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Geoheritage: Obtaining, Explaining and Transmitting Archaeological Knowledge

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Abstract: Geoheritage is a notion that has not been discussed in Latin America, not because it is absent, but on account of a lack of a conceptual framework that places all of its related parts under a single unit. Geoheritage is usually associated with geology and the geomorphology, but it also encloses the role that the human population has in adapting and shaping the landscape. Archaeological research produces a great deal of data regarding geoheritage that is universally important for the understanding the origin and development of ancient societies. The transmission of this knowledge to the community is the main responsibility of the archaeologist. Nevertheless, certain populations do not feel a historical link with the initial inhabitants of a given territory and do not always understand or admit its value. For them the notion of geoheritage is not related to the territory in which they live and do not recognize the intrinsic value of heritage *per se*. This paper presents a case study in the upper Amazon, which illustrates this problem, and the ways used to solve it. The transmission of geoheritage knowledge gained through research is discussed as well as the impact of heritagisation of a site on the local population.

Keywords: geoheritage concept, upper Amazon, archaeological record, heritagisation, knowledge transmission

1 Introduction

Archaeology is a scientific venture that tries to understand the material evidence of past human behavior in terms of the origin and development of ancient societies. Material culture is the key element used to infer how social change is reflected in the archaeological record, but there are many other types of evidence that merge with the material remains in the geophysical support that contains them. Archaeological research results in a vast corpus of data that can be generically termed as geoheritage, since the information obtained involves the production, use and transformation of both natural and the cultural resources. Archaeological materials include human made artefacts and ecofacts, produced by the forces of nature. These may or may not intervene in the cultural process, but they always have to be identified and interpreted in the social explanation of the deposits. Geoheritage thus includes the natural and cul-

tural materials, the environment in which they are found and the eventual transformations in it brought on by past human activities.

The archaeologist's main responsibility is to transmit the importance of geoheritage and the results of his research to the community. This is a process that is not always easy to portray or understand, when one thinks of the effort that it implies. There are as many circumstances that surround the notion of heritage, as there are many types of communities. If our task is to understand and explain how humans faced and resolved the constraints the environment presented in a given situation, then we must be able to explain the process in a simple and thoroughly comprehensive language. The different parts of this procedure concerns choosing the proper evidence and putting value into the data, in terms of social meaning, ideological implications, technological advancement, and overall adaptation to the environment (whether or not successful).

For researchers working in a foreign country, this job is even more complicated, since they must begin by understanding the notions of heritage (national and individual) that the local community embraces. The duty is then twofold for they will have to translate their mental template into that of the country hosting the research; then they must transmit their findings to the local community, be it scientific, educational or simply popular. This information should be destined above all to students (of every level) that are trying to understand the research process. This is important because they may eventually participate in the project, so they should be familiar with the different aspects and the objectives of the research scheme. The archaeologist must realize that his actions will unearth a heritage that is not always directly known or understood, so he must interpret it in a neutral and objective way. Nevertheless, the data should be expressed in a clear manner, so that it has a social meaning to the local population. This way his work will give an added value to the material evidence that he has discovered. This is important because it will be seen as the only excuse for the destructive process that undergoes with archaeological work. His responsibility is to transform past material culture into the social memory of a territory.

Archaeologically speaking this information not only lies on, or under the ground, but also on the natural environment surrounding the site. Therefore he must also express this fact to the community, so that the importance of the settings be properly be understood and accepted. Geoheritage concerns both the natural and the cultural resources for they are intimately related, and one reflects the other.

Geoheritage reflects a people's identity; the transformations that humans have imposed on the natural environment mirror their ways of life, their values, and their needs. This is usually the case where a cultural group has inhabited a region for a long lapse of time. The territory is linked with the ancestors, and with their past deeds. However one must remember that a given territory has hosted different peoples, at different times and those who occupy it at the present were not always related to those who made the most significant changes. Nevertheless they become participants in the continuous creation of new forms of geoheritage. In some cases they ignore or don't recognize the merits of the former inhabitants and they reject any formal connection with them, other than the fact that they may have conquered their territory by force. Archaeological research is an important tool in the process of understanding the nature and the value of geoheritage. The study of the past and present landscapes brings forth the history of the transformations, and the role that the different inhabitants had in its formation.

Another interesting aspect of the archaeological study of a given territory is that it allows a panoramic view of the roots and the cultural interactions that the different peoples that inhabited the land had in an ancient, and in a more recent past. The understanding of the historical process that is reflected in the territory can ease existing tensions between hostile neighbors. Acknowledging a common origin will facilitate pacific relationships, and even the will to work together for a common goal.

This article is an account of a case study in the problematical circumstances that geoheritage research encounters in the field when the local population does not recognize and is not aware of the legislation that protects the natural and cultural resources present in the territory they occupy. As it happens in most cases, the rural community lives in precarious conditions, with little or no income coming in from their agricultural tasks or chores. Their household economy is marginal to the global productive activities that usually render steady profits for the privileged few acquiring promoters. The peasant farmers thrive on a day-to-day basis as hired laborers, with a sideline of small time crop production on their lands. They do not participate in any of the national health or educational facilities, and they are often secluded from the mainstream roads or transportation services that are afforded by the central or the regional authorities. As can be expected their income activities do not play an active part in the dynamics of the national economy.

