

CHALLENGES OF CAVE MANAGEMENT IN A DEVELOPING COUNTRY: A CASE STUDY OF GROTTÉ MARIE-JEANNE, DÉPARTEMENT SUD, HAÏTI

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Abstract

As with many developing countries, Haiti has environmental, economic and cultural challenges that complicate natural resource management. Karst landscapes dominate Haiti and caves are abundant as recent cave and karst inventory data indicate. Though the caves and karst are subject to environmental challenges they also provide the potential for the development of tourism that would improve local economic conditions. There are 500 documented caves in Haiti of which, five are show caves. Of those, only one, Grotte Marie-Jeanne, located in Port-à-Piment in Département Sud, has a structured cave management plan that addresses identification of cave resources, visitor access, interpretive guidelines, cave conservation and preservation. Despite economic and political challenges, this recently implemented community-based initiative toward cave development and management is showing success in promoting sustainable ecotourism to the area and providing the basis for the study, conservation and protection of caves and karst throughout Haiti.

Introduction

The country of Haiti consists of the western third of the island of Hispaniola with the remaining landmass in the Dominican Republic (Figure 1). Haiti is reported to have 500 documented caves. Of those, five are show caves: Basin Zim and Grotte Saint-François (Plateau Centrale), Grotte Marie-Jeanne and Grotte Konoubois (Département Sud), and Grotte des Indiens aka Trois Cheminees, (Grande Anse). With the exception of Grotte Marie-Jeanne, the cave management mode of these sites is individual-entrepreneurial based consisting

of varying degrees of controlled access and guided tours. This reflects the lack of financial resources, and cave management expertise that is not uncommon in developing countries.

Caves and Karst of Haiti

Approximately 70% of Haiti is composed of limestone terrain (Clammer 2013). Coastal karst and caves (littoral, flank margin and hybrid types) abound in the reef terraces that occupy the country's shorelines. The mountain chains that make up the backbone of Haiti contain spectacular cone karst with many deep sinkholes, disappearing streams, resurgence springs and of course caves (Hadden and Minson 2010).

Prior to the 1980's the limited documentation of caves in Haiti were provided in colonial era narratives and later biological (Miller 1926) and archeological (Rouse and Moore 1985) reports. Prior to the 1980's there were no known cave exploration expeditions to systematically document caves in Haiti. The first documented modern cave explorations were undertaken by two separate French expeditions in the early nineteen eighties and the late nineteen nineties respectively (Mouret 1981, Lips 1997).

In 2007, starting at Grotte Marie Jeanne (Figure 2), a Haitian-American team began documenting caves in southern Haiti and have since expanded their efforts country wide. In 2009 a French reconnaissance effort also began documenting caves in Haiti. The Haitian-American team began a survey/inventory project at Grotte Marie-Jeanne resulting in 4.7 km of survey to date, making it the longest mapped cave in Haiti. Along



Figure 1. Map of Haiti with location of Grotte Marie-Jeanne site. Modified from www.travelinghaiti.com/

with exploration/documentation efforts, were initiatives to sustainably develop the cave for eco-tourism while preserving its unique ecology, geology and cultural setting. A further outcome of the Haitian-American team activities was the formation of the Haitian Speleological Survey whose goal it is to document and protect all caves and karst areas of Haiti.

Challenges of Cave protection and preservation in Haiti

The perceived value of caves in Haiti has traditionally been from the perspective of mining and quarrying as well as cultural uses - contemporary, historical and ancient. Limestone is an important building material for all aspects of human development including road construction, housing and hydrological infrastructure. Ritual cave uses range from pre-contact (archaic through Taino period) ceremonial use to historical and contemporary religious purposes. Remnant evidence of these activities is manifested in lithics, ceramics, shell materials and rock art in many of Haiti's caves. Typical human impacts that affect caves everywhere are also apparent in Haiti, including agricultural land use, groundwater pollution and vandalism.

