Quaternary International 373 (2015) 34–44

Contents lists available at ScienceDirect

Quaternary International

journal homepage: www.elsevier.com/locate/quaint

Looking at the sea: Mt Site, River Plate Coast, Canelones, Uruguay

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ARTICLE INFO

Article history:
Available online 18 March 2015

Keywords:
Prehistory
Archaeology
Coastal site
River plate

ABSTRACT

From the source of the River Plate up to the border whit Brazil in the Atlantic coast, the Uruguayan littoral presents evidence of occupation by prehistoric groups.

Based on the Research Project "Prehistoric Occupations of the present Uruguayan territory by the River Plate (Department of Canelones and eastern Montevideo)", we have recorded, diagnosed and studied several archaeological sites which provide evidence of these occupations and thus broaden our knowledge on the socio-cultural aspects of the groups that generated them.

In this article we focus on the MT site, with respect to its ergologic, environmental and chronological aspects, to approach the characterization of prehistoric sites in an area that has been scarcely studied before and of which little is known from an archaeological viewpoint. This area is being affected by coastal dynamics, spoliation and explosive urbanization.

The analysis of archaeological material observed during fieldwork, complemented by the approach of created collections during the 20th century, has allowed for the first time, a global vision of the ergology and the site was thus characterized as a residential site.

In addition to the singularities of "MT" location, the first absolute dating was obtained for the study area, both allowing for an interpretation of the Human–environment relationship in times of sea level retreat during the late Holocene.

1. Introduction

This article has been written based on the archaeological investigation "Prehistoric Occupations of the present Uruguayan territory by the River Plate (Departments of Canelones and eastern Montevideo)" whose main objective is to gain new knowledge about human groups that inhabited the Uruguayan coast during prehistory. We aim to identify spatial occupation strategies by means of observing settlement patterns, ergology, and the usage of natural resources, chronologically defining occupations. Owing to the fact that the area has a limited archaeological record, mainly corresponding to mentions made by pioneers of Uruguayan archaeology, and to the large urban transformations which have totally or partially altered many of the sites, our research constitutes the first instance of systematically collected data in an area that is practically unknown from an archaeological viewpoint.

2. Regional context

2.1. Research area and environmental aspects

Uruguay is located between 30° and 35°S, 54° and 58°W. From a biogeographical perspective it is part of the Pampean Province (Cabrera and Willink, 1973). With an average temperature of 17 °C and an average annual rainfall of 1300 mm, its territory presents a geological mosaic with ages ranging from Proterozoic to Quaternary as well as a diversity of soils and a dense hydrographic network with a variety of watercourses of mainly dendritic patterns.

The area of research is located in the southern territory of Uruguay, more specifically in the departments of Canelones and Montevideo, in the area between the Carrasco and the Coronilla creek basins, covering mainly the coastal strip of the River Plate (Fig. 1). The special emphasis on the coastal zone is due to, among other variables, its broad network of relevant archaeological sites reporting a prolonged, intensive, and dynamical occupation by prehistoric groups. The existence of these sites is nowadays threatened due to explosive urbanization in the coastal strip of Uruguay, as elsewhere worldwide (Inda et al., 2011).

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http://dx.doi.org/10.1016/j.quaint.2015.02.029
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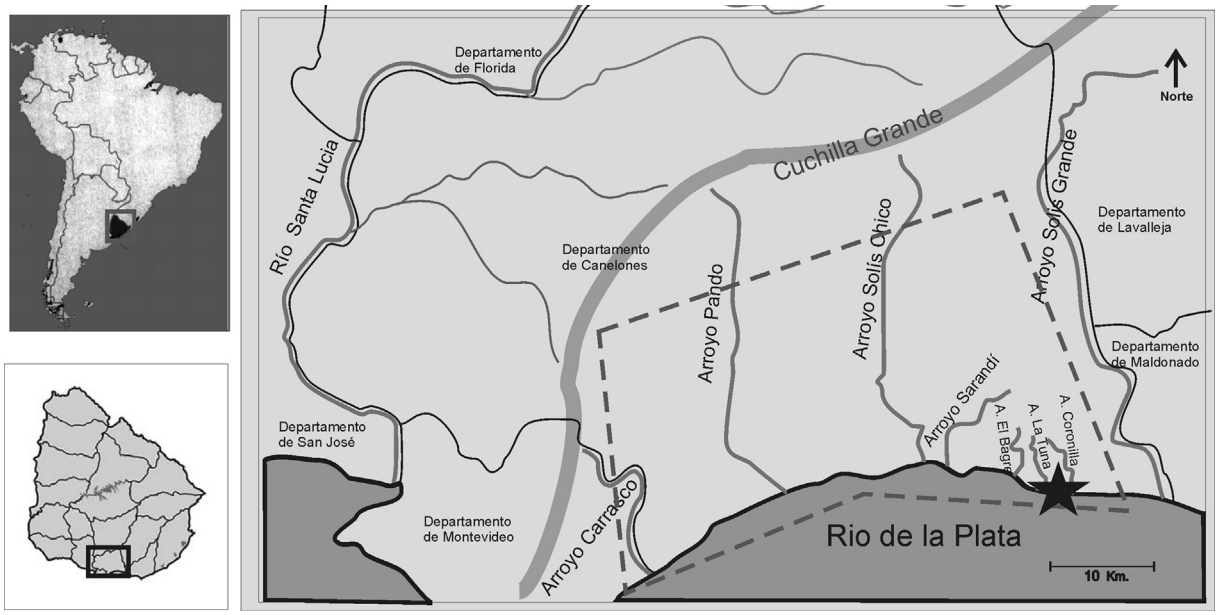

Fig. 1. Research area on the coast of the River Plate with MT site location.