2 The Upper Amazon geoheritage problem

The case study is located in the upper Amazon region of southeastern Ecuador and northeastern Peru (Figure 1). This was an area that has suffered from recurrent political frontier armed conflicts between the two countries, until a formal peace treaty was signed in November 1998. As such, this was a restricted area for any type of scientific research that did not include military interests. The original indigenous population had fled over the years to far-away refuge zones in the jungle and impoverished peasants from the dry highlands of the Andes progressively occupied their abandoned territory. Between 1940 and 1985 hundreds of highland families colonized the southern part of the Zamora Chinchipe province of Ecuador and had a rough time adapting to the tropical forest environment that constituted their new homestead. In time, the territory was divided into several administrative counties and local authorities took control of the newly settled domains. Although there were very few legal proprietors, the authorities tolerated the rights of possession of the new comers.

As there was hardly any control on the activities of the new settlers, generalized deforestation and all sorts of depredation (including mining) became the first steps to survival. The peasants, which were used to grassing cattle in the highlands, adopted slash and burn agricultural practices. Clearing the fields for pastures became the main activity of many households, and small orchards were kept for essential vegetable foods. Foraging was a common task for women and children and some parts of the neighboring forests were randomly preserved in the steep lower flanks of the Andes. In the course of the second half of the twentieth century, many parts of the upper Amazon rain forest were covered with patches of skimpy grasslands and widespread mountainside erosion.

In those conditions, the study or preservation of the natural or cultural resources was not a priority and archaeological research was the last of their worries. Although

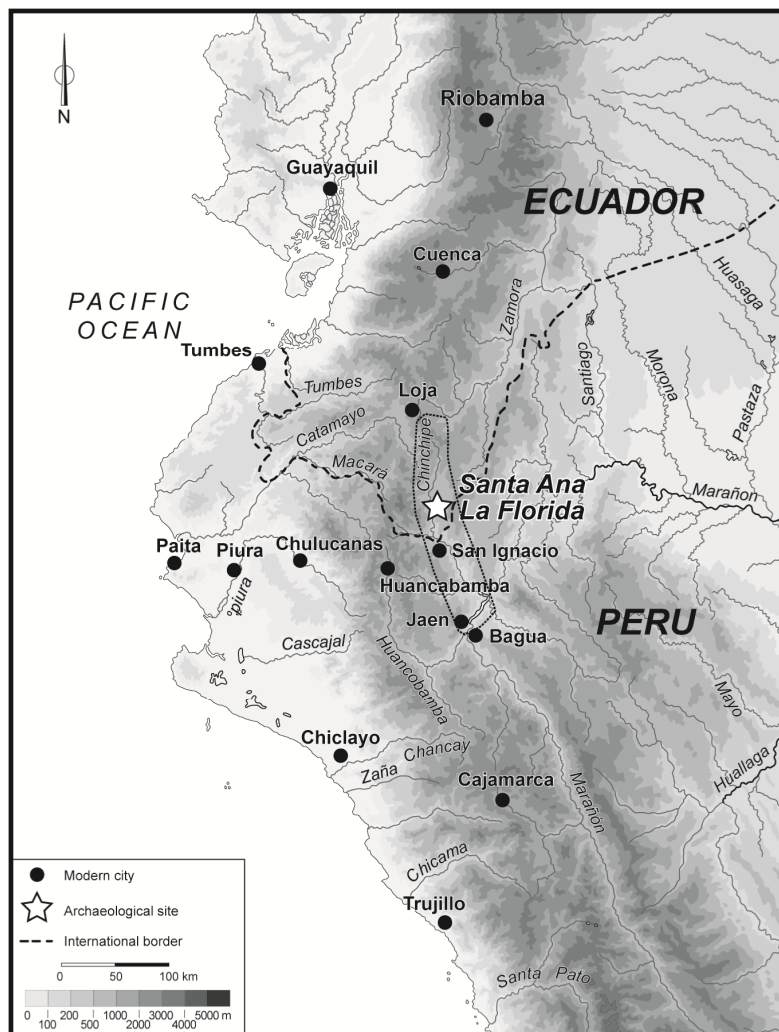


Figure 1 Location of the Mayo Chinchipe basin.

some mining companies openly exploited the geologic resources, the profits were never shared with the local population. Therefore prospectors were never welcomed, and were always seen as a potential competitors and a danger to the community. Most local men consider themselves as traditional or artisanal miners and they often pan for gold in supposed fluvial placer deposits. Sometimes they search for the parent gold veins imbricated in geologic deposits that abound in the riverbanks or in the exposed mountain rock walls.

