

Was the megafauna an important resource for the human groups that lived in the Colombian Caribbean during the late Pleistocene and the early Holocene?

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Abstract

The role of the megafauna in the subsistence of human groups who came to America and specifically to Colombia has been a subject of intense debate. So far, it seems that in the tropics the first Americans did not have subsistence systems specialized in hunting these kind of animals. For that reason, it may be possible to think that the answer to the question proposed in the title is negative. However, it is necessary to clarify that this tentative answer has no archaeological support due to lack of research on the Paleoindian period in the Colombian Caribbean. This lack of research is not related to the unattractiveness of the area. In fact, because of its geographical location at the southern end of the corridor that connects the north and the south of the continent, and of the great ecological diversity that characterizes it today, as well as at the time referred to in this article, the Colombian Caribbean is a highly interesting region for researches aimed to clarify the processes of settlement of America and to improve the understanding of the ways of life of the first human groups that occupied the continent. The discretion of the traces left by these nomadic groups and the difficulty of accessing the stratigraphic levels containing the materials of the late Pleistocene and the early Holocene, have been, probably, the main factors that have discouraged the attempts to deepen the understanding of processes that took place in that region at those periods. Therefore, if the aim is to study the Paleoindian period and in particular the relationships established between the megafauna and the human groups it is necessary to develop a methodology to locate on the one hand human settlement patterns showing land use and, on the other, the remains of the Pleistocene-Holocene fauna. The execution of a Systematic Regional Survey is proposed as a first methodological alternative as it allows documenting the sectors of a particular area in order to understand the patterns of its occupation. Because of the depth of the Pleistocene levels, surface collecting or shovel probes, frequently used during the realization of the surveys, are not an option. In these conditions, a GPR (Ground Penetrating Radar) could be employed to detect evidence buried in the ground.

Keywords: Pleistocene-Holocene megafauna, Colombian Caribbean, Early peopling, hunter-gatherers, Systematic Regional Survey, GPR.

Resumen

El papel desempeñado por la megafauna en la subsistencia de los grupos humanos que llegaron al continente americano ha sido un tema de amplio debate. Hasta ahora, todo parece indicar que en las zonas tropicales, los primeros americanos no tuvieron sistemas de subsistencia especializados en la caza de este tipo de animales, por lo que se podría pensar que la respuesta a la pregunta formulada en el título sería negativa. Sin embargo, es necesario aclarar que esta respuesta tentativa carece de un soporte arqueológico debido a la falta de investigación sobre el periodo Paleoindio en el Caribe colombiano. Esta falta de investigación no se relaciona con la falta de atractivo de la zona que, de hecho, por su localización geográfica en el extremo sur del corredor biológico que comunica el norte con el sur del continente, y la gran diversidad ecológica que la caracteriza hoy como en la época a que se refiere este artículo, es un lugar de enorme interés para las investigaciones orientadas tanto a aclarar los procesos de poblamiento de América, como a mejorar la comprensión de los modos de vida de los primeros grupos humanos que ocuparon el continente. Han sido probablemente la discreción de los vestigios dejados por estos grupos nómadas y la dificultad de acceder a los niveles estratigráficos que contienen los materiales de finales del Pleistoceno y de comienzos del Holoceno, los principales factores que han desestimulado los intentos por profundizar en el entendimiento de los procesos que tuvieron lugar en esa región en aquella época. Por esta razón, si se pretende estudiar en ella el periodo Paleoindio y en particular la

relación de la megafauna con los grupos humanos, es necesario desarrollar una metodología que permita localizar, por un lado, asentamientos humanos que muestren los patrones de ocupación del territorio y, por otro, los restos de fauna pleistocénico-holocénica. Como primera alternativa metodológica se propone la realización de un Reconocimiento Regional Sistemático que permitiría documentar sectores de un área particular con el fin de comprender los patrones de ocupación. Debido a la profundidad a la que se encuentran los depósitos del Pleistoceno, la recolección superficial y las pruebas de garlancha, usadas con frecuencia en este tipo de reconocimientos, no son una opción. Bajo estas condiciones se sugiere la utilización de un GPR (Ground Penetrating Radar) para detectar la evidencia enterrada en el suelo.