With the exception of Grotte Marie-Jeanne, the cave management strategies for Haiti's other show caves is individual-entrepreneurial based consisting of controlled access and guided tours. There are no comprehensive management plans, maps, or resource inventories, to document important features of the caves or to promote future research. There is a lack of guidelines for conducting interpretive tours and no consideration is given to cave conservation or preservation. In Haiti, the absence of structured cave management reflects the lack of financial resources and expertise necessary



Figure 2. Main entrance of Grotte Marie-Jeanne.

to generate and institute cave management plans, and the overlapping interests of multiple government ministries who share different aspects of cave resource management. At Grotte Marie-Jeanne, a community-based initiative (unique in Haiti) is proving successful in demonstrating sustainable cave management and in bringing the potential economic benefits of ecotourism to the Departement Sud.

Ecotourism Development of Grotte Marie-Jeanne

The management and ultimate development of Grotte Marie-Jeanne differs from the management styles in Haiti's other show caves. The local development initiative was conceived by community leaders from Port-à-Piment, a small town located in the South Department of the country of Haiti. Though the group initially lacked expertise specific to cave resource management,

in 2007 they developed a Haitian-American partnership to document the cave, inventory natural resources and propose a management and development plan (Kambesis et al. 2010). The ongoing effort has supported an evolving community-based ecotourism management plan that effectively integrates resource preservation with long term, sustainable regional ecotourism centered around the unique setting of Grotte Marie-Jeanne. The management plan has led to a UNEP-local government financed initiative of \$150,000 to improve visitor access to the Grotte Marie-Jeanne.

Grotte Marie-Jeanne is expected to be a key attraction in a regional plan that will see the development of other at-risk biospheres such as the tropical mountain forest of Pic Macaya and the coastal coral reefs and mangrove swamps on the southwest coast. Forty percent of Haiti's flora and fauna are endemic (including several species in