This littoral stretch is part of a coastal plain which includes different extensions of quartz and quartzofeldspathic sandy beaches that form enclosed bays between rocky headlands, with dune extensions of aeolian origin currently stabilized or semi-stabilized with grasslands to shrublands. Sedimentary cliffs and plains, as well as lower reaches of the hydrographic basins of the creeks Carrasco, Pando, Solís Chico, del Bagre, de la Tuna and de la Coronilla are also found in this area. Some of these are associated with coastal lagoons, swamps, and marshlands. Away from the coast, sand dune fields gradually yield into grasslands which occasionally have rocky outcrops (Evia and Gudynas, 1995).

Given the variety of landscape units and their ecotones, many resources are available in just a few hours of walking. The sandy landforms found in this littoral come from marine, fluvial, and aeolian deposits which cover or alternate with sediments of the following continental formations: Fm. Montevideo (Middle Precambrian); Fm. Piedras de Afilar (Cambrian–Ordovician); Fm. Fray Bentos (Early Oligocene); Fm. Raigón (Late Pliocene to Middle Pleistocene); Fm. Libertad (Early and Middle Pleistocene); Fm. Dolores (Late Pleistocene) and with the following marine or littoral formations: Fm. Villa Soriano (Holocene) and Fm. Chuy (Pleistocene) (Preciozzi et al., 1985; Bossi and Navarro, 2001; Sporturno and Oyhantcabal, 2004; Goso, 2006; Martínez and Ubilla, 2009).

From a geomorphological standpoint, this land–water interface occurs within a fluvial-marine or estuarine system, and is exposed to complex processes where the interaction of erosion, slumps and sedimentation takes place (Goso and Goso, 2009), and where the fluvial discharge of the River Plate tributaries, the tide, winds blowing on the water surface, and currents play a significant role (Gómez and Martino, 2008; Viana, 2009). Over recent decades, the coastal environment has been reduced to a narrow strip, as a result of urbanization and afforestation with exotic species, among other anthropogenic activities.

2.2. Marine oscillations during the Middle and Late Holocene

Throughout the last millennia the coastal line of the Atlantic-Plate littoral has been modified, in general terms, due to continental (mainly cortical movements) and marine factors. The latter have been local (meteorological, hydrological or oceanographic), as well as regional and global (changes in the volume of oceanographic basins) (Bracco et al., 2011).

These changes on coastal geography, produced by sea level and climatic oscillations, have had a great impact on human occupations. For instance, as it retreats, the sea uncovers large areas of sea bed, which among other things, makes the exploration of islands easier, as they become connected to land or at least more accessible. Furthermore, marine ingressions lead to the salinization of freshwater environments, hence changing their flora and fauna.

For the purposes of this project and owing to the fact that studies and local data on these variations are particularly scarce, we will make reference to global and mainly regional studies. On the other hand, as most previous numerical dating for the archaeological sites located in Uruguay's current coastal strip (Table 1) belongs to a chronological range corresponding to the last 5000 years, we will focus on the last marine oscillations of the Holocene.

During the period known as Climate Optimum, towards 5500 BP, when the sea level rose, according to various researchers, to heights between +5 and +7 m above the current level, thus leaving under water a large part of the area that are presently beaches. Lagoons, swamps, and shoals were restructured, secondary lagoons were formed, and the flows of many of the present streams were remodeled. This period was characterized by an increase in temperature as well as in humidity due to increasing rainfall (Suguio, 1983; Isla, 1998; Angulo et al., 1999; Bracco et al., 2005; Beovide, 2009; Inda et al., 2011). This ingression, which was thoroughly documented throughout the Uruguayan littoral (Martínez and Ubilla, 2009; Rojas and Martínez, 2011), in particular with respect to the area of research, was located in a seaside resort called La Floresta (basin of creek Solís Chico, Department of Canelones, Uruguay), and a date of 4790 BP was obtained (Martínez and Ubilla, 2009:204).

Several authors claim that towards 4000 BP a period of dryness (Iriarte et al., 2004; del Puerto, 2009) and marine regression occurred. This process continued until the level of the current

Table 1
Absolute dating in Prehistoric Archaeological Sites in the Atlantic-Plate Coast of Uruguay.

Archaeological site	Location	^{14}C date	References
Tres Pinos	Paleoshore of the River Plate, in Punta Pereyra.	4020 ± 180 BP (URU 0510)	Lezama, 2008
M 8	Paleoshore of the River Plate, in Punta Pereyra.	4240 ± 80 BP (URU 0509)	Lezama, 2008
Ordeig	Border of paleo-lagoon in River Plate.	1560 ± 110 BP (URU 0481)	Beovide, 2009
Puerto La Tuna	Sandy Point in the lower basin of the Rio Santa Lucia.	4830 ± 70 BP (URU 0420)	Beovide, 2009
		700 ± 55 BP (URU 0442)	
Colonizacion	Paleoshore of paleo-lagoon in the lower reaches of the Rio Santa Lucia.	2370 ± 60 BP (URU 0310)	Beovide, 2009
Gambé	Border of paleo-lagoon in the lower reaches of the Río Santa Lucia.	2710 ± 60 BP (URU 0309)	Beovide, 2009
Punta Espinillo	Point in the River Plate.	3790 ± 140 BP (URU 09)	López Mazz, 1994
Buceo	Coastal site in the River Plate	2020 ± 60 BP (URU 0522) y	Erchini et al., 2009
		1950 ± 60 BP (URU 0523)	
MT	**Coastal site in the River Plate**	**2980 ± 55 BP (URU 0583)**	
Estancia la Pedrera	Coastal mound in Atlantic coast	1240 ± 40 BP (URU 0299)	López Mazz et al., 2009a
Cabo Polonio	Rocky headland in Atlantic coast	4881 ± 55 BP (AA711116)	López Mazz, 1995
		4360 ± 70 BP (URU 005)	López Mazz and Iriarte, 2000
		4100 ± 90 BP (URU 475)	López Mazz et al., 2009b
		610 ± 65 BP (URU 004)	
Cráneo Marcado	Coastal plain of Laguna de Castillos	3050 ± 50 BP (URU 136)	Pintos, 2001
Guardia del Monte	Coastal plain of Laguna de Castillos	4600 ± 60 BP (URU 205)	Pintos and Capdepont, 2001
La Esmeralda	Shell mound in Atlantic coast	3010 ± 50 BP (URU 234)	Bracco, 2003;
		3060 ± 90 BP (URU 233)	López Mazz and Villarmarzo, 2009
		3210 ± 50 BP (URU 219)	
		3190 ± 50 BP (URU 220)	
		3190 ± 80 BP (URU 231)	
		2360 ± 70 BP (URU 254)	
		2510 ± 50 BP (URU 253)	
		1000 ± 70 BP (URU 237)	
		1080 ± 60 BP (URU 230)	
		3280 ± 40 BP (URU 330)	
		3270 ± 40 BP (URU 331)	
		3300 ± 40 BP (URU329)	
La Coronilla	Coastal site in Atlantic coast	2930 ± 50 BP (URU 105)	López Mazz, 1995
		2740 ± 60 BP (URU 040)	López Mazz and Iriarte, 2000