Palabras clave: Megafauna pleistocénico-holocénica, Caribe colombiano, Poblamiento temprano, cazadores-recolectores, Reconocimiento Regional Sistemático, Georadar.

Introduction

Most likely, the answer to the question in the title of this brief paper would be negative if one considers that the archaeological record of northern South America suggests that the early inhabitants of the tropics were not specialized in hunting large mammals, but rather, in a variety of subsistence strategies that responded to regional and local particularities (Dillehay, 2003). But even if this answer seems reasonable, it has a problem: its tentative character. In fact, the lack of information about the human occupation of the late Pleistocene and early Holocene in the Caribbean region of Colombia, makes it difficult to provide an archaeological support allowing to say that the megafauna, which includes those animals whose body mass exceeds 1000 kg (Cione et al., 2010), was not an important resource for humans that first came into that region.

In the scope of the exposed problems, this paper deals, in the first place, with the explanation of the reasons why the Caribbean region of Colombia and in particular the department of Atlántico, are highly attractive areas for the archaeological researches oriented to clarify the process of settlement of America, and to improve the understanding of the ways of life of the first human groups who occupied the continent. This first part also sets out the reasons why there is a big gap in the documentation of the early occupation of the area. Secondly, this paper proposes a strategy that could help to fill the mentioned gap. Finally, in the third place, it highlights the importance of doing a detailed characterization of the fauna of the period in order to assess its availability as a resource for these human groups. Only when these points will be solved it will be possible to give a fully supported answer to the question posed in the title of this article.

About the interest of northern Colombia and the Department of Atlántico

If you look at the north of South America and in particular at the territory of nowadays Colombia from a biogeographical perspective, it is possible to notice that, by the fact of being located at the end of the corridor that connects the north with the south of America (Webb, 1978, 1991 Woodburne, 2010), this region was an unavoidable step area for human groups that moved from one place to another. The discovery of a lithic artifact in Bahía Gloria, located in the Gulf of Darien, with typological features very similar to those found in the complex Lago Meden in Panama, is an evidence of this movement (Correal, 1977: 36, Correal, 1983). The character of step area underlines the importance

of the above mentioned region in regard to the understanding of the migration paths of the first Americans. This importance was highlighted by Correal (1977) in the publication presenting the results of the archaeological explorations he conducted in the Atlantic Coast and in the Magdalena River Valley. In this paper, Correal suggests that "... the movements towards the coast were possible through flood free areas and also, in other directions into our territory following natural routes of displacement" (Correal, 1977: 36). Taking into account the geomorphology of the region, he proposed three possible migration routes: a northern one following the San Jacinto belt, one by the Chocó and another by the central and eastern regions (figure 1).

