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Human ranking of spaces and the role of caches: Case studies from Patagonia (Argentina)

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ABSTRACT

Storage of artifacts is a common behavior among hunter-gatherers. Archaeologically, caches have been identified in different places and time periods. In this paper, we focus on the discussion of the role of caches recovered along the southern boundary of the Deseado Massif, Argentine Patagonia. Two caches, attributed to the colonization of this environment have been identified. Cache information is integrated into the known archaeological record of this space and spaces nearby and compared with data on raw material availability. In order to evaluate the location of the caches and understand human strategies of landscape utilization during this time period, we use GIS approaches along with available paleoenvironmental data.

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1. Introduction

Hunter-gatherers make use of different resources available in the space where they live. The distribution of resources can have an effect not only on hunter-gatherers' behavior but also on the characteristics of tools used for procuring these resources (for example Binford, 1978, 1979; Torrence, 1983; Bousman, 1993; Kelly, 1995; Hoffecker, 2002). Consequently, the resources used can vary according to the degree of knowledge of the space where hunter-gatherers live (among others Kelly, 2003; Meltzer, 2003; Rockman, 2003). In this sense, there can be a change in exploitation strategies from the initial exploration of the space until the moment when hunter-gatherers have occupied all the available spaces (i.e. effective occupation phase according to Borrero, 1994–95; see Franco, 2004).

The lack of knowledge of local resources could have affected

human survival during the initial occupation of an area and humans probably used a variety of different strategies in order to avoid this risk. The spaces used, prioritized and selected could have varied over time. In the case of the peopling of Patagonia, Borrero (1994–95), for example, has suggested that during the initial occupation of an area, hunter-gatherers would have followed rivers (Borrero, 1994–95). In contrast, some spaces, such as high plateaus, would probably have been incorporated into the home ranges of hunter-gatherers much later (Borrero, 1994–95).

As humans use a space, they modify it. They can discard or store artifacts, make paintings and engravings and, for example, build structures. In this paper, we focus on the role of caches and the information they can provide about the human ranking of spaces in the southern region of the Deseado Massif (SDM), Argentine Patagonia (Fig. 1).

2. Regional setting and background

2.1. The regional setting

The Deseado Massif is a morphostructural region shaped by volcanic activity during the Jurassic (among others, De Giusto et al.,

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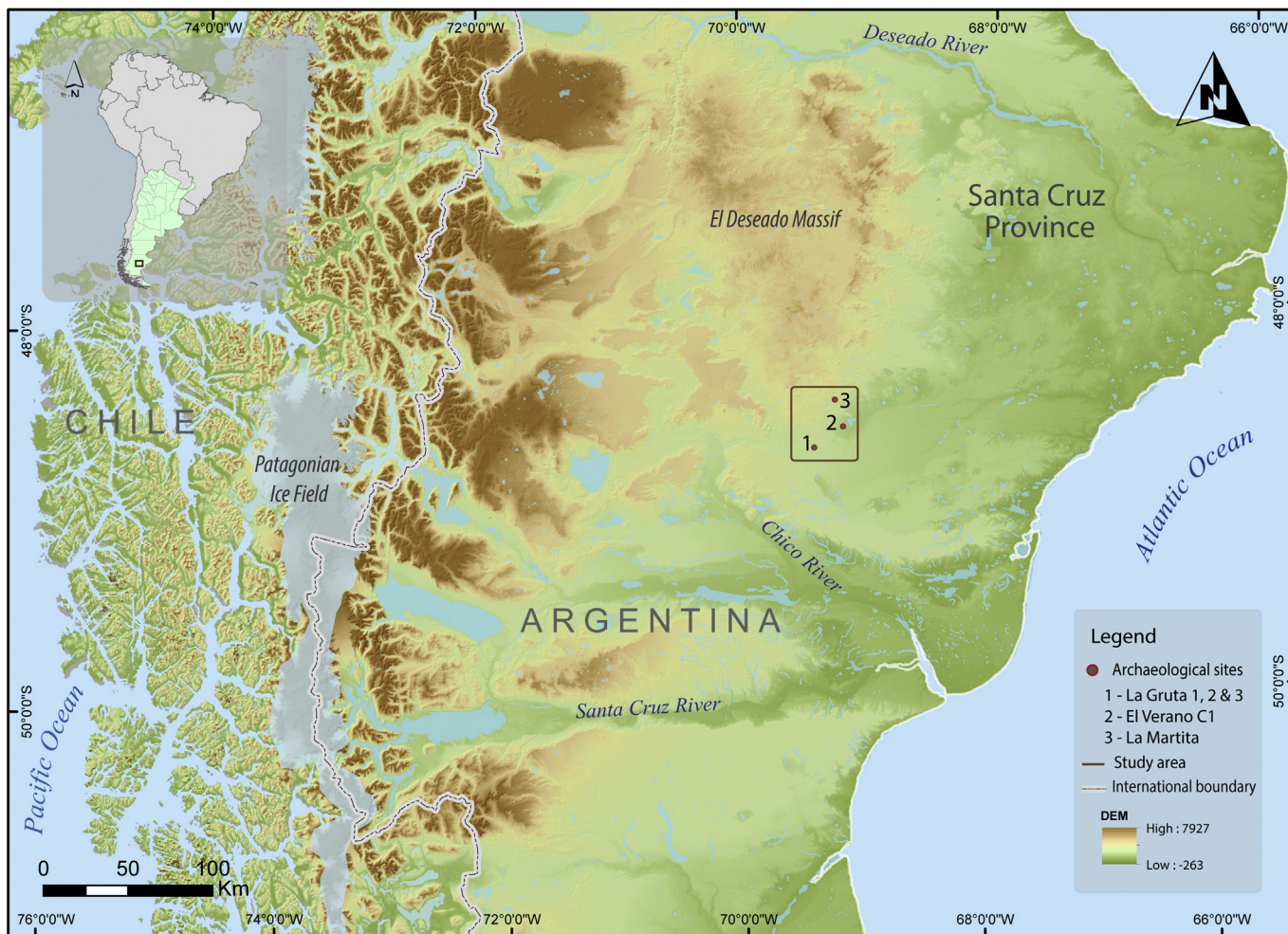