coastline was reached. Regarding this, recent discussions show there is no agreement with respect to whether the decrease of sea level was gradual and constant or if it involved dramatic regressive events (Bracco et al., 2005, 2011; Martínez and Rojas, 2013). In various archaeological sites, these Middle and Late Holocene marine ingressions have generally been located underlying cultural levels (Lopéz Mazz, 1994; Beovide et al., 2004).

As of 3000 BP, a warm and humid climate started, where the trophic state of water bodies increased and beaches that until then had been underwater, emerged. The separation of bodies of water from the sea as well as higher humidity levels led to the transformation of many into bodies of freshwater (del Puerto et al., 2009).

Towards 2500 BP the sea level was 2.5 m above the current level (Suguio, 1983; Bracco et al., 1994; Beovide, 2004; Inda et al., 2011). The lithostratigraphic unit was locally named Punta de los Loberos by Navarro (1990). Given its characteristics, it is part of Fm. Villa Soriano (Late Holocene), which is made up of sediments deposited during transgressive events, and is associated with the coastal strip and low fluvial planes related to the River Plate (Spoturno and Oyhantcabal, 2004; Martínez and Ubilla, 2009; Rojas and Martínez, 2011).

As for the area of research, on the left side of the Carrasco creek (Department of Canelones), where there used to be sand quarries, deposits of fine grey sand with mollusks that correspond to Punta de los Loberos, dated 2490 ± 70 BP, were found. These deposits were covered by a level of coarse sand with pebbles and cobbles and finally by modern sand dunes (Bracco et al., 1994). Furthermore, during this research a marine deposit was dated to 2850 ± 60 BP, which gives evidence of a higher sea level at the time, in El Buceo site (Department of Montevideo) where a prehistoric human burial was also found (Erchini et al., 2009).

There is agreement that towards 2000 BP the present sea levels were reached, in an overall environmental context similar to the current context (Beovide et al., 2004; Inda et al., 2011). Nevertheless, a warm and humid climatic pulse is recorded towards 1000 BP, coincident with the Medieval Warm Period, and a cold and arid period between 500 and 200 BP, corresponding with the Little Ice Age (del Puerto, 2009).

3. Materials and methods

3.1. Prehistoric Archaeological Sites in the Atlantic-Plate Coast of Uruguay

Along a greater part of the 660 km of the Atlantic-Plate Uruguayan coast several archaeological sites provide evidence of intensive and/or prolonged presence of prehistoric groups. Even though the pioneers of national archaeology have covered and identified important sites in the Uruguayan coast since the end of the nineteenth century (e.g. Figueira, 1892; Seijo, 1930; Maruca Sosa, 1957; Baeza et al., 1974; Tuya, 1977), it was not until the last decades of the twentieth century that systematic research began (Martínez et al., 1992; López Mazz, 1995; Beovide, 2004). As a consequence of these investigations, we can now affirm that prehistoric occupation of the entire littoral dates back at least to the Middle Holocene, by hunter-gatherer-fishermen groups that reached different degrees of social complexity. In this occupation, rocky headlands, as well as the mouth of streams draining into the Atlantic-Plate coast and borders of lagoons or coastal paleo-lagoons were preferred as strategic places for the procurement of coastal resources (López Mazz, 1995; López Mazz and Iriarte, 2000; Pintos, 2001; Beovide, 2009; Erchini et al., 2010).

We can infer that there were occupations prior to the Middle Holocene, given the existence of nearby sites further inland dated around the Pleistocene–Holocene transition (*vide* López Mazz, 2013) and the recovery of diagnostic archaeological materials such as "fishtail points" found by collectors in coastal sites (Bosch et al., 1974) which indicate early populations. However, we are yet to identify archaeological contexts in the coastal strip that can reliably be connected to this period.

The fact that no early archaeological sites have been found in the current coastal strip is due to the fluctuations in the coastline that occurred towards the end of the Pleistocene and its transition into the Holocene, among other variables, as broad territories that were available at that time are currently underwater. The Holocene marine variations may have altered early existing contexts in currently emerged lands. Although until recently the most widespread idea was that coastal sites were typically "superficial", increasingly systematic research has identified and approached a number of stratified sites where the presence of paleosols is frequently related to human settlements (López Mazz, 1995; Beovide et al., 2004; Lezama, 2008; Erchini et al., 2011).

Many archaeological sites throughout the Atlantic-Plate coast have been registered. However, sites where systematic research was carried out and where numerical dating was possible are very scarce.