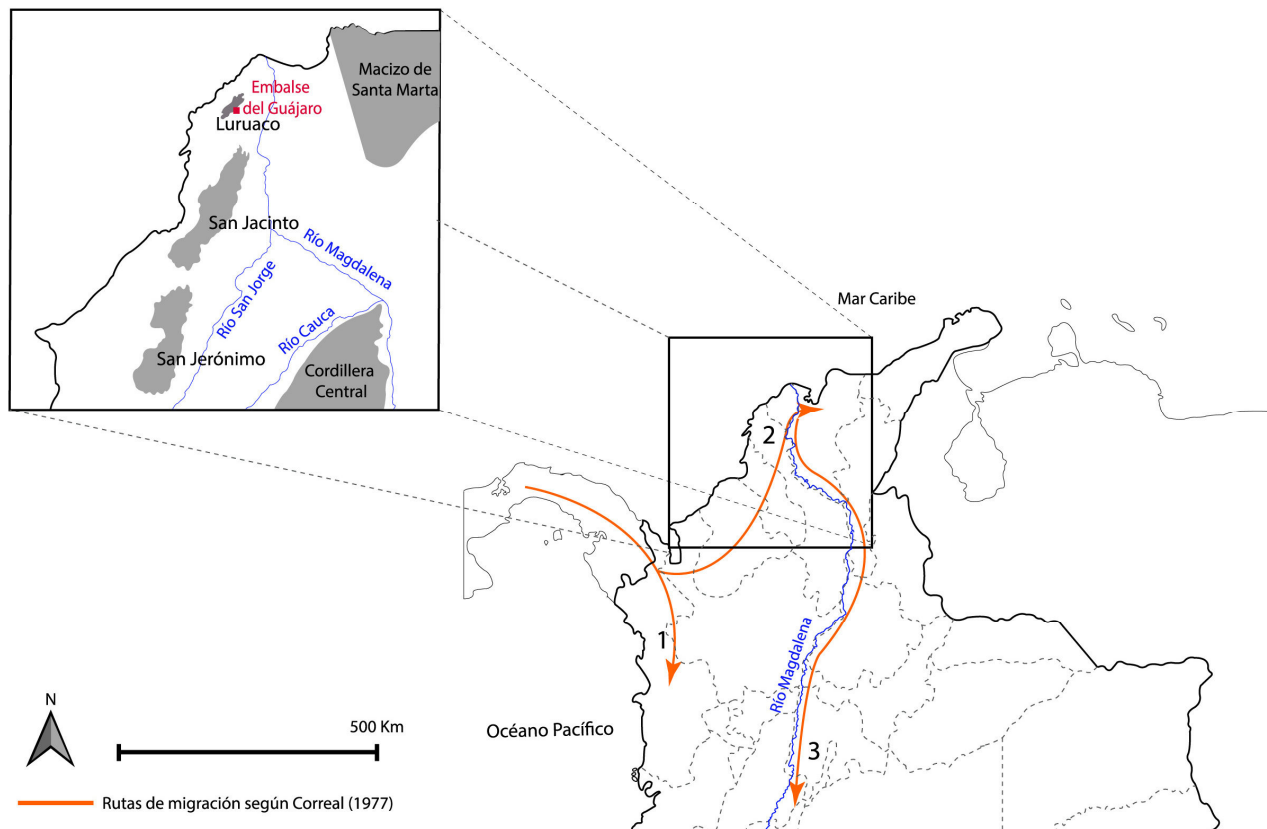
The first of these routes, the northern one, would have been easier to follow for the newcomers, not only for providing the opportunity to advance along the San Jacinto belt (which includes the formations San Jeronimo, San Jacinto and Luruaco), during periods of marine transgression and along the coasts in the regression ones, but for having similar ecological conditions to those of South Central America (Correal, 1983; Dillehay, 2003).

It should be noted in this regard that Colombia and the northern Atlantic coast in particular have several elements favorable for human occupation. At the end of Pleistocene, this area housed a wide variety of ecological niches (forests, beaches, estuaries, mangroves, swamps and rivers), which offered to newcomers the opportunity to access a large amount of resources (Angulo 1988 stop-Ruffinati 1996); additionally, the presence of numerous preceramic sites in the area of the present departments of Córdoba, Sucre, Bolivar, Cesar and Guajira confirms human occupation of the Caribbean region during the late Pleistocene and the early Holocene.

It is important to note that within the departments of the Colombian Caribbean coast, the Atlántico is probably one of the least explored in terms of early occupations. However, this gap is not justified if one considers that the occurrence of Pleistocene faunal remains in the region (Angulo, 1988; Caro et al., 1985; Guzman et al., 2004; Páramo and Escobar 2010), confirms not only the presence of animals like mastodons and horses but also the fact that the soils of the late Pleistocene and the early Holocene allowed the preservation of organic material. From this point of view this department is an interesting area to perform an exploration. Villaroel and Clavjo (2005) indicate that the Pleistocene megafauna fossils of the region come from the "gravas de Rotinet", a unit composed of an alternation of gravels and sands that surface "near the Canal del Dique, the swamps of El Guájaro and El Totumo, and Juan de Acosta, along ancient branches of the Magdalena river" (Villaroel and Clavjo 2005: 353). This evidence leads to consider the possibility of exploring the vicinity of the El Guájaro reservoir in Rotinet or "La Peña" townships (figure 1).

