allow users know and enjoy the site. Must include behavios along the way (like not littering) and within the site (such as obey the signs) and the recommendations rearding adecuate footwear and protective aspects (water, sun protector).

### Other Actions

**The Strengthen linkages between institutions.** The lack of synergy and complementarity between national and regional authorities and the lack of operational processes, research and conservation given in

Pueblito, affect the site. To achieve the proper planning and site management is crucial to strengthen and nourish the link between institutions

**To prosecute resources.** Establish partnerships and commitments to international institutions and agencies and the Magdalena Department to manage resources for proper management of the site.

**Analyze the charge capacity.**

**To rule mules transit.** Pueblito access is done by foot or by mule. When the mules arrive to the site, they graze on the terraces causing damage to archaeological remains. This must be avoided.

- Identify and regulate the transit of mules on the roads accessing the site and in the archeological zone.
- Set the space in which the mules may be parked

**Museum Recovery.** In the Cañaveral area is located the Tayrona Archaeological Museum. However, the poor conditions of the archaeological has prompted its transfer to the University of Magdalena. It is necessary to:

- Taking inventory and record of the archaeological collection of the Museum.
- Make the script, the curatorial and mounting of the Tayrona museum.
- Implement adequate storage conditions
- Making the diagnosis of the collection and its conservation status

**Maintenance of the archaeological remains.** One of the main problems identified was lack of maintenance. It is therefore essential to:

- Prosecute financial and technical resources that contributes to carry out this program.
- Train Park staff in the maintenance of the archaeological remains.

**Monitoring the site.** While there is some work undertaken for the documentation, restoration and conservation of archaeological remains to date has not been monitoring of these activities or the state of conservation of the site. Monitoring is essential to take management decisions regarding ecotourism site. Therefore is necessary to:

- Following up the interventions made to date on the site.
- To monitor the conservation status of the site from the impact indicators defined in diagnosis.
- Managing financial and technical resources to carry out this program.

- This information should be designed to allow use of the geographic information system as with the environmental monitoring system that the Park has.

**Management of solid and liquid waste.** The fact that the site is inhabited implies that everyday there are activities such as personal cleanliness or the household items that generate solid and liquid waste. There is an inadequate management of these wastes which damage the soil, streams and alter the landscape and the lack of appropriate infrastructure for waste treatment, a system of garbage collection and maintenance.

- Implement a plan for solid waste management where biodegradable and non biodegradable wastes are taken to a dump outside the Park.
- Control the dumping of liquid waste.
- Establish a system for wastewater treatment (gray and black) that is connected to all services of this infrastructure.
- It is important to develop awareness campaigns on solid waste management and sewage among visitors and residents of Pueblito.



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