In January 2002 a team of French and Ecuadorian archaeologists undertook the task of realizing a systematic survey in the province of Zamora Chinchipe¹. The objective was to establish an inventory of the past cultural resources and archaeological

¹The Zamora Chinchipe project was carried out through a scientific cooperation agreement drawn between the *Instituto Nacional de Patrimonio Cultural del Ecuador* (INPC) and the *Institute de Recherche pour le Développement* (IRD-France).

sites that could be spotted from the surface in this part of the upper Amazon that is known as *Ceja de Selva*. This was the first effort to establish an archaeological reconnaissance in the province. The activities involved studying terrain maps, aerial photographs and the visual inspection of the main river valleys that conform the two principal hydraulic basins that flow into the Amazon through their confluence into the Marañón River. Our field reconnaissance was straightforward and simple, we began by contacting the local authorities to inform of our presence and our objectives; we presented our permits and authorizations from the *Instituto Nacional de Patrimonio Cultural* (INPC - National Cultural Heritage Institute of Ecuador) and explained the purpose of the systematic survey. We then proceeded to physically walk the territory and observe the environment for signs of past and present human interventions. Surface and small scale shovel testing was performed throughout the region to map the areas of possible ancient settlements. An important part of our work involved interviewing many local people and getting first-hand information on natural and artificial earth and rock formations, old trails, cleared forests, and surface ceramic shred deposits that most people encounter during the usual farming chores.

The survey was conceived as a long-term project so the inventory could be as complete as possible. The results were quite satisfactory as more than 400 ancient occupational sites, of different times, were discovered in the jungle. Among the most important sites was one we named Santa Ana – La Florida (SALF), located near a town called Palanda (Valdez *et al* 2005). Our work was carried out mostly in the dry season, when the constant precipitations stopped sporadically for a period of 4 months

We initially prospected this site for a period of two months before going to the Quito laboratories to study the materials, during the rainy season. However, upon our return in August 2003, the SALF archaeological site was occupied by more than 20 people that were busy digging away at one of the corners of the site. When we inquired what they were doing, they calmly answered “*We are working, we are mining here for gold, before the “gringos” that were here before comeback and take away all the riches from this, our land...*”

We quickly asked everybody to stop the plunder, since the place was not a gold mine, but rather an important archaeological site, belonging to the ancestors that once inhabited the region. We said that it had to be properly studied, understood and preserved as a monument for the memory of the people that had made the upper Amazon the garden that is now. We stressed on the importance of the history of this territory as an element that fosters the identity and the self-respect of the community. Unfortunately the miners had other interests in mind and ignored our pleas. We stated clearly that their actions were outrageous, for it was not only a felony but also it was an offense to the heritage of the native Amazonian community. Their shameful behavior did not stop and soon things got out of hands, so we had to leave and get help from the police. We informed the local authorities and asked for some sort of protection of the site. When we came back, many of the so-called miners had left and others were still there, waiting for the authorities to come and get things straight so that “*their hard work could continue without harassment*”.

Months before, we had initially met with the mayor of the locality and informed him of the archaeological research we were carrying out in the region with the authorization of INPC. At that time, the mayor had welcomed us and said we could count on him and on the municipality for all the assistance we might need. Nevertheless, some

months later some of the municipal workers were part of team that was plundering the site. Needless to say there was no gold to be found and the careless digging with heavy instruments destroyed some 400 m² of an artificial platform we had begun to study. Cobbles and stone building block were scattered all around, with heaps of loose earth covering the general area of the site.

After the intervention of local authorities, the SALF site was secured and our team took actions to rescue and preserve parts of the site that were seriously affected by the mining activities. The emergency archaeological work was done rapidly because the landslides provoked by the heavy rains that fell during that time accelerated the process of erosion. The archaeologists began to intervene with the aid of a team of twenty hired members of the community. The first actions were to stabilize the endangered parts of the site, close to the river margins. The local workers included trained masons, farm laborers and high school students that were eager to learn the proper way of doing archaeology. Employing different members of the community was a good way to introduce ourselves into the Palanda region, but most of all it was a way to show the population the objectives that we were pursuing.

The supposed miners were indeed searching for gold and silver, at least a group of them had been hired by a local merchant to find mineral veins that the foreign looking engineers had been working on. They all thought that archaeologists were trained prospectors and their work in the area had localized important ore deposits. Therefore it was only natural for the local community to exploit the imaginary new mine. Reality brought on deception and a good part of the people rejected the idea of newcomers working in the county. It was thus urgently necessary to inform the population of the value that the ancient cultural resources present in their territory had for them, for Amazonia and for the country in general.

An important step was taken when we went to the local schools and high schools to inform the students (and their families) on the activities we were doing to learn and understand the history of this part of the country. Besides the talks and lectures, we also took part in the celebrations that were held every year in Palanda, on the anniversary of its official recognition as an administrative entity. On that occasion, we organized a general meeting in the town hall where we presented a detailed description of our actions and what we were finding that proved that this territory was important for the history of the upper Amazon. We invited the population to come and visit the site, so they could observe the progress we were making recovering important architectural features that lay hidden under the jungle. The curiosity of the community was aroused when they began to witness and participate more actively in the archaeological work. In time we gained the trust and confidence of the community.

News on the archaeological discoveries found in SALF began to spread and Palanda progressively gained a certain reputation in the county. Students from different schools and high schools of the province began to make regular visits to site. To deal with this some members of the archaeological team had to improvise guided tours, while others excavated hand in hand with local workers. In time we implanted a program to train certain students as regular guides for the increasing number of visitors.