According to that, it is appropriate to ask the reasons why there is a gap in the Colombian Caribbean preceramic record and particularly in the nowadays department of Atlántico. Probably, poor documentation is related to the low visibility of the deposits, derived not only from the discrete nature of the camps of hunter-gatherers but, especially, from the high rates of sedimentation of the Magdalena river that, in many cases, covered by several meters the deposits of

the late Pleistocene and early Holocene containing the remains of the preceramic societies (Villegas, 1960).



About a possible strategy to fill the gap in the record of the Colombian Caribbean preceramic

In the context a new question may be formulated: What can be done to document the Colombian Caribbean early occupations? The ideal would be to develop a methodology allowing to locate archaeological sites of the period of interest and to determine patterns of land occupation.

Because human groups who inhabited the north of South America in the late Pleistocene and early Holocene were hunter-gatherers who lived in different areas that provided them with the necessary resources for subsistence, their remains should be examined by linking the settlements exploited by the same group at different periods (Bettinger 1999). For this reason any methodology used to make a study of these settlements must consider spatial differentiation. This only can be done through a regional study aiming to detect the patterns of behavior issued as a response to environmental variability.

A first methodological alternative for this kind of studies is the Systematic Regional Survey developed in the framework of the Viru Valley project led by Gordon Willey (1953). The interest of this approach lies, among many other aspects, in the fact that it provides a rich information about the relationships between human beings and their environment. Basically, the Systematic Regional Survey allows documenting the sectors of a particular area where it is possible to find traces of occupation and those in which there is no such evidence. The obtained information is very important to understand the patterns of occupation of a given area. Traditionally the recognition is done by walking uniformly through the selected area and making systematic sampling. Because of the depth of the Pleistocene levels, surface collecting or shovel probes are not an option. For that reason, non-invasive recognition methods should be employed. In these conditions, a GPR (Ground Penetrating Radar) could be used to detect evidence buried in the ground (figure 2).