Earliest dating yielded chronologies that date to around 5000 years, and re-occupations until immediately before the European conquest were also recorded (Table 1). Some of these occupations were mentioned in the sixteenth century chronicles. These sites indicate early and continuous exploitation of coastal resources such as the South American fur seal (*Arctocephalus australis*); the black drum (*Pogonias cromis*) and a diversity of mollusc species (*vide* Chagas, 1995; López Mazz, 1995; Beovide et al., 2004; Beovide and Lemos, 2007; Lezama, 2008; López Mazz and Villarmarzo, 2009; López Mazz et al., 2009b). The range of greater intensity of occupation according to the dates (Table 1) is between 4000 and 2500 BP.

3.2. Problems in the sites located in the present Uruguayan coast line

Notwithstanding the singularities of the cultural group which *are per* se decisive on the type of archaeological record identified, the sites located on the coastal strip have had their composition irreversibly altered due to a series of factors, events and activities (formation processes *sensu* Schiffer, 1987). Among such factors are coastal dynamics, environmental conditions which promote differential conservation of archaeological materials, systematic spoliation occurring since the end of the nineteenth century, and urbanization since the beginning of the twentieth century.

Most coastal sites are located in mobile sandy landforms. These sites, exposed depending on the winds, present palimpsests, where relatively homogenous deposits of varying thickness contain materials of diverse age forming assemblages, but of no value as cultural contexts (López Mazz, 1994). Many researchers have had difficulties in determining the limits of these sites, which has led some of them to be named "archaeological locality", given their characteristics as a time-space continuum (López Mazz and Bracco, 1992).

In certain areas along the Atlantic-Plate littoral, there are outcrops of sedimentary formations that retreat systematically (active sand cliffs) as a result of strong waves. These formations might contain archaeological sites in their higher stratigraphic units. This erosion not only produces a significant displacement of archaeological material but also destroys primary contexts.

Nevertheless, urbanization and related activities are the main factors that have, in the last one hundred years, drastically altered the coastal strip and simultaneously the sites located there. These archaeological sites have not only had their space altered, which hinders delimitation with respect to spatial continuity of materials, but also afforestation and construction affected only certain areas, causing differential circulation or displacement of archaeological materials.

Reclamation processes (*sensu* Schiffer, 1987) have also had a major influence in the alteration of the sites. Throughout the first half of the twentieth century, it was common practice for archaeology pioneers and amateurs to go through inter-dune areas collecting archaeological materials found in the surface of the sites. They collected primarily well-shaped artifacts (projectile points, bolas stone, maces, mortars, mills, etc.) and artifacts noted for their aesthetic value (decorated pottery). This is why the type of material found in sites investigated nowadays is mainly debris from the lithic production process and scarce potsherds.

Thus, given the current conservation state of the sites, inferring settlement patterns or identifying areas of activity would be risky. This hinders identification of different technological and productive activities, such as, the inability to identify ergologic assemblages of artifacts specialized for capturing and processing coastal resources. With respect to organic materials, the type of substrate of coastal sites and the conditions to which they are exposed do not favor their preservation, producing a differential preservation of materials, those of inorganic origin prevailing. This remarkable absence of organic remains makes it difficult to date and identify economic and productive activities. As noted by Moreno (2006) for the Uruguayan coast, archaeological sites provide poor preservation of archaeofaunal remains, except in shell mounds where this tendency is inverted, because the presence of calcium carbonate promotes the preservation of some materials.

For the most part, these settlements have been interpreted as lithic manufacturing sites or sites where only this material is found. Nevertheless, the difficulty of preservation of organic materials casts a doubt on this deep-rooted interpretation.

3.3. MT site

MT site is located between de la Tuna and de la Coronilla creeks, both running north-south into the River Plate. This site is situated between the first and second body of dunes at a height of +10 m asl, in an area with public access at only 200 m from the present coast line of the River Plate, in the Araminda seaside resort (Figs. 2–4).

Both de la Tuna and de la Coronilla creeks have their sources in the Piedras de Afilar hillsides. These elevations rise to 125 m asl and are one of the highest points in the research area.

The MT site presents the general features shared by all the coastal sites we have investigated and by other sites approached by colleagues in other coastal areas. The site was identified in 2008 during the initial prospection and several interventions (surveys and excavations) were made until 2014 (Fig. 5).

Particularly, MT site was primarily characterized when we presented the first results of the archaeological survey (Erchini et al., 2011), but we have recently broadened the number of interventions in it, demonstrating the existence of a primary context formed by a hearth associated with lithic artifacts (Fig. 6). The identification of this combustion structure constitutes a significant find owing to the possibility of dating the site, and the further inferences it offers. This is especially important in an area which presents difficulties for numerical dating, given the limited archaeological record in relation to material items and the low level of organic matter in sediments.