3 Upper Amazon Archaeological Heritage Findings

After ten years of research in the Santa Ana - La Florida site and in the region of the

Mayo Chinchipe basin we managed to establish the existence of a previously unknown pre-Columbian culture that flourished in the upper Amazon over 5000 years ago. This ancient society, named after the hydraulic Mayo Chinchipe-Marañón basin (MCHM), lasted for a period of more than 3000 years and made some major contributions to the rise of the Andean civilization (Valdez 2008; 2013).

As previously stated, the SALF site is located at the margins of the headwater of the Mayo Chinchipe basin that flows into the Marañón River, a main tributary of the Amazon River. The site covers an area of approximately 1 ha, at the bottom of a steep and narrow river valley at an altitude of 1140 masl. It lies on a transition zone between the humid Amazon lowlands and the humid cloud forest. The site contains the architectural remains of 20 buildings structured around a circular sunken plaza (Figure 2). Two artificial mounds, or platforms, are aligned at the eastern and western ends of the site, each one holding a focal point in the architectural layout. At the eastern end, an oval shaped artificial platform, of around 900 m², stands some five meters above the surrounding terrace that faces the river. The part of the mound that faces the central plaza was the base of a round structure, now called the “temple” due to peculiar spiral shaped architecture.

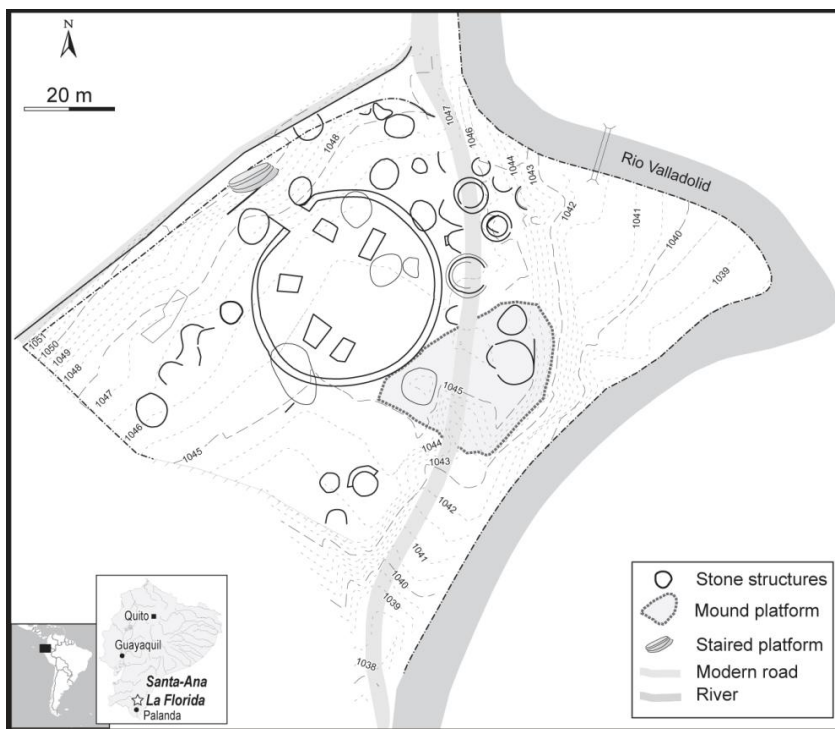


Figure 2 Santa Ana – La Florida site map.

Under the stone spiral alignment five tombs were excavated in the bulk of the platform. The funerary offerings found in the different tombs included: fine grained polished stone dishes, bowls, and mortars; ceramic vessels of different forms; and a variety of personal adornments made of greenstones, rock crystals, beads and fragments of Pacific Ocean seashells.

In spite that some of these traits are not unusual in most of the major pre-Columbian societies of the Andes, two peculiarities stand out in the case of the SALF site: its antiquity and its location in the upper Amazon. SALF is a multicomponent site that had at least three major pre-Columbian occupations or phases: the Bracamoro phase ca. 900 - 1950 AD; the Tacana phase, ca. 1800 - 200 BP; and the Palanda phase, ca. 5500 - 2000 BP.

Transitional phases exist, but as of yet these have not been entirely defined. Refinements will probably proceed as the survey continues throughout the province. Thirty-two radiocarbon C¹⁴ dates support the association with each of the different phases. Twenty-eight dates, ranged between 4620 ± 30 to 2210 ± 40 BP (5500 to 2340 years ago, 2 δ Cal.) are associated with the early occupation of the site, and 25 dates place the main occupation between 3860 ± 40 to 3430 ± 40 BP (4410 to 3880 years ago, 2 δ Cal.).