Fig. 1. Study area and main archaeological localities: 1. La Gruta, 2. El Verano, 3. La Martita.

1980). It has mineral veins that penetrate the volcanic and sedimentary bedrock, numerous rockshelters/caves, and raw materials of excellent flintknapping quality (e.g. Panza et al., 1998; Cattáneo, 2000; Panza and Haller, 2002; Miotti and Salemme, 2004; Cattáneo, 2004; Echeveste, 2005; Paunero et al., 2007; Hermo, 2008; Paunero, 2009; Skarbun, 2011). To the south, there is an abrupt change in environment, with more open landscapes to the south and southeast, and basalt outcrops to the south-southwest. Fig. 2 shows differences in soil use today, which reflect environmental changes in the past. The availability of water and high quality siliceous rocks varies spatially both within the Deseado Massif and in spaces to the south. Consequently, our study area is an important geographic boundary.

According to the Köppen climate classification, the area corresponds to a Cold Desert Climate (*BWk*), with an average annual precipitation of 185 mm and a mean annual temperature of 8.5 °C, being the average number of precipitation days per year 55. Its dryness is related to the effects of the low annual precipitation and the strong prevailing winds –Southern Westerly Winds (SWW)–, which are stronger during the summer but weaken in winter (Paruelo et al., 2000; Garreaud et al., 2009; Mancini et al., 2012b). During the past, variations between more humid and more arid periods were recognized in our study area, which can be related to the variation in the core region of the SWW (among others, Brook et al., 2013, 2015; Mancini et al., 2012b)

Water is unpredictable in time and space; however,

approximately 65 km to the south is the Chico River, a permanently stream flowing from northwest to southeast. The Chico River originates in the Pampa del Asador region, the main source of secondary (the primary source has not been found) black obsidian for Central and South Patagonia (Espinosa and Goñi, 1999; Stern, 2000). The Pampa del Asador source extends eastwards (Belardi et al., 2006) to within 100 km of our study area. In addition, only 12 km south of the Deseado Massif, another secondary source of Pampa del Asador obsidian has been discovered containing pebbles up to 5 cm in diameter (Franco et al., 2017a).

In addition to these variations between the SDM and spaces to the south and east, there are geomorphological and raw material variations within the Deseado Massif (Hermo, 2008; Hermo et al., 2015; Franco, 2012, 2015).

This paper focuses on evidence from three archaeological localities within the SDM, all within 25 km of each other: La Gruta, El Verano and La Martita (Fig. 3). La Gruta and El Verano are close to the southern boundary of the SDM, while La Martita, located in a canyon, is further from it.

Rockshelters and caves are more abundant near La Martita than at La Gruta and El Verano (Fig. 4). Most are in ignimbrite, and variations in the silicification of the rock means that the shelters vary in degree of preservation (Iglesias personal communication).

There are also variations in water availability. La Gruta is an area with abundant natural depressions, many occupied by mostly seasonal, shallow lagoons after rain. Many of the lagoons have

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