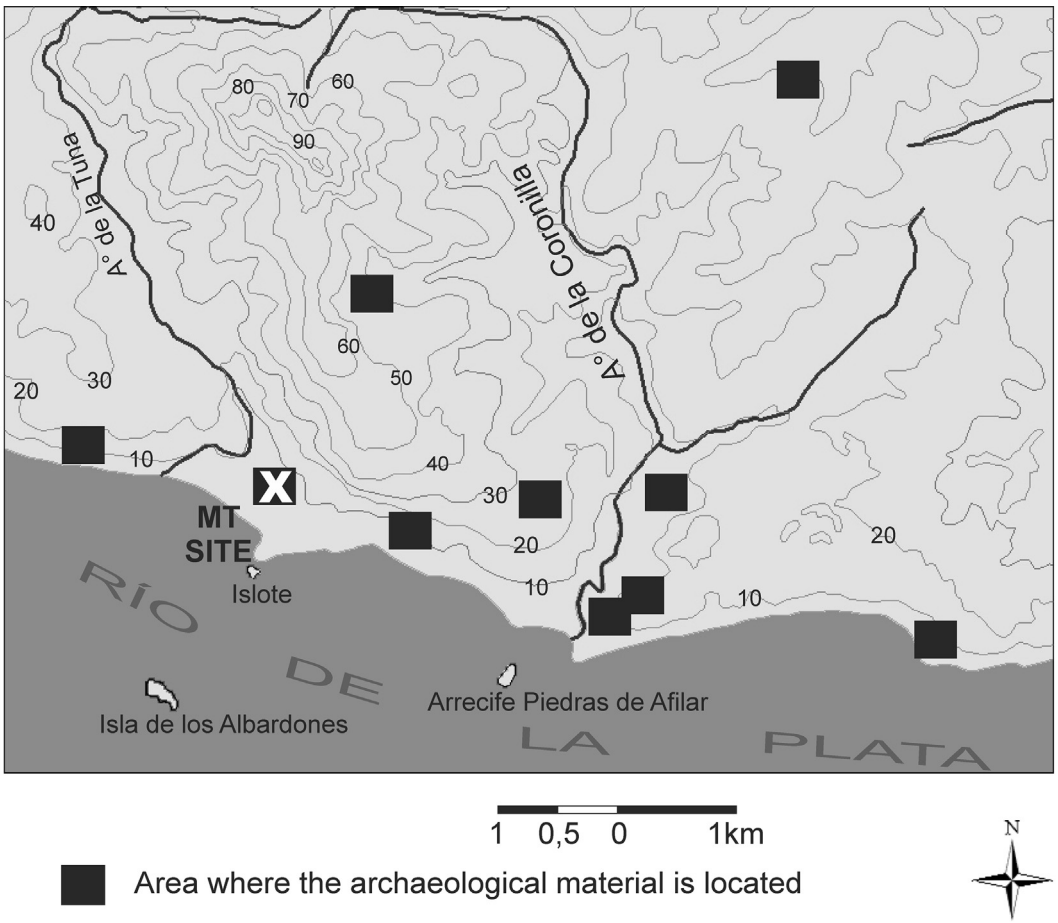

Fig. 2. Location of archaeological sites in the research area.

Fig. 3. Current status MT site.

Fig. 4. Landscape of MT site.

The dated sample was collected in 2010 and processed at ^{14}C Laboratory – Chemistry School at the University of the Republic (UDELAR). This dating was financed by the Sectoral Commission of Scientific Research, from the same University.

3.4. Cultural materials

Cultural materials analyzed for this paper came from those recovered during field work carried out during 2008 and 2014 by our team, and also from public collections. The technical reserve of the National Museum of Anthropology of Uruguay has an important number of cultural materials coming from the area where the site studied here is located (knapped, polished and pecked lithic artifacts and pottery) recovered between 1924 and 1967 by professor Francisco Oliveras, whose recording corresponds to the area comprised between the la Tuna and Laguna Blanca creeks (currently denominated de la Coronilla creek). The different geographical references mentioned by Oliveras, make reference to the extended sandy area that at the beginning of the twentieth century separated both streams and of which we have knowledge based on photo analysis and photo interpretation of aerial photographs of the area and photographs of the first few decades of the twentieth century.

At present, we have analysed 2127 artifacts, of which 1019 belong to Oliveras Collection that was recovered between 1924 and 1939, and the other 1108 results are from our own interventions. The amount and characteristics of the pieces that form part the Oliveras Collection make it significant with respect to the archaeological sites of the research area. However, there is a relevant divergence with respect to the lithic ergology and percentages of the raw materials present between this collection and the cultural material observed in the field. This is the reason why we deemed it necessary to analyze both archaeological materials, those currently identified at the sites and those which form part of public and private collections. For this purpose, we developed a methodology according to the situation, particularly bearing into account the limitations of the approach of non-systematic collections.

About the ceramic material, it was under represented on Oliveras Collection being mainly small pieces, and was not recovered in our fieldwork. Bone material is not represented in Oliveras Collection or in our fieldwork. In summary, the material recovered in our fieldwork is lithic material only.

4. Results

4.1. Spatiality

The site currently covers an area of approximately 10,000 m^2 in a zone of public access (Fig. 3). However, if we take into consideration the limitations about the difficulties to test urban zones near

Fig. 5. Excavation in the MT site.

Fig. 6. Details of the hearth in association with lithic materials.