Apparently the site started out as a small settlement on the river terrace. A few domestic units constituted a hamlet that eventually grew into a village, organized around a central public space. In time this space became a sunken plaza, encircled by a stone retaining wall, complemented by the two platforms aligned on an east-west axis. The architectural layout, the characteristics of the eastern platform, and the meagre amount of residential evidence found throughout the site suggest that SALF eventually became an early Formative Period ceremonial centre. The radiocarbon dates showed that the first settlement had began 5500 years ago with a continuous occupation of the site for a period of 3000 years. The archaeological evidence found and studied showed that the Mayo Chinchipe – Marañón (MCHM) people had many of the traits that in time would characterise the Andean Civilization (Valdez 2013). Its early appearance in the cultural scene places it among the first complex societies in this part of the Americas with a strong ideological influence on all the interactions between the upper Amazon, the highlands and the Pacific coast (Valdez 2008). The paleobotanical evidence showed that diversified agriculture was an important asset of the MCHM society; among the products found in the site deposits an unexpected fruit was identified. Cacao was used 5000 years ago on a regular basis, on domestic and ceremonial contexts. This was problematic, as it was traditionally thought that cacao had been domesticated in Mesoamerica (Mexico, Guatemala, Honduras) and used there 3000 years ago. The evidence showed that cacao had in fact been domesticated in the upper Amazon, at an earlier time, and had dispersed progressively in other tropical regions (Zarrillo *et al* 2018).

4 Transmitting Geoheritage Knowledge

As the archaeological study advanced and information was published on the findings at different levels, the importance of the site grew at a regional scale. The media placed Palanda on the national and international scene with news reports. Frequent TV programs were dedicated to the early appearance of a major society that produced sophisticated objects and consumed cacao. The attention brought by the media eased the way for a positive answer from the central government, when the INPC followed our plea and proposed that SALF be declared a National Heritage site. This label assured the state's obligation to protect the site from both natural and anthropic risks or menaces, and to valorise the archaeological monuments that had been unearthen

and exposed for the benefit of a growing number of visitors.

The archaeological team was conscious that the community would profit from the significant investment that the Ecuadorian government was willing to engage to preserve the site. The creation of an attractive interpretation center was a first step in the injection of funds that would valorise the geoheritage that the upper Amazon region poses. Our intention was to deconstruct the notion that the jungle was a place of primitive savages. The location of the SALF site was the proof that a major complex culture was enrooted in an apparently hostile environment.

The SALF site would compete in a certain way with other important site museums, such as Real Alto, in the Pacific coast, or the Ingapirca complex located in the Andean highlands. The upper Amazon would now have its iconic archaeological site and hopefully it would attract geotourism. The visitors can learn and appreciate the uniqueness of the natural and cultural resources that the jungle settings offer.

The Ministry of Culture and Heritage devoted an important sum on the construction of a solid infrastructure that would protect the fragile evidence and that could be used as an interpretation centre for the visitors. The archaeological team supervised the work and was then confronted with the difficult task of exposing and transmitting the appropriate information on the SALF site and on the MCHM society.

The experience we have as archaeologists gave us the professional credentials to produce a scientific score that would portray and explain the ancient materials found at the site. Nevertheless we had to be capable of presenting the data as the base for the interpretation of its cultural significance. The narrative had to present the social entities that were reflected in the architectural vestiges. An important part of the script had to mention the ideological force that was latent in the cultural materials, since it furnished strong evidence for a complex society that managed the constraints and the benefits that the natural environment provided. We had to stress the fact that the varied range of food staples that were detected in the archaeological contexts reflects the productive capacity these people had as agriculturalists. It was also important to underline the presence of exotic materials, coming from far away proveniences that gave faith of the social interactions that the inhabitants of the site maintained with different regions. The intricate features that the architecture presented witnessed the organised work force that had built the site's layout. We had to emphasize the engineering feats that were used to deal with the erosion process caused by torrential precipitations, permanent humidity and the forces of gravity that affect the very steep settings. All in all, we had to show and explain the technological know-how and the high culture that the MCHM people had. The bottom line was that this ancient society excelled in the qualities and capacities that one would expect from the inhabitants of the tropical forest at such an early time. This was the crucial message we had to transmit to the modern, local population.

The interpretive center was established in the large structure that the Ministry of Culture and Heritage had built to protect one of the main architectural features of the site. The eastern platform that had been partially plundered by the local miners possessed a unique but fragile architecture that had to be properly conserved. The cyclical flooding of the river in spate menaced this architectural feature. Previous episodes of floods provoked landslides along the riverbank and eroded the artificial platform that lay next to it.

The structure consolidated and secured the margins of the riverbank and withheld

the platform with an elegant, rectangular edifice. It was composed of two parts: An underground concrete retaining wall, built on the solid geological riverbed, served as the base for a large metallic frame covered with a white polycarbonate roof. The walls of the structure were made of thin strips of treated wood that were fixed horizontally, at spaced intervals, as to let in the natural light and assure the normal ventilation of the interior. A particularity of the structure was a hanging bridge-like plank, which crossed the edifice 3 m over the ground, allowing the visitors to oversee the archaeological features and admire the spiral architecture that lay below. The structure covered an internal space of over 300 m² (Figure 3 and Figure 4). It was materially impossible to expose the fine archaeological objects excavated on the site; the security



Figure 3 Interpretative center structure protects ancient architecture.



Figure 4 Hanging bridge platform and information panels.

measures needed to preserve the integrity of the unique materials lacked in a space situated in the middle of the forest. Later in time, a site museum could be built with all the need safety features required to house the archaeological objects pertaining to the MCHM culture. For the time being the interpretive center and the surrounding site were to act as an ecomuseum. Thus the site itself had to be the showcase, not only for the architectural features but also for explanation of the place that SALF held in the prehistory and history of modern Amazonia. The site was to be a sample of the MCHM culture and of its incidence in the upper Amazon throughout time.