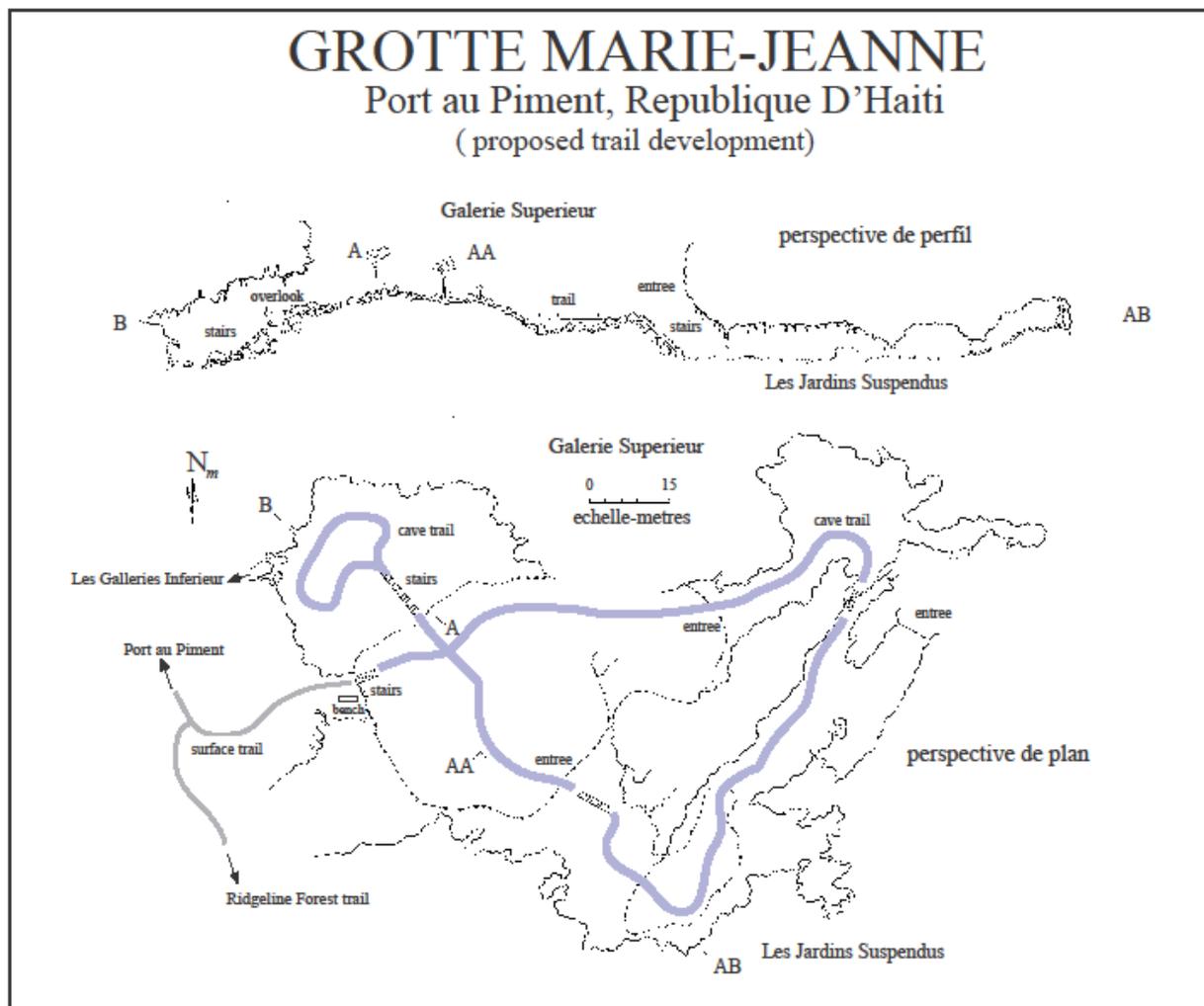


Figure 3. Map of proposed trail for Grotte Marie-Jeanne.

the cave itself) and will provide additional incentives for research and development.

The Grotte Marie-Jeanne development plan includes improved access to the site, trail construction within the cave (Figure 3), marketing and interpretation resources in conjunction with direct involvement of a broad cross section of community members throughout the process.

Establishing an effective natural resource management program can be a challenge within a minimally-developed tourism industry. As with most developing countries there are challenges associated with the management of natural resources which can often be considered solely as generators of revenue. Guide training and retention can be an issue, as is long term, adaptive maintenance of the overall management plan.

In contrast to the private-entrepreneurial approaches currently employed at Haiti's other show caves, the community-based ecotourism strategy applied to Grotte Marie-Jeanne offers a unique opportunity to not only support the infrastructure and preservation of the cave ecosystem and invest in the economic growth of the community of Port-a-Piment but also serve as a pivotal component in the areas broader economic development.

Haiti presently has an extremely dynamic Minister of Tourism undertaking a number of initiatives to promote the sector. As there is little tourism infrastructure in the country and few sites have been developed, and considering the wealth of natural and cultural resources still to be found, it is generally believed that eco-tourism should be encouraged and will serve Haiti well in the future.

References

- Clammer, P., 2013, Haiti, Bradt Travel Guides Ltd, UK, the Globe Pequot Press Inc., USA, 232 p.
- Hadden, R. L. and Minson, S. G., 2010, The Geology of Haiti: An Annotated Bibliography of Haiti's Geology, Geography and Earth Science. Report from US Army Corps of Engineers, Army Geospatial Center, Alexandria, VA., 254 p.
- Kambesis, P. N., Lace, M. J., Despain, J., Goodbar, J., 2010, Assessment of Grotte Marie-Jeanne, Port-à-Piment, www.grottemairejeanne.com: (accessed May 2013).
- Lips, Bernard, 1997, A Speleological Reconnaissance of Haiti, Speleo Dossier No. 28, 24 p.

- Maps of Haiti, 2013, Departments of Haiti, <http://www.travelinghaiti.com/map.asp>: (accessed April 2013).
- Miller, G.S., 1926, Exploration of Haitian Caves: Smithsonian Miscellaneous Collections, v. 78 (1), 36 p.
- Mouret, C., 1981, Karst Zones in the Republic of Haiti: Spelunca, No.1, Jan.-March.
- Rouse, I. and Moore, C., 1985, Cultural Sequence in Southwest Haiti, in Proceedings of the 10th International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles. Fort de France, Martinique 25-30, July, p. 1-21.
- Leigh, D. S., 1994, Roxana silt of the Upper Mississippi Valley: Geological Society of America Bulletin, v. 106, p. 430-442.