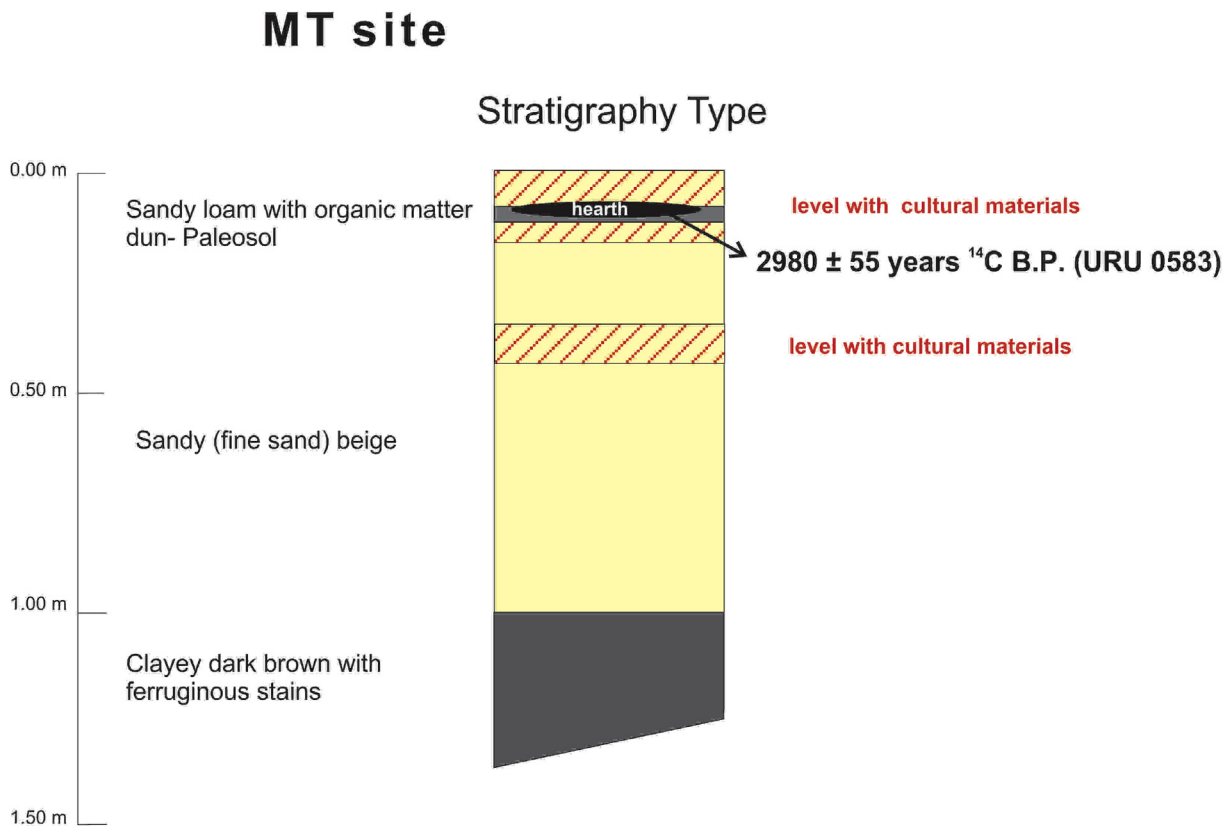

Fig. 7. Stratigraphy of MT site.

the site, its original area might have been larger. We can hypothesize that this site might have formed part of a larger site, which would have covered the extensive sandy area that can be seen in aerial photographs of the 1930s, and that at present is disaggregated. With respect to its location, it is located between the first and second trend of dunes, near a rocky headland that extends out into the sea.

From the ecological viewpoint, these headlands constitute important centers for the development of trophic nets, and hence, important areas for food supply which have been identified as a constant in relation to prehistoric settlements (López Mazz, 1995; López Mazz and Iriarte, 2000). Furthermore, two small islands identified as of the Albardones (levees) are located opposite to the site, at a distance of approximately 2 km. These islands are the continuation of the series of hills of Piedras de Afilar which emerge from the sea (Carbajal, 2008). These islands constitute at present one of the most important fishing sites in this coastal area.

4.2. Stratigraphy

The MT site is located in a sandy landform where archaeological material is found on surface as well as in stratigraphic layers. The different stratigraphic profiles analyzed show that the sedimentary matrix is basically formed by fine to medium grain sand that shows macroscopical evidence of soil formation processes, in the color changes and presence of ferric mottled patches related to water table oscillation.

Evidence of two levels with cultural material was observed on analysis of identified stratigraphic units. The upper level is associated with an intermittently observed paleosol in some parts of the site, where the hearth structure is located in association with lithic artifacts. The second level with cultural material is separated from the first by a hiatus of the same matrix (fine and homogeneous sand) 0.20 m thickness (Fig. 7).

4.3. Chronology

One date obtained from sediment with charcoal corresponding to the hearth in association with lithic materials of MT site yielded a chronology of 2980 ± 55 BP (URU 0583). This is the first numerical date obtained for this area. This dating is in accordance with the range of greater intensity in the prehistoric occupation of the Atlantic-plate littoral of present day Uruguayan territory.

4.4. Ergology

There are remarkable differences between the cultural materials recovered from field interventions and those in the technical reserve collected during the first half of the twentieth century, especially in the basic shapes and the degree of shaping of tools. With respect to raw materials, although they are the same, there is a difference in percentages. While most of materials recovered at

Table 2
Raw materials.

	Collection	Field	Generally
Siliceous	63%	3%	29%
Igneous rocks	17%	2%	9%
Quartzite	3%	6%	5%
Schists	3%	2%	2%
Quartz	1%	85%	49%
Granitoids	12%	2%	6%
Others	1%	0%	0%

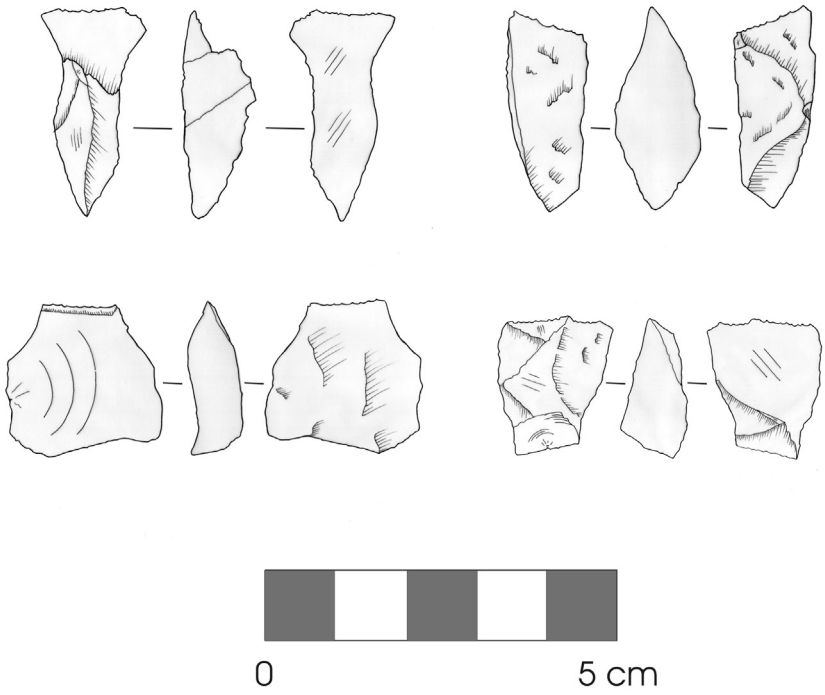

Fig. 8. Small quartz tools.

present in the field correspond to quartz (85%), the materials in the collection present a low percentage of this material (1%). Raw materials such as silicified limestone and opal represent a low percentage of materials recovered in test pits (3%) but prevail in the collection (63%) (Table 2).

The analysis of materials recovered in the field indicates that all stages of lithic production process were performed in the site (*sensu* Collins, 1975) and we have registered lithic cores (2%), flakes (58% which includes, initial, primary and secondary flakes, the latter prevailing), artificial fragments (35%), and tools (5%). However, there is a remarkable lack of lithic cores and tools. The great majority corresponds to flakes and artificial fragments. Those tools recovered show little shaping and most have been defined on the basis of direct use of the cutting edges.

Several small quartz tools with little or no shaping are remarkable within this set. These are flakes and artificial fragments, showing in some cases, the direct use of cutting edges (Fig. 8). This kind of artifacts has been described by Flenniken (1981) for the West United States. He describes them as quartz microliters, possibly hafted for processing coastal resources, specifically fish. The same author notes that the manufacturing of these artifacts implies little time, an expeditive technology, and low maintenance during use.

On the other hand, many materials in the field present mechanical erosion or weathering signs, but in the same level other materials with active cutting edges were observed, which would indicate differential time exposure to natural agents, a mixture of diachronic contexts and/or selective re-use or maintenance of some objects along time. Among the materials that are at present recovered from the site, 90% are shorter than 6 cm length, dominantly between 2 and 4 cm long. More than 20% of artifacts present cortex or natural surfaces, in many cases rounded pebbles and cobbles.

Analysis of materials kept in the museum reserve yields significantly different results, which corresponds to the selective collecting that originated the collection. Well-shaped artifacts prevail, obtained either by knapping, polishing, and/or pecking (Table 3).

As for knapped artifacts (scrapers, side scrapers and pointed tools among others), their average sizes are over 4 cm in length and are predominantly manufactured in siliceous limestone and opal. On the other hand, there is a great variety of polished and/or pecked artifacts (bolas stone, mills and grinding stones among others) which go from those discarded for fractures which prevented their original function, going through those which were recycled (e.g. bolas stone re-used as grinding stones), to artifacts that were abandoned while still active. Furthermore, the great amount of active artifacts found in the site may indicate its abandonment, although we have yet to identify the cause.

Among the polished and/or pecked material, we have identified three subspheroids that because of their features correspond to net sinkers (Suarez, 2001:441; *vide* Baeza and Barrios Pintos, 2002:24; López Mazz and Gascue, 2007:98). They are small, lightweight ($\leq$ 65 g) and with one flat section (Fig. 9).

Specifically related to the field recovered materials, in the two levels with archaeological material, the analysis shows that there are not significant differences in raw materials and sizes. However, there are differences between amounts and basic shapes of the material. In the upper level, the hearth area, more material density with debitage supremacy exists. The lower level contains mainly instruments.

Table 3
Percentage of materials recovered in the field and in the collection.

	Collection	Field	Generally
Tools	84%	5%	43%
Cores	14%	2%	8%
Flakes	2%	58%	31%
Artificial fragments	0%	35%	18%

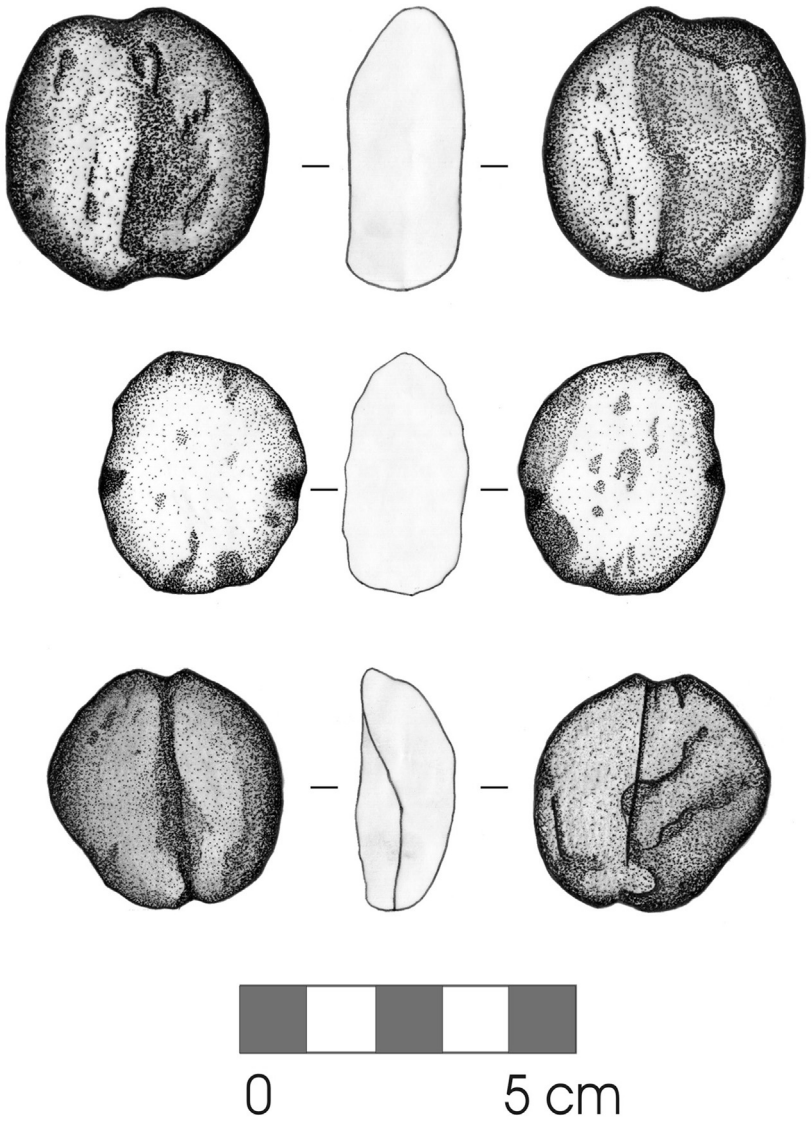

Fig. 9. Net sinkers recovered in the research area.

Table 4
Tools's tipology.

Category	Percentage	Tipology
Scraping tools	12.78%	Scrapers
		Small quartz tools
Cutting tools	56.54%	Knives
		Side scrapers
		Retouched flake
		Unretouched flakes with marks of use
Pointed tools	4.65%	Burin
		Borer
Projectile points	2.32%	Arrow points
		Lance points
Mace	0.44%	Mace
Spheroids and subspheroids	14.19%	Bolas stone with groove
		Bolas stone without groove
		Net sinkers
Artifacts related to the grinding	7.53%	Mills
		Mortars
		Grinding stone
		Multifunctional tool
"Sobadores" (tool for leather knead)	1.55%	"Sobadores"

Scarce potsherds indicate that pottery presents utilitarian characteristics. The most common are spherical to sub-spherical containers of 20 cm maximum diameter. The majority lack any decoration, and the main temperings are medium to coarse sand and crushed quartz.

The complete analysis of materials (those recovered in the field as well as those from the collection) (Table 4) indicate that in the site a wide variety of activities were performed, evidence by the finding of artifacts in the process of elaboration and its debris, active artifacts, discarded artifacts, and recycled artifacts. The latter indicate a permanence or recurrence to the site, which provided, among other things, a source of raw materials (as artifacts to be reused and rounded pebbles and cobbles).

4.5. Lithic materials supply sources

According to analysis performed, lithic raw materials used by the prehistoric groups in the area were quartz, silicified limestone, quartzite, amphibolite and rhyolite for knapped artifacts, plus granites for polished and/or pecked artifacts (Table 2). Direct survey in the field yielded a variety of rocky outcrops which potentially

could be raw material supply sources. Quartz, granite, and quartzite are found a few meters away from the site. Silicified limestone is found 40 km away. Volcanic rocks (rhyolites) and schists (amphibolites) are found 30 km and 60 km away respectively.

However, if we take into consideration that 20% of the materials analyzed correspond to coastal rounded pebbles and cobbles, distances are greatly shortened, as these beaches are characterized by the presence of numerous rounded pebbles and cobbles from 0.05 m to 0.20 m (increasing in size towards the Atlantic beaches) of all raw materials present in the archaeological artifacts. These secondary sources of raw materials are found a few meters of the site, or even within the site.

5. Discussion and final comments

According to the characteristics and problems observed in the sites located in the present coastal, the finding in MT site of a primary context formed by a hearth structure associated with lithic artifacts opens up a wide variety of opportunities to focus on cultural and chronological aspects and occupation strategies for this area. One of the main questions we try to answer in this research refers to the fact that although we investigate archaeological sites which are located in the present day coastal strip, are we really investigating coastal sites, as products of systemic settlements related to the coastline?

In that respect, the occupation dating for the site some 3000 years ago, according to different paleoenvironmental models analyzed, is related to coastline retreat to the current position. This site corresponds to a coastal site, as its location is directly related to the coastal strip during its occupation or occupations.

On the other hand, material evidence found with respect to reuse of coastal rounded pebbles and cobbles as lithic raw material sources, indicates some degree of economic/productive association to the coast. In addition, in the ergology we found net sinkers and small tools on quartz, usually linked to coastal resource processing.

We may suppose then, that some 3000 years ago, a hunter-gatherer group inhabited this landform (at that time a large sand deposit of an extent of several km^2) during a period when marine retreat made available greater surfaces of rocky outcrops which today are visible in the coast, and the small islands which are located near the site. This larger amount of rocky surface made it possible for new species to establish, and favored the circulation of new energy and nutrients increasing the levels of links and trophic levels, providing more resources to ancient inhabitants.

This biodiversity and the abundance of fresh water from the two streams that surround the site and the nearby presence of primary and secondary lithic sources, characterized this area as an attractive node of resources supply to be used by prehistoric populations, possibly becoming a logistic point (*sensu* Binford, 1980). If we take into consideration the strategic location and the type and quantities of archaeological materials the site yielded, which indicate that different activities such as food processing, artifact manufacture and maintenance were performed there, we may characterize it as a residential site or base camp.

On the other hand, the use of lithic resources, mainly represented by local raw materials from primary as well as secondary sources, indicates a low mobility of the group, at least with respect to the obtaining of this resource while staying at the site. Considering re-used and recycled artifacts, we may consider the site itself as a source of lithic raw material.

Different lines of evidence indicate re-occupations and/or a prolonged occupation of the site. On the one hand, two levels with cultural material identified reveal the re-use of the site. On the other hand, tools which were recycled or maintained, such as the mills that show an exhausted grinding surface owing to fracture along the diameter and another fully active surface and fractured bolas stone re-used as active grinding tools, indicate the permanence of these tools in the systemic context.

Although at this point of the investigation we cannot determine precisely whether this is a maintenance task performed by the same or a different user shortly after breakage, or a reclamation process (*sensu* Schiffer, 1972) of a later occupation of the site, they still indicate a re-occupation and/or a prolonged occupation of the site. This numerical dating obtained is in accordance with the range of greater intensity in the occupation of the Atlantic-plate littoral of present day Uruguay. Based on the dating of nearby sites and historical documents, it could also have been inhabited until the time immediately preceding the contact period.

Acknowledgements

We would like to thank Elena Saccone, Oscar Marozzi, Sara Campos, Alicia Lusiardo, Adriana Gutierrez and Sol Ines Zunin.

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