The purpose of the interpretation centre was to provide the necessary information to understand the nature of the SALF site, describing several of the features the visitors could observe live, in three dimensions. To complement to the archaeological contexts viewed, panels were placed to inform on the features with close-up pictures of some of the objects that were part of the funerary offerings. More descriptive information was posted in different parts of the site that would be visited by following a marked path. Our objective was to provide the history of the site, the MCHM culture and its importance in a series of small captions disseminated throughout the site. These would complement the information given in the brochures and booklets that were distributed (free of charge) to students and organised visit tours (Figure 5). Although statistics have not been formally kept by the municipality of Palanda the 3000 booklets that were printed for the first year for the interpretation centre quickly ran out in less than six months. Considering the fact that the site is situated five kms away from Palanda and 120 kms away from Loja, the largest city in southeastern Ecuador, this is probably one of the most visited open museum sites with an interpretation centre in this part of the country.



Figure 5 Students reading an explicative brochure at the SALF site.

As a complement for the interpretation center located at the site, a traveling exhibition on the MCHM culture and the importance of the SALF site was conceived and mounted by a team of PALOC² museologists from the *Museum National de Histoire Naturelle* (MNHN) de Paris who worked for a certain time with the archaeologists. The theme of the exhibition was the *Deconstruction of Frontiers*, with the joint purpose of showing how the modern and artificial international frontiers between Ecua-

²PALOC is the anagram for *Patrimoines Locaux et Gouvernance*, a French research unit composed by scientists from different disciplines coming from IRD and the MNHN. Temporary web site link <https://irdmail.fr/Redirect/10C2BDF7/paloc-prod.mnhn.fr/fr/presentation-de-lumr-346>

dor and Peru were culturally irrelevant in pre-Hispanic times. This was particularly important considering the frontier quarrels both countries had for over 200 years. Geoheritage was historically pertinent to show the common origin of the ancient inhabitants. At the same time, it was important to show the irrelevance of the frontier set by a pseudoscientific preconceived notion that Amazonia was incapable of producing and maintaining complex societies. Through a series of panels the exhibit recounted the new history of the upper Amazon. It stressed the importance of the archaeological findings that were currently made at both sides of the political border of the Mayo Chinchipe basin. Several panels presented the archaeological work done by our Peruvian colleagues in the area of Jaén and Bagua, situated near the confluence of the Chinchipe and the Marañón (Olivera Núñez 2014). Needless to say, special attention was paid to the social significance that the new information was shedding on the importance of the natural and cultural resources of the upper Amazon as a geoheritage that reaffirms the identity of the past and present inhabitants of the region.

The exposition was made in two sets, as to travel easily and be presented in the towns and cities, both in Ecuador and Peru. The final destination of one set was of course Palanda, where the municipality had arranged a special place close to the town hall. The visitors to Palanda were encouraged to go to the site after the exhibition. The local schools make regular visits to this hall as part of their history courses.

To complete the panorama of geoheritage diffusion, the archaeologist of the project participated in organizing a major international exhibition that was presented in the famed Quai Branly Museum in Paris, where some of the objects from the SALF site were exposed. The exhibition was focused on Pre-Columbian Shamanism in Ecuador, the information and objects from the upper Amazon were an important part of the exhibit, since these were amongst the earliest evidences of this practice in South America (Valdez 2016 a). In each case, the exposition's objective was different but complementary; in Palanda we wanted to explain the importance of the ancient Amazonians and the richness of their unique culture. In the international exposition we wanted to stress on the fact that force of the shamanistic practices in Ecuador were deeply enrooted in Amazonia, mainly on account of the ancient knowledge of the tropical medicinal plants and hallucinogens. On both counts we were exposing the importance of the Amazonian cultures in the heritage and identity of the Ecuadorian people.

5 Discussion

In modern Latin America there is a serious problem with the Amazonian territories, most of the indigenous populations have been reduced to secluded areas and people from other ecological zones and cultural backgrounds have invaded and taken over their ancestral lands. In this perspective, archaeological research in the upper Amazon is problematical in more sense than one. The mountainous terrain, proper of the eastern flanks of the Andes, is steep, rough and dangerous. Rivers are not always navigable and vehicle routes are not abundant. In general communications are precarious and electric energy is not always available. The population usually lives disseminated in the jungle and the lush vegetation cover makes archaeological visibility difficult.

If these constraints are not enough to dissuade you from the effort, then you must be ready to face constant hostility, mistrust and doubts that the local population has on

all the newcomers; specially on matters that allude to surveying of any type. Geoheritage studies are therefore seen as suspect and not welcomed. This is specially the case in regions where the indigenous population has been ousted by different circumstances and settlers that had their initial provenance outside Amazonia now inhabit the territory.