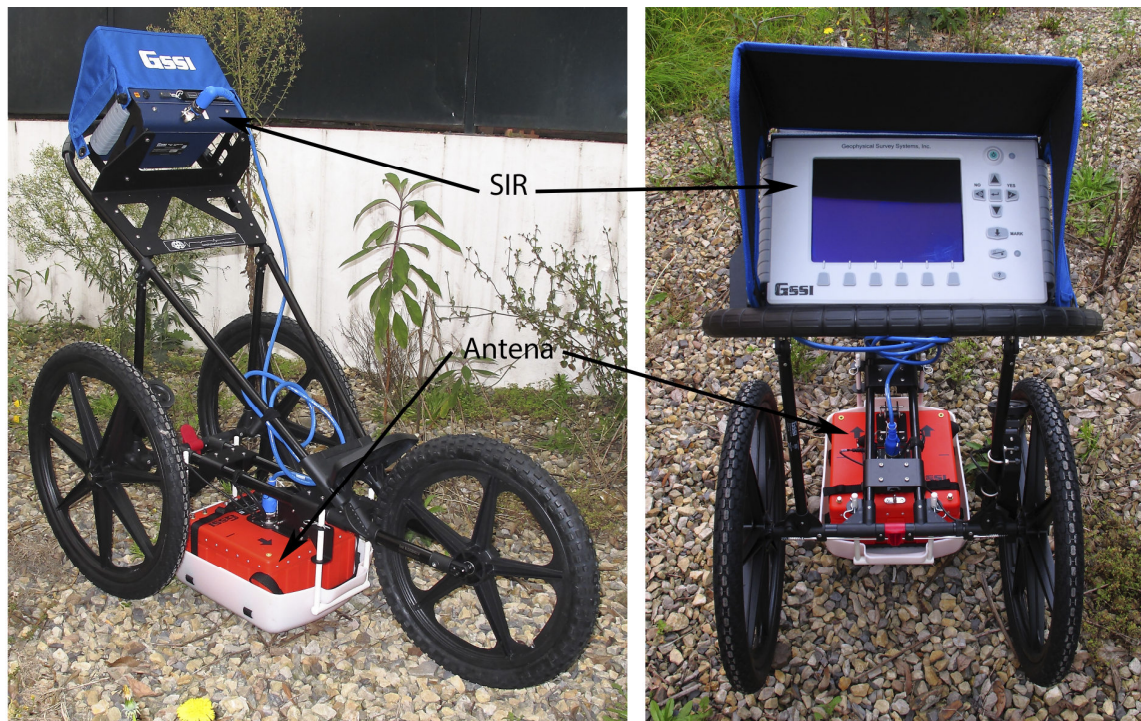


Figure 2- GPR image, model SIR System-3000, GSSI. Courtesy of Departamento de Geociencias, Universidad de los Andes, Bogotá.

Because the GPR must be calibrated, it is necessary to know both the composition of the sediments and the depth at which the levels of interest are buried (Bonomo and de la Vega 2006). For this reason it is suggested to carry out some tests of borehole in the selected area. The tests will help to locate the level of interest by obtaining radiocarbon dates and to determine the composition of the soil by the way of a soil analysis.

It is important to note that so far, the GPR has not been used in Colombia in the study of hunter-gatherers groups. As mentioned above, the material remains of these groups are much more discreet than those left by sedentary

societies and therefore much more difficult to perceive. Works like Gibson's (1986) in which magnetic methods are used to prospect contexts where the archaeological evidence is scarce and difficult to locate, raise interesting methodological alternatives that could eventually be used in the case of northern Colombia. Basically Gibson suggests that these methods are of great help to obtain information about the cultural content of an archaeological site when the efforts are focused on the search of specific items such as campfires.

About the importance of a detailed characterization of the fauna of the period

It should be noted that the availability of resources is a key factor in defining the patterns of occupation of a territory and in the choice of a subsistence strategy; for that reason, it is not only appropriate but necessary conducting detailed studies allowing to describe the fauna from the end of the Pleistocene and the beginning of the Holocene from northern South America, within the frame of a biogeographical context. These studies would contribute to the understanding of the natural history of both the extinct and the modern fauna, and would draw a picture of the availability of the faunal resources found by the first human groups that came to the territory today known as Colombia. This scenario would facilitate the comprehension of the relationships between paleoamerican groups and their environment and would provide arguments to explain aspects such as the stylistic diversity of the assemblages of the late Pleistocene and the predominant use of local raw materials, characteristic of the paleoindian sites of the country and of tropical America in general (Gnecco and Aceituno, 2004).

It should be noted that in Colombia there is still a long way to go in rebuilding this panorama, mainly because research on Pleistocene-Holocene fauna is scarce (Hoffstetter, 1971, De Porta, 1965; Bombin and Huertas, 1981; Correal 1981; Correal et al., 2005; Correal and Van der Hammen, 2003; Van der Hammen, 1965; Van der Hammen, 1992; Mayorga, 1996; Villarroel and Brieva, 1989; Villarroel et al., 1996; Villarroel and Clavijo, 2005; Gutiérrez, 2010) and because, with the exception of some of the works of Van der Hammen and Correal, they have been paleontological studies where the consideration of the biogeographical particularities has generally occupied a secondary place.

Conclusion

Within the framework of the discussion in this article, it becomes evident that it is necessary to provide elements making possible the research on the paleoindian groups that lived in the Colombian Caribbean, and particularly in the department of Atlántico, in order to document the early occupations of this area. Such elements are, in the first place, a methodological proposal allowing to document the patterns of land occupation and increasing the chances of locating archaeological sites with faunal remains, and, secondly, a characterization of the Pleistocene-Holocene fauna in order to get an overview of the availability of this resource. In this regard it should be noted that the project "Archaeology, environment and human adaptation in the Colombian Caribbean," directed by Elizabeth Ramos of the University of Los Andes, which deals, among other

things, with the study of the relationships between humans beings and their environment in the region and with the reconstruction of individual dietary practices, has planned to document the early occupations in the Colombian Caribbean.

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