At first sight, geoheritage, or simply cultural heritage, is not considered a priority or even pertinent. The term national heritage is an entity that does not have an echo in the modern people's sense of belonging to a given territory. When dealing with a population of mixed origins it is not easy to find common denominator that suits most of their interests. The notion of heritage is inexistent in their minds, as they hardly feel any blood links to the people that lived there ages ago. The lack of historical continuity in the population of the region of Palanda is a determining factor in understanding the attitude of its modern population. They know and feel that the ancient people that lived there were not their ancestors. The indigenous tribes that settled the region are still considered by many as dangerous savages. They consider that the Amazonian Jibaro Indians (Shuar)³ were ruthless headhunters, supposedly living in a permanent state of violence. Some of the elder settlers had suffered from their presence when they first arrived. It was simply unthinkable that these "savages" could have produced anything of worth or value for the present inhabitants of the area.

If the archaeologist has to carry out research in good conditions, they first have to aid in the understanding of the value of history and heritage to a people that do not find the roots of their identity in the territory they inhabit. In Palanda, the rights of possession to the land hardly go back for more than one or two generations. For the most settlers the adaptation to the upper Amazon environment was hard and the living conditions are for the most part, still harsh. The sense of belonging to this geographic area (or its history) is not embedded in their communal or individual spirit. There are still no affective links to the territory, so the notion of their own heritage in Amazonia has yet to be constructed. Politically the population is set in the administrative quarters of the Amazonian territories, but their personal affiliations are still strongly tied to the highlands they had migrated from. The tropical jungle has been a dream and a nightmare; they have adapted to their new homestead, but they are still highlanders at heart. Their intangible cultural heritage is deeply enrooted to the land of their ancestors and these were not Amazonians. This, of course, is part of the problem of defining geoheritage: geo = earth, a territory, and heritage, something that you inherit, something that is yours, something that you build on and that reflects your personality and eventually your identity. In this sense the term geoheritage is closely affiliated to archaeology, to the traces of past human behavior found in a given territory.

In Palanda, the archaeological team had to confront with a challenge; we had to aid the local population to construct a new notion of heritage, where the origins concerned all the succeeding populations of a given territory (Valdez 2016b). For the traces of human actions found there are like the population that is living there now; culturally varied in time. The process of adaptation for the people of Palanda was

³Jibaro is the generic name given by the Spanish conquistadors, in the 16th century, to a series of indigenous groups that inhabited this part of the upper Amazon. They were reputed for their bravery and ruthlessness when engaged in a guerrilla style of warfare. Their apparent savagery was based on the traditional custom of taking trophy heads, from their enemies and reducing them to the size of a fist. These people still practiced this custom in the beginning of the 20th century. Shuar is the name they call themselves today in their language.

ruthless, and this is still part of a historical continuum. Their callous experience is the beginning of their new heritage, the one they started to create now, in their generation, the one in which they had to find a new identity, one that would reflect their character and their mixed origins.

The archaeologist must play an active role in the scientific mediation between the local community and the raw data that comes from research. The wealth of the geoheritage lies in the environment, both natural and cultural, that surrounds an archaeological site and its contents. The authenticity of the historical past that encloses the material culture and the other traces of the human interaction with nature must be clearly defined and stressed in the information that the archaeologist must render. The archaeologist must be a mediator between the material (archaeological) data and its meaning in social terms. Therefore he must reconstruct the events that led to the transformation of the original natural settings and to the construction of the landscape that can be seen today. The problem is thus, to render the cultural process visible, pointing out the material evidence of such transformations.

The interpretation centre, the in-situ scientific mediation, is very important for the local population, as well as for the visitors, that come to learn about the site and its historic importance. The expert insight into the understanding of the archaeological phenomena must be stated in a clear and plain language that will be understood and that will hopefully educate all the viewers.

This storytelling involves the narration of a large number of events, some of which may be disparate, but that come together and can be identified on the traces of past human behavior. Understanding the cultural landscape that surrounds the archaeological site is part of the explanation of past events, since the human transformation of the natural environment is a response to the challenge of satisfying society's the basic needs and producing progress, for the wellbeing of the community. The ideological imprint should also be inferred from the material evidence found in order to understand the sense of the social organization that underlies in the archaeological data. Nevertheless there are two main problems that the archaeologist faces when studying geoheritage: time and space. The historic account must include a cultural chronology of past the events, contingent to the materiality of a given ideology, then this has to be placed in a given territory (space) and seen as it evolves through time. The narration must articulate simple environmental facts and contrast them with the cultural process of adaptation to the environmental constraints. The landscape reflects the human interest in making use of the natural resources in order to produce a social organization that ensures both survival and spiritual fulfillment. This is the social aspect of geoheritage that must be sought, examined and explained in archaeological research. The transmission of these facts is a responsibility towards the community, so that the sense of the cultural heritage, which can be found in a given territory, can be acquired by any and all of its members.

The case study we have described shows the importance of linking the local population to the process of identifying and studying the geoheritage of its territory. The nature of the population must be taken into account in order to understand what the notion of heritage (past and present) means to them (Canavese *et al.*: 44). As we have seen the attitude of the population of Palanda has changed through the years. The archaeological project showed the antiquity and the importance of the human occupa-

tion in the region. Nevertheless, it was the unique quality of the monuments that were exposed that attracted the population. The participation in the archaeological work that was carried out over a decade gave them a certain familiarity and identification with the geographic background. The pleasant fluvial terrace and the narrow ford were part of a traditional trail, used since ancient times to cross the river and gain the slopes of the neighboring valley. The riverside settings and the conditioning of the banks for the protection of the site have transformed the area into a favorite recreational resort for the youth. The place is now affectively called *las ruinas* (the architectural ruins) and the interpretation center has become a local tourist attraction. Although the government financed its construction, the families that labored in the structure considered it their own work and are very proud of the edifice. A new sense of heritage was rising in the community.

That way the social scientist can aid in the construction of a general and a specific sense to that concept. The aid should come through the awareness of its values and its problems. Nevertheless the sense of heritage must include the construction and the preservation of its goods, for the concept of geoheritage is not static. It is a cultural construction based on the observation of the geo and the cultural resources that are present in a given area.

The SALF site and its interpretation centre are an important part of the construction of the geoheritage in the upper Amazon. For now, it is already a part of the historic regional pride, be it on account of the supposed origins of cacao or on the astonishing material manifestations of its past culture. The idea of an early complex society found in the upper Amazon is becoming a part of the region's identity. The growing number of visitors that come to the SALF site is bringing in a small economic benefit for the region. So, the inhabitants of Palanda have assumed the site as its geoheritage and slowly they are empowered to take other sorts of actions in benefit of the region.

SALF can now be seen as a living heritage of the territory. There one can observe the natural and cultural heritage that characterizes this part of the upper Amazon. The local population is the foremost hereditary proprietor of all this wealth; therefore it is their responsibility to know it and to preserve it, so that it can be a continuous legacy for the coming generations.

It is obvious that it is very important to include more population on the makings of an inventory, with the enhancement of its (their) natural and cultural values. It is through their commitment that social, educational and economic benefits will come to the community. The development of the territory must be suited to the long-term consequences of their actions, so the proper management or governance of all the resources must include the active participation of all heritage stakeholders. The conditions we have exposed at the SALF site meet the description that de Varine has made of an ecomuseum (2017). The new function of a proper museum, be it a site museum or an ecomuseum, is to expose the organizing elements of a territory, its heritage, and the community (Maillard *et al.*: 18-21).

Regarding the debate on the value of the "heritagisation" process that is currently pondered (Perez, Machuca 2017; Sevilla 2017) our colleagues Suremain and Gallipaoud recently stated that in the heritagisation process the role of the researcher is

"unequivocal : he is either associated to the co-construction of the heritage projects; with or without the local populations, or he is asked to justify and validate scientifically the public or local initiatives. Often he must assume the institutional

follow-up or assure the valorization of the heritagisation." (2015: 7)⁴ One must admit that the SALF site can be considered as an example of this process. We have mentioned how the site gradually passed from the quality of a simple ore mine to that of a national archaeological heritage site. In this shifting process the actors who transformed it have seen the new form as profitable and essential, they are now using it to claim its value as a needed heritage for the economic and symbolic usufruct it produces. Its public valorization has stressed the need to be conserved and protected by the central and local authorities. However one must remember that some years ago the destruction (through mining) of the site was justified by a large part of the community. There is obviously a subjective factor in the value of the heritage label that was classified and recognized by the authorities and the local population. It would not seem to be inherent to the historical value that the site has. The heritagisation is clearly a cultural construct that must be nourished regularly if it means to withstand the passage of time. The value of historic memory, identity and social cohesion has yet to be truly understood. This might be attained when it will acquire the sense of belonging to the historic continuum that the inhabitants of the upper Amazon have always had.

Thus heritage is a social construction made by actors and institutions that coincide in the recognition that something is of worth -economic, esthetic or symbolic- that must be reinterpreted, preserved and transmitted to the future generations. Although this does not always imply an initial democratic process, as seen in this case study, it must be just and proper for all sectors of society.

6 Conclusion

The case study shows the importance of geoheritage in understanding the history of a territory and the people that have inhabited through the ages. The reconnaissance of its importance must be done first of all by the local population, and in this process scientific mediation plays a key factor for it links the different elements that have been identified and studied in a given region. The proper transmission of its historic importance is crucial to the understanding and preservation of the cultural landscapes that are the fruit of the human transformation of the natural environment. The construction of the notion of geoheritage is an ongoing process that concerns all the actors, the local community, the authorities and the mediator that helps make the link between the data and its meaning in social terms.

For the archaeologist material culture objects are transformed into the odd pieces of a puzzle that pictures a past society. Our responsibility as social scientists is to reflect on and explain the geoheritage that marked this part of the upper Amazon. The evidence we have obtained shows a positive process of human adaptation to tough ecological settings. The archaeological data has to be properly presented to explain the historic success that the early forest dwellers had in transforming the jungle environment into a very productive garden.

⁴ ...univoque; il est tantôt associé à la co-construction de projets patrimoniaux, avec ou sans les populations locales; tantôt sollicité pour justifier et valider scientifiquement des initiatives publiques ou locales; il assume parfois la veille institutionnelle ou assume le suivi de la valorisation de la patrimonialisation." My